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Analysis of A Two Commodity Inventory Problem

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Abstract

A continuous review, zero lead time two commodity- C_1 and C_2 - inventory problem is investigated. The inter-arrival times of demands are assumed to be i.i.d randoms variables with a demand for C_1 alone with probability P_1, for C_2 alone with probability P_2 and for both C_1 and C_2 with probability P_12 such that

$P_1 + P_2 + P_12 = 1$. No shortage is permitted. The limiting probabilities of system size are computed. An optimization problem is examined. Numerical illustration are provided.

Keywords: Markov Renewal Process, Semi-Markov Process.