BRAZIL

ON STATISTICAL MAPPING OF POVERTY: SOCIAL REALITY, CONCEPTS AND MEASUREMENT

by

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1. Relating Concepts and Measurement to Social Reality

Poverty is a complex phenomenon. It might be broadly defined as a situation in which needs are not sufficiently satisfied, although to make the concept operational one should necessarily specify which needs are these and at what level they are considered to be appropriately met. In each case, the relevant definition depends basically on the standards of living and on the way different human necessities are generally met in a given society. Being poor means not having access to the minimum required to function adequately in that society.

This general definition requires qualification regarding the concepts of absolute and relative poverty. Absolute poverty is theoretically associated to the vital minimum. The concept of relative poverty incorporates the concern with inequality or relative deprivation, where the bare minimum is socially guaranteed. Differences among countries in respect to levels of socioeconomic development and cultural traditions require concepts of poverty that take their specificity into account. Nevertheless, the persistence of widespread and chronic deprivation of basic needs nowadays makes absolute poverty the obvious priority in terms of definition, measurement and political action from the international point of view. That is why absolute poverty is the underlying concept when international agencies place the theme at the center of their agenda. The 1990 World Bank report estimates that one billion people lived in poverty in that year, which implies the idea of absolute poverty without directly coping with the problem of determining which minimum is not being met.

Defining the relevant and operational poverty concepts and choosing the adequate measurement procedures is the result of a sensible and informed analysis of social reality. On one hand, it is a matter of identifying the essential causes of poverty in a given society. Is it widespread and affects the majority of the population or is it locally concentrated? Which are its roots? Is it a traditional syndrome or does it result from economic and technological changes? What are its main features – under-nutrition, low schooling, lack of access to public services or unemployment and marginality? Who are the poor in terms of some essential characteristics?

This overall information on the poverty syndrome is the key element for conceiving a framework in which poverty analysis and anti-poverty policies are to evolve. Specifically it means adopting concepts and measurement instruments that seems the most appropriate to a specific context in terms of social reality and data gathering possibilities. Although the main objective in dealing with poverty consists in the design and operation of social policies, concepts and measures being solely instrumental, the choices made at this very first step play an essential role. Obtaining positive policy results later on will largely depend on how sensibly poverty has been

defined at the outset, both in terms of the social reality and of measurement possibilities.

Considering the ample variety of poverty situations worldwide that have led to an equally large number of essays in terms of definition, measurement and policies, it would be certainly useful to identify "typical" poverty situations to which correspond successful experiences in terms of conceptual and measurement choices. This implies the idea that the quest for a single internationally agreed recommendation on poverty concepts and measurement methods is not a feasible or productive path. Conversely, to identify and systematize experiences in a wide array of situations seems more promising in the interest of improving the way of dealing with poverty.

A simple schematic typology of poverty situations could be taken as departing point, for instance:

a) *Poverty where resources are insufficient to guarantee the basic minimum for the majority of the population* - That is the case of countries where poverty is widespread and resources are scarce overall. In this context, the definition of an operational concept of poverty using very simple data responds to a minimum requirement: the availability of a basic tool for establishing policy priorities and monitoring results from social programs.

b) *Poverty associated to an inadequate pattern of growth* - In this case the absolute poverty syndrome is often associated to a component of inequality. These countries present income levels higher than those in a), which generally correspond to a less severe restriction in terms of data. Defining poverty concepts according to specific social features - for instance, poverty being predominantly urban or rural - and to the availability of data can highlight an array of interesting analytic possibilities.

c) *Poverty in developed countries* - poverty in industrial urban societies is generally linked to income inequality and social exclusion. Since statistical data is seldom an important restriction, the design of the analytical framework is essentially determined by social policies objectives.

