

عنوان مقاله:

Mathematical modeling with a stability approach in the fuzzy environment of closed-loop supply chain programming

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نویسنده:

Parisa Aghababaei Poor - PhD Student, Islamic Azad University, Central Tehran Branch, Tehran, Iran

خلاصه مقاله:

The sustainability approach in industry has been considered by supply chain researchers in recent decades. This approach includes three dimensions: economic, environmental and social. On the other hand, production and recycling planning in the supply chain of companies that have recycled products is of great importance. In recent years, closed-loop supply chain is one of the new approaches that has been proposed by researchers with the aim of increasing the supply chain stability. However, the lack of optimal production and recycling planning based on the sustainability approach in industries is seen in abundance. Therefore, the aim of the present study is to model the production planning of closed loop supply chain using linear mathematical programming of fuzzy multi-objective mixed integer. The research approach in defining the goals of the model, based on the dimensions of sustainable development, includes: optimizing social, environmental and economic costs. Due to the uncertainty, some variables were considered fuzzy. The research data was collected from a reversible supply chain of a company in the battery industry. The model was solved by Cplex method in Gomez software. Also, sensitivity analysis of social and environmental parameters of the model were considered. The results indicate the applicability of the model from the perspective of relevant industry experts.

کلمات کلیدی:

closed loop supply chain, sustainability approach, fuzzy, environment, optimization, social

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