عنوان مقاله:

Uncertain network DEA models for evaluating efficiencies of Bi-echelon supply chain with asymmetric power

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خلاصه مقاله:

Nowadays, some burgeoning issues occurring in green and sustainable supply chain face an increasing number of tackles, including uncertain factors and unobserved data, which makes it even more complicated to assess supply chain efficiency. To address this issue, this paper applies uncertainty theory to two-stage network DEA intending to deal with inaccurate data. Moreover, the bi-echelon supply chain generally suffers asymmetric power among involved members. Therefore, this paper proposes attrition rate (D) and fulfillment rate (G) in the first and second stages respectively so as to reveal the bi-echelon supply chain within different leader-follower patterns. The first two models assume the upstream firm is the leader while the last two models regard the downstream firm as the leader. We find out that the results of the evaluation vary under divergent patterns accordingly by running a numerical example. Adopting proposed models can help decision-makers of the multistage supply chain make decisions more effectively and avoid possible mistakes.

کلمات کلیدی:

Uncertainty theory, Data Envelopment Analysis, supply chain management

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