MATRIX ADJUSTMENT WITH BOTH POSITIVE AND NEGATIVE ENTRIES: FROM GRAS TO GCE

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The GRAS technique, proposed by Junius and Oosterhaven (2003), is the method commonly used to update or regionalize input-output matrices from a prior with negative cells. This paper presents an adjustment technique based on Generalized Cross Entropy (GCE) as an alternative to GRAS. The basic idea of the proposed method is to assume each cell of the target matrix as a random variable for which we have partial information in the prior.

More specifically, 1) we assume each observation in the prior as a specific realization of the random process that generates the cells; and 2), we fix bounds for the maximum and minimum values that this random process can generate. From this information, together with the observed totals in the target matrix, the adjustment process is approached as a (constrained) minimization problem of the Kullback-Leibler divergence. We evaluate the performance of the proposed technique by means of numerical simulation and illustrate how can be applied with an empirical application.