

عنوان مقاله:

A Game Theory Approach to Multi-Period Planning of Pricing, Ordering, and Inventory Decisions for a Make-to-Order Manufacturing Supply Chain

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خلاصه مقاله:

Supply chain members coordinate with each other in order to obtain more profit. The major mechanisms for coordination among supply chain echelons are pricing, inventory management, and ordering decisions. This paper concerns these mechanisms in a multi-echelon supply chain consisting of multiple suppliers, one manufacturer, and multiple retailers in order to study the price and lead-time competition, where the make-to-order production mode is employed and consumers are sensitive to retail price and lead time. In the current study, a novel inventory model is presented, where the manufacturer has an exclusive supplier for every required component of its final product. The interactions and decisions of the firms are observed in multiple time periods. Moreover, each supply chain member has equal power and makes their decisions simultaneously. The proposed model considers the relationships among three-echelon supply chain members based on a non-cooperative Nash game with pricing and inventory decisions. An iterative solution algorithm is proposed to determine the Nash equilibrium point of the game. An example is presented to study the application of the model as well as the effectiveness of the algorithm.

کلمات کلیدی:

.Supply chain; Nash game; Make-to-order; Production planning

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