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Abstract

In this paper we address the issue of vendor managed inventory (VMI) by considering a two-echelon single vendor/multiple buyer supply chain network. We try to find the optimal sales quantity by maximizing profit, given as a nonlinear and non-convex objective function. In such complicated combinatorial optimizations, exact algorithms and optimization solvers such as CPLEX and LINGO are inefficient, especially on practical-size problems. In this paper we develop a hybrid genetic/simulated annealing algorithm to deal with this nonlinear problem. Our results demonstrate that the proposed hybrid algorithm outperforms previous methodologies and achieves more robust solutions.

Keywords: Supply chain management; VMI; Hybrid algorithm

Highlights

- Proposed a hybrid algorithm using GA- SA for the VMI model
- Results show better performances for hybrid algorithm
- Sensitivity analysis was done to demonstrate the performance of proposed algorithm

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