

A manufacturer-buyers integrated inventory model with stochastic lead times of delivering equal- sized batches of a lot

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Abstract

The single manufacturer multi-buyer integrated inventory supply chain problem with deterministic lead time of delivering batches (sub-lot) of a lot has received a considerable attention of researchers. Because of the influences of various factors, usually deviation in the times of setting up of a machine, inspection, loading, transportation, unloading etc. occurs, which in turn leads to the deviation in the lead time of delivering batches of a lot. However, the single-manufacturer multi-buyer problem with stochastic lead time has received no attention of researchers. To fill up this gap, here we develop a generalized single-manufacturer multi-buyer integrated inventory supply chain model with stochastic lead time of delivering equal-sized batches of a lot. Then an optimal solution technique to the model is developed. Thereafter, the solution method is illustrated with numerical examples, and various numerical problems are solved to show the potential significance of this solution method. The shortcomings of the current solution method are highlighted and the future research scope is indicated.