Poverty in Latin America: a critical analysis of three studies

Julio Boltvinik

Introduction

This article is a critical analysis of the approaches adopted in three recent studies on poverty in Latin America: those of ECLAC (the one we will call ECLAC-UNDP 1990, and its predecessor, which we will call ECLAC-70)[1] and those of the World Bank (1993) and the UNDP Regional Project for Overcoming Poverty (1990, 1992 and 1992a; see also Beccaria, Boltvinik, Fresneda, Sen *et al.*, 1992). These are the three most recent of available studies covering Latin America. They were conducted by three influential international organizations which are fighting to establish authority over governments in this field. Increasingly, the way in which governments in the region are studying and confronting the problem is determined by one or other of these organizations. The focus of this analysis is basically methodological but it has practical implications.

To familiarize the reader with the various measurement methods, the first section, 'Methodological background' describes the poverty line (PL) and unsatisfied basic needs (UBN) methods and analyses them in general terms, demonstrating the partial nature of both and their essentially complementary relationship, which makes a combination of the two advisable. This provides the basis for the critical analysis of the methods used to measure poverty in the three studies, an analysis which is carried out in the following section, the central part of this article. Owing to limitations of space, there is no detailed analysis of the individual indicators used in the UBN method. The article ends with a very brief empirical analysis in which the results of the three studies are compared in the light of the discussion in the previous section.

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Methodological background

The purpose of this section is to give an overview of critical analysis of the poverty line (PL) and unsatisfied basic needs (UBN) methods which are those most often applied in Latin America and are those used – either alone or in conjunction – in the three studies forming the subject of this article.[2]

Before analysing them, we will outline both methods. The PL method compares the income (or consumption) *per capita* or of each adult equivalent in a household with the so-called poverty line expressed in those terms. Households with incomes below the poverty line are considered to be poor, as is each of the individuals living in them. The key factor in this method is the way the poverty line is defined. In the United States and Latin America the predomi-

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nant variant has been that which defines a standard food basket (SFB), calculates its cost and multiplies this by the reciprocal of Engel's coefficient (percentage of expenditure devoted to food) of a group of households to obtain the poverty line. I have called this procedure the SFB variant of the PL method.

The traditional UBN method compares the situation in each household, in relation to a group of specific needs, with a series of standards setting, for each of the needs, the minimum level below which the need is considered to be unsatisfied. Those households in which one or more basic needs are unsatisfied are considered to be poor, as are all its members. The critical factors in this method are the selection of needs, the definition of the minimum criteria for each of them and the poverty definition criteria, i.e. whether one UBN would justify defining a household as poor. In practice, in Latin America this method has been greatly restricted by the information available from households in censuses and surveys. What is more, the investigators have selected one subgroup from the group of indicators available. This has meant that in practice the indicators used are those referring to overcrowding, inadequate (in terms of the building materials) or improvised dwellings, inadequate water supply, lack of (or inadequate) sewage disposal systems, non-attendance of minors at primary school, and an indirect indicator of households' economic capacity which associates the educational level of the head of a household with the economic dependency rate. It should be noted that other indicators usually available in censuses and surveys, such as the educational level of household members or access to electrical power supplies, are not taken into account.

The point of departure for critical analysis of these methods is the proposition that *the satisfaction of an individual's or a household's basic need depends on the following six satisfiers*: (a) current income; (b) rights of access to public services or property which are free of charge (or subsidized); (c) ownership of or the right to assets providing basic consumer services (basic accumulated heritage); (d) educational levels, skills or competences, understood not as means to obtain income but as expressions of the ability to understand and achieve; (e) the time available for education, recreation, relaxation and for domestic chores; and (f) non-basic assets or a household's capacity to borrow money.

Some satisfiers may be replaced by others. With a higher income certain rights of access may be replaced by the private coverage of services such as healthcare and education, just as ownership of some basic assets can be replaced, for example, by renting accommodation. However, replacement is not always convincing. Additional income does not compensate for lack of time for education and recreation, for example, and if basic water and drainage networks are not in place it will be impossible (or very expensive) to gain access to these services by private means.

The main limitation of the PL and UBN methods (as they have been applied in Latin America) is that the former assumes that the satisfaction of basic needs depends only on the current private income or consumption of households, whereas the latter, in its usual applications (with the exception of the final indicator), selects indicators of need satisfaction which basically depend on the possession of basic assets (accommodation) or on access to public services (water, sewage disposal and primary education), and implicitly fail to take into account the other welfare sources. In other words, the PL method does not take into account sources (b) to (f) when the poverty line is compared with household income, or sources (b) to (e) when it is compared with consumption. For its part, the UBN method, as it has been applied in Latin America, fails to consider current income and sources (d) to (f). In other words, neither takes a comprehensive view of poverty. To the extent that the welfare sources they take into consideration are different, we may immediately conclude that rather than being alternative procedures, as they are usually considered, they are in fact complementary.

We should also point out that the UBN method, as currently applied, is in one respect very dangerous, in that *the number of poor people identified is not independent of the number of categories of basic needs selected*. The greater that number, the greater the incidence of poverty is shown as being.

Methods used to measure poverty in the three studies

The standard food basket (SFB) variant of the PL method used in the ECLAC-UNDP study

I have called the procedure applied in the ECLAC-UNDP study the Standard Food Basket (SFB) variant of the PL method (Boltvinik, 1990, 1991 and 1992). It consists of the following steps: (a) in each country an SFB is defined for the average individual (or for the average individual in each household), based on diets observed in surveys of household income and expenditure and on recommended nutritional requirements in terms of age, weight and height, sex and type of activity. This provides a list of quantities of foodstuffs which satisfy the predefined nutritional requirements of the 'individual' (in general in terms of proteins and calories). The quantities of foodstuffs are then multiplied by the prices which in principle each household must pay, although in practice there is usually a single range of prices (or one rural and one urban). The total cost of the *per capita* food basket is thus obtained. (It should be noted that fuel and all other costs associated with the preparation and consumption of food have been excluded.) The cost is interpreted as the *per capita extreme poverty or indigence line*. (b) This line is then divided by Engel's coefficient (proportion of household expenditure devoted to food) to obtain what is called the *per capita poverty line*. (c) The two *per capita* poverty lines are compared with household income, also on a *per capita* basis. Households with *per capita* incomes below the poverty line are considered to be poor. Those with incomes below the extreme poverty or indigence line are classified as extremely poor. Individuals are classified on the basis of the households to which they belong.

To understand why this method measures nutritional poverty rather than just poverty in general, we must look at some of the procedural steps in greater detail and make their implications explicit. The critical factor within the procedure is the transition from the 'extreme poverty' line (SFB cost) to the poverty line. The first observation to be made here is that while the food basket is presented in great detail, other welfare sources – for which not even a list of general categories is provided – continue to appear as a big black box of which we know only the total cost. In other words, *while a standard is applied for food, an empirical approach is adopted towards the other needs*.

On the basis of surveys of household income and expenditure, attempts are made to find the social stratum with the lowest income whose purchases of food place it above the nutritional requirements. The eating habits of this group serve as a basis for defining the food basket. In addition, its Engel's coefficient is that used to transform the extreme poverty line into the poverty line.[3] We know that the selected group meets its nutritional requirements, but we do not know how it stands with regard to other needs. The implicit assumption, made clear by Oscar Altimir (1979, p. 42), is that 'households above the minimum nutritional threshold are also above the minimum thresholds for other basic needs'.

As demonstrated in the work done by Beccaria and Minujin (1987) in Argentina, by Katzman in Montevideo (1989) and the UNDP Regional Project for Overcoming Poverty (1990, 1991 and 1992), in numerous Latin American countries empirical evidence shows overwhelmingly that this is a false assumption (Boltvinik, 1990). In fact, many households which are not poor in PL terms – i.e. which satisfy their nutritional needs – *are* poor in UBN terms. The satisfaction of nutritional needs does not therefore automatically imply satisfactory provision of accommodation and water or school attendance for minors, and so on.

However, it is not false only in empirical terms, since its implicit assumption regarding the satisfaction of basic needs is that simultaneous progress is made on a broad front towards satisfying all needs and that there is no individual variation as to the priority attached to different needs. Observation of the satisfaction of one need makes the situation with regard to all the others perfectly clear. If this were true, and bearing in mind that the satisfaction, either real or potential, of nutritional needs is one of the most difficult to observe in empirical terms, it would be more efficient to check on the satisfaction of the need for education or accommodation and then extend those findings to the others to obtain a general picture. In reality, as observed by Mack and Lansley (1985, p. 170)

in their exhaustive study on Great Britain, poverty requires 'a constant balancing act between different sets of needs. It is a balancing act that never works. Impossible decisions have to be made about what needs will be left unmet . . . *some may cut back on basic aspects of clothing to ensure that they eat properly, while others may put up with an unvarying diet so that their standards in the more visible aspects of life are acceptable.* As living standards slip further and further below the minimum, even this limited degree of choice slips away' (*emphasis added*).

If the assumption that forms the basis of the SFB procedure is not only false in empirical terms, but also conceptually flawed, we must ask ourselves whether this method measures anything at all. The average for the reference stratum, whose diet is used to design the food basket and whose Engel's coefficient is used to transform the cost of this basket into the poverty line, shows that *a direct comparison of per capita expenditure on food with the cost of the per capita food basket is clearly the same as a comparison of total per capita household expenditure or income with the poverty line.* Let us show this as a mathematical formula. Let S_r be the average Engel's coefficient for the reference stratum. By definition, it can be expressed as follows:

$$S_r = E_f/E_t;\ E_t = E_f/S_r \qquad (1),$$

where E_f and E_t are expenditure on food and total expenditure respectively, both *per capita*, in the reference stratum. Let us also recall that the poverty line is obtained in the following way:

$$PL = EPL/S_r \qquad (2),$$

where PL and EPL are the poverty and extreme poverty lines.

The poverty criterion is usually defined as follows: all households in which *per capita* expenditure comes below the *per capita* poverty line are poor:

$$E_t < PL \qquad (3).$$

The reader should note, however, that this is identical, in relation to the reference stratum, to the assumption that households are poor if their expenditure on food comes below the extreme *per capita* poverty line:

$$E_f < EPL \qquad (4),$$

since (3) is obtained by dividing both sides of (4) by S_r.

This demonstrates in passing the validity of my assertion that Altimir's assumption, referred to above, that those who satisfy their nutritional needs also satisfy their other needs, is equivalent to assuming that the selected reference group (of which we know only that it satisfies its nutritional needs) is not poor, thereby making the whole SFB procedure one of circular reasoning (Boltvinik, 1990, p. 38).[4]

The conclusion which emerges from the above is that the PL procedure based on the SFB is a way of measuring nutritional poverty – identifying households spending less on food than the cost of the SFB – at least for the reference stratum. But what can be said for the other strata? Engel's law shows that the strata lying beneath the reference stratum spend a higher percentage of their income on food, which makes it impossible to convert formula (4) into formula (3). However, we also know from empirical studies that although the percentage spent on food decreases as income increases, the absolute value of *per capita* expenditure in this area increases, so that we can be certain that, on average, households in the strata below the reference stratum will spend less *per capita* on food than it does.[5] Thus, if the reference stratum were very small and spent exactly the same on food as the cost of the basket, we could state with almost absolute certainty that the SFB method of positioning the poverty line enabled us to identify the section of the population whose *per capita* expenditure on food is less than the cost of the food basket; we have tentatively characterized this population as being in a state of nutritional poverty and it would appear to represent the whole of the population beneath the reference stratum. Although these conditions have not been fulfilled, since in general the reference strata chosen spend slightly more on food than the cost of the food basket and usually contain a very large number of people (a quartile in the ECLAC-UNDP study), the real conceptual significance of the SFB method is clear. It can be described as a *method of measuring nutritional poverty*, and data on poverty in Latin America calculated by means of the SFB procedure can be interpreted on this basis.[6] Although some

inaccuracy may clearly ensue, and it could only be measured empirically, it would be much less than that involved in interpreting the figures as representing poverty in general.[7]

With regard to the extreme poverty line, I have said elsewhere (Boltvinik, 1990 and 1991) that the definition of extreme poverty as the situation of those households which, although they devote all their income to food, do not appear able to satisfy their needs in this area, is unacceptable. This is because food cannot be consumed without being prepared, for which at least fuel and a few kitchen utensils are required; because food is not consumed with one's hands straight from a saucepan, at least a few utensils are required to consume it; because nudity in public places is a punishable offence in all countries; and because without paying for transport it is impossible to get to work, to mention only the most obvious contradictions (1990, p. 38).

In Latin America changes in eating habits in recent decades have involved increasing amounts of foodstuffs of animal origin and a reduction in the relative importance of cereals and pulses. This shift has been well documented by the Joint ECLAC-FAO Agriculture Division (1988). In this historical context, and in the light of the nutritional requirements amended by the FAO/WHO/UNU (United Nations University) Committee of Experts in 1971 and 1981, which in general recommended fewer calories and a higher protein intake, *it is necessary to ascertain, from the point of view of nutrition, exactly what it means to be below the SFB poverty line*. The first point that should be made is that *it does not necessarily mean inadequate nutrition*. An individual or a family could, at the present time, have a diet similar – given the corrections based on changes in nutritional recommendations – to what would be the prevailing standard if the level of consumption patterns in society had not risen, i.e. their nutritional requirements would be fully satisfied, although current standards, based on a diet including more products of animal origin, would not be met. However, in maintaining as I have, and as ECLAC-UNDP does implicitly, that such people come below the poverty line in nutritional terms, I am using a concept of human nutrition that has been adjusted to the patterns prevalent in a particular society, in both time and space. At the extremes of nutritional poverty there are undoubtedly biological deficiencies, malnutrition and absolute poverty.

The methods of the World Bank study

In its study on world poverty (1990 and 1992) the World Bank uses a PL of $370 *per capita* per year and an extreme poverty line (EPL) of $275, both in dollars at 1985 purchasing power parities (PPP). This work includes a graph showing that the poverty lines used in countries are in general a positive function of *per capita* income in those countries. However, the World Bank prefers to use the lines described above for the purposes of international comparison 'in order to span the poverty lines estimated in recent studies for a number of countries with low average incomes – Bangladesh, the Arab Republic of Egypt, India, Indonesia, Kenya, Morocco and Tanzania' (1992, p. 27).

A more recent work (World Bank, 1993), which is the one I will discuss here in detail, deals with poverty and income distribution in Latin America during the 1980s. The study applies the following procedure with regard to poverty.

(a) The World Bank makes it clear in the chapter title that the study is concerned with *absolute poverty*, which is defined as 'a measure of those individuals in the population whose welfare is less than some *absolute standard*' (1993, p. 51, *emphasis added*).

(b) This absolute standard defines well-being in terms of income, which places the work in the tradition of the PL method. This is justified as follows: 'Most poverty definitions rely solely on income for ranking welfare, *although it is possible to create weighted indices which also incorporate non-income attributes such as education, health, nutrition and housing*. However, when a poverty definition includes an increasing number of criteria, incomplete and non-comparable data can weaken poverty comparisons between countries and regions . . . In order to minimize problems of comparability, this report defines poverty in terms of per capita household income' (1993, p. 51, *emphasis added*). Is the World Bank recognizing here the superiority of integrated poverty measurement since its only argument against it is that of comparability? This would appear to be the

case, since it immediately adds: 'Although using the single dimension of income as a welfare criterion fails to take into account the importance of benefits received through non-income sources, it is the single most identifiable factor for assessing welfare levels across the Latin America and Caribbean region through available household surveys' (1993, p. 51).

(c) It goes on: 'The ideal approach for making poverty assessments is to formulate a constant basket of goods which satisfies a set of minimum basic needs with respect to nutrition, housing, clothing, education and health. The cost of this basket would represent the poverty line' (*Ibid.*). Of course one paragraph later it realizes that a 'constant' basket is not so easy to define because age, sex and environment affect nutritional requirements, local customs affect the choice of diet, and prices differ from one locality to another. It then concludes: 'Since all these factors vary from region to region, *there is no definitive poverty line which adequately reflects a set of minimum basic needs for all locations*' (*Ibid.*, *emphasis added*). In other words, it would appear to acknowledge that a constant basket is impossible to achieve. The World Bank dismisses efforts to define 'baskets' scientifically as a waste of energy, and then concludes '*any poverty cut-off will reflect some degree of arbitrariness due to the subjectivity of how poverty is defined*' (1993, p. 53, *emphasis added*). So far it has been argued that it is impossible to reflect in a single poverty line (the constant basket) the cost of satisfying the same needs in different places, and that any attempt to define a poverty line is arbitrary.

(d) The World Bank continues by pointing out that 'the poverty comparisons presented in this report require that the cut-off point which distinguishes the poor from the non-poor must represent *a uniform welfare level in all countries*. In other words, the monetary value chosen as the poverty 'reference' – or poverty line – should have equal purchasing power across countries' (*Ibid.*, *original emphasis*). How is it possible, the reader will ask, for equal purchasing powers to be defined, if it is impossible to define constant baskets? In a comparison of the purchasing powers of different currencies local customs should also be taken into account, since what is a standard consumer item in one place may be unknown in another.

(e) Having defined the use of a poverty line and also an extreme poverty line of 'equal purchasing power' for all countries, let us see how the World Bank sets its level. It transforms the ECLAC poverty lines, whose definition we studied in the previous section, into dollars at 1985 purchasing power parities (PPP) and compares them from one country to another. While observing that they vary greatly, from $67 in Peru to $146 in Colombia, it concludes with the following categorical statement: 'This clearly shows that a poverty analysis based on these poverty lines would *not* be comparable across countries' (1993, p. 54, *original emphasis*). This statement, which dismisses the whole tradition of ECLAC poverty studies (both the ECLAC-UNDP project and ECLAC-70), is misguided. More thought should be given to the prerequisites for international comparisons. Amartya Sen takes the view that two types of comparison are valid:

> . . . in comparing the poverty of two societies, how can a common standard of necessities be found, since such standards would vary from society to society? There are actually two quite distinct types of exercises in such inter-community comparisons. One is aimed at comparing the extent of deprivation in each community in relation to their respective standards of minimum necessities, and the other is concerned in comparing the predicament of the two communities in terms of some given minimum standard, e.g. that prevalent in one community. (1981, p. 21)

The ECLAC-UNDP project is closer to the first of these approaches, to the extent that, as we have seen, the food baskets for each country are made up from the diets observed in them, so that the diet for Argentina contains a lot of meat and in Mexico a lot of tortillas. The dismissal of the ECLAC-UNDP study by the World Bank can thus be seen as at best ill-considered.

Which of the two approaches described by Amartya Sen is closer to that of the World Bank study? It does not appear to correspond to either of them, since the World Bank avoids any definition of standards and norms:

> . . . the approach here has deliberately avoided trying to reformulate a functional standard of basic human needs. Rather, the focus has been to determine a single value which embodies a welfare level that can be uni-

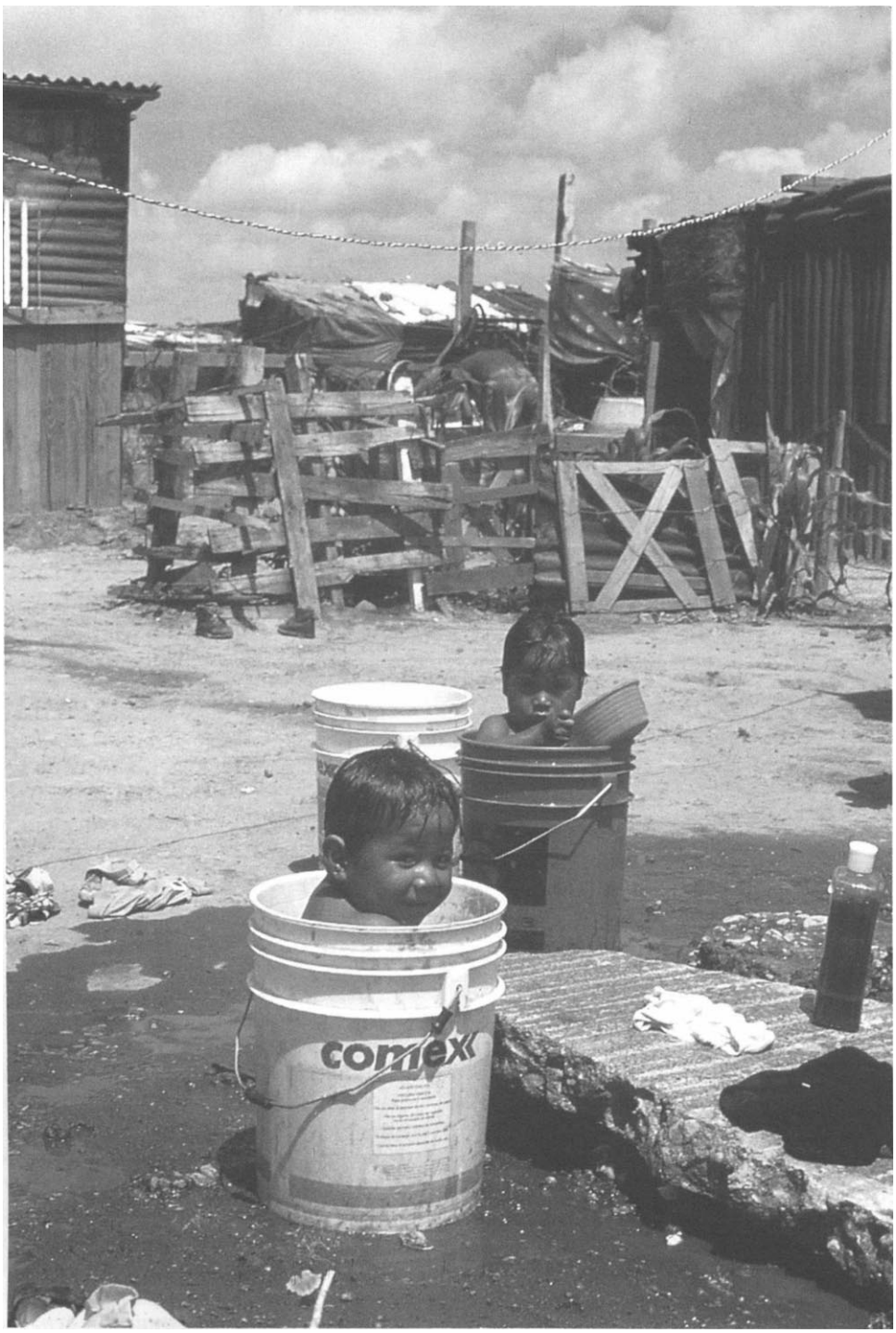
formly applied to all countries . . . (World Bank, 1993, p. 53)

If poverty standards are not formulated, how, the reader will ask, can poverty itself be determined? How does the World Bank arrive at this single value? Having obtained the poverty line data (from ECLAC-UNDP) and *per capita* GDP data, both in dollars at 1985 PPP, the World Bank applies a regression, on the basis of which the poverty line in seven more countries is estimated (the data from Colombia were excluded from the regression since the World Bank considered that its poverty line was excessively high). Based on the original ECLAC-UNDP and the seven estimated by the World Bank, and without any additional justification, the World Bank states: 'From these results, a uniform $60 per person per month in 1985 PPP dollars was chosen as the national poverty line for the entire Latin America and Caribbean region' (1993, p. 54).

According to the World Bank's own data, only three countries have poverty lines below $60. None of them appears in the original ECLAC-UNDP data but they emerge from the regression. They are Bolivia, El Salvador and Honduras. Let us assume for the time being that the regression gives meaningful results. The attentive reader will note that the level of *per capita* GDP of the original data – on which the regression is based – ranges from $473 per month at PPP in Venezuela down to a minimum of $147 in Guatemala. On the other hand, all the estimated values refer to countries with per capita GDP, in dollars at PPP, with much lower values, decreasing to a minimum of $57. This is a doubtful application because although the data give us some idea of the relations between the variables in the range observed, there is no guarantee that the equation can be applied for values outside the range. The World Bank also sets an extreme poverty line of $30; this is no doubt based on the ECLAC-UNDP pattern, which sets it at half the poverty line. In general the procedure is similar to that used by the World Bank in 1990 for the world as a whole, although whereas there poverty lines for countries such as Bangladesh or Egypt were adopted, for Latin America the World Bank uses poverty lines obtained from the regression for Bolivia, Honduras and El Salvador. Such manœuvres should not surprise us, since the World Bank has already warned us of the inevitably arbitrary nature of setting standards and the futility of scientific attempts to define a basket.

(f) The last stage in making *per capita* household income comparable with the poverty line developed by the World Bank is to correct the income figures obtained from surveys so as to make them consistent with national accounts. Here again the World Bank simplifies the methodology of the ECLAC-UNDP study: instead of adjusting each source of income separately, household by household, and awarding to the highest group of incomes all the underestimated interest and dividends – a policy adopted in the ECLAC-UNDP adjustment – it uses one expansion factor for rural areas and another for urban areas. The net effect of this simplification is to reduce both poverty and inequality, since income from property and business deals is underestimated much more than is the remuneration of salaried workers.

What does average poverty mean in terms of this *arbitrary line* of $60 per person per month at PPP? A general idea of what is meant by a dollar at PPP may be gained by noting that in many Latin American countries every $2 at PPP represented approximately $1 at the typical exchange rate for 1990. A more precise idea may be gained from the values of these lines in national currencies, which are provided by the World Bank. A complete evaluation would require an analysis for each country. We shall restrict ourselves here to analysing the case of Mexico: the poverty line of $60 (at 1985 PPP) is equivalent to an income of 75,600 pesos *per capita* per month, at their June–August 1989 value. For a family of five people the required amount would therefore be 378,000 pesos per month, corresponding to 41.3 days at the minimum salary for the Mexico City urban area. In other words, if in the average household of 4.93 people – according to the National Income and Expenditure Survey (ENIGH-89) – 1.63 people were working for the minimum salary, the household income would be 448,000 pesos, almost 20 per cent more than the PL and 2.4 times the EPL, as both are defined by the World Bank. Therefore, *assuming an average level of participation in the economically active population and minimum salary levels, the average size Mexican family would not be poor in 1989,*



Shanty town in San Luis, Mexico Dannemiller/Saba-Rea

according to World Bank standards. The 1.63 people employed could earn half the minimum salary and they would still not be extremely poor. In 1989, real minimum salaries were approximately 50 per cent of what they were in 1976–1981 (in other words, salaries in that period were double those in 1989), which means that in the last few years *the average family earned 2.4 times more than the PL and 4.8 times more than the EPL*.

The World Bank poverty line would meet 28.9 per cent of the cost of the Standard Basket of Essential Satisfiers (SBES) which I developed as part of the COPLAMAR work (Boltvinik, 1984) and the extreme poverty line 14.5 per cent. Those living on the World Bank extreme poverty line would not be able to purchase the food basket defined in COPLAMAR (1982), but only 76.4 per cent of it, and only 54 per cent of the ECLAC-UNDP basket. *The World Bank extreme poverty line thus represents only 41.2 per cent of the ECLAC extreme poverty line*. The World Bank poverty line, which is double the extreme poverty line, therefore enables 82.4 per cent of the ECLAC-UNDP food basket to be purchased, assuming all income is devoted to food. The World Bank poverty line is lower than the ECLAC-UNDP extreme poverty line. What then does poverty as measured by the World Bank mean? If the poverty measured by the ECLAC-UNDP poverty line were nutritional poverty as it is defined and we dismiss the extreme poverty line as being unsound, what is the significance of a poverty line which is less than half that of ECLAC, being set lower than ECLAC's extreme poverty line?

Let us consider the enormous variety of diets which are acceptable in nutritional terms. The COPLAMAR 1 food basket costs 54 per cent of the ECLAC-UNDP basket (Boltvinik, 1992). It should be pointed out that the former basket contains only thirty-four types of food and does not contain any beverages or dairy products (apart from milk itself), or food consumed outside the home. The World Bank poverty line represents 152.7 per cent of the cost of this basket, which means that households on this line and devoting 65.5 per cent of their income to raw foodstuffs could purchase the COPLAMAR 1 basket. At national level, according to the National Income and Expenditure Survey for 1989 (ENIGH-89), expenditure on food – including food consumed outside the home – represents 32.3 per cent of total household expenditure (financial and other). For each 10 per cent of the population, ENIGH-89 makes it possible to analyse the Engel coefficient only for financial expenditure. This is 56.3 per cent for decile I (the poorest) and 52 per cent for decile II, and it continues to decrease from there on. In other words, not only does the World Bank poverty line not measure nutritional poverty, it does not even measure poverty in terms of a much cheaper and smaller food basket than that used by ECLAC-UNDP.

Of course it is possible to make up baskets which are even cheaper than COPLAMAR 1. This is based on the eating habits of decile V of the population in the Survey on Income and Expenditure for 1977, and it would be too expensive for the World Bank, since in its report it states: 'The cost of *minimum adequate caloric intakes and other necessities can be calculated by looking at the prices of the foods that make up the diets of the poor*' (World Bank, 1990, p. 27, *emphasis added*).

It should first be noted that the World Bank reduces nutritional requirements to calories, which runs counter to all FAO/WHO/UNU recommendations, and second that a poor person's diet, taken literally, could in Mexico mean a diet confined almost exclusively to chili, tortillas, beans and salt. According to ENIGH itself, the diet of decile I of the population, i.e. poor people, accounts for only 15.4 per cent of total expenditure on meat, compared with 34 per cent in the COPLAMAR 1 basket. It would appear then that *the World Bank poverty line could be interpreted as a measure of malnutrition or physical survival*. It is possible that by bringing the cost of the food basket below that of COPLAMAR 1, the World Bank poverty line would enable a person with such an income, given its Engel coefficient, to purchase this poor person's diet and so achieve the required number of calories. Below such an income level, with almost no possibility of finding cheaper food, a reduction in food consumption would mean malnutrition in terms of calories. Some forms of expenditure on items other than food are very rigid and cannot easily be reduced. Of course, although the satisfaction of other needs

remains uncertain in terms of the ECLAC-UNDP poverty line, it may be stated, without fear of error, that with the World Bank line all other needs remain unsatisfied. It goes without saying that the World Bank extreme poverty line has no meaning. From what we have already seen, people with this level of income would be technically dead. If the World Bank data on poverty in Latin America are of any use, it would be as an indication of the population whose survival is at risk. Its data on extreme poverty should be dismissed without further ado.

On the pretext that poverty levels are arbitrary, the World Bank sets thresholds which are magically disconnected from human needs; in the case of Mexico this corresponds – as far as one can see – to strict physical survival, while extreme poverty levels do not correspond to any standard of living that has any meaning – they are well below such a level. In a scientific study of poverty the norms are not set in an arbitrary fashion, but dictated by social conditions. One of the difficulties – and one of the most important objects of study – regarding poverty is precisely the social process whereby certain norms are, not always explicitly, determined and formulated. One of the first duties of a poverty researcher is to be familiar with those norms, to systematize them and to make them operational. The World Bank avoids doing this, since, as we have already noted, it considers that much effort has been wasted on the 'scientific' construction of basic baskets, when any definition of poverty is, in its view, subjective.

The UBN-PL method used by the UNDP Regional Project for Overcoming Poverty

Following a line of analysis introduced by Beccaria and Minujin (1988) and by Katzman (1989), and a conceptual approach first suggested by Boltvinik (1989, 1990), whereby a new method is constituted by the simultaneous use of the UBN and PL procedures, the UNDP Regional Project for Overcoming Poverty promoted and implemented this new method of measuring poverty, which we will call UBN-PL, in various Latin American countries. It estimated the total number of people living in poverty for Latin America in 1986, and offered forecasts for 1990, 1995 and 2000. I will now explain this method and present a critical analysis of it.

The UBN-PL method consists in the simultaneous and non-critical use of the UBN and PL methods, as they have actually been applied in Latin America, i.e. the Standard Food Basket (SFB) variant which we have explained and analysed in detail, and which was used in the ECLAC-UNDP project, and also the procedure known as UBN, the prototype for which was used for the 'Poverty in Argentina' project (INDEC, 1986). To distinguish this UBN procedure from the improved version which I have developed (Boltvinik, 1992a) as a component of the Integrated Poverty Measurement method (IPM), it is referred to as the traditional UBN method in the text which follows.

The poverty criterion adopted in the UBN-PL method consists in *considering as poor those households (and their occupants) whose per capita income is below the per capita poverty line and/or have one or more unsatisfied basic needs*. In other words, the headcount ratio is obtained by the union of both sets. This increases the incidence of poverty in a country, sometimes considerably, compared with findings of whichever of the two different methods was used previously. Four categories can be defined by this combination of both methods: (a) people who are poor according to both methods (the intersection of both sets); (b) people who are poor if PL is applied but not if UBN is applied; (c) people who are poor if UBN is applied but not if PL is applied; and (d) those who are not poor using either method.

Analysis of the empirical evidence in the first projects conducted (see Boltvinik, 1990b), has led me to the following conclusions: (a) the incidence of poverty under UBN shows a systematic trend downwards; (b) the incidence under PL fluctuates in accordance with the ups and downs of the economy; (c) in general, as regards households defined as poor under both methods the correlation is very low: one-third in Montevideo, less than a quarter for Buenos Aires, 40 per cent in urban Peru and in rural Peru more than three-quarters; (d) people who are poor using UBN have a greater tendency also to be poor according to PL than vice versa.

Criticism of the UBN-PL method can be analysed into the following components: (a) critical analysis of both the methods which it

incorporates; (b) a discussion of the way in which they are combined; and (c) a discussion of the poverty criterion. With regard to the first point, I have presented a general critique of the PL and UBN methods in the previous section and a specific critique of the SFB variant of the PL method, which has been used by virtually all the authors implementing the UBN-PL method. It therefore remains to evaluate the UBN procedure, which will be done in the next subsection. Let us now deal with the other two components.

The two methods are combined simply by applying both to the same group of households and applying to them the poverty criterion described above. However, it is a mechanical process, since the possibility of duplication is not even analysed. One of these is obvious: the indirect indication of income given by UBN (constructed as a compound indicator showing the educational level of the head of the household and the degree of economic dependency of the household itself) and the indication of income given by the PL method. Another sign of the mechanical nature of the combination lies in the fact that the poverty line is not subject to any kind of revision, when it is possible that some of the categories identified under UBN no longer require verification by the PL method – for example, accommodation.

A household should not necessarily be considered as poor just because it has one unsatisfied need or because it comes below the poverty line. In Boltvinik (1992a) I have systematically explored this issue. Where both methods give the same result one need have no doubts. It is only in cases of partial poverty (poor according to one of the two methods but not both) that doubt arises. One way of clarifying the reasons for this doubt would be to take the lack of poverty shown by one method to an extreme. If a household is not only not poor in terms of income, but in fact extremely wealthy, it would appear that the existence of one unsatisfied basic need, for example the non-attendance at school of one of the children, would not qualify the household as poor. Similarly, poverty in terms of income – especially to the extent that the period over which the income was measured is very short and the variable used is income and not consumption – would not necessarily oblige us to conclude that the household is poor. Finally, rich households can maintain a very satisfactory standard of living for years by 'using up their savings', and having no income whatsoever.

Analysis of the traditional UBN method

The UBN method has already been outlined above. The procedure used may be formalized as follows. The indicators are constructed as indicators of deficiency (p) and each indicator is awarded 1 point if the need is unsatisfied and 0 if it is satisfied. In other words, it is a binary system, fulfilment or non-fulfilment, 0 or 1. Consequently, the *poverty criterion* is as follows: all households are poor in which the sum of the points of the different indicators is greater than or equal to 1; a household is extremely poor in which the sum is greater than or equal to 2. In formal terms:

$$P_j = (\Sigma\, p_{ij}) \geq 1 \quad \text{poverty criterion} \qquad (5)$$

$$P_j = (\Sigma\, p_{ij}) \geq 2 \quad \text{extreme poverty criterion} \qquad (6).$$

In (5) and (6) the sub-indices i and j refer to the indicator i in household j, such that the final qualifier, or privation index for household j, denoted P_j, is equal to the combined sum of the indicators P_{ij}, each of which expresses the value obtained (0 or 1) by household j in indicator i.

Independently of the indicators used, this method presents two main problems.

(1) The proportion of poor and extremely poor households is not independent of the number of indicators used. As indicated above, the more indicators used, the greater will be the proportion of poor and extremely poor people. This is because adding a new indicator would never make a household that was poor before cease to be poor but it could make some households poor that were not poor before.[8]

(2) In general, this method does not enable the intensity of poverty to be evaluated. Although the level in each household may distinguish between poverty and extreme poverty (which is a way of distinguishing two levels of intensity of poverty), contrary to the PL method, the UBN method does not provide any way of defining the intensity of poverty, as regards either households or society in general.

In any study of poverty there are two preliminaries: the identification of poverty (which

answers the question of who the poor are and how many of them there are) and the measurement of the intensity of poverty (which answers the question of how poor the poor are). As Amartya Sen (1992) points out, simply identifying the poor and calculating the proportion they form of the total population (the headcount ratio, denoted in literature on the subject by $H = q/n$ (where q is the number of poor people and n the total population)) pays no attention to the extent of income shortfall of those who lie below the poverty line, putting on an equal footing those who come just below it and those who are very far from it and living in acute misery. This means that if a poor individual is deprived of a service so that it may be supplied to someone who is not poor, H remains unchanged despite the fact that poverty has clearly increased. This demonstrates the importance of knowing the intensity of poverty, let us call it I, which would in fact reflect such an increase in poverty.

Equations (5) and (6) make it clear that the usual procedure passes up two obvious opportunities to come closer to measuring the intensity of poverty. The first would consist in broadening the second category so as to identify those with three, four and up to *n* unsatisfied needs, thus constituting *n* degrees of poverty. The second involves the binary system of qualification, which awards one point wherever the need is unsatisfied, failing to take account of the gradations which the original variable would often make it possible to identify. Let us take the example of children's school attendance. It is obvious that the deprivation involved if a child of ten not attending school has *never* attended school, is greater than if the child has already successfully completed three school grades. Such information can be obtained from population censuses.

In Latin America there are already at least eleven countries which have compiled poverty maps based on the UBN method (for a summary of the results see the UNDP Regional Project for Overcoming Poverty (1991 and 1992), and also Beccaria, Boltvinik, Fresneda, Sen *et al.* (1992)). In almost all of them the same group of UBN indicators has been used, although with certain differences.

This article is not the place for critical analysis of the UBN indicators usually used taking each individually, which can be found in Boltvinik (1992b).

Scale of poverty in Latin America: three versions

Table 1 shows the figures for the incidence of poverty in Latin America resulting from the three studies. What stands out first of all is that the different studies give quite different pictures of the incidence of poverty in Latin America. Whereas the World Bank study identifies less than one-third of the population of Latin America as poor (31.5 per cent in 1989), ECLAC-UNDP identifies slightly less than half (47 per cent in 1990), while the Regional Project identifies more than 60 per cent as poor (61.8 per cent in 1990). The latter percentage is almost double that of the World Bank. In absolute terms, the minimum figure, set by the World Bank, represents 133 million people. The intermediate figure, from ECLAC-UNDP, is 203 million, and the highest, from the Regional Project, 271 million. There is a difference of more than 130 million between the two extremes. The intermediate figure, from ECLAC-UNDP, is almost exactly half-way between the two. As we said earlier, the World Bank figure may be interpreted as a measure of physical survival (or absolute nutritional poverty) and the ECLAC-UNDP figure as a relative nutritional poverty line. The Regional Project's figure appears to provide a more all-round picture of poverty, in which, however, as stated previously, certain factors are undervalued, such as the limited conceptual basis of the poverty line and the very low levels of certain UBN indicators, while others are overvalued, such as the poverty criterion which establishes the headcount by the union of the sets. The balance between the two will only become clear in the course of the empirical work on the Integrated Poverty Measurement method (IPM).

In both the World Bank and ECLAC-UNDP studies we are able to observe the changes in the type of poverty identified during the 1980s. Despite the significant difference in the concepts of poverty applied (reflected in the different poverty lines used in both studies) and consequently, the greatly contrasting incidences shown, they coincide dramatically in one

TABLE 1. Incidence of poverty in Latin America based on three studies (in percentage of population and number of individuals)

Year	ECLAC-UNDP PL (SFB)		World Bank PL = $60 ppp		UNDP Regional Project UBN-PL	
1970	47%	130 m				
1980	41%	144 m	26.5%	91 m		
1986	43.5%	175 m			61.5%	248 m
1989			31.5%	133 m		
1990	47%[e]	203 m			61.8%	271 m
2000	44%[e]	232 m			56.0%	296 m
increase	1970–1980	14 m	1980–1989	42 m		
	1980–1990	59 m				
marginal	1970–1980	18.4%	1980–1989	54%		
incidence	1980–1990	70.2%				

[e] Project forecasts

respect: the large increase in poverty in the lost decade. According to ECLAC-UNDP, the proportion of people living in relative nutritional poverty increased from 41 per cent in 1980 to 47 per cent in 1990 (an increase of six percentage points which represents around 15 per cent in relation to the initial percentage), and which implies a return to the levels of 1970; the proportion of people living in absolute nutritional poverty, according to the World Bank, increased from 26.5 per cent to 31.5 per cent (an increase of five percentage points which represents 19 per cent in relation to the initial level). It is clear that in both cases we are dealing with very significant percentage increases, although in relative terms that identified by the World Bank is greater, especially if we bear in mind that it refers to a period of nine years compared with ten for ECLAC-UNDP. In absolute terms, the increase in the number of relatively nutritionally impoverished people was 59 million, while the increase in the number of absolutely nutritionally impoverished people was 42 million. By expressing both increases in terms of the increase in population occurring over the period, we obtain the marginal incidence of poverty which tells us what proportion of the total number of inhabitants added to the population was poor. The marginal incidences are 70.2 per cent and 54 per cent for relative and absolute nutritional poverty respectively, which shows the seriousness of the process under way. If we relate this marginal incidence to the average for 1980, it is once again confirmed that the impoverishment noted in the World Bank study was more accelerated than that shown in ECLAC-UNDP: in the first case the relation is 2.04 and in the second 1.72. If we considered these studies to be rigorous – ECLAC-UNDP fits this definition more closely than the World Bank study – and therefore treated their results as a reflection of changes occurring in reality, we would conclude that the rapidity of the process of impoverishment that occurred in the 1980s was particularly marked in those social strata where poverty was more acute.

