**A Novel Fully Fuzzy DEA Approach for Measuring Cost and Revenue Efficiency with Target Setting**

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**Abstract**

In this paper, we present cost and revenue efficiency evaluation models and target setting in data envelopment analysis (DEA) in the presence of fuzzy inputs and outputs that the corresponding prices of inputs and outputs are also fuzzy numbers. We proposed a fuzzy value-based technology based on fuzzy input and output data at corresponding prices. We provide an approach for calculating fuzzy cost and revenue efficiency based on value fuzzy based technology according to fuzzy inputs and outputs. The proposed approach develops traditional DEA models to calculate revenue and cost efficiency in the presence of fuzzy inputs and outputs. The proposed fully fuzzy model is transformed into a three-objective model of non-fuzzy linear programming and solved by the weighted sum method. We show that the proposed approach is suitable than the previous approaches based on traditional models from a computational point of view. The innovation of this research is to present and solve a completely fuzzy efficiency model to obtain fuzzy cost and revenue efficiency as a fuzzy number where all its components are in the interval [0,1], while in previous approaches the values of fuzzy numerical components may correspond to the efficiency scores may be one number greater than one. We also obtain benchmark corresponding to the all DMUs. In the following, with two numerical examples, we obtain the results of the presented approach and compare it with the results of the previous approaches, and at the end, we present the results of the research.

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