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## **Understanding Child Poverty in Developing Countries:**

### **Measurement and Analysis**

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#### **[A] Introduction**

Childhood, and the extent and consequences of childhood poverty, have a central place in the study of development. In many economies of Asia and Latin America, where growth has picked up considerably in recent years, the patterns of growth and the extent and nature of inclusion of poor people are crucially important for the type of society that will be produced for the next generation. More specifically, the educational and health opportunities for children who are currently poor, as well as the nature of their social inclusion and their general well-being, will determine their chances of partaking fully in this future society. In several sub-Saharan African countries, despite recent growth successes, sustained growth is still largely elusive, and current child poverty, with its cumulative effects on destitution, may undermine the possibility of economic growth in the future. Recent research has highlighted the cumulative consequences of

childhood poverty and deprivation. For example, a meta-analysis of the effects of early childhood nutritional deficiency and poverty has highlighted its serious consequences for a variety of outcomes, including school achievement and earning potential in later life (Grantham-McGregor et al. 2007).

Although there are many current initiatives focusing on child well-being, there are crucial information gaps and areas of uncertainty. In particular, there is much yet to be learnt about the circumstances that influence childhood poverty, and children's experiences of and responses to poverty, as well as the multiple and diverse ways that poverty affects children in specific countries, regions, and communities, not only in infancy and early childhood but also throughout childhood and adolescence.<sup>1</sup> As a consequence, the evidence provides only a limited basis for the development of effective poverty-reduction and social policies.

Childhood well-being has multiple dimensions, including nutrition, educational opportunities, a child's experience of material poverty, and its general psychosocial status. Children can be deprived in these and other dimensions, implying that a comprehensive concept of child poverty has to be multidimensional. But does this imply that analysis of child poverty requires a multidimensional measurement to express the incidence and extent of child poverty? As will be developed in the section of this chapter on measuring multidimensional poverty, this is a less obvious question than it may seem. It will be argued that combining different dimensions may

offer a set of powerful general patterns ('stylized facts') but they may also confuse and distract from the more fundamental questions of policy, which require an understanding of the causes and consequences of the various dimensions of child poverty. Deprivations in different dimensions may be caused in complex ways by a variety of factors at various times during childhood, and aggregating dimensions may obscure rather than illuminate these.

This chapter uses Young Lives data from Peru, Ethiopia, Vietnam, and the state of Andhra Pradesh in India to illustrate these arguments. We focus on the data and analysis of Rounds 1 and 2 in 2002 and 2006, especially Round 2. In the next section, we introduce the data and present some descriptive analysis of some key dimensions of poverty. In the following section ('Measuring multidimensional poverty'), we discuss multidimensional poverty indexes and illustrate the possibilities offered by the Young Lives data. In the concluding section, we discuss some of the limitations of this approach and various ways in which causes and consequences of poverty can be researched using longitudinal data such as those collected by Young Lives. Longitudinal data allow us to investigate some of the dynamic processes of child poverty. The nature of such data has limitations but also important advantages. It is not intervention-based or experimental, so causal inference using statistical tools is at times problematic. Nevertheless, the chapter will argue that by using careful non-experimental statistical methods, we can offer substantive new insights into

child poverty and its causes and consequences. We will use some examples from recent work using the Young Lives data to illustrate this potential.

### **[A] The Young Lives Study: Some descriptive analysis**

Young Lives is tracking the development of 12,000 children in four country sites through quantitative and qualitative research over a 15-year period.

The project includes two groups of children: a Younger Cohort of 2000 children in each of the four study countries, who were aged between 6 months and 17 months when the study began in 2002; and an Older Cohort of 1000 children in each country, who were aged between 7.5 years old and 8.5 years in 2002. The aim is to gain understanding of the multiple dimensions of childhood poverty, along with the multiple life trajectories of poor children.

