Problem Set on Decomposition of AF Measure

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Paper-Based Problems

1. Consider the following matrix of distribution of four dimensions (income, self rated health, and years of education) across six individuals:

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

$$z = \begin{bmatrix} 10 & 3 & 8 \end{bmatrix}$$

   i.   If k = 2, calculate the M_0 of X.

   ii.   Suppose the entire matrix is divided into two groups. The first group contains the first two persons and the second group contains the last four persons. What is the M_0 of each of these two groups? What is the contribution of each group to the overall poverty?

   iii.   What is the censored headcount ratio of each of the three dimensions? Which dimension has the largest contribution to the overall poverty?