

عنوان مقاله:

Designing an innovative closed-loop supply chain network considering economic and environmental aspects

محل انتشار:

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خلاصه مقاله:

In this paper, the modeling of a closed-loop supply chain problem is discussed concerning economic and environmental aspects. The considered supply chain simultaneously makes strategic and tactical decisions, such as locating potential facilities, optimal allocation of product flow, and determining the optimal level of discount. Since the presented model is an NP-Hard model, MOPSO and SPEA II algorithms have been used to solve the problem. For this purpose, a priority-based encoding is presented, and the Pareto front resulting from solving different problems is compared. The results show that the MOPSO algorithm has obtained the most significant number of Pareto solutions in the large size. In contrast, the SPEA algorithm has included more Pareto solutions in the small and medium sizes. This is despite the fact that in different sizes, the MOPSO algorithm has the lowest calculation time among all algorithms. Also, according to the results obtained from the TOPSIS method, it was observed that the MOPSO algorithm in small and medium sizes and the SPEA algorithm in larger sizes have better performance than other proposed algorithms

کلمات کلیدی:

network design, Closed-loop supply chain, economic and environmental aspects, meta-heuristic algorithms

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