

Problem Set on Multidimensional Poverty Measures – Alkire & Foster’s Measures

Paper-Based Problems:

Given the following matrix of distribution of three dimensions (income, self rated health, and years of education):

$$X = \begin{bmatrix} 4 & 1 & 5 \\ 8 & 4 & 6 \\ 12 & 1 & 11 \\ 3 & 4 & 6 \\ 15 & 1 & 9 \\ 12 & 5 & 12 \end{bmatrix}$$

- a) Calculate H, M0, M1 and M2 using a cutoff value of $k=2$ and equal weights. Assume that the poverty lines are (10, 3 and 8 correspondingly).
 - I. Which is the contribution of each dimension to M0?
 - II. Which is the contribution of the group of the first three individuals to overall M1?
 - III. What happens to each of the measures if individual 2 reported a health status of 2 instead of 4?
- b) Calculate H, M0, M1 and M2 using nested weights: assigning a value of 2 to income, and 0.5 to health and education respectively.