

عنوان مقاله:

Two-Echelon Supply Chain Considering Multiple Retailers with Price and Promotional Effort Sensitive Non-Linear Demand

محل انتشار:

دوفصلنامه بهینه سازی در مهندسی صنایع، دوره 11، شماره 2 (سال: 1397)

تعداد صفحات اصل مقاله: 8

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خلاصه مقاله:

This study deals with the effects of a supply chain(SC) with single product, multiple retailers and a manufacturer, where the manufacturer (he) produces lot size of the product that contains a random portion of imperfect quality item. The imperfect quality products are sold in a secondary shop. The new contribution of this paper is a new non-linear demand function. Demand of the end customers varies with pricing and promotional effort of the rivalry amongst the retailers which can be used for the electronic goods, new launched products, etc. We investigate the behavior of the supply chain under Manufacturer- Stackelberg(MS), and Retailer-Stackelberg(RS) model structures. The nature of the mentioned models provides great insights to a firm's manager for achieving optimal strategy in a competitive marketing system. Within the framework of any bilevel decision problem, a leader's decision is influenced by the reaction of his followers. In MS model structure, following the method of replacing the lower level problem with its Kuhn-Tucker optimality condition, we transform the nonlinear bi-level programming problem into a nonlinear programming problem with the complementary slackness constraint condition. The objective of this paper is to determine the optimal selling price and promotional effort of each retailer, while the optimal wholesale price of the perfect quality products are determined by the manufacturer so that the above strategies are maximized. Finally, numerical examples with sensitivity analysis of the key parameters are illustrated to investigate the proposed model

کلمات کلیدی:

Supply chain(SC), Game theory, Promotional effort, Pricing, Kuhn-Tucker optimality condition

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