Associating a typology, as the one suggested above, to different conceptual approaches and levels of complexity of measurement methodologies could be conceived as a way to organize diversity and to indicate promising paths. One of the Expert Group's possible tasks would be to recommend a set of conceptual and measurement procedures in accordance with different national situations. Taking into account that poverty incidence and development of the statistical system are in general inversely related, a central concern shall be to identify procedures that have been successfully adopted in countries under diverse stages of development. In this sense, it would be especially useful to highlight the most critical issue: the possibilities of defining and measuring poverty, as well as of designing anti-poverty policies in countries in the first category, where statistical information is scant - no household

survey is available, for example. Under these circumstances, which is the best way to make the poverty concept operational? Despite the fact that the development of the statistical system is desirable, it is certainly important to tune information needs and the advancement of the statistical system to social realities and general priorities. On the other extreme case, which concerns developed countries, it is relevant to verify how improvements in the statistical system and the adoption of sophisticate techniques - like the use of panels from household surveys - have led to a better understanding of the dynamics of poverty. Such subsidies may be useful both for reorienting social policies in developed countries, and for highlighting more general issues on poverty concepts and measurement in other countries.

In the following two sections we shall deal with the relationship between poverty concept and measurement. The aim is not only to demonstrate that there is an ample scope of possibilities concerning the choice of conceptual and empirical approaches to poverty, but that it is possible to conceive a scale of growing complexity in both regards. Choosing the most appropriate combination according to socioeconomic development and availability of statistics in each country is essential for dealing successfully with poverty concerns and social policy design.

2. From Basic Needs to Insufficiency of Income - Scaling up Concepts According to Social Reality

In order to make the poverty concept operational for social policy purposes, two basic approaches, not mutually exclusive, can be identified: the basic needs and the poverty line.

a) The basic needs approach

The most basic needs are those related to physical survival. Undernutrition, which is often associated to poor health and high mortality rates, especially among infants, is still chronic in many countries. Famine, as result of bad weather, war and/or inadequate administration of scarce resources eventually creates large contingents of people who risk death without emergency aid. Thus, this malnutrition approach to poverty is, unfortunately, still operational for identifying the poor, even when considered in its most direct form, that is, the physical characteristics of the population. Anthropometric evidences of low weight in adults, or low height for age among children, as well as high mortality rates are all indicators of extreme poverty. It may refer to a micro approach, aiming at identifying individuals with adverse characteristics; alternately, the macro approach consists in delimiting a population in which these individuals are strongly represented. In both cases, this approach is anchored on physical indicators and relates unequivocally to the concept of absolute poverty. Considering insufficiency of income or resources for acquiring food has different implications and thus not fit here.

Adopting the more general basic needs approach to poverty means going beyond food needs to incorporate a wider range of human necessities, such as education, sanitation, shelter. Differently from the malnutrition approach, defining the poor based on minimum achievements in such aspects offer various possibilities. Firstly, it allows for using different judgments concerning the way to rank the poor, depending on the number of aspects for which the minimum achievements are not met, and/or on the score derived from the weights attributed to each unmet need. Secondly, it allows for considering more or less strictly these basic needs, according to the present situation in each specific society. Reading and writing skills are, for instance, very basic requirements, but in societies where literacy is widespread this basic need criterion will not discriminate the poor. A higher educational requirement might be considered - primary schooling is a possible way of scaling up the requirement -, thus demonstrating there is an implicit relative component when this approach to poverty is adopted. The relative component is also obvious when establishing sanitation and shelter basic needs. In the case of sanitation, the rural/urban context is to be explicitly taken into account, since it is more essential to have adequate sewerage in urban areas because of their higher demographic density. On the other hand, basic needs in terms of shelter have to be necessarily viewed in terms of cultural and climatic realities.

b) The poverty line approach

While the basic needs approach is specially useful in respect to access to public non-marketable goods and services, the poverty line has became the most usual tool to define poverty in terms of command over resources to satisfy needs normally placed in the sphere of private consumption. It consists in attributing a monetary value to a set of basic goods and services, and identifying as poor those whose income is lower than the defined minimum. Using an income parameter in order to distinguish those to whom the basic minimum is not guaranteed requires a strong assumption: different people have the same needs and derive the same welfare from a given income. In practice, the poverty line remains just an income parameter, telling nothing about the real conditions of access to goods or services.

