

SECOND CARNEGIE INQUIRY INTO POVERTY
AND DEVELOPMENT IN SOUTHERN AFRICA

Measuring Poverty in Rich
and Poor Countries

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I. INTRODUCTION

There is, of course, no objective "scientifically correct" concept of poverty, so one ought not to be too pedantic about precisely which concept should be used in attempting to measure poverty. One knows when one sees an elephant without being able to define it and the same applies to poverty in many contexts. There must always be an arbitrary element in the selection of the concept to be used, and one must avoid the dangers of reification of abstract concepts. On the other hand, the fact that some definitions of poverty may be as valid as others does not mean that the definition can be left imprecise. For in that case one would not even know exactly what it is one is measuring and would not be able to make comparisons between poverty in different situations as a basis for any sort of valid inferences concerning whether it is worse in one than in the other or whether policy to alleviate poverty is having any impact. Of course, there are innumerable other obstacles to making such inferences, but one should not add to them by *imprecise* definitions of what it is one is measuring on the grounds that any definition is essentially arbitrary. The two issues are quite distinct.

Hence one has to try to steer a careful path between, on the one hand, excessive concern with conceptual validity and precision and, on the other hand, excessive vagueness and use of implausible assumptions and bad data. The former leads to inaction and the latter undermines the validity and credibility of any analysis based on poverty measurements. The discussion in Section III of this paper, therefore, which is concerned with some basic conceptual issues in poverty measurement, is designed not so much to say which is the "correct" concept, but to elucidate some of the conceptual questions that arise immediately one tries to make the definition precise.

How one answers these questions and how far one goes in attempting to apply a very precisely articulated definition of poverty depends partly on the particular purposes for which the estimates are required. In Section II of this paper, therefore, I shall briefly distinguish between certain major uses to which poverty estimates are often put. The items in the following list are, of course, neither exhaustive nor mutually exclusive.

II. THE MAIN PURPOSES OF POVERTY ESTIMATES

(i) mobilising resources to combat poverty

Estimates of poverty are often important in order to obtain public support for efforts to combat it. This applies both at the international level and at the national level. For example, the World Bank's shift of emphasis, in the early 1970s, in favour of projects that had some impact on the poor in the countries to which it gave loans, was accompanied by efforts to quantify the magnitude of the world's poverty problem. For this purpose it probably did not matter very much how accurate was the Bank's estimate of world poverty, which was in the 700 million region. Whether a different methodology from that actually used (the "Ahluwalia, Carter, Chenery" estimates, hereafter referred to as the "A-C-C" estimates)[1] would have led to a figure of 500 million or 900 million was not all that important:

Whether the concept of poverty in the abstract makes much impression on the rich is, however, another matter. It may well be that much greater effect is made by estimates of the numbers of people who are hungry or without shelter or basic water or sewage or other "basic needs"; a concept that is dealt with in the paper to this same conference by Paul Streeten. It is probably easier for rich people to imagine what deprivation of these items really means; for they may simply think that being "poor" implies that one cannot afford a yacht or a skiing holiday in St Moritz every year.

The use of poverty estimates as a means of mobilising support - internationally or within any country - for measures to combat poverty cannot be sharply distinguished, however, from other uses of poverty estimates discussed below. For example, these include the use of poverty estimates to allocate the resources available and to monitor the efficacy of anti-poverty policies. And evidence concerning the allocation and the efficacy of anti-poverty policy

may also be a most important item of information in the non-stop struggle to increase the resources made available for poverty alleviation. Donors like to know that their money is going to the people who need it and that it is having its intended effect. This requires much more accurate and comparable estimates of poverty -- both across regions, socio-economic groups etc: and across time -- than the type of aggregative estimates that are used simply to give some idea of the order of magnitude of the poverty problem in the world as a whole or in individual countries or regions.

(ii) resource allocation

1. At the international level, better estimates of poverty can

- (a) improve the allocation of resources among countries and projects;
- (b) improve the design and execution of projects in such a way as to take fuller account of their poverty impact; and
- (c) be used as inputs into research studies, such as those showing the relationship between poverty, on the one hand, and alternative growth strategies on the other hand, which are designed to influence policy with respect to project selection and to development strategies aimed chiefly at poverty alleviation.

