

Chapter 1:

An Analysis of Deterministic Inventory Model based on Trade Credit Policy

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Abstract

Some time ago, when the whole world is in grip of a deadly pandemic coronavirus disease (COVID-19) the impact of trade credit policy is very high and both the production capacity of producers and purchasing power of the people have been reduced. In such situation, the supplier sets a policy to stimulate the demand for his product or getting his balanced amount. We analytically investigate the impact of COVID-19 in the trade credit policy using the inventory control system. Under this policy, the provider allows a specified period to his consumer that if he returns the outstanding amount within this fixed period, then no additional charge will be charged on that amount. Provided that after the given stipulated time periods the provider will

charge some additional amount from his customer. In this study, we have developed a deterministic inventory model of time-dependent demand and holding cost. The deterioration rate is also depends upon the time because most objects tend to deteriorate with respect to the time. This model allows shortage and demand is partially backlogged. Proposed inventory model can be implemented to minimize the total inventory cost for business enterprises and also able to obtain trade credit policy in the post-pandemic period, in spite their poor creditableness under the inventory control system.

Keywords: Inventory model, deteriorating items, COVID-19, Trade credit policy, Permissible delay.