The samples are relatively small in comparison with the population in each of the selected countries and regions, and poorer children are purposively oversampled. Consequently, the samples are not appropriate for monitoring poverty levels in a country: basic descriptive data such as poverty levels in the sample do not represent poverty levels in the country as a whole.<sup>2</sup> Reweighting could be considered but the relatively small sample would make even a reweighted sample unlikely to reflect the exact levels of national poverty. Nevertheless, compared to larger representative samples such as the Demographic Health Surveys, the Young Lives samples have been shown to cover the broad range of characteristics and attributes

of the population of children of this age group (Outes-Leon and Sanchez 2008; Escobal and Flores 2008; Nguyen 2008; Kumra 2008). While not designed to specifically monitor child poverty in a country, the data are suitable for analytical work on child poverty in each of the countries: they may not be suitable to indicate the number of poor children but could help to illuminate patterns and differences between various groups and over time. As questionnaires are virtually identical across countries, comparative work is possible, highlighting any differences and similarities in the processes determining child poverty and its consequences.<sup>3</sup>

The survey itself consists of a quantitative component using child, household and community ('context') questionnaires, as well as a qualitative component based on interviews with a purposive sub-sample. This allows a 'thick' description of different children's lives and of the dynamic processes that underlie life trajectories. In this chapter, we restrict ourselves to a discussion of some of the quantitative data.

In coverage of different dimensions of child well-being, Young Lives instruments go beyond what is usually included in standard household survey instruments, such as the Living Standard Measurement Study (LSMS) survey instruments favoured by the World Bank or what is covered by Demographic and Health Surveys (DHS) or UNICEF's Multiple Indicator Cluster Surveys (MICS). The LSMS instruments are commonly used to measure household income or consumption and these, and more generally household budget and expenditure surveys, lie at the basis of standard

monetary poverty measures, such as those linked to the first Millennium Development Goal of halving poverty by 2015. Nevertheless, LSMS surveys include typically also what DHS and MICS surveys cover. The latter feed recent UNICEF efforts to measure child poverty based on deprivations in the spheres of access to clean water, good sanitation, shelter, basic health and nutrition, food, and education. These are no doubt important dimensions of a child's life – but it would be wrong to reduce a child's life to these dimensions: children have agency and are not just passive recipients of goods and services. The Young Lives data try to go further and include child-centred information on typically less studied dimensions related to children's psychosocial well-being and their subjective assessment of their well-being. In dimensions related to education, poverty is not just about school enrolment and grade achievement, but also about the quality of the schooling received and actual cognitive achievements, again dimensions Young Lives can consider. Similarly, on other issues Young Lives can add a more comprehensive view of a child's life, such as more detailed experiences related to work within and outside the family, the risks he or she faces, his or her vulnerabilities, and his or her aspirations, as well as a richer description of caregivers' living conditions and experiences.

Below we introduce a selection of these. The selection is not comprehensive, nor does it exploit the full potential of the data. This touches on a first key issue in any multidimensional poverty measurement: in most cases, the dimensions included in the analysis are opportunistic, simply using what is available. For example, DHS-style surveys have good

coverage of health, nutrition, and demography, but information on children is restricted to certain key factors that are the focus of public health literature, such as access to healthcare and water, immunization, mother's education, and health information. Children's well-being consequently tends to be reduced to dimensions of health and nutrition for children up to the age of 5, and of education after that age. Teenage nutrition and any form of psychosocial well-being are ignored simply because data are not collected.<sup>4</sup> In sum, the dimensions covered by most existing surveys are important, but cannot be considered complete for a full understanding of childhood poverty. Young Lives does better, but the limitations of statistical data collection using structured survey instruments imply that completeness is hardly possible.

Tables 4.1 to 4.3 offer, nevertheless, interesting data from the Young Lives survey. We use data on the Older Cohort (born around 1995) since they include self-reported data from children. Table 4.1 offers some of the standard indicators for 2006: data on school enrolment (at the age of 12), stunting (that is, low height for age), and consumption poverty. The stunting data were collected in 2002, when this cohort was between 6.5 and 7.5 years of age. By then, height deficits would have been accumulated and catch-up is not generally considered possible; the data are comparable to stunting data of children at 5 years of age commonly found in general nutrition statistics. The data are presented in unweighted form, and should not be compared directly to national poverty-monitoring statistics. We will nevertheless comment on their relationship with national statistics.

[Table 4.1 here]

Table 4.1 shows that in each of the country samples, stunting is still considerable. It is in line with stunting in national data, with the exception of Ethiopia, where official statistics suggest still higher stunting in 2005. Enrolment rates of 12-year-olds are now impressive, and especially in Ethiopia, reflect recent gains. Relative poverty (consumption poverty as defined by consumption level relative to a poverty line of 50 per cent of the median within the sample) may appear surprisingly low in Andhra Pradesh and Ethiopia, and high in Peru, but the measure reflects as much inequality as poverty per se. The final two rows offer in that respect a more direct comparison between the countries, as the measure of consumption and the poverty line are now expressed in US dollars and in constant purchasing power. It reflects what is generally known about monetary poverty levels in these countries, with Ethiopia and Andhra Pradesh having significantly higher levels of poverty than the other countries; all this is similar to other international comparative databases.<sup>5</sup> Again, these data are not intended for poverty monitoring, but the patterns are broadly in line with comparative monitoring datasets for these indicators.

