

# Associations of Child Poverty: Patterns and Differences

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## Abstract:

**Summary and Research Objectives:** This paper examines the different dimensions of child poverty in Indonesia, looking at child outcomes and opportunities across consumption, health, education, housing, food security, social assistance and infrastructure. In addition to looking at each of these measures, we go further to investigate the associations between them, asking whether it is the same children who are poor on each dimension or different ones. For example, we look at the associations between physical access to education, health and transportation services; and consumption, housing, water and sanitation; whether money poor and food poor children are the same; the linkages between access to health services and social assistance and health outcomes; and associations between barriers to enrolment. These associations have important implications for program design and targeting. We present results over time, as well as for different populations of interest, such as rural, urban and female-headed households.

**Literature Review:** Poverty and well-being have multiple dimensions, and there are various attempts to measure and aggregate this multi-dimensionality (both monetary and non-monetary). The most well-known approach is the UNDP's Human Development Index (HDI). However, the choice of dimensions and weights have been criticised (XXXX). UNICEF has adapted a multi-dimensional framework as well to analyse child welfare in their recent Global Study on Child Poverty and Disparities (2011). Their approach, the 'Bristol Deprivation method', uses an analytical framework based on the Convention on the Rights of the Child and explicitly examines child welfare vis-à-vis access to severe deprivations of human needs, including shelter, sanitation, safe drinking water, information, food, education, health. This framework was applied to seven countries in the East Asia Pacific in 2011, not including Indonesia.

An alternative approach which has gained popularity is the Multidimensional Poverty Index (MPI) (Alkire and Foster 2011; Alkire and Santos 2010), which introduces a count of the number of dimensions in which people are deprived. The method reflects both the headcount ratio of poverty – the proportion of the population that is multi-dimensionally poor – and the average intensity of their poverty, and introduces both into a composite 'score', the MPI. The MPI specifically looks at ten indicators which measure poverty across three dimensions: education, health, and living standards. An MPI was calculated for Indonesia, based on 2007 Demographic and Health Survey data (Alkire 2012). Although some dimensions pertain to child welfare, such as years of schooling and child mortality, the MPI does not explicitly focus on child welfare as with the UNICEF Global Study.

The MPI, and other composite indices, have come under criticism for the sometimes ad hoc, arbitrary or non-transparent way in which they are aggregated, or that non-monetary poverty lines are set. Rather than aggregating to a single number, which arguably obscures the different dimensions of underlying deprivation, Ravallion (2010; 2011) suggests a dashboard approach, focusing on indicators separately for each dimension.

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Ferreira and Lugo (2012) note that the dashboard and index approaches do not fully capture the multivariate nature of poverty. By focusing separately on indicators for different dimensions, or by aggregating them into a single number, they miss the interactions or associations between these dimensions. That is, whether the same people are poor on two dimensions, or different people, makes a significant difference to program and policy design and targeting. The paper exams three alternative approaches for analysing the dependency structure of the joint distributions: the multivariate stochastic dominance techniques of Duclos et al. (2006); a direct representation of the dependency structure (for example, Atkinson and Lugo 2010; Atkinson et al. 2010); and copula functions (Decanq 2009, Quinn 2007). Our paper explores this associative approach with direct representations.

**Methodology:** In poverty studies, the degree of interdependence can be presented in terms of the extent of the overlap between individuals identified as deprived under the different criteria. For instance, if poverty were defined by three dimensions (such as education, health, and income), the dependency can be illustrated – at least in part – by the proportion of individuals that are deprived in all three dimensions, those that are deprived in (different) pairs of dimensions, or only in one (Ferreira and Lugo 2012, p6).

Our paper examines two categories of dimensions, outcomes and opportunities. In particular we look at outcomes on the monetary, health, education, housing and food sufficiency dimensions, while considering access to health and education facilities, transportation, and social assistance as opportunities. Drawing on Susenas, Sakernas, Riskeddas and Podes data we develop a household-level dataset across all dimensions. Setting thresholds for most indicators, we calculate deprivation on each indicator, of which there are a number per dimension. We then examine associations across dimensions by constructing multidimensional tables which capture the proportion of children in poverty according to different combinations of dimensions. Finally, we visually present some of the more interesting results across three dimensions.

**Findings and Policy Implications:** We present a number of key findings. First, there is a strong association of poverty for children across a number of dimensions of opportunity in rural areas, but not for urban areas. Second, poor housing, and water and sanitation, are strongly associated with low incomes, but extend well beyond the poor. Third, despite an official poverty line that is largely based on obtaining sufficient calories, the majority of food energy-deficient households do not have consumption levels below the poverty line. Fourth, a quarter of unskilled deliveries (a key driver of maternal mortality in Indonesia) are not associated with low incomes or poor access to health services. Finally, a surprising amount of under-enrolment at the SMP level is not associated with being poor or having limited access to a school. Some, but not all of this, can be explained by low parental education, high education costs and high opportunity costs for child labour.

These findings have important policy implications. First, some findings raise questions rather than provide answers, and point towards the need for further research. For example, what do food energy-deficient non-poor households spend their income on? Why is this the case (and not so for many poor households)? What can be done to further increase use of skilled deliveries in Indonesia? Second, the implications for program design and targeting are drawn out, such as that health, education and transportation infrastructure development in rural areas can be focused on pockets of poverty, but not in urban areas which will need a different approach.