There is a fundamental methodological distinction when adopting the poverty line approach. Firstly, poverty lines may be defined in relation to the absolute poverty concept, thus associated to the value of a basic bundle of goods and services. Originally applied by Rowntree to early twentieth century York, England, it disseminated in the industrialized countries and became the most usual approach to defining and measuring absolute poverty the world over. Nevertheless, establishing the composition of the basic basket of goods and services and valuing it in accordance to some absolute poverty concept is not an easy task. There are plenty of choices to be made along the way, most of them necessarily arbitrary, and it is unavoidable to embody relative poverty considerations even when aiming at defining an absolute poverty income parameter (Ravallion, 1992).

The most conceptually strict component of the absolute of poverty line is the estimate value of the food expenditure necessary to attain the recommended food energy intake (This parameter is usually referred as “indigence line” or “extreme poverty line”). For developing countries, this can be the most appropriate parameter for defining the poor. It is noteworthy that even when defining the poor as those who would be unable to buy the basic food basket, using an income parameter means that we are measuring poverty, not hunger or undernutrition, as it was the case in the basic needs approach.

Defining the poor on the basis of a higher income parameter, that is, one that encompasses both the costs of the food basket and an allowance for non-food goods is necessarily more cultural bound. When defining the non-food needs composition and value there is no consensual minimum to be used as reference, which differs from the situation of using the nutritional requirements for the food basket. In this sense, even when intentionally referring to the absolute poverty concept, poverty lines are more prone to incorporate relative poverty considerations than the indigence line.

As a matter of fact deviating from the most basic basket when establishing the composition of the bundle and services goods may be a conscious policy alternative. Thus, poverty defined according to this less strict income parameter incorporates relative poverty components, which may be conceptually adequate given the socioeconomic conditions and policy objectives.

Alternatively, the poverty line approach is directly associated to the relative poverty concept: this is the relevant approach when the basic necessities of life are covered, and inequality among households becomes the main concern. In this case, the income parameter is generally defined in relation to the median or the mean value of the income distribution, thus avoiding the tricky questions of defining a basket of goods and services and of valuing it. This approach responds to the concern with the rights of citizens to operate in a modern monetary urban society. The income parameter, although not guaranteeing the same utility or level of welfare for different households, has the advantage of not imposing consumption preferences on individual decision-makers.

While associating the poverty line to the relative poverty concept is simple, both conceptually and empirically, the use of the poverty line in respect to absolute poverty remains tricky. Almost a hundred years after the first empirical studies by Rowntree (1901), there is still no clear-cut solution to absolute poverty definition. Furthermore, the use of absolute poverty concept demands a sophisticated database, including household income and consumer prices surveys, still unavailable in many underdeveloped countries. Even when data is available, basing the poverty definition on the income variable may not be an adequate choice in countries which are essentially rural and where most of the basic necessities of life are not obtained through monetary exchanges. Conceptual choices must be made so as to grasp the

relevant aspects and to pose the right questions in respect to poverty in each country. This concern about notional specificity and the search for the most adequate conceptual solution adds extra problems to comparative studies. Given the differences among countries, comparative studies will be limited to a few selected indicators so as to rank countries according to their level of poverty. The scale will be probably useless to differentiate among the richest countries, but it may be helpful to enhance the understanding of national poverty, to provide the means for designing anti-poverty policies and for monitoring results obtained in terms of poverty incidence.

Making poverty definitions operational in each socioeconomic and cultural context requires conceiving them to be compatible with measurement possibilities and social policy objectives.

3. Measuring Poverty - Social Realities and Data Restrictions

Most of the research effort on poverty is concentrated on measuring its extent, generally focusing on the number of the poor, based on income of the individual or the household. It has been extensively discussed and well documented in the literature that a) there are no objective standards of measurement; b) that the different measures have shortcomings, both theoretical and empirical; c) and that the choice of one measure instead of another may lead to quite different results. Nevertheless, once a measurement is obtained, its background shortcomings and restrictions are often minimized, and results are often compared to others based on different concepts and premises. The necessary link between concept and measurement is often lost, which has perverse effects on the use of the available measures in designing social policies and/or evaluating their outcomes.

