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Monitoring Progress in Multi-Dimensional Poverty Reduction: A Person-Focused and Inequality-Sensitive Approach With Evidence From Nicaragua

José Espinoza-Delgado

The elimination of poverty remains one of the major international development policies for a large number of people in the world, even in the second decade of the twenty-first century. It is actually "the greatest global challenge and an indispensable requirement for sustainable development". In this regard, the 2030 Agenda for Sustainable Development has put particular emphasis on this issue and Goal 1 of the Sustainable Development Goals (SDGs) demands the ending of "poverty in all its forms everywhere". In this context, the measurement of poverty, our central concern in this paper, is of great importance for targeting and monitoring of poverty alleviation policies; it is necessary if not sufficient for any reasoned appraisal of these policies.

Over the last decade or so, poverty measurement has shifted the emphasis from a unidimensional to a multi-dimensional approach, due in large part to Sen's influential work and the capability approach. Currently, the dominating (mainstream) approach in developing countries is the counting methodology put forward by Alkire and Foster (2011) (henceforth AF), largely due to the extraordinary work done at the Oxford Poverty and Human Development Initiative (OPHI). In 2010, OPHI, in collaboration with the UNDP, developed the global MPI, which is a particular case ["the adjusted headcount ratio (M0) of the AF family of measures, the most famous and influential empirical application of the AF methodology, computed for over 100 developing countries. The AF approach (the M0 measure) has also been adopted by several countries, particularly from LAC, to produce their official measures; likewise, Santos and Villatoro (2018) have recently developed a new multidimensional poverty index for LA that follows the same functional form as the global MPI (the M0 measure).

Certainly, the AF approach, and therefore its M0 measure, has quite a nice number of interesting properties, in addition to the fact that it has the advantage of flexibility, simplicity, and clarity when compared to other multidimensional poverty methodologies. However, this methodology (M0 measure) does suffer from several unattractive methodological features that have not yet been sufficiently observed in the literature, which may lead to biased estimates and wrong assessments of overall multi-dimensional poverty in the society.

Firstly, since the AF methodology employs a "dual cutoff method" for the identification of the multi-dimensionally poor individuals, the AF identification function is discrete, creates two types of discontinuities, and thus violates the axiom of continuity. Although when using ordinal

variables, the commonest case in practice, the first discontinuity can be considered as irrelevant, the discontinuity created by the second cutoff can be of great relevance for multi-dimensional poverty measurement. Additionally, the dual cutoff identification method assumes implicitly that up to k the dimensions (indicators) are "perfect substitutes", whereas the same dimensions (indicators) are "perfect complements" from such a threshold onwards, an issue theoretically questionable.

Secondly, the M_0 index pays no attention to the distribution of deprivations; it is thus totally insensitive to inequality among the multi-dimensionally poor individuals (actually any measure grounded on the AF methodology), a serious shortcoming of any poverty measure, according to Sen's (1976, 1979, 1992) influential arguments that overall poverty indices should be sensitive to inequality, which may lead to leaving behind the poorest of the poor: An inequality insensitive poverty measure "can deflect anti-poverty policy by ignoring the greater misery of the poorer among the poor". Note also that Goal 10 of the SDGs calls for reducing "inequality within and among countries" (UN, 2015, p. 21).

As far as the applied work is concerned, another feature of the "mainstream practice" of multi-dimensional poverty measurement (and really of the vast majority of studies on multi-dimensional poverty) is the fact that it uses the household rather than the individual as the unit of analysis; this means that it considers equal the multi-dimensional poverty condition of the household with the multi-dimensional poverty condition of all persons belonging to the household, ignoring, therefore, the intra-household inequalities and producing indices that are insensitive to gender. Poverty is, however, a feature of individuals, not households, and "if one is serious about what should be the ultimate object of welfare analysis–that is, the welfare of individuals–then limiting the theoretical and empirical analysis at the level of the household is simply unacceptable" (Chiappori, 2016, p. 840). Household-based measures may provide biased estimates of the extent of multi-dimensional poverty in aggregate: For example, if females are systematically poorer than males, or if children and elderly are systematically worse-off than other household members, overall poverty may be understated when one employs a measure that treats everybody in the household equally; furthermore, when these measures are used, valuable information about the composition of the multi-dimensionally poor may be overlooked, which may thus affect targeting and effectiveness of poverty alleviation policies. Hence, household-based multi-dimensional poverty measures are not suitable to monitor progress in achieving target 1.2 of the SDGs; the poverty analysis should therefore be moved from the household to the individual.

In consequence, in this paper, we propose to adopt a person-focused and inequality-sensitive approach to monitoring progress in multi-dimensional poverty reduction in developing countries in the context of Goal 1 of the SDGs and in line with the central overarching concern of the SDGs agenda: Leaving no one behind; that is, we suggest an approach that departs somehow from the mainstream multi-dimensional poverty analysis. We apply such an approach to assess the progress in multi-dimensional poverty reduction in Nicaragua between 2001 and 2014.

Overall, we find that in this country, multi-dimensional poverty decreased by at least 17% between 2001 and 2014, but inequality among the multi-dimensionally poor individuals, an issue that is ignored by the mainstream approach, increased by at least 24% during that period, which suggests that progress in multi-dimensional poverty reduction in Nicaragua seems to be leaving behind the poorest of the poor.