Multidimensional Poverty Measurement in Europe: taking population preferences into account

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Research Question(s)

The multidimensional nature of the poverty has largely been discussed in the theoretical and empirical literature in last decades. The introduction of the multidimensional poverty index (MPI) proposed by Alkire and Foster (2011) has been a critical contribution to the field of multidimensional poverty measurement. However, the index entails some shortcomings such as the paternalistic approach to imposing weights, no calibration of substitutability between poverty dimensions and the disregard for the inequality of deprivation among the poor. This paper aims to address these issues and produce comparable multidimensional indices.

The research questions are stated as follows:

- What is the socio-demographic characteristics of the multidimensionally poor?
- How does the multidimensional deprivation change when the population preferences are taken into account?
- How do countries differ in terms of multidimensional deprivation?
- How are the deprivations distributed among the poor? What is the impact of the degree of substitution between the domains of deprivation on the level of total multidimensional deprivation?
- In which domain of deprivation the population suffer the most? Which domain has the largest contribution to overall multidimensional poverty?

Methods used:

The calculation of the MPI follows the counting approach used in Alkire-Foster method with the modifications to account for the above-mentioned issues. Firstly, the multidimensional index is calculated with both normative and subjective weights for the comparative analysis in order reveal how the inclusion of population preferences changes the image of multidimensional poverty. The latter weights are derived from life satisfaction regression where the impact of each domain on overall life satisfaction is assessed via ordered logit. Secondly, the index is modified such that the degree of substitution between the main dimensions of multidimensional deprivation can be adjusted Lastly, the parameter of inequality aversion is included to account for the inequality in the distribution of multidimensional poverty. This is done by applying the constant elasticity of substitution (CES) function to both individual and aggregate deprivations functions which sums the deprivation in different dimensions of an individual and of the population, respectively. The decomposition of the multidimensional indices is carried out via Shapley decomposition proposed by Shorrocks (2013).

Dataset used and selected countries:

The paper assesses the poverty in among the residents older than 18 in 12 selected European countries: Austria, Belgium, Bulgaria, Cyprus, Germany, Greece, Hungary, Latvia, Romania, Slovak Republic, Spain and Switzerland. The 2013 wave of EU-SILC dataset is used for the calculations as the satisfaction data is only available for this wave. Four domains of deprivation are chosen: education, health, material deprivation and environment with latter three domains encompassing several dimensions of deprivation.

Preliminary findings:

The MPI calculations produce interesting findings. Despite the substantial differences in normative and estimated subjective preferences, the values of multidimensional poverty index calculated with both weights do not vary substantially and the ranking of countries changes only slightly. Moreover, the index calculated with subjective weights produces systematically lower deprivation levels across all countries. The latter is also observed for the poverty intensity index which shows the average deprivation level among the poor. It is interesting to observe that the deprivation among the poor does not differ significantly across the countries implying that the poor are equally multidimensionally deprived regardless the level of development of the countries in the sample. The downward adjustment of the degree of substitution drastically increases the poverty index for all countries implying that respondents are unequally deprived across domains of deprivation within countries. On the other hand, the higher the aversion to inequality, the higher is the level of deprivation in all countries both in case of multidimensional poverty index and poverty intensity index.

Substantial differences are found in the contribution of each domain when the MPI is measured with normative versus subjective weights. Respondents attach higher importance to health and material deprivations which is also observed in the contribution of these domains of deprivation to overall deprivation. Moreover, the higher aversion to inequality, the higher the contribution of material deprivation to multidimensional total deprivation and the smaller the contribution of health deprivation implying that the poorest suffer more from material deprivation and less from health deprivation compared to the moderately poor.

Keywords: multidimensional poverty measurement, aversion to inequality, Shapley decomposition, deprivation in Europe