

A robust optimization model for multi-objective multi-period supply chain planning under uncertainty considering quantity discounts

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Abstrak

This paper addresses a new robust multi objective multi period model for supply chain planning under uncertainty considering quantity discounts. The proposed model maximizes the current profit of the distributor by making a balance between the total costs of the supply chain and the distributor company's revenues of selling products and also maximizes the company's expected profit by introducing brands and taking the risk of loss on it. Considering uncertainty in the purchasing cost, selling fees, and demand fluctuations, the new robust multi objective mixed integer programming model is solved as a single objective mixed integer programming model by utilizing the LP metrics method. By settling regulatory penalty parameters and considering different economic scenarios, the robustness and effectiveness of the developed model are verified with the data from BEH PAKHSH Company, a commodities distributor in Iran. The outcomes show that the proposed model is a promising approach to run an efficient supply chain.