2. Similarly, at the national level, better estimates of the severity of poverty, its location, the groups in the community most affected, the relationship of poverty to certain characteristics of these groups and so on, helps national governments to make corresponding adjustments to:-

- (a) their budgetary allocation;
- (b) the distribution of transfer payments designed to help the poor;
- (c) the provision of public services - notably those supplying basic needs; and
- (d) forms of market intervention (such as credit policy, pricing policy of public services, and so on).

It is obvious that for these resource allocation purposes one can rarely be satisfied with aggregative estimates, where - at least it may be claimed - the errors may cancel out. Here what is required is estimates by detailed socio-economic groups, and often by location and other characteristics determining the causes of their poverty, its duration, and so on. Furthermore, comparability is vital. Finally, the estimates required under this heading may

often not need to be in the form of some homogeneous concept, such as "income", at least not among the very poor, or the poor in most developing countries. What may be more relevant here is an estimate in terms of deprivation of some basic need. If people are lacking in water supplies within a reasonably accessible distance, and one is appraising a project to lay on drinking water, it is absurd to go to a lot of trouble - and use all sorts of dubious assumptions and methods - to estimate their income in U.S. dollars in order to decide whether they are poor enough to warrant assistance in this form. The fact that they have no readily available supplies of water means that they are "poor"; the characteristic in question adequately defines the group. It is not as if one was contemplating a project designed to ensure that everybody had his own indoor swimming pool, in which case some of the people without one might still be rich, and possibly just can't swim.

(iii) monitoring the efficiency of policy

As with resource allocation, monitoring the efficacy of anti-poverty policy requires highly comparable estimates. Comparisons of anti-poverty policies in two situations in relation to the incidence of poverty in the two situations obviously cannot lead to valid inferences concerning the impact of the policies if the poverty estimates are not comparable to begin with (apart from the usual problem of how far other things were equal). And, unfortunately, there are so many perfectly reasonable ways of measuring poverty that one can obtain any answer one likes by the appropriate choice of measure.

This also means, unfortunately, that whilst, from the point of view of stimulating the formulation of imaginative hypotheses many existing attempts to make comparisons over time or between countries may be very interesting and illuminating, from the point of view of their contribution to scientific evidence they are often virtually worthless. For the estimates are usually quite incomparable. Estimates based on a household unit in one country or year will give wildly different results from estimates based on a tax unit in another country or year, even if the "real" degree of poverty (whatever that may mean) is the same in both situations. Estimates adjusted fully for family size will often give vastly different results from estimates that make no allowance for family size. Estimates that define income gross of taxes will differ considerably from estimates based on net incomes even though the poor generally pay hardly any direct taxes. And the "incidence" of poverty in

terms of individuals may be very different from the "incidence" in terms of families or some other unit.

Even if one is able to avoid these pitfalls - which is easier to do when making comparisons over time in one country, for example - it is still difficult to ensure that the estimates are comparable in terms of the factors that have to be allowed for. For example, as I show in my own estimates of the impact of social security on poverty in Britain over the period 1961 to 1976, alternative methods of adjusting the estimates for demographic changes or for inflation meant that the estimates of poverty, over this period, doubled, fell by 30 percent, or remained more or less the same, depending on which methods one adopted! [2] Those people who want to show that poverty alleviation policy has been successful, might be tempted to adopt the middle estimate, whereas those who want to show that it is all a waste of money may be tempted to quote the first estimate.

Of course, even with the most comparable estimates of poverty in different situations, it is still not possible to make more than the crudest attempt to draw conclusions about the efficacy of the policies adopted without making some attempt to estimate what poverty would have been in the situations in question *in the absence of the policies in question*. As is well-known, this is strictly speaking not possible in the present state of ignorance about the way economies function and the whole host of feed-backs and inter-actions between the variables that are relevant.

Nevertheless, as a start it is desirable to make some estimate, in many cases, of what poverty would have been if one simply deducts transfer payments of an income maintenance character from all incomes. Even without trying to estimate the feed-back effects of such transfer payments (e.g. unemployment benefits, pensions, or other income maintenance payments) on both the size of the target groups and their *real* incomes, comparison of post-benefit poverty estimates with this form of rough "pre-benefit" poverty estimates, such as those that I have made for various advanced countries [3], do provide a starting point for the precise measurement of the efficiency of total benefits and of individual benefit programmes. In particular, it does enable one to estimate what proportion of the payments go to people who were not poor to begin with or who only fell below the poverty line by relatively small amounts. However, as discussed below, this use of poverty estimates raises a particular question about the basic statistical concept that should be used for

measuring poverty, notably the choice between concepts such as "head-count" or "poverty-gap" estimates.

III. THE MAIN CONCEPTUAL ISSUES

(1) definition of the "poverty line"

There are two main concepts of the poverty line recognised in most of the literature on the subject, namely the "absolute" line and the "relative" line. The former concept is supposed to correspond to some bare minimum subsistence line, whereas the latter is designed to reflect the fact that people can still be "poor" even well above the subsistence level, in the sense that they fall below what is regarded by the society in which they live as the minimum level of command over goods and service needed in order to be a fully integrated member of that society. Such people may hence suffer from what the sociologists call "relative deprivation"[4]. The notion of the relative character of poverty goes back as far as Adam Smith, of course, and has been revived in recent years partly as a result of growing evidence of the evident distress suffered by sections of the community in wealthy countries, even though they were living above conventional notions of a subsistence standard of living [5].

Of course, one should not take an extreme position on either. First, even the notion of an absolute poverty line may still not be entirely irrelevant in some advanced countries. The concept of an absolute minimum subsistence level has been used, in fact, in such circumstances. For example, it was the basis of the famous pioneer researches into poverty by Rowntree in Britain before and after the 2nd World War, and by Mollie Orshansky in the USA in the 1950s [6]. Also, at the opposite extreme, the view that relative poverty must always be a serious problem would lead to absurd conclusions. For example, if incomes were unequally distributed in the year 3,000 A.D., one might conclude that many people were poor because - unlike the majority of the population - they did not have a three-dimensional colour TV in every bathroom or their own personal inter-space travel machine. Conversely, one would not want to say that nobody was poor in a situation in which everybody was starving equally. This sort of paradox can, however, be avoided along the lines of Amartya Sen's recent ingenious contribution to the analysis of the fundamentals of the poverty definition [7]

Nevertheless, for most practical purposes the "relative" poverty concept is relevant chiefly in more advanced countries and is the one that is usually adopted in poverty estimates in such countries, whereas in poor countries - or among particularly deprived groups in other countries - the "absolute" poverty concept may be the most important. Hence, it is necessary to discuss at some length some of the difficulties attached to this concept. For it is tempting to assume that although the notion of "relative" deprivation may be highly arbitrary, there is, at least, some fairly concrete interpretation of what is a "subsistence" level of consumption that is free of arbitrariness. However, this is not the case. As Ahluwalia, Carter and Chenery put it "Attempts to define absolute poverty in terms of some objectively determinable minimum level of consumption that is necessary for "continued" survival do not escape this problem, since the notion of "continued" survival is undefined. At the very least we would need to specify survival through some given life expectancy in a given environment" [8]

At a more practical level there are also innumerable problems, not the least of which concern the paucity of data concerning the intakes of certain basic ingredients of most subsistence diets. But, to begin with, there has also been much debate - so far unresolved - concerning the extent to which it is possible to identify an accurate and precisely measurable figure of just one basic nutrient, namely calories. The debate is wide-ranging and almost non-stop, so that the state of the battle depends on the precise point in time at which one observes it. My own view of the present state of play is such that one must have serious doubts as to the validity of most estimates of minimum nutritional requirements. Of course, as stated at the outset of this paper, spurious and pedantic obsession with the fine points of definitional purity should not be allowed to impede action. One can usually see when people are starving or hungry without having to measure their precise intakes of calories, vitamins, proteins and minerals. But that is not at issue here. One cannot measure national income by actually going around and counting up every transaction, nor can one estimate poverty - or its variation by locality or socio-economic class, which will usually be essential for many policy purposes - by going around and literally counting the number of people who look to the observer as if they are hungry. I, for one, might well be included in any such count. Some statistical methods have to be employed, and these will mean facing up to the problems of definition and of bringing the definition into relation with

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available data,;

There are many such problems. Among the most important difficulties of arriving at precise operational definitions of subsistence levels of diets are the following:- (a) large individual variations around average needs; (b) the possibility of very large deviations between food consumption estimates as obtained from data on expenditures and prices (even if the price data were accurate, which is rarely the case) and estimates that took account of unreported home-grown food, which, according to some experts, probably accounts for 80 - 90 percent of food consumption of poor, small-scale farmers in many countries; (c) payment in kind for farm labourers, and (d) food consumed on the job - i.e. outside the household.

Furthermore, apart from such statistical problems of bringing the concept of subsistence needs into line with available data, there are significant variations in estimates of average calorie needs, with, for example, the FAO standards being about 10-15 percent higher than the official USA estimates [9]. The authoritative "Fishlow Report", commissioned by the World Bank, stated that "Beyond the income distribution measurement problem, there are the further difficulties of estimating minimum nutritional standards, as well as the elasticity of intake of nutrients with respect to income. The former are still a matter of controversy among nutritionists. The latter are not constants to be readily applied: they surely must vary widely with custom, and intrusion of advertised processed foodstuffs, the rural-urban mix, let alone traditional economic variables like the prices of other goods"[10].

The staff of one international organisation, namely the World Bank, has naturally given much thought and attention to the problem of poverty measurement. In one very wide ranging survey of the whole issue by Surjit Bhalla, at the World Bank, details are given of the variability of results for estimates of poverty in Brazil according to different estimates of what food consumption actually was and what standards of minimum needs were used. Depending on which data and which standards were adopted the percent of the population in Brazil suffering from malnutrition varied from 35 percent to 90 percent [11]. The data and methodology also implied that, in urban areas, people were suffering from malnutrition up to a per capita income (in 1970) of US\$2,885, which was four times the average income of Brazil in that year!

Various other internal World Bank papers, which I have been privileged to be allowed to consult, draw attention to similar cases of unreliability of calorie intakes, or other indicators of food intake in general, as measures of poverty, and, in particular, to the tendency for measures of poverty based on food intake to over-estimate the incidence of poverty. As has been pointed out in papers by Michael Lipton and Srinivasan, the over-estimation of poverty incidence tends to prevent anti-poverty policies from being sufficiently selective to concentrate on the poorest among the poor. [12]. In an earlier paper, Srinivasan also refers to some estimates by P.V.Sukhatme concerning poverty in India to the effect that "...if, instead of using a poverty line based simply on average calorie requirements, allowances is made for variations in individual calorie requirements, the estimated incidence of poverty is brought down from about 50 to about 25 percent in urban areas, and from about 40 to about 15 percent in rural areas" [13]. In another Bank paper, by Bhanoji Rao, which comprised a very detailed study of the relationship between food expenditures and poverty, it was shown that, as between various States in India there was very little correlation between levels of poverty and average calorie intakes. [14]

The major weakness in poverty estimates based on nutritional requirements however is that even if it were possible to obtain accurate data on exactly how much food people consumed and how well individuals in different circumstances converted it into nutrients and how income elastic was the demand for individual food items in the region of the poverty line, and so on, the fact is that the notion of some minimum nutritive diet is nothing like as objective and scientific as may seem at first sight. In addition to the wide divergence of views as to total calorie needs referred to above, nutritionists are still revising their views about the minimum levels of certain nutrients that are needed and about the body's biochemical reactions to shortages of different kinds of nutrients and methods of converting other nutrients to replace them [15].

This substitutability is most important for it means that, (a) it is not strictly possible to specify the minimum level of any particular nutrient independent of the amount of other nutrients being consumed, and (b) even if it is possible to specify certain patterns of minimum intakes of different nutrients, there must still be a certain indeterminacy about how they ought to be combined

together or how far any one should be allowed to dominate over the others. For example, in a recent very interesting study of poverty in Japan by Mizoguchi four basic nutritional indicators were used, namely calories, proteins, fat and oil intake, and the percent of calories supplied by cereals. And this study shows that the percent of the population that could be defined as below the minimum intake under each of these four headings varies considerably from one item to another. For example, in 1963, the calorie intake indicator for Japan would show zero poor, but there would have been a very high percentage of the population still poor on the basis of the fat and oil intake count.[16]

Finally, there is a dilemma at the heart of the whole procedure of using minimum food requirements, which arises out of the fact that, in general, the more a product is regarded as a necessity the more will saturation point be reached at fairly low levels of income since, by definition, even the poor must consume the minimum amount of necessities, otherwise they would be dead. This implies, in turn, that the variation in consumption of necessities, as between income groups, will generally be very much less than the variation in consumption of other foods. Very rich people do not spend a hundred times as much as poor people on bread, or salt, for example, but they may do so on cigars or caviar. This implies that either a product is a necessity, in which case the estimated incidence of poverty will be too sensitive to small variations in the precise postulated minimum level of the necessity in question; or it is not a necessity, in which case it is not much use in defining poverty in terms of that product.

The implications of this are clear from Mizoguchi's results. For example, if poverty were defined as being below 90 percent of some minimal specified level of intake of various nutrient indicators, instead of being below 100 percent of the same indicators, then the estimate of the number of people falling below the poverty level using the cereals indicator is reduced much more than the number below the poverty level if the protein indicator is used. It can be seen from his Table 2.2 that if the poverty level is set at 90 percent of essential intakes of cereals, instead of 100 percent, the incidence of poverty falls from 85 percent to zero, but from only 50 percent to 7 percent using the protein intake. In other words, the more a product is really a necessity and hence suitable for poverty measurement, the more will measurements be -unreliable on account of their greater sensitivity to the precise

level of the item in question that is taken as the minimum requirement.

The fact is that an aggregate such as food is far too complex to bear the type of relationship with subsistence that would be needed to make it a reliable indicator of subsistence levels of income. This applies both to the physiological and technical utilisation relationships involved and to the economic relationships between price and income constraints, on the one hand, and patterns of food expenditure on the other. The latter depend very much on the precise definition of "food" used and on the level of aggregation. If, for example, cereals are defined in aggregate (already a sub-division of "food"), the saturation point in rice may have been reached a long time ago in certain poor Asian communities, but their expenditure on cereals has continued to rise as their incomes rise on account of a shift towards bread in place of rice, and will no doubt continue to shift with, eventually a large expenditure on chocolate eclairs flown in fresh every day from Fauchons in Paris.

Sometimes estimates are made of the minimum income needed to buy the required minimum food intakes by calculating "minimum cost diets" with the aid of a linear programming technique, the nutrition target, the nutritive value of certain foods, and their prices. Unfortunately, of course, the poor are generally not very good at linear programming as a rule and so would fare far worse on the estimated minimum income that would suffice, according to the programme, to buy the necessary nutrients.

Finally, although in some sense food is presumably the most basic human need, it would be absurd to ignore other physically vital services in any estimate of poverty. This applies particularly to what are normally public services, such as water, sanitation, and also access to health and education and shelter.

(ii) the definition of the income unit

This is the problem briefly referred to above of whether one uses income per capita, per family, per household, per tax unit, or some other variant. In some very poor countries, of course, the whole issue may be completely academic, since among certain groups of the population the notion of some stable clearly defined family unit simply does not apply. In rich countries, of course, the problem is statistically important since the choice between the

alternative concepts frequently exists so that some decision has to be taken. And there is evidence that the results are, indeed, sensitive to the precise unit used, as are estimates of income distributions. These tend, inevitably, to show more inequality if a smaller income unit is used, since this permits less ironing out of divergencies.

It is customary to adopt a household unit rather than a family unit or smaller unit, on the grounds that this is the essential unit for making most expenditure decisions. Also, insofar as resources are shared an estimate of poverty on the basis of income per person could greatly exaggerate poverty, for some members of a household may have negligible, or zero, incomes and yet enjoy a standard of life equal to that of the other members of the household. On the other hand, the household unit may lead to an under-estimate of poverty insofar as income or resource sharing within a household is low or zero in some cases. For example, there may be cases of, say, retired or unemployed members of a household receiving negligible shares of resources in the household even if there was an adequate total family income, so that statistically they would not appear in any poverty estimate if the estimates were based solely on the household (or family) unit. How far the household unit under-states poverty and how far smaller units exaggerate it depends, therefore, on the degree of intra-household resource sharing, and on this matter we have virtually no reliable information.

