Investigation of Multi-Period Inventory Routing Management Strategies with Stochastic Demands Using Simulation

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Abstract

The inventory routing problem involves with the coordination decisions of at what time and with what quantities, as well as by how many trucks and what routes in carrying out replenishment works within a supplier-customer system under a preferred level of customer service. This study proposes new replenishment strategies and investigates their effects on the related costs and the trade-off effect between inventory and transportation cost for a multi-period IRP with stochastic demands. Simulation along with linear programming method is used to perform the modeling and analysis.

Keyword：Multi-period IRP, Replenishment strategy, Stochastic demand, Simulation