

Impact of Backorder Discounts on Periodic Review Inventory Model

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Abstract

The stochastic inventory model analyzed in this paper explores the problem of the backorder discount and protection interval (i.e., review period plus lead time) as control variables to widen applications for a periodic review inventory model. In this study, we discuss two models that possess perfect information and partial information about the protection interval demand distribution. That is, we first assume that the protection interval demand follows a normal distribution, and then remove this assumption by only assuming that the first and second moments of the probability distribution of protection interval demand are known. For each case, we develop an algorithm to find the optimal strategy. Also, two numerical examples are provided to demonstrate the results.

Keywords: Periodic Review, Protection Interval, Backorder discount, Minimax Distribution Free Procedure.