A closely related problem is the conversion of data in the form of income per household, or per family, or some other unit, into a per capita or similar basis. That is to say, one cannot compare incomes of families of two people with incomes of families of ten people without making some allowance for the different needs of the two family sizes. And it is not enough simply to divide the units by the number of persons in each unit in order to arrive at estimates of incomes per head, even if it assumed that resources are fully shared out within the unit in question. For it is well-known that there are economies of scale in living in units of larger sizes. Hence, if one is looking at the problem from the point of view of how to set the poverty line for families of different sizes, one would not want to set the poverty line for the ten-person family at five times the level of that for a two-person family, on the grounds that it would cost five times as much to attain the given standard of living. How far the costs per person fall off with family size is, however, a complicated matter and the theory of the

appropriate adjustment for the type and size of a household, or what is known as the "adult equivalent scale", lies quite outside the scope of this paper.[17]

For poor countries, or among certain very poor groups, however, the problem of choice of unit and the conversion to a per capita or per AEU (adult equivalent unit) basis may not be important, as well as not be available anyway. Some World Bank estimates in such situations suggest that the results are not very sensitive to the precise unit used [18].

(iii) aggregation

The problem here is that even given some poverty line there are alternative methods of applying it in order to arrive at some overall measure of the "degree of poverty" in the country or area in question. Counting the number of people who fall below the poverty line (the "head-count" measure) is not the only method of proceeding, although it is the one that is most common. It is also the one that has the most obvious and immediate impact in terms of public information since it is the easiest to grasp. But, from a theoretical point of view, it is known to be a very limited concept, in several respects, if not downright misleading as a guide to policy.

For example, the head-count measure of poverty tells one nothing about how severe is the poverty of the poor - i.e. how big are their "poverty gaps" (the gaps between their incomes and their poverty lines). It may well be that, in one situation (country, region or socio-economic group, say), only 20 percent of the population are poor, and in another situation 40 percent are poor, so that one would tend to deduce that the "degree of poverty" was twice as great in the latter as in the former. However, if the poor in the latter situation were only marginally below the poverty line, whereas the poor in the former fell significantly below the poverty line (i.e. had relatively large poverty gaps), this would be untrue in an important sense, so that the obvious policy response - namely to concentrate aid on the latter - would be a mistake.

Another way of looking at the problem is as follows. Consider policy towards the poor if a given amount of money is to be transferred to them. If the objective is posed in head-count terms, and takes the form of wanting to maximise the number of people who

are raised above the poverty line, then the best procedure would be to give the money to those who have the smallest poverty gaps; if the objective is to maximise the number of poor who receive *something*, then the best procedure would be to spread the money evenly over all the poor; if, however, the objective is to make the greatest contribution to the relief of suffering and distress, the best procedure is no doubt to give the money to those who have the largest poverty gaps.[19] This is closely linked to the point raised by Michael Lipton and referred to earlier, namely the danger of concentrating on measures of overall poverty - especially those that tend to exaggerate it - to the detriment of policies that help those most in need.

(iv) the time period

Another group of issues concerns the time period over which the income of the persons concerned is measured, or, in plain language, how long has the poor person been poor? This has both practical and theoretical angles. From the measurement point of view, does one measure a person's income in any one week, year, or over his lifetime? The results can be very sensitive to the answer. In any one year, many people suffer temporary declines in their incomes - e.g. they may be out of work for a few weeks - and, as a result, fall below the poverty line. But taking the year as a whole, their annual income could be well above the annualised equivalent of a weekly poverty line. Hence, if poverty is measured in terms of weekly (or some similar short period) income the numbers of people poor in any situation will inevitably be greater than if measured on an annual basis. The more unstable are incomes in the short run, the more will measures of poverty on the basis of short period observations exceed the measures on the basis of annual incomes.

At the theoretical level the question is largely a matter of the form of one's welfare function. That is to say, comparing two people whose annual income is the same, is the one who is mildly poor throughout the year to be treated as being equivalent to the one who is extremely poor at certain times of the year but well above the poverty line at other times? It might appear, at first sight, that the question of how the poor should be measured is quite separate from the question of how they are then assisted, which might require additional information including data relevant to one's moral judgements, perhaps, such as how far their poverty is their "own fault". But this is not always the case. For example,

the official estimates of the poor in Britain (or, rather, of those who are living below the Supplementary Benefit level, which is a sort of quasi-official poverty line) involve the use of a definition of income that depends on the source of the income. Some kinds of income are not included, notably war widows' pensions, income from small savings and from part-time work (up to a limit). Thus people who receive relatively significantly large amounts from these sources may be counted as "poor" and hence be eligible for additional benefits, even though, in fact, their income including these items may put them well above the Supplementary Benefit line. The philosophical basis for the particular value judgements underlying these particular "disregards" (as they are called) raises some interesting questions that lie, however, outside the scope of this paper.

