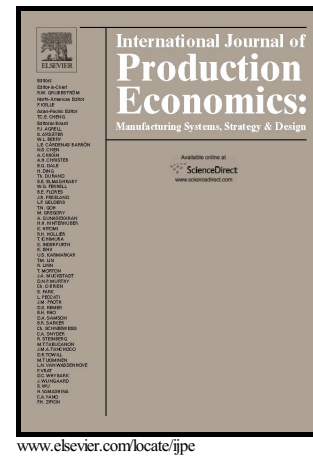


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The loss-averse newsvendor model with backordering

Xinsheng Xu^{1,2*}, Hongwei Wang¹, Chuangyin Dang³, Ping Ji⁴

1. Key Laboratory of Image Processing and Intelligent Control, Institute of Systems Engineering, Huazhong University of Science & Technology, Wuhan, China;
2. Department of Mathematics, Binzhou University, Binzhou, China; 3. Department of Systems Engineering and Engineering Management, City University of Hong Kong, Kowloon, Hong Kong; 4. Department of Industrial and Systems Engineering, The Hong Kong Polytechnic University, Hung Hom, Hong Kong.

Abstract: In this paper, we study the optimal order quantity in the loss-averse newsvendor model with backordering. We first obtain the optimal order quantity to maximize the expected utility. To hedge against the risk arising from the uncertainty of market demand, we introduce the Conditional Value-at-Risk(CVaR) measure and derive the optimal order quantity to maximize the CVaR objective about utility. