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A general model for *EOQ* inventory systems with partial backlogging and linear shortage costs

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Abstract

We present a mathematical model which generalises several known deterministic Economic Order Quantity (EOQ) inventory systems with partial backlogging. This inventory model considers purchasing cost, holding cost, shortage costs and replenishment cost. Shortage costs (backorder cost and lost sales cost) are both made up of a fixed cost and a variable cost which depends on the length of the waiting time for the next replenishment. The optimal policy is characterised through a sequential optimisation procedure. To illustrate the model, numerical examples and sensitivity results are given.

Keywords:

inventory systems | EOQ models | shortages | partial backlogging

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