Tables 4.2 and 4.3 offer some alternative indicators, broadly linked to the same three dimensions of health and nutrition, education, and poverty in general. In Table 4.2, we offer data collected from the main caregiver of the 12-year-olds involved; in Table 4.3, we present data collected directly from the children.

[Table 4.2 here]

The first row presents answers to a health question: whether the caregiver considers the particular child to have worse health than children of a similar age in the community. The other questions refer to overall poverty perceptions. The first one is the general 'ladder of life' question, familiar to much research on subjective well-being, such as the World Value Study and other large research projects. People are asked to think of a ladder with nine steps and to consider their overall life circumstances, and at which step would they place themselves. With nine steps, values of 1 to 3 could be considered low, and the table gives the percentage of people placing themselves at 3 or below. Although some use these indicators for comparisons across countries, these should only be made very cautiously. The results from our sample are nevertheless interesting, with most people in the Indian sample, and about half in the Ethiopian sample placing themselves at low values, compared to about a quarter in Vietnam and Peru. One can doubt the 'accuracy' of this information, but key here is how people perceive themselves, which can hardly be ignored in poverty debates. The next row offers further information, with questions framed much more in a specific poverty and deprivation framework. People were asked to judge their household's circumstances on a scale of 6 from very rich or rich (1 or 2), comfortable (3), a fourth level (struggle, never quite enough), to poor (5) and destitute (6). Again, in each context they are likely to have *relative* meaning but such indicators contain suggestive information.<sup>6</sup> More than half the sample in Ethiopia and about half in India

classified themselves as struggling, poor, or destitute; in Vietnam this was true for just under a quarter of the households involved. Possibly reflecting much higher economic and social inequality in Peruvian society, about two-thirds considered themselves struggling or poor.

[Table 4.3 here]

Table 4.3 includes more specific information collected directly from the children. While Table 4.1 showed that most children were in school at the age of 12 in the sample, Table 4.3 shows that there are vast differences in performances in some basic tests. A simple standardized mathematics test saw much lower performance in Ethiopia than in Vietnam, where performance was excellent. Similar patterns are repeated in tests exploring whether the child can read or write a simple sentence correctly. Even though the type of tests used are intended to be comparable across contexts, some caution is due in practice (for more information on the tests and comparability, see Cueto et al. 2009).<sup>7</sup>

Table 4.3 also includes the child's answers regarding his or her position on the ladder of life, offering again a clear distinction between the Indian and Ethiopian samples on the one hand, and those of the other countries on the other, not dissimilar (although by no means identical) to what the caregiver judged to be the position on the ladder.<sup>8</sup> Finally, recent World Health Organization standards to define under-nutrition (in terms of obesity and thinness) for children above the age of 5, such as our sample of 12-year-olds, reveals considerably low BMI in India and Ethiopia, and

virtually no thinness in Peru, but emerging problems of obesity in the latter country, which are virtually non-existent elsewhere.

While by no means complete, these data show some dimensions of child well-being not usually measured in the main international datasets used for child poverty discussions. The information contained can contribute to child poverty discussions, and there is no obvious superiority of one set of indicators over others. In the next section, we discuss some of the key issues related to the measurement of child poverty using a single indicator.

### **[A] Measuring multidimensional poverty**

Although surveys we have mentioned contain a wealth of information on child poverty, the tables deriving from them fail to answer directly the question: how many children are poor? Policy debates often centre on whether poverty is increasing or decreasing, or whether poverty is higher under one policy regime than under another. One of the key achievements of the World Bank's poverty measurement is to offer a simple, reasonably transparent way of measuring poverty in the world as the number of people living on 'less than a dollar a day', offering a new impetus to discussions on the geographical spread of poverty, even if accuracy and relevance of this measurement have been questioned. Many other UN agencies have followed in trying to formulate definitions of poverty related to their specific objectives, leading to measures of the 'hungry' (Food and

Agriculture Organization), or 'child poverty' (UNICEF). In principle, they aim to offer a basis for policy analysis and evaluation. In practice, they are rarely used for this purpose; we explore why this is the case at the end of this section. First, using the type of data offered in the previous section, we critique ways in which some people have tried to develop measures of child poverty.

The simplest way of using these data is to count numbers of deprivations and count the number of children experiencing these deprivations. This is the core of the method used by UNICEF, partly building on Gordon et al. (2003), who considered seven deprivations, and classified children as poor if they experienced at least one deprivation, and in absolute poverty if they suffered at least two deprivations. Such counting approaches are simple and intuitive, and therefore appealing for policy discourse, but they suffer from some weaknesses. For example, the extent of deprivation is not taken into account, while anyone suffering, say, five deprivations is treated in the same way as someone with two.

Alkire and Foster (2009) offer a more sophisticated measure, which is applied by UNDP for the Human Development Report 2010. For their multidimensional poverty index (MPI), they consider three core dimensions: health, education, and standard of living (drawing inspiration from the dimensions embedded in indicators such as the Human Development Index), each of which can be measured by various indicators. Their MPI is then constructed in two steps. The first step is not dissimilar to

the earlier approach: only those people who are deprived in at least a particular number of deprivations will be counted as poor. For example, if six indicators are considered, only those deprived according to, say, at least three are counted. However, rather than just counting the number of poor people, an additional feature is that the authors adjust (or weigh) the head count by the percentage of deprivations experienced by each of these people included. This means that those with many deprivations are given a higher weight than those close to the cut-off point.

Table 4.4 gives some results from multidimensional poverty indicators, based on the data in Tables 4.1 to 4.3. The findings are intended to be suggestive for the type of issues involved in presenting such indicators. We consider deprivations in three dimensions: health, education, and the overall standard of living, and offer aggregate indicators for the Young Lives sample of 12-year-olds using relatively standard methods. First, we use three key indicators that are commonly used for much poverty measurement: attending school, being stunted, and monetary poverty. For the latter, we use as before both poverty defined relative to the median and poverty based on US\$1.25 per day per person (in PPP terms).

The first five rows of Table 4.4 offer standard poverty indicators based on these three dimensions. Many children are deprived in at least one of these – when using the World Bank’s ‘dollar-a-day’ poverty line, a half or more in the samples from Ethiopia and India, and above a third in Vietnam and Peru. Using the relative poverty indicator reduces child poverty (and

even changes the order of the four countries). It may however make sense to use a stricter definition of child poverty and count only those who are deprived in at least two dimensions as poor. With most children aged 12 enrolled in school, both in the Young Lives data and in the national data for these countries, and with only three indicators considered in total, this focuses attention on the overlap between stunting and living in a monetary poor country. The overlap is remarkably low, and child poverty levels now appear to be at most 21 per cent (in India) and considerably lower in Peru and Vietnam, in line with lower monetary poverty levels in these countries. With relative poverty definition, child poverty is considerably lower also in India and Ethiopia. A child MPI based on Alkire and Foster (2009), weighting the number of deprivations, brings the count of child poverty down further if few people are deprived in many dimensions. With respect to the Young Lives data, such an indicator would suggest low child poverty with an adjusted headcount of at most 14 per cent (in India).

[Table 4.4. here]

A second set of poverty measures builds essentially on some of the more detailed data collected by Young Lives. It still focuses on the same three dimensions of health, education, and standard of living, but adds alternative indicators: cognitive achievement (measured by functional literacy in the form of writing a sentence), and two subjective well-being indicators, one in health (assessing child's health) and one a ladder of life, as defined above, collected from the main caregiver. Adding more

measures of deprivation for the same dimensions of well-being but retaining the same cut-off point of at least two deprivations has strong implications for the child poverty measure. Now, we find that both in India and Ethiopia, more than half the sample of children is poor, and almost a third and a quarter in Peru and Vietnam respectively. Poor subjective health in Vietnam and poor functional literacy in Peru seem to be important in this relative increase in poverty.<sup>9</sup> The adjusted headcount is now considerably higher.

The last set of data in the table offers a unique child poverty index that can be offered by the type of data Young Lives has available: a child poverty index entirely based on child-focused indicators, without any data collected at the household or caregiver level. In particular, we give actual child outcomes, and data on the child's experiences of poverty. The data cover the same three dimensions: health (stunting but also thinness or obesity), education (enrolment but also functional literacy), and standard of living (using child-level data on subjective well-being, using the ladder of life). For both the counting measure and the adjusted headcount (MPI), the data for India and Ethiopia appear similar, while child poverty is lower in Vietnam and Peru than appeared from the caregiver data. Overall, these results are striking: using only child-focused information on various dimensions of poverty and the way children experience this poverty, close to half the children in the Ethiopian and Indian samples appear as poor. Despite its reported progress on poverty of children, a third of the children in the Vietnam sample are still poor; despite the country's considerably higher

GDP per capita compared to the other countries, a quarter of the Peruvian children in the sample are also poor.

