

STOCHASTIC PERISHABLE INVENTORY MANAGEMENT IN SUPPLY CHAIN

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Abstract

This paper considers a continuous review of stochastic inventory management for multi-echelon system, which is a building block for supply chain. A three level inventory system is modeled as one warehouse with single distribution center and one retailer handling a single perishable product. A (s, S) inventory system with Poisson demand and exponentially distributed lead times is assumed at retailer node, and modified (Q^*, r) policy is assumed at distribution center. The distribution center replenishes its stocks with exponentially distributed lead times from warehouse, which has abundant stocks for supply. The lifetime of each item supplied is exponential decay of on hand item at retailer node. It is assumed that the item in stock perishes only at the time of handling them at a retailer node; Demands occurring at retailer node during the stock out periods are assumed to be lost. The items are supplied from warehouse to distribution center then to retailers in packs of Q items. The transient, steady state probability distribution of system states and

Key Words : *Supply Chain, Inventory management, Multi-echelon system, Stochastic process, Optimization.*