A recent review on poverty research (Oyen, 1996) shows that most efforts on poverty mapping has followed paths that have been set for developed countries, thus being strongly dependent on the model of statistical data collection long established in these countries. Adopting income-based measures of poverty and deriving a poverty profile for the sub-population defined by a certain cut-off point requires, beyond the outstanding importance of the income variable in the relevant socioeconomic setting, a relatively developed statistical system. The resources and effort needed to follow this path may be out of reach for many developing countries.

A more modest approach may be perfectly adequate to figure out poverty incidence and its characteristics. The basic needs approach, which represented a clear inflection in the way of looking at development and poverty in the sixties, is a possible alternative (Adelman, 1974). It was originally suggested in order to shun the GDP or the per capita income as key variables in determining the level of development, which were widely use as basis for ranking the countries or for defining regional development priorities within countries. Avoiding income would permit to circumvent its measurement problems, which are particularly acute in comparative studies. Furthermore, there was mounting resistance to associate income to well being, and to

envision economic growth as a development objective, since it did not necessarily trickle down to the poor. Accordingly, social progress could be better assessed by considering the effectiveness by which basic needs of the population were actually met "as measured by the flow of goods and services enjoyed in a unit of time" (Drewnowski and Scott, 1966).

Empirically, the procedure consists in defining the best indicator for each basic need, which should take known characteristics of poverty in a given society and the availability of data on the living conditions of the population into account. Some authors argue that the most essential need is related to guaranteeing life itself and, in this sense, "life expectancy at birth would be a good single measure of basic needs" (Hicks and Streeten, 1979). The evaluation of how basic needs are being met may be as detailed as data permits, but it is probably easy to reach a consensus that the most basic needs are food, sanitation, and schooling. Nevertheless, the way satisfaction is defined for each of these needs is best served on a case by case basis[1].

Two aspects are of foremost importance when adopting the basic needs approach. The first concerns the fact that satisfaction of needs are to be evaluated on the basis of effective results (for instance, reduction of the number of persons affected by a certain disease) instead of the means deployed to attain that goal, like the number of vaccines administered or the value of expenditure for disease control. This sensible restriction makes many usual social indicators inappropriate when adopting the basic needs approach.[2] Secondly, avoiding the income variable both as an indicator *per se* and as cut-off criterion, which is certainly an advantage when household survey data is not available, represents a shortcoming in terms of information. It results in ignoring that income compensates for certain adverse conditions, especially those that derive from inadequate provision of public services. If the basic need is defined, for instance, as access to water from the public network, ignoring income means placing on the same ground a family who lives in a densely populated slum in the outskirts of the city and another whose dwelling is located in a newly developed well-to-do condominium. This last one has an obvious advantage: it can use its income to pay for the services of water trunks.

The more culture bound are the selected indicators, the more difficult it is to establish international comparisons. Nevertheless it is conceivable to agree to some basic indicators which are deemed relevant in different contexts. The United Nations Development Program, for example, has developed a very simple index - the Human Development Index (HDI) - in order to rank different countries on their performance in terms of three basic aspects, two of them being schooling and life expectancy,

1. To have guaranteed access to safe water is clearly a basic need. The appropriate definition of what might be an acceptable access vary across different societies, for example, water from internal plumbing, a community well or any of a variety of intermediate possibilities.

2. This is the case of social indicators that refer to *inputs*, like the number of doctors to the population or the value of expenditures in social programs.

which fit perfectly as basic needs indicators. A larger set of indicators conceived as to take poverty characteristics and data restrictions in each country into account provides an useful tool, both for poverty analysis and social policy design on a national basis, and for international comparisons.

While a basic needs set of indicators may do without income information from a household survey, such information is an essential data requirement when using the poverty line approach. Comparing observable household income to the poverty line is central to deriving the two basic sets of results. The first set consists in the so-called income-based measures of poverty, which include the headcount, income gap ratio, measures of inequality, and eventually synthetic indexes encompassing these three different dimensions of insufficiency of income.[3] In respect to the second set of results, the income parameter is the cut-off point for delimiting the poor sub-population, which may then be characterized in relation to living conditions also investigated in the household survey. In this sense, combining income and living condition variables is one of the advantages of using the poverty line approach.

