

论文

## 协同供应链多级库存控制的多目标优化模型及其求解方法

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摘要

在多级库存的协调控制过程中, 只考虑成本的多目标优化模型对于提高供应链总体性能水平存在着局限, 本文提出了考虑需求满足率、时间、成本的多目标协同优化模型, 对于多品种、复杂拓扑结构, 以及库存、生产能力受限的情况, 提出了一种在外层对库存策略和内层对物流分配方案分别进行寻优的双层求解方法, 并采用演化多目标优化技术构造了算法. 通过算例实验对模型的有效性进行了验证, 实验结果表明, 基于多目标模型的优化结果使得系统总体性能得到显著改善.

关键词 [供应链优化](#) [多级库存](#) [多目标优化](#) [演化计算](#)

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## Multi Objective Optimization Model for Collaborative Multi-Echelon Inventory Control in Supply Chain

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Abstract

The use of single objective model in which only the cost is considered in multi-echelon inventory systems does not suffice to raise the total performance of a supply chain. In this paper, we propose an optimization model in which the cost, elapsing time and the demand satisfaction rate are considered in a combined way. For the case where the capacity and supply are limited under the condition of multi classes, random demand and complex link relationships, a two-level solution algorithm is presented. This algorithm enables us to find out the optimal strategy of sites and at the same time deal with the logistic structure using a evolutionary multi objective optimization method and simulation approach. Numerical examples were designed to demonstrate the validity of the algorithm, and the results show that the multi objective optimization model can significantly improve the total performance of supply chains.

Key words [Supply chain optimize](#) [multi-echelon inventory](#) [multi objective optimization](#) [evolutionary computing](#)

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