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A ranking method based on the efficiency-driven decomposition procedure in the DEA/big-data context

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Abstract

The data envelopment analysis (DEA)-based models are viewed as a tool for Big Data-enabled analytics in efficiency evaluation for the decision-making units (DMUs). However, the critical issue is that DEA-based models show poor discriminatory power by generating inconsistent rankings of DMUs, let alone excessive computational times for a large set of DMUs in the Big Data context. We propose two efficiency-driven decomposition methods, which overcome several issues of DEA-based methods. The proposed methods do not require optimization software but show better evaluation results with negligible computational times. Three well-known numerical examples demonstrate the outstanding performance of the proposed decomposition methods.

Conference Track

MIS and Business Analytics