Assessing deprivation with an ordinal variable: theory and application to sanitation deprivation in Bangladesh

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Abstract

The challenges associated with poverty measurement within an axiomatic framework, especially with cardinal variables, have received due attention during the last four decades. However, there is a dearth of literature studying how to meaningfully assess poverty with ordinal variables, capturing the *depth* of deprivations. In this paper, we first propose a class of additively decomposable ordinal poverty measures and provide an axiomatic characterisation using a set of basic foundational properties. Then, in a novel effort, we introduce a set of properties operationalising prioritarianism in the form of different degrees of *poverty aversion* in the ordinal context and characterise corresponding subclasses of measures. Moreover, for all the characterised classes and subclasses of measures, we develop stochastic dominance conditions, some of which are in themselves novel contributions to the stochastic dominance literature. Finally, we demonstrate the efficacy of our methods using an empirical illustration scrutinising the change in sanitation deprivation in Bangladesh.