A Control Policy for (s, S) and Production Inventory Systems

N. Raju

University of Calicut

India

Abstract

In this paper we extend the notion of N-Policy, to a general set up in the case of (s, S) and production inventory systems. In [6], we considered the $N-$ policy under which a replenishment was made through a local purchase when the number of backlogs becomes N during a stock-out period. Here we generalize the concept as follows: if the number of backlogs during a stock-out period falls to an element i of the set $A = \{a, a+1, \ldots, a+r-1\}$ for the first time during a lead time, a local purchase is made according to the probability distribution $P = \{\beta_a, \beta_{a+1}, \ldots, \beta_{a+r-1}\}$, where $\beta_i =$ Probability of order being placed when the inventory level falls to $i \in A$, ($\beta_i > 0$ and $\sum_{i \in A} \beta_i = 1$). However, a local purchase is made with probability one at the $(a+r)^{th}$ demand epoch during a stock-out period. As in [6] here also we discuss three cases of replenishments. In the first case a local purchase is made to raise the inventory level to S after cancelling the order placed. In second and third cases a local purchase is made to raise the inventory level respectively to s and zero without cancelling the order placed. A similar generalization is made in the case of production inventory system also.