

A Single Product Production-Inventory Problem Under Brownian Motion Demand and Service Level Constraint

C. P. Lee

National I-Lan Institute of Agriculture and Technology
R.O.C.

Abstract

This paper treats a continuous review, single product, production-inventory problem under Brownian motion demand. Two production rates are used to control the inventory level. When the inventory reaches a high critical level, production is switched to a lower rate, and when the inventory reaches a low critical level, production is switched to a higher rate. We determine the optimal lower and upper critical levels by minimizing the long-run average cost of holding inventory and switching production rates subject to a service level constraint on the long-run average fraction of demand that must be met.

Keywords: Brownian Motion, Critical Levels, Service Level.