Replenishment Policy of a Newsboy Problem for an Integrated Manufacturer-Retailer Channel

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Abstract: In this research, we consider a single-period inventory of product with a fixed life cycle and short marketing period. This study extends the classical newsboy problem to take account of defective items and return policy. The optimal order quantity is derived for cases when the expected profit model in the manufacturer-retailer channel are developed independent or collaboratively. The objective of this study is to derive the optimal order quantity that will maximize the total system profit. Numerical examples and sensitivity analysis are carried out to illustrate the application of the model. It is seen that the collaborative ordering policy not only maximizes the total channel profit but also benefits each channel member.

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