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Optimal control policy for a Brownian inventory system with concave ordering cost. (English)

Zbl 1332.90029

J. Appl. Probab. 52, No. 4, 909-925 (2015).

Summary: In this paper we consider an inventory system with increasing concave ordering cost and average cost optimization criterion. The demand process is modeled as a Brownian motion. Porteus (1971) studied a discrete-time version of this problem and under the strong condition that the demand distribution belongs to the class of densities that are finite convolutions of uniform and/or exponential densities (note that normal density does not belong to this class), an optimal control policy is a generalized (s, S) policy consisting of a sequence of (s_i, S_i) . Using a lower bound approach, we show that an optimal control policy for the Brownian inventory model is determined by a single pair (s, S) .

MSC:

90B05 Inventory, storage, reservoirs
90B30 Production models

Cited in 4 Documents

Keywords:

Brownian inventory system; (s, S) policy; concave ordering cost

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