CORDINATION MODEL IN PROBABILISTIC DEMAND FOR SINGLE MANUFACTURER-MULTIPLE BUYERS

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ABSTRACT

Coordination models in supply chain have been widely studied. More of them assume that demand is deterministic and mostly single buyer. In this research a model of coordination for single manufacturer and multi-buyers with probabilistic demand has been developed.

In this study, an algorithm is developed to solve mathematical models that have been made. The effect of changing parameters of model behavior were assessed with sensitivity analysis on several decision variables such as ordering cycle, number of deliveries and total inventory cost. Compensation model for buyer have also been developed and compared with non coordination model.

Numerical experiments are used to illustrate total cost of supply chain when implementing coordination. The result show that coordination gives better performance for the entire system rather than without any coordination. Based on the results of experiment, the coordination gives savings $39,690 or 37% of the total cost without coordination. The compensation awarded is $0.024 / unit for first buyer and $0.010 / unit for the second buyer. The third buyer does not get any compensation.

Keyword: Inventory, Supply Chain Management, Probabilistic demand, Coordination.
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