

## Multidimensional Poverty Targeting

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Under a multidimensional poverty approach, it is crucial to understand the interactions across the dimensions that compose the index. From a measurement perspective, in addition to the levels of dimensional poverty, a multidimensional poverty measure should reflect the joint distributions of the dimension. From an empirical perspective, the different dimensions of poverty are often interconnected and can mutually reinforce each other, especially in cases of severe poverty and deprivation over a relatively long period. In such cases, even small transitory shocks could affect permanently and persistently the future levels of well-being by generating dynamic multidimensional poverty traps.

When the joint distribution of deprivations is ethically important, the empirical correlations across the different dimensions are strong, and/or there are dynamic behavioural links between dimensions, a policy intervention in one of the dimensions may result quite effective in reducing overall multidimensional poverty. A policy that targets specifically one poverty dimension is then likely to produce a triple effect on the measure of a person's deprivation: a direct effect on the targeted dimension, an effect on the joint deprivation, and an indirect effect on the other dimensions. The importance of these effects will depend on the correlation of the targeted with the other dimensions (or, more generally, on the joint distribution of the dimensions) and on the extent to which the policy intervention is able to influence the other dimensions. While designing and evaluating a policy intervention, the policy-maker should thus look at the aggregate effect that, when the interactions are correctly captured, is likely to be different from the effect evaluated only on the single targeted dimension. A full understanding of the policy effectiveness can be difficult as the direct and indirect effects may occur at different time periods, the aggregate effect potentially being better captured over a longer period.

All this suggests the importance of looking at and understanding the interdependencies across multiple deprivations, rather than looking separately at each dimension, as also suggested in the 2009 Report by the Commission on the Measurement of Economic Performance and Social Progress (Stiglitz, Sen and Fitoussi: pp.15-16): “[T]he consequences for quality of life of having multiple disadvantages far exceed the sum of their individual effects. Developing measures of these cumulative effects requires information on the “joint distribution” of the most salient features of quality of life across everyone in a country through dedicated surveys. Steps in this direction could also be taken by including in all surveys some standard questions that allow classifying respondents based on a limited set of characteristics. When designing policies in specific fields, impacts on indicators pertaining to different quality-of-life dimensions should be

considered jointly, to address the interactions between dimensions and the needs of people who are disadvantaged in several domains.”

The main goal of this paper is to formally define the effect of poverty targeting under a multidimensional approach, by taking into account the ethical, the empirical and the spill-over effects due to the interactions across the different dimensions. The preliminary theoretical results suggest how to identify which dimension of human well-being and which population group should be targeted by a policy in order to attain the largest reduction in multidimensional poverty per dollar spent. The results are based on poverty gap (to power  $\alpha$  minus one) due to the implementation of a policy, as under the unidimensional approach. In a multidimensional context, however, this must be weighted by the poverty gap (to power  $\alpha$ ) in the non-targeted dimensions, plus the covariance between the two transformed poverty gaps. The indirect effect must also be added in, and that is given by the poverty gap of order  $\alpha-1$  in the non-targeted dimension, weighted by the poverty gap of order  $\alpha$  and the marginal change in the non-targeted dimension following the policy intervention. Such theoretical results are then tested with data from different developing world contexts.