In advanced countries the conceptual debate tends to be in terms of annual income versus life-time incomes, rather than in terms of intra-year variations of the type referred to above, since there is also very large variation in the age profile of incomes among professional or other skilled occupations which tend to make up a large proportion of the labour force in advanced countries. In poorer countries intra-year variation in poverty on account of the association in many cases between poverty and the agricultural cycle, so that the seasonality of poverty would be more likely to be very important. At the data level this means that surveys - either national or local - will be sensitive to the particular time of the year when they were carried out.

IV. CONCLUSIONS

Clearly, the measurement of poverty raises a host of questions both practical and conceptual. There is little point in trying to lay down firm answers to these questions since, as I hope has been shown above, the importance of the various issues and the most appropriate way of tackling them depends very much on the particular purpose for which the estimates are required and the particular situation in which they are being made. Even though problems common to all types of situation can usually be brought under the same conceptual umbrellas and raise basically similar conceptual issues, their relevance and their relationship to data availability varies enormously according to the purpose and the context in question. Estimates for purposes of highlighting the magnitude of a national poverty problem do not need to be made in the same way as estimates

designed to determine the desirability of a project to supply sewage services to slum dwellers in Manilla. The problems of estimating poverty for purposes of helping poor nomads in Mali are not the same as those that arise in determining the impact on poverty of giving rent to single parent families in a London suburb. The most that one can do is to recognise that there are a large number of issues that have to be faced so that appropriate methods and concepts may be adopted at an early stage in the enquiry, before it is too late.

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- [7].....[Reference to be inserted to Amartya's latest article on this subject]
- [8] M.Ahluwalia et al. *op.cit*, p.81
- [9] An even more extreme divergence can be found between, say, the World Bank and FAO estimate of minimum calorie needs for an average adult male of 2,350 per day, and the estimate in an expert report by the Indian Council of Medical Research, which put the figure at about 2,800. See I.C.M.R. *Dietary Allowances for Indians*, 1968; quoted in Robert Cassen, *India: Population, Economy, Society* (London, 1978, p.99). Even greater variations can be found among recent estimates of minimum protein requirements, ranging from 70 to 35 grams per day per person.

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[10] Report of the Research Advisory Panel on Income Distribution and Employment, a report to the World Bank by a panel chaired by Professor A. Fishlow, May 1st, 1978.

[11] S. Bhalla "Measurement of poverty - issues and method", internal World Bank paper, 29th Jan. 1980.

[12] Michael Lipton "The Poor and the Poorest", internal World Bank paper, and T.N. Srinivasan "Malnutrition: Some Measurement and Policy Issues" World Bank Staff Working Paper, No. 373

[14] T.N. Srinivasan "Development, poverty and basic human needs: some issues", World Bank Reprint Series, No. 76, page 20. (The reference is to a paper by p.V. Sukhatme, "Nutrition and Poverty", New Delhi, 1977).

[15] See discussion of application of this issue to India in Robert Cassen, *op.cit.*, pages 94 et seq.

[16] Toshiyuki Mizoguchi "Statistical Indicators Defining Poverty Levels; Japanese Examples", Institute of Economic Research, Hitotsubashi University, Tokyo, Discussion Paper Series, No. 5, August 1978.

[17] For a recent contribution and summary of earlier relevant literature, see John Muellbauer, "Testing the Barten Model of Household Consumption Effects and the Cost of Children", *The Economic Journal*, LXXXVIII, 1977, pp 460-487

[18] G. Datta and J. Meerman "Household Income or Household Income per Capita in Welfare Comparisons", World Bank Staff Working Paper, No. 378, March 1980, esp. p.27; and Pravin Visaria, "Poverty and Living Standards in Asia" (draft World Bank paper, Feb. 1980, esp. p.40)

[19] For a detailed discussion of this whole topic see Amartya Sen "Poverty: An Ordinal Approach to Measurement", *Econometrica*, XLIV, 1976. Various studies that have used the poverty gap measure include Sudhir Anand, "Inequality and Poverty in Malaysia" (O.U.P. for The World Bank, 1983) esp. K. Boulding and M. Pfaff, "Redistribution to the Rich and the Poor" (Belmont, California, 1972, esp. Table 15, ch.1; and R.D. Plotnick and F. Seidmore, "Progress against Poverty" (New York)