

**A Note on Permissible Delay in Payments for  $(Q, R)$   
Inventory Systems with Ordering Cost Reduction**

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**Abstract**

In this note, we explore the  $(Q, R)$  inventory policy as well as the investment strategy for ordering cost reduction under conditions of permissible delay in payments. The relationship between ordering cost and its investment is formulated by the widely utilized logarithmic function. We first consider a case where the lead-time demand is normally distributed, and develop an algorithm to find the optimal solution. Then, the Laplace distribution is employed to model the lead-time demand, for this case, we derive the closed-form solution and perform the sensitivity analysis. Numerical examples are given to illustrate the results of proposed models.

*Keywords:* Inventory, Ordering Cost Reduction, Normal Distribution, Laplace Distribution.