Thus, the minimum necessary requirement for using the poverty line approach is a household survey on income and other population characteristics. From the Population Census, which takes places every five or ten years and is considered a essential component of the statistical system in all countries, it is possible to derive a general benchmark in terms of poverty incidence and profile. However, the quality of the results obtained depends on the significance, relevance, and acuity of measurement of the income variable, which may vary widely in different settings. Availability of household sample surveys in shorter time intervals provides for a closer monitoring of the least structural aspects of poverty, like the relationship between the impact of the level of productive activity on income and poverty.

Data needs associated to the poverty line approach may be scaled up to include panels of informants designed for long-term monitoring. Their aim is to have long-term evidence on the characteristics of poverty dynamics, that is, which factors affect poverty incidence - positive or negatively - in a particular setting. Panels are specially useful for identifying long-term impacts of public policies aimed at the poor, so that careful consideration of their results may represent an important contribution to the understanding of poverty and designing anti-poverty programs, even under diverse socioeconomic-economic conditions.

Besides the data requirements from household surveys, using the poverty line approach to absolute poverty depends on information for establishing the income parameter itself. As in the case of the household survey, data requirements can also be scaled according to available resources and policy priorities. In the least demanding case, the poverty line can be conceived as the value associated to a basic food basket.

3 Haguenaars (1986) presents an excellent overview of income-based poverty indicators, particularly in respect to axiomatic requirements and measurement errors.

This value can be obtained through a linear programming procedure using available information on the most popular food items, their nutritional content and consumers prices. Establishing an absolute poverty line without a consumption survey means to make arbitrary choices concerning what the appropriate Engel coefficient is in a particular case. Nevertheless, even where very scant statistical information is available, it is possible to derive two poverty line parameters, the one associated to the food basket being theoretically the most sound, since it is based on universally accepted nutritional requirements.

A more careful definition of the minimum value of the basic consumption bundle depends on some sort of consumption survey, preferentially one which allows for considering consumption patterns associated to different income levels. Results in terms of consumption per decile of the income distribution, for instance, provide the means for making various choices concerning the poverty line. Strictly adopting consumer's preferences in face of the income restriction means selecting as the basic consumption bundle the one that allows for satisfying nutritional requirements at the lowest cost. Many other possibilities for establishing the food basket and the allowance for the non-food needs have been conceived under different situations. Nevertheless, availability of household budget survey data is essential for exploring these possibilities.

The household budget survey is a complex and expensive sample survey, which has an important place in advanced statistical systems: among its various uses, it provides key information for establishing a detailed national production account, inputs for macroeconomics models and weights for the consumers price index. Nevertheless, its execution, even at quinquennial intervals, commands low priority in countries where the core of a basic statistical system is not in place yet[4]. The use of budget survey results for establishing poverty lines represents a very marginal benefit considering the total costs of this survey. Consequently, it is unlikely they will be carried on just for this purpose.

Since a household budget survey generally means that a consumers price system is available, updating the values for the poverty lines defined for a base year becomes a simple task yielding more reliable values than when prices are based on independent estimates.

A final observation on the use of the poverty lines approach is due. It is hardly conceivable that a single income parameter may adequately reflect the cost of satisfying the basic necessities of an individual in families with different characteristics (size and composition) living in diverse spatial settings (regional and urban/rural).

4 Defining what the core of a national statistical system should be is obviously a very controversial issue. Probably there would be little dissent when population and economic census, vital registers, financial and foreign trade statistics are proposed.

Differences in family size and composition may suggest taking economies of scale and scales of equivalence into consideration when applying the poverty line approach. Although theoretical possibilities are well mapped, choices are necessarily arbitrary, thus leading to inevitable controversies concerning the results obtained. The use of the simple per capita household income as variable is probably the safest and the least demanding approach in terms of statistical data and processing.

With respect to the spatial component, allowance for differences in the cost of living of the poor in different areas of the same country should be made when establishing poverty lines. If data on consumption and prices at the sub-national level are available, they should be used to go as far as possible in defining local specific poverty lines. Whenever a national poverty line is crudely defined from a minimum cost food basket, at least a urban/rural breakdown is recommended on the basis of the current knowledge on the lower monetary needs for living in rural areas.