

## Abstract:

In Multidimensional Almost First/Second Order Dominance (MAFOD and MASOD), the total number of deprived dimensions (T) is used, i.e. equal weight is given to each dimension. However, deprivation in some dimensions could be more crucial than deprivation in other dimensions. We propose the use of a weighted sum of deprived dimensions. Three different weighting techniques (MFW: most favorable weighting, FBW: frequency based weighting and NW: normative weighting) are chosen to calculate this weighted sum, hence three different weighted Multidimensional First Order Dominance (MFOD) are obtained. These three weighted MFODs and their associated MAFOD/MASODs are evaluated using: the percentage of indeterminate cells and the almost-dominance percentage. These percentages are compared with their counterparts of MFOD, MAFOD/MASOD of the T technique. In addition, the weighted MAFOD/MASODs are compared to the bootstrap dominance comparison technique of Arndt et al. (World Development, 40(11), 2290–2301, 2012) in terms of the indeterminate cells percentages. Using Egypt Demographic and Health Survey 2014, weighted MAFOD/MASOD analyses are performed to compare the Egyptian children welfare among governorates and among aggregate regions. Results provide evidence that the weighting techniques affect the dominance analysis, but barely affect the ranking of the regions or governments.

**Keywords:** Stochastic dominance, Weighting techniques, Deprivation indicators, MAFOD, MASOD.