

Optimal Replenishment Interval and Order Policy in Multi-echelon Inventory Systems

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Abstract

Researches of supply chain management have often suggested that an appropriate policy would likely affect the benefits, cost, and ultimate success in decision making. The policies of replenishment interval optimization and supplier selection are usually to be the objectives of development. However, the research which has documented the combination between the replenishment interval optimization and the supplier selection is scant. Therefore, the aim of this article attempts to develop a coordinated inventory policy which considers the replenishment interval optimization and supplier selection simultaneously.

This research involves the formulation of the optimal policy and derives the optimal policy by differentiation. Ultimately, this research conducts a series of numerical study to indicate the relations between each policy. Results of this research not only show the optimal coordinated inventory policy is workable, but also confirm the findings of above studies. To conclude, this research may be of importance in combining the two different issues, as well as in providing other researchers with a better understanding of coordinated policies.

Keywords: Replenishment interval Supplier selection Quantity discount