There are some surprisingly strong differences between these various measures. The final four rows in Table 4.4 present differences in identification between the two counting approaches with extended measures, the one based on the caregiver's experiences of poverty, and the other based on the child's experiences. These child poverty definitions are not equivalent: even in India and Ethiopia, less than two-thirds of the children are identified as poor by both measures. In Vietnam and especially Peru, the figure is even lower, and only partly explained by the lower incidence identified by the child-focused measure.<sup>10</sup>

So what have we learned? First, all of these 'child poverty' measures would great make great headlines ('50 per cent or 45 per cent or 55 per cent of 12-year-olds in Ethiopia are poor using a new multidimensional poverty measure'). But each identifies different children as being poor depending on which dimensions are included. This should not surprise the researcher interested in multidimensional poverty measurement: one of the key motivations for a multidimensional focus is that different dimensions are *not* perfectly correlated. They matter in different ways to children, and this needs to be researched. If these different dimensions were perfectly correlated, then multidimensional child poverty measures would identify the same children as poor, but then also, there would be no

point in developing a multidimensional measure: one dimension would suffice!

A key implication is that 'opportunistic' measures that simply use available data, which is the practice for most measures, are not convincing since the inclusion of other dimensions would change the findings. One alternative would be to state that all dimensions included are essential and being deprived in any defines a child as poor, while acknowledging that other dimensions may matter too. While child poverty measured by a given number of dimensions might be relatively low, if data on other dimensions become available, further children will be classified as poor, or at least, the number of poor children will never go down. This can become meaningless: by adding more dimensions, measured child poverty will go up, eventually classifying virtually all children as poor. For example, using the six 'child-focused' indicators on the Indian data, more than 80 per cent of the children appear deprived in at least one of them, so if being deprived in at least one dimension is sufficient to classify a child as poor, it would imply that 80 per cent of children are classified as poor. Adding further dimensions increases this number: if the caregiver's experiences of poverty and monetary poverty were also considered, more than 90 per cent of children would be classified as poor. Aiming for completeness by adding more dimensions could still be a solution if at the same time we increase the number of dimensions in which a child must be deprived; but this could make it harder for a child to be recognized as poor as more information about the lives of children becomes available.

The problem is not only about identifying poor people, but also about how to act on this information. It would not be sound to recommend to a policymaker that they target children by any of the above measures, since different definitions would result in different children being included and excluded. It may nevertheless be argued that a measure could be useful in policy analysis and design: we could, for example, choose between policies on the basis of their impact on child poverty, as measured by a multidimensional definition of poverty.

Even this is questionable since the information contained in a multidimensional poverty index is composite. In the examples above, indexes mix outcomes that can only be affected in the long run or at very specific periods in life (such as stunting) with outcomes that could be changed relatively quickly and at any point in time (such as monetary poverty); they mix flows (such as the current level of monetary poverty or current enrolment) with stocks, that is, the result of cumulative processes (such as stunting or cognitive achievement). Other indexes mix inputs (such as access to particular services) with outcomes (such as stunting or cognitive development). To change overall multidimensional child poverty, many different things may need to change, but none of these measures give any sense of how to address child poverty. A multidimensional measure can confuse the design of policies: one needs to unpack the different dimensions to judge how progress in each can be achieved. The index may give an overall indication of achievement, by which progress can be judged.

But since this indication depends on what privations are included, the composite measure remains of dubious utility.

## **[A] Multidimensional poverty analysis**

Does this argument mean that one should not be concerned with child poverty as a multidimensional set of deprivations? Should one abandon multidimensionality altogether? Not at all. The argument here is that one can still conduct multidimensional poverty analysis without constructing a composite *measure*, which in fact is likely to prove irrelevant to the understanding of child poverty. Multidimensional poverty analysis appears most fruitful when one tries to understand the causal factors behind particular deprivations and the interactions with other dimensions of child poverty. This is not straightforward to implement, and in this section we discuss some of the issues surrounding such analysis and the way longitudinal data, such as those generated by Young Lives, can help.

