

Inventory Model With Stock-Level Dependent Demand Rate And Variable Holding Cost

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Summary

Inventory models in which the demand rate depends on the inventory level are based on the common real-life observation that greater product availability tends to stimulate more sales. Previous models incorporating inventory-level dependent demand rate assume that the holding cost is constant for the entire inventory cycle. This paper considers the inventory policy for an item with a stock-level dependent demand rate and a storage-time dependent holding cost. The holding cost per unit of the item per unit time is assumed to be an increasing function of the time spent in storage. Two time-dependent holding cost step functions are considered: Retroactive holding cost increase, and incremental holding cost increase. Procedures are developed for determining the optimal order quantity and the optimal cycle time for both cost structures. (C) 2007 Elsevier B.V. All rights reserved.

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