Unknown: The Extent, Distribution, and Trend of Global Income Poverty

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For some twelve years now, the World Bank ("the Bank") has regularly reported the number of people living below an international poverty line, colloquially known as "$1/day".[3] Reports for the most recent year, 1998, put the number of people below this line at 1,175.14 million.[4] The Bank's estimates of severe income poverty — its global extent, distribution in space, and trend over time — are widely cited in official publications of governments and international organizations and in popular media, often in support of the view that liberalization and globalization have helped to reduce poverty worldwide.[5] Most readers, including many economists, take these figures as clear-cut facts. But the method used to calculate them has serious flaws, which cause the resulting

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[4] Chen and Ravallion 2001, 290. The numbers reported here are slightly revised from those provided for the same year (1998) in World Bank 2000, 23. See also www.worldbank.org/research/povmonitor/.

[5] "Over the past few years, these better policies have contributed to more rapid growth in developing countries' per capita incomes than at any point since the mid-1970s. And faster growth has meant poverty reduction: the proportion of people worldwide living in absolute poverty has dropped steadily in recent decades, from 29% in 1990 to a record low of 23% in 1998" (James D. Wolfensohn: "Responding to the Challenges of Globalization: Remarks to the G-20 Finance Ministers and Central Governors," Ottawa, November 17, 2001, www.worldbank.org/html/extdr/extme/jdwsp111701.htm).

estimates to be untrustworthy. Equally seriously, and contrary to first appearances, the poverty line used by the Bank lacks in any valid interpretation. An alternative method of estimating global poverty, linked more explicitly to the basic requirements of human beings, is feasible and necessary.

The Bank's Methodology Overestimates the Purchasing Power of the Poor Relative to What They Need to Buy

The World Bank defines its international poverty line in terms of the purchasing power that a certain US$ amount had in the United States in a particular base year — for example, $1 1985 per day (the international poverty line employed by the Bank in its first global poverty estimation exercise). To make this line applicable to other countries and years, the Bank uses a two-step procedure. First, the Bank uses purchasing power parity conversion factors (PPPs) to estimate the amount of local currency needed to have real income equal in purchasing power to that of $1 in the U.S. in 1985. In this way, it determines, for each country, a 1985 national poverty line deemed equivalent to the international poverty line. Second, the Bank employs specific national price indices to determine, for each country, national poverty lines for other years that are deemed equivalent to this country's 1985 national poverty line. Relying on household income surveys, the Bank then identifies a country's poor in any given year as those living below this country's national poverty line for that year.

Though apparently simple, this exercise has significant problems. The main difficulty is that "equivalent" purchasing power over commodities is an incomplete concept. The critical missing question is: Equivalent purchasing power over ***what*** commodities? In identifying the

cost-of-living adjustments that should be made across countries, the Bank relies on data (prices and quantities) about ***all*** commodities, many of which (such as cars, plane tickets, and stereos) are not consumed by the poor.

Price ratios between rich and poor countries vary widely across commodities. For goods that are easily traded across borders, prices compared at market exchange rates are about the same in rich and poor countries. For goods and services that are not easily traded across borders, prices compared at market exchange rates can be fifty times higher in rich countries than in poor ones. General-consumption PPPs average out these price ratios in a way that, roughly speaking, weights each commodity in proportion to its share in international consumption expenditure.

The use of such PPPs is quite inappropriate for poverty assessment and severely distorts the resulting poverty estimates. To illustrate, consider a simple example of two countries and two commodities. Suppose, not unrealistically, that basic foodstuffs cost about thirty times as much in Rupees in India as they cost in Dollars in the US. Suppose also that services (drivers, haircuts, manicures, etc.) cost about three times as much in Rupees in India as they cost in Dollars in the US. Considering the consumption patterns in both countries, current methods of constructing PPPs will deliver a PPP of perhaps Rs.10:$ 1 (conveying the impression that Rs.10 contain the same purchasing power as does US$1). An Indian with income of Rs.10 per day is then not counted as having a real income falling below $1/day even though she can buy only one third of the basic foodstuffs she would be able to buy with $1/day in the US.

This is clearly unreasonable. With Rs.10, poor Indians can buy only one third the basic foodstuffs that $1 buys in the U.S. For the poor, this disadvantage is not compensated by the fact that Rs.10 also buys over three times more services than $1 buys in the U.S. Even if richer persons spend as much on services as on basic foodstuffs, the poor do not, and cannot, do so. They must concentrate what little income they have on basic necessities. The purchasing power of poor people should therefore be assessed by relating their incomes ***not*** to the prices of ***all*** goods and services, but ***only*** to the prices of those goods and services they must consume to meet their basic needs.

We do not currently possess all of the data with which to estimate global poverty in this more sensible way, although it should be possible in the future to collect it. However, the data we do have suggest how global poverty estimates would be different if a more credible procedure were used. Existing data about the prices of foodstuffs and, more specifically, of staple bread and cereals, show that these items (a large part of the consumption requirements of the poor) cost far more in poor countries than is suggested by general-consumption PPPs. The same is true for many basic necessities other than food.[6] It is very likely that the World Bank, were it to use PPPs more closely linked to the needs of the poor, would translate its $1/day standard into substantially higher national poverty lines for most poor countries.

How much higher would these national poverty lines be? If prices of foods, or more specifically of breads and cereals, rather than prices of all commodities were used to convert the $1/day international poverty line, national poverty lines of poor countries would be some

[6] Data from International Comparison Program benchmark surveys on http://pwt.econ.upenn.edu. An analysis is also contained in Sanjay Reddy and Thomas W. Pogge: "How *Not* to Count the Poor," working paper available at www.socialanalysis.org.

30 to 40 percent higher on average,[7] which could raise the estimated global incidence of severe income poverty substantially. For a small number of countries for which we were able to make estimates, we found that increases in national poverty lines of this magnitude caused increases in poverty headcounts of a similar magnitude.[8]

We urgently need much better estimates of the costs of purchasing the goods that the poor actually need to buy.[9] National poverty lines for each country and year should be fixed by the cost — in each country and year — of purchasing at local prices a generically described basket of basic necessities. It is desirable to have a worldwide scheme (perhaps under the auspices of the existing International Comparison Program) for collecting data on the prices poor people must actually pay to meet their basic needs. Despite the feasibility of putting in place a data collection system of this kind, there has never been an effort to do so.

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[7] Sanjay Reddy and Thomas W. Pogge: "How *Not* to Count the Poor," working paper available at www.socialanalysis.org. See especially Tables 6A and 6B, giving population-weighted geometric means of this figure for all poor countries for which data was available. If 'all-food' PPPs are used in lieu of general consumption PPPs to convert the international poverty line of $1 PPP 1985 into national currencies, national poverty lines of poor countries increase by 40% on average. Using bread-and-cereals PPPs to convert $1 PPP 1985, the average increase is 34%. Using all-food PPPs to convert $1.08 PPP 1993 (the current international poverty line employed by the Bank), the average increase is 31%. Using bread-and-cereals PPPs to convert $1.08 PPP 1993, the average increase is 40%.

[8] Ibid., Table 10.

[9] Another point regarding limitations of current data is that even the general consumption PPPs currently in use are produced with very limited evidence. A large number of countries containing poor people -- including some of those that contain the largest number (most notably, China and India) -- have not participated at all in recent 'benchmark' price surveys, causing a massive element of guesswork to underlie current poverty estimates. This is a point that is quite distinct from the methodological weaknesses we discuss elsewhere in this paper. The estimates of plausible PPPs for China alone differ by a factor of two. Shifts in China's poverty line to this extent would cause massive variations in the resulting estimates of the total number of the world's poor. The lack of precision of current poverty estimates should be more fully acknowledged.

The Bank's Methodology Produces Unjustified Conclusions about Poverty Trends

We have shown that the Bank's assessments of the global ***incidence*** of severe income poverty are severely distorted, leading to a substantial underestimate of the number of people living below the Bank's chosen international poverty line. There are also reasons for believing that the distortion worsens over time, causing the Bank to come to unjustified conclusions concerning the ***trend*** of severe income poverty worldwide.

One difficulty in inferring trends about poverty is that purchasing power parities calculated at different times offer a poor guide to the actual change in costs of living in countries. As mentioned, the international poverty line adopted by the Bank in its first global poverty estimation exercise was $1/day 1985 PPP. More recently, it has adopted a poverty line of $1.08 1993 PPP (a poverty line that it also refers to as '$1/day'). What is the relationship between these two poverty lines? Do they refer to the same level of purchasing power or to different levels of purchasing power, and if the latter then by how much do they differ? We can attempt to answer this question by comparing the outcomes of two different procedures. In the first procedure, a poverty line for a country is calculated by converting the World Bank's latest (1993) international poverty line ($1.08 1993 PPP) into the country's currency by using the 1993 purchasing power parity conversion factor for the country. In the second procedure, a 1993 poverty line for a country is calculated by first converting the World Bank's 1985 international poverty line into the country's currency by using the 1985 purchasing power parity conversion factor for the country, and then adjusting the level of its 1985 national currency denominated poverty line derived in this way by the change in the country's consumer price index between 1985 and 1993. The national poverty lines for 1993 derived by these two distinct procedures diverge widely. The poverty line calculated by the

second procedure varies from 70 percent of the poverty line as calculated by the first procedure (in the case of Nigeria) to 257 percent of the poverty line as calculated by the first procedure (in the case of Mauritania) with the other countries scattered in-between.[10]

Given the wide variation in the purchasing power implicit in the two poverty lines (with the extent and direction of the gap quite different from country to country), it cannot be accepted that the Bank has merely "updated" the older line and that the "new line ... has a similar purchasing power to the $1 a day line in 1985 prices."[11] The fact is that the new line leads to substantial revisions in most national poverty lines. Moreover, the Bank's choice of $1.08 PPP 1993 as its international poverty line generates an increase in some national poverty lines (e.g., Nigeria's) and a large reduction in many others (e.g., Mauritania's). Examining all 92 countries for which data are publicly available, the redefinition lowered national poverty lines in 77 countries, containing 82 percent of the total population of the 92 countries, and raised national poverty lines in only 15 countries. The choice of a different international poverty line (other than $1.08) defined in 1993 PPP dollars might have changed the proportion of countries in which the new poverty line was lower than the old one. However, ***no*** choice of international poverty line would have reasonably reflected for all (or even most) countries the changes in domestic cost-of-living described by national consumer price indices.

Since periodic adjustments of the base year, by reference to which the international poverty line is defined and purchasing power parity conversions are made, are a standard feature of the Bank's procedure, it is important to note that they are likely to introduce a systematic bias

[10] Ibid., Table 5.

[11] World Bank 2000, 17.

toward painting too rosy a picture of poverty trends. Adjustment of the base year reduces the reported incidence of poverty insofar as the consumption patterns in many countries, both rich and poor, are shifting toward commodities (such as services) whose prices, converted at market exchange rates, are very much lower in poor than in rich countries. As such commodities' share in global consumption increases, their weight in the calculation of general-consumption PPPs increases as well. Using such general-consumption PPPs to assess the incomes of very poor people thus becomes ***increasingly*** distorting through its implicit assumption that the prices of commodities whose share in general consumption increases as aggregate incomes rise (e.g., services) therefore become more important, and the prices of commodities whose share decreases as aggregate incomes rise (e.g., basic necessities) therefore become less important to the global poor. This assumption is mistaken because any poor household must continue to spend virtually all its income on basic necessities, no matter how much the share of basic necessities in global consumption may diminish in an ever more affluent world.

To see the effect of this false assumption, consider once more the simple example of two countries and two commodities. Suppose that rising general affluence in India and/or the US has shifted global consumption toward services in the period between two different base years in which the international poverty line is defined. In the later base year, prices of services will then have greater significance, and prices of basic foodstuffs correspondingly smaller significance, in calculating the new general-consumption PPP which, ***even if prices everywhere remain constant***, will therefore be lower (Rs.8/$1, say) than the old (Rs.10/$1). How would the international poverty line be "updated" in this scenario? 'Maintaining' the poverty line of $1.00 PPP per day would preserve the US poverty line but lower the Indian poverty line from Rs.10/day to Rs.8/day. 'Updating' to $1.25 PPP per day would preserve

the Indian poverty line at Rs.10/day but increase the US poverty line by 25%. Any intermediate value chosen is arbitrary — and also lowers the Indian poverty line, with the Bank in effect telling poor Indians that their opportunity to buy services very cheaply has become more valuable thanks to the increase in global consumption of services relative to foodstuffs. The Indian poor can plausibly reply that the global shift toward consumption of services is quite irrelevant to them, as they are still compelled to concentrate their expenditures on the basic foodstuffs (and other necessities) they need to survive.

The World Bank presents itself as employing a constant international poverty line — $1/day — that is merely "updated" periodically by switching to a more recent base year. This claim is simply false. The Bank does ***not*** provide a single international poverty line that is periodically adjusted. Rather, each new base year brings a new pattern of global consumption on which PPPs are then based. What the Bank provides is thus a series of international poverty lines that cannot be directly compared with one another. They can be compared only indirectly, by examining how any redefinition affects national poverty lines. Insofar as global consumption is shifting toward commodities (such as services) that are especially cheap in the poorer countries, the Bank's periodic redefinitions tend to reduce national poverty lines and national poverty headcounts in most poor countries, as is dramatically illustrated by the recent switch from $1 PPP 1985 to $1.08 PPP 1993.

Conclusion: There is a Feasible Alternative

Despite the Bank's substantial efforts to fill the gap in our knowledge, we do not yet know with any reasonable degree of confidence how many poor people there are in the world,

where they live, and how their number has changed over time. If we are to monitor progress against absolute poverty, then this gap must be filled.

Fortunately, the serious flaws in the Bank's methodology have a common root and are avoidable through one straightforward innovation: The definition of severe income poverty must be more narrowly focused on the specific consumption requirements of the poor, reflecting elementary human needs or capabilities (such as adequate nourishment). Such a definition, unlike the Bank's arbitrary dollar amount, gives the international poverty line a clear and plausible meaning: those living below it lack the resources they need to achieve the most basic of human capabilities. The avoidance of poverty understood in this sense can be specified in terms of the ability to purchase or otherwise obtain a single ***constant*** commodity basket (abstractly defined in order to accommodate relevant international differences in tastes and other relevant factors) that reflects the basic requirements of human beings (such as calories and micronutrients, protection from the elements, and minimal health care). A set of requirements specified in this way has a common meaning across the world, but different costs in different countries. If appropriate price data and information on the non-market opportunities of the poor are collected, as can easily be done, then the costs of acquiring this basket in different countries (and more specific locales, where appropriate) can be established. The income poor the world over will be identified as those who have insufficient resources to possess this basket.[12]

[12] Poverty is of course a complex concept. There are many important sources of information about the non-income opportunities and achievements of people (concerning for instance, their health and education) that do now inform, and must continue to inform in the future judgements concerning the extent, distribution and trend of poverty in the world.

The same constant basket can also provide an invariant standard for adjusting national poverty lines over time to reflect changing prices of basic necessities. There will be no need for periodic redefinitions of the international poverty line, if this common standard — invariant across countries and years — is adopted. Such a common standard will allow the world to have confidence that the concept of poverty used in estimating the number of the world's poor ***means something*** — and that it means the ***same*** thing regardless of where they live and when they live. A globally transparent and widely consultative process should underlie the development of this new and more credible method of keeping accounts regarding the extent and reach of absolute poverty in the world. Without an effort of this kind, it will be difficult to accept that the institutions concerned with monitoring poverty are serious about this task.

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