Sensitivity Analyses in Poverty Measurement: The Case of the Global Multidimensional Poverty Index

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Abstract

This paper provides an extensive sensitivity analyses of the global multidimensional poverty index (MPI), which is a counting-based measure of acute poverty covering over 100 developing countries. Empirically, the paper probes the sensitivity of poverty measures and comparisons to modifications in key parameters. Outcomes studied include the adjusted headcount and headcount ratios and their subnational rankings, as well as the exact set of people who are identified as poor. The parameters that are adjusted include the poverty cutoff, weights or deprivation values, and indicators. Multidimensional poverty measures are generated using 10 alternative poverty cutoffs, 231 alternative weighting schemes, and six alternative indicator selections, in addition to the global MPI baseline specifications. Comparisons across 1226 subnational regions for 98 countries are assessed using the percent of pairwise comparisons for an alternative parameter that are robust in comparisons with the global MPI baseline. Assessments of the fit between poverty sets in relation to the global MPI poverty set use the Jaccard coefficient. Overall, the outcomes show little sensitivity when parameters are changed within plausible ranges, but there are a number of general findings of potential interest that emerge. Finally, the present paper also suggests 'second-order' sensitivity analyses to deepen the understanding of the underlying methods by varying poverty cutoffs and indicators simultaneously. The union-based measures are less stable than the base-line measure.

Keywords: poverty measurement, sensitivity analysis, multidimensional poverty, global poverty

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