

**Title:** A Fuzzy Logic Based Approach to Measure the Principle of "Leaving no one Behind" on Multidimensional Poverty

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**Abstract:**

In this paper we present a fuzzy multidimensional approach for the measurement of the 'leaving no one behind' principle underlying the Sustainable Development Goals (SDGs) in European countries. In particular, we consider a two-step procedure. First, we compute the degree to which an individual is 'left behind' in each specific dimension. We then propose alternatives to measure the extent to which an individual is 'left behind' in a multidimensional setting. We illustrate our proposal taking as a reference the 'at risk of poverty or social exclusion' (AROPE) framework (dimensions, indicators and union criteria). The results highlight that although the average 'left behind' (LB) level and AROPE are largely consistent across European countries, our fuzzy measure provides valuable additional information, both in individual and aggregate terms, on persons who are further away from those better positioned and how far they are.