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Advance Selling with Double Marketing Efforts in a Newsvendor Framework

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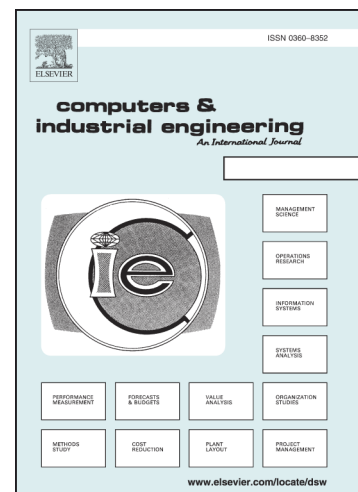
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# Advance Selling with Double Marketing Efforts in a Newsvendor Framework

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**Abstract:** With the rapid development of e-commerce, advance selling has become a common practice in the retailing industry. In this paper, we look into a joint optimization problem of multiple and dynamic marketing decisions when advance selling is applied. We assume that a retailer sells a product with a short selling season. The product can be a perishable or deteriorating item. The retailer launches advance selling before the stock actually arrives at the market in order to extend the selling season and thereby increases the awareness of potential consumers to the new product. To further stimulate demand, the dual marketing efforts of advertising and price discounting are employed during the entire selling season. We first model and analyze the dynamic demand generating process based on an extension of Bass Diffusion Model (Bass, 1969). The paper also integrates two types of stochastic consumer valuation: the consumer value of the product and the loss of consumer value caused by advanced purchasing. Furthermore, we model the marketing decision as a deterministic Markov decision-making process and then develop the properties of the optimal solutions of the problem. In order to solve the model, a dynamic programming method is applied. At last, managerial insights are explored through a numerical study. Our study shows that prolonging the selling season with an advance selling season is an effective tool to improve sales performance, especially in combination with the mix of marketing efforts.

**Keywords:** Advance selling, Advertising, Price discount, Information diffusion, Dynamic programming, Newsvendor model

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