A common technique used in quantitative poverty analysis is the construction of a 'poverty profile'. This essentially provides a set of correlates of those identified as poor using geographical, family, or community characteristics. Examples include whether poor people are more likely to be found in rural or urban areas, how poverty correlates to local services and infrastructure, and how it correlates with wealth or other family characteristics. Using a multidimensional framework to analyse poverty, children may be poor in particular dimensions and it would be

possible to construct multidimensional poverty profiles. Given the drawbacks of working with multidimensional poverty indexes, constructing a profile for those identified as poor may be misleading; nevertheless, a profile of who is deprived dimension-by-dimension may still contain useful information.

Finding correlates is not the same as establishing causality. This is not a problem of univariate analysis only. The *multivariate* alternative involves correlating different dimensions of well-being or poverty with a set of geographical, community, household, and individual factors, usually using a multivariate regression model.<sup>11</sup> Multivariate analyses are helpful to guard against misleadingly simplistic interpretations, but they are still seriously problematic if used to draw policy conclusions. The key problem is inference of *causality*: for example, finding via a multivariate poverty profile that poverty in the data is correlated with living in an area with only a state-owned but no private school does not *show* that not having a private school *causes* poverty. There are more insidious examples; finding that the presence of a child nutrition programme is correlated with lower child poverty does not confirm the effectiveness of the programme in alleviating poverty, since it could be that richer communities are more able to attract programmes. Extreme caution must be applied in drawing conclusions from correlations.

To be sure of the causal chain in child poverty, or to gain understanding on how to change child poverty, one can design specific

intervention-based studies, typically in the form of randomized controlled trials in which a particular group is subject to an intervention. There have been some intervention-based studies (also referred to as experimental) focusing on children's nutrition at an early age and its consequences,<sup>12</sup> as well as a rising number of intervention-based studies focusing on cognitive achievement or other learning outcomes.<sup>13</sup> Some also look at the interaction of these dimensions of learning and nutrition, and its long-term consequences.<sup>14</sup> However, since many child outcomes and deprivations are the consequence of long-term processes in many dimensions, it is unlikely that enough evidence can be gathered in the short run on the causes and consequences of child poverty by using experimental data only.

Other attempts at establishing causal links in quantitative data may also be faulty. The key to non-experimental analysis is to establish convincingly that there is exogenous variation in a potentially causal factor, either between children ('in the cross-section') or over time, so that any inference related to the role of this causal factor is not affected by other factors that could be correlated with both the variable of interest (the outcome) and this causal factor. In practice, such other factors often intervene. For example, finding a correlation between maternal education and child health outcomes may have little to do with maternal education itself, but could just reflect that wealthier families are better educated and can also afford to create conditions for good child health. Similarly, finding that stunted children perform less well in school may not mean that it is stunting that is causing poor school performance: stunted children may

simply live in poorer families, who may find it harder to support their children in homework or may require their help with caring for siblings or even their work for cash to support the family. Proving the link between education and health outcomes is therefore harder than may appear at first.

These examples also illustrate how multidimensional poverty analysis is so much more than measuring deprivations. A key feature is that different dimensions of poverty affect each other in causal ways, making it important to unpack the processes and interactions between dimensions. Some of the emerging work using the Young Lives data is beginning to illustrate this further. Other work has conclusively established that deprivation in early childhood nutrition leads to stunting and that this stunted development has long-term implications on cognitive development (Grantham-McGregor et al. 2007). Outes-Leon et al. (2010) confirm this causal process using comparisons between siblings in the Young Lives sample in Peru, showing that those stunted in early childhood have lower cognitive achievement at the age of 7 to 8.

Other analyses of Young Lives data highlight further interactions. Sanchez (2009) shows that household-level shocks via extreme cold events in Peru when children are young have long-term implications for cognitive development, working not only through nutrition, but more generally through overall pressure on the family at critical times in children's cognitive progress. Le Thuc (2009) shows that the link between cognitive

development and early childhood nutrition is weaker in the Vietnam sample, but that deprivations in early childhood, possibly owing to parental skills, matter for poor performance in cognitive tests later on. Dercon and Krishnan (2009) show that in all the four countries, psychosocial skills, especially self-esteem and educational aspirations are at the age of 12 strongly associated with general material poverty, controlling for parental education and a host of other attributes. Dercon and Sanchez (2010) show that beyond material poverty, a child's stunting has an additional effect on these psychosocial skills across all four countries, and that this effect persists, controlling for many attributes that may be correlated with both stunting and psychosocial skills, such as the caregiver's education and the caregiver's own psychosocial skills.

