A DEA Model in a Multi-Objective Optimization with Fuzzy Environment

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Abstract : Most DEA models operate in a static environment with input and output parameters that are chosen by deterministic data. However, due to ambiguity brought on shifting market conditions, input and output data are not always precisely gathered in real-world scenarios. Fuzzy numbers can be used to address this kind of ambiguity in input and output data. Therefore, this work aims to expand crisp DEA into DEA with fuzzy environment. In this study, the input and output data are regarded as fuzzy triangular numbers. Then, the DEA model with fuzzy environment is solved using a multi-objective method to gauge the Decision Making Units' efficiency. Finally, the developed DEA model is illustrated with an application on real data 50 educational institutions.

Keywords : efficiency, DEA, fuzzy, decision making units, higher education institutions
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