The interpretation of the ECLAC-UNDP and World Bank studies may be verified by comparing them with the findings of the Joint ECLAC/FAO Agriculture Division (Table 2). However, the data in this table are difficult to interpret. There is great variation between countries, since there are at least two unregulated aspects: on the one hand, the years in which observations were made, which do not always coincide, and on the other hand the coverage of the World Bank estimates (which can be either urban, national or metropolitan). In the ECLAC-UNDP study this problem is resolved in various countries by means of estimates, so that the results presented are always at national level. Despite these problems, the great similarity between the FAO/ECLAC estimates of nutritional deficiency and the ECLAC-UNDP estimates of poverty (44 per cent compared with 41 per cent, both for 1980) is very noticeable. This seems to confirm the validity of the SFB method of evaluating nutritional

TABLE 2. Comparative analysis of ECLAC-UNDP and World Bank poverty estimates with FAO/ECLAC nutritional deficiency and malnutrition estimates (shown as percentages)

Country	FAO/ECLAC *Malnutrition*	FAO/ECLAC *Nutritional deficiency*	ECLAC/UNDP *Poverty*	World Bank *Poverty*
Argentina	5.6 (1982)	17.9	10.0 (1980)	3.0 (BA1980)
Brazil	24.2 (1984)	46.0	45.0 (1979, 1987)	34.1 (1979)
Chile	12.5 (1982)	35.2	44.0 (1989)	n/a
Colombia	24.8 (1982)	48.0	42.0 (1980)	13.0 (U1980)
Guatemala	38.7 (1980)	62.9	71.0 (1980)	66.4 (1987)
Honduras	41.3 (1982)	61.4	n/a	48.7 (U1986)
Mexico	25.5 (1977)	43.3	40.0 (1977)	16.6 (1984)
Panama	13.1 (1982)	48.4	42.0 (1942)	27.9 (1979)
Peru	40.5 (1978)	61.8	53.0 (1979)	31.1 (L1985)
Venezuela	12.7 (1982)	37.5	25.0 (1981)	4.0 (1981)
Latin America	16.0 (1980*)	44.0**	41.0 (1980)	26.5 (1980)

* FAO World Food Survey.
** Weighted average for ten countries.
BA = Buenos Aires U = Urban L = Lima

poverty. If these two estimates are compared for individual countries in which the year is the same or almost the same, the validity of this reading is confirmed (Brazil: 46 per cent *vs.* 45 per cent; Colombia: 48 per cent *vs.* 42 per cent; Guatemala: 63 per cent *vs.* 71 per cent; Mexico: 43 per cent *vs.* 40.0 per cent and so on).

For the reasons outlined above, comparisons with the World Bank data are not so easy. However, it is clear that overall poverty in Latin America estimated by the World Bank in 1980 is closer to the FAO/ECLAC estimate for malnutrition than to that for nutritional deficiency by the same source; it is also clear that in various countries the World Bank estimate is substantially lower than that for malnutrition by FAO/ECLAC.

In general, the evidence presented reinforces the conclusions based on critical analysis of the methods applied: the relative nature of the nutritional poverty shown by the SFB method and the absolute nature of the nutritional poverty (physical survival) shown by the World Bank method are confirmed.

Although we do not wish to go beyond the bounds of this article, whose focus is essentially methodological, it is clear that the concept of poverty that is adopted affects not only the findings of a study, but also the approach adopted to the problem and the nature of the solutions. When attempts are made to identify those who are literally dying of hunger, or at serious risk of so doing, it is clear that the aim could be to take measures to prevent this from occurring. As we have seen, the World Bank's approach challenges neither key policies such as policy on wages and salaries nor the series of economic policies which, as a result of the pressures and conditions applied by itself and the IMF, have been implemented in all the countries. Therefore, with regard to poverty, it is a question of preventing its most unpleasant social consequences, such as famine. On the other hand, where it is necessary to evaluate the development model in terms of its capacity to distribute its benefits widely and to enable everyone to live decently, at what is now the end of the twentieth century, a broad identification of deprivation is clearly needed, as provided by the UBN-PL method. This approach calls for a comprehensive revision of the development model adopted, among other reasons because assistance cannot be organized for more than half the inhabitants of a country.

Translated from Spanish

Notes

1. The sources for the results of the first project are ECLAC-UNDP (1990 and 1992), and Beccaria, Boltvinik, Fresneda, Sen *et al.*; for the results of the second project see primarily Altimir (1979).

2. Readers can find a full account of this analysis and a more detailed explanation of both methods in Boltvinik, 1991.

3. The procedure described in the text for selecting Engel's coefficient is only one possible option. The average Engel's coefficient can also be selected for the whole population or for the poorest groups. For a description and analysis of these options, see L. Barreiros (1987 and 1992).

4. Beccaria and Minujin (1991, p. 6) state: 'Boltvinik (1990) has pointed to an inconsistency in this method in that it makes an assumption as to who is not poor before endeavouring to identify who is poor. In fact, Engel's coefficient, although calculated on the basis of observation of the behaviour of a group of people who are *not* poor, is offered to assist in the decision as to who *is* poor'.

5. At very intense poverty levels it has been observed, however, that when income goes up Engel's coefficient increases before it begins to decrease. However, if observations are made in terms of deciles in Latin America, this does not seem to occur. Decile 1 must be broken down for this to happen. The basic point of the text concerning a larger Engel's coefficient between population groups beneath the reference stratum, but lower absolute expenditure on food, is therefore correct (see Barreiros, 1992, p. 368).

6. Barreiros (1992, p. 368) offers a similar interpretation: 'The poverty line may therefore be interpreted as the level of total expenditure on per capita consumption enabling a household to provide its members with an adequate diet and at the same time offer other possibilities for basic consumption, which is reflected in Engel's coefficient.' The reader should note that the author qualifies only the consumption of food as adequate, and not the satisfaction of other needs.

7. Unfortunately the ECLAD-70 study (see Altimir, 1979) arbitrarily adopts the same Engel coefficient of 0.5 for all countries, despite the broad variation in the data observed. The ECLAC-UNDP study (1990, 1992) falls into the same error in using the same Engel coefficient as ECLAC-70 for all countries, once again despite evidence to the contrary. This arbitrary approach confuses the empirical use of data, although the basic concept remains clear.

8. This may be illustrated empirically by Larrea's calculations for Ecuador (1990). The author calculates the percentage of the urban population of this country which is poor in UBN terms, both by using the usual UBN indicators and by adding to these infant malnutrition and illiteracy for those over the age of twelve. Whereas in the first case 37.5 per cent of households are identified as poor in UBN terms, in the second case the percentage increases to 50.1 per cent.

9. Analysis of policies to eradicate poverty proposed by the three institutions complements analysis of their approaches to measuring this phenomenon. Unfortunately, discussion of this aspect would take us beyond our present remit. I am in the process of preparing a comparative analysis of material produced by the three institutions. The material produced by ECLAC may be found in the series of publications associated with the approach adopted in *Productive Transformation with Equity* (1990, 1991 and 1991a). The material produced by the World Bank may be found in the World Bank (1990), as well as in the *Handbook for Poverty Alleviation*. Material produced by the Regional Project may be found in *Development without Poverty* (1990) and in its updated version (1992).

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