These are some of the studies illustrating that unpacking the causal processes underlying child poverty and the interactions between deprivations offers a richer analysis of the multidimensionality of child poverty than does any measurement exercise. Such unpacking also offers steps towards identifying ways in which child poverty can be addressed.

## **[A] Conclusion**

This chapter used Young Lives data to illustrate some of the problems of identifying poor children using multidimensional poverty indicators. While seemingly providing richer information, such indicators are very sensitive to the specific dimensions included, resulting in considerable errors of

exclusion or inclusion. Furthermore, to understand the multidimensional processes underlying poverty, multidimensional measures may obscure more than they illuminate. Understanding child poverty requires multidimensional poverty analysis, not in establishing one or more measures, but rather in unpacking relations between dimensions.

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**Table 4.1 Poverty and deprivations of children aged 12 in Young Lives data (%)**

	Ethiopia	AP (India)	Vietnam	Peru
Moderate and severe stunting (age 7)	29	33	32	30
Not enrolled in school (age 12)	3	10	3	1
Consumption poverty (< 50% of median)	10	7	9	12
Consumption poverty (< \$1.25 a day in PPP)	32	41	11	4
Consumption poverty (< \$2 a day in PPP)	45	56	20	7

Note: Moderate and severe stunting is defined as having a z-score for height-for-age below -2. Enrolment is recorded as a positive answer to whether a child is attending school. Consumption poverty uses total food and non-food expenditure per capita per month with three alternative definitions of the poverty line. The first is relative poverty, counting the percentage of people with consumption levels below 50% of the median consumption level in the data. The second and third consumption poverty measures first transform poverty in terms of Purchasing Power Parity

corrections for 2006 to express consumption per capita in PPP US dollars, by using the corrections from the International Price Comparisons Global Report 2005. In particular, using nominal exchange rates for 2006, a further correction for purchasing power is used that suggests that prices in Peru are 45% of US prices. The corresponding percentages for Andhra Pradesh, Ethiopia, and Vietnam are 33%, 26%, and 30% respectively. The poverty lines are the standard poverty lines used by the World Bank: below US\$1.25 a day per person and below US\$2 a day per person.

**Table 4.1 Poverty and deprivations of children aged 12 in Young Lives data (%)**

	Ethiopia	AP (India)	Vietnam	Peru
<i>Stunting</i>				
Moderate and severe stunting (age 7)	29	33	32	30
<i>Enrolment</i>				
Not enrolled in school (age 12)	3	10	3	1
<i>Poverty</i>				
Consumption poverty (< 50% of median)	10	7	9	12
Consumption poverty (< \$1.25 a day in PPP)	32	41	11	4
Consumption poverty (< \$2 a day in PPP)	45	56	20	7

**Table 4.2 Household-level perceptions of child health, overall well-being and poverty (% of children aged 12 living with a particular deprivation)**

	Ethiopia	AP (India)	Vietnam	Peru
Child of worse health than others of same age	11	13	28	7
Position on ladder of life (at or below 3)	46	62	29	25
Consider household struggling, poor, or destitute	55	49	23	67

Source: Calculated using Young Lives data.

**Table 4.3 School achievement, nutrition and child-level perceptions of overall well-being and poverty (% of children aged 12 living with a particular deprivation)**

	Ethiopia	AP (India)	Vietnam	Peru
Low score on maths test (less than 4 out of 9)	31	17	5	12
Not able to read simple sentence properly	39	18	3	3
Not able to write simple sentence properly	43	30	6	14
Position on ladder of life (at or below 3)	37	51	20	11
Thinness (BMI z-score < -2)	36	34	17	1
Obesity (BMI z-score > 2)	0	1	1	5

Note: Calculated using Young Lives data. BMI is the Body Mass Index, which is weight in kg, divided by the square of height in metres. It is transformed in a standardized age-specific distribution using international benchmarks from the World Health Organization.

