Yaghin, R. Ghasemy; **Fatemi Ghomi, S. M. T.**; **Torabi, S. A.**
Pricing and lot-sizing decisions in retail industry: a fuzzy chance constraint approach.
(English) ⊡ Zbl 1337.90014

Summary: Analysis of inventory systems involving market-oriented pricing decisions has recently become an interesting topic in the field of inventory control. Price and marketing expenditure are considered as important elements when selling goods and enhancing revenues by manufacturers. The importance of accounting for uncertainty in such environments spurs an interest to develop appropriate decision making tools to deal with uncertain and ill-defined parameters (such as costs and market function) in joint pricing and lot-sizing problems. In this research, a fuzzy chance constraint multi-objective programming model based on p-fractile approach is proposed to determine the optimal price, marketing expenditure and lot size. Considering pricing, marketing and lot-sizing decisions simultaneously, a possibilistic programming based on necessity measure is considered to handle imprecise data and constraints. Discount strategy as a fuzzy power function of order quantity is determined. After applying appropriate strategies to defuzzify the original possibilistic model, the equivalent multi-objective crisp model is then transformed by a single-objective programming model. A meta-heuristic algorithm is applied to solve the final crisp counterpart.

For the entire collection see [Zbl 1326.65010].

MSC:

90B05	Inventory, storage, reservoirs
90B06	Transportation, logistics and supply chain management
90C59	Approximation methods and heuristics in mathematical programming
91B24	Microeconomic theory (price theory and economic markets)
90C29	Multi-objective and goal programming
60A86	Fuzzy probability

Keywords:

inventory systems; pricing decisions; fuzzy chance constraint; multi-objective programming