

SYNCHRONIZATION OF MULTI-MANUFACTURER MULTI-BUYER INTEGRATED INVENTORY SUPPLY CHAIN MODEL

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The manufacturer–buyer integrated inventory supply chain system is common practice and evolving into a significant factor in the more highly competitive environment encountered in today's global economy. Coordination between the manufacturer and the buyer offers benefits economically for both parties. Notable attention has been given to single-manufacture, single-buyer and single-manufacture multi-buyer integrated inventory systems with consideration of various realistic factors in the literature. This study was motivated by a real-world problem where six tea manufacturing factories produce a brand of tea and distribute their two buyers. However, to the best of our knowledge, only a few studies investigated multi-manufacturer multi-buyer integrated inventory systems in previous research. Further, we assumed manufacturers transfer the lot just after its production and buyers have limited storage capacity to accommodate the required inventory. So, we first develop a multi-manufacturer multi-buyer integrated inventory model by accounting for realistic factors such as capacity limitation of buyer storage. In our study, manufacturers produce a homogenous product and supply it to all buyers to satisfy their demands. Besides, we consider unequal batch size transferring policy and assume the batch sizes follow geometric series. Then, we derive an optimal solution technique for the model to obtain the minimum total cost. Further, a sensitivity analysis is performed, and real-world tea distribution data is solved to support the analytical findings.

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