**Table 4.4 Multidimensional Child Poverty Indicators using counting and adjusted headcount (MPI) approach, 2006 (%)**

	Ethiopia	AP (India)	Vietnam	Peru
<i>A. Standard approach (three dimensions)</i>				
Counting at least one (enrolment, stunting, monetary poverty \$1.25 per day)	50	60	38	34
Counting at least one (enrolment, stunting, monetary poverty relative to median)	35	42	37	39
Counting at least two (enrolment, stunting, monetary poverty \$1.25 per day)	12	21	8	1
Counting at least two (enrolment, stunting, monetary poverty relative to median)	5	7	7	4
Adjusted headcount at least two (enrolment, stunting, monetary poverty \$1.25 per day)	8	14	5	1
<i>B. Standard plus child cognitive achievement and subjective well-being (as reported by caregiver)</i>				
Counting at least two (enrolment, stunting, monetary poverty \$1.25 per day, subjective health, subjective well-being, write a sentence)	50	59	31	20
Adjusted headcount	21	27	13	7
<i>C. Child focused only (all data measured for the child and obtained from the child if relevant)</i>				
Counting at least two (enrolment, stunting, subjective child well-being, write a sentence, thinness or obesity)	45	49	19	10
Adjusted headcount	22	27	9	4
<i>Identification differences between counting approaches</i>				
Poor in caregiver questions (B) not in child (C)	14	17	15	9
Poor in child (C) not in caregiver (B)	10	6	3	3
Poor in both (C) and (B)	36	42	16	7
Poor in both, as % of sum of poor in either or both	60	64	47	35

Source: Calculated using Young Lives data

<sup>1</sup> In different disciplines, there is much research on specific aspects of child poverty, such work on the economic constraints on human capital accumulation by poor people in developing countries (see for example, Glewwe and Kremer 2006).

<sup>2</sup> The dataset from Peru forms the important exception, as it constructed a two-stage random sample of the entire population of households with children of the specific age group, although this is still not a random sample of all individuals, households, or children at any point of time (Escobal and Flores 2008).

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<sup>3</sup> Details on the instruments can be found at [www.younglives.org.uk](http://www.younglives.org.uk).

<sup>4</sup> Income poverty of the family is ignored since such measures commonly reduce socioeconomic dimensions to an index based on the ownership of a small set of durable goods, usually ownership of a car, a bicycle, phone, television and furniture, and access to safe sanitation, water and electricity. The relevance of the asset index is disputable: there is no doubt that it reflects some differences in socioeconomic status but its comparability across contexts even within the same country could be questioned; for instance, between rural and urban areas, or between mountainous and flat rural areas. For example, access to electricity and ownership of electric appliances in a remote area where generators are required could be a much more significant sign of wealth than access and ownership to the same appliances in an urban area.

<sup>5</sup> The higher poverty in Andhra Pradesh relative to Ethiopia using PPP comparisons may seem slightly puzzling, but different sampling procedures make the Andhra Pradesh sample more 'pro-poor'. This is also due to a PPP correction for Ethiopia that appears high, as it is suggesting that Indian prices are a third higher than in Ethiopia, which seems somewhat unlikely to those familiar with price levels for poor people in each of these countries. Not too much should be read into this, as neither sample is intended for monitoring poverty; we use them here to illustrate issues related to poverty measurement.

<sup>6</sup> Subjective poverty and well-being are often considered to give information on individual positions *relative* to their respective contexts; that is, people consider themselves satisfied with life or poor by assessing their position relative to others around them.

<sup>7</sup> In any case, the correlation in performance on the writing and maths test is very high – with correlation coefficients between 0.45 and 0.56.

<sup>8</sup> The correlation coefficient between children's and caregivers answers in the raw indicator is above 0.5 for all but Peru, where it is approximately 0.3.

<sup>9</sup> Using this indicator, more than 80 per cent of the Ethiopian and Indian samples were poor in at least one deprivation, and about half the Peruvian and Vietnamese sample.

<sup>10</sup> When we repeated this exercise by comparing the first counting measure using standard poverty measures as in set A with the child-focused measures, we found it similarly resulted in the identification of different children – with only at most 58 per cent of children counted in either or both measures counted by both measures in India, and fewer in other countries.

<sup>11</sup> For a detailed description on how to make poverty profiles, including how to establish multivariate profiles and an overview of their use, see World Bank Institute (2005), chapters 7 and 8, <http://siteresources.worldbank.org/PGLP/Resources/PovertyManual.pdf>.

<sup>12</sup> Many of the relatively limited number of studies are reviewed in Grantham-McGregor et al. (2007).

<sup>13</sup> For a review, see Glewwe and Miguel (2007)

<sup>14</sup> An example is Hoddinott et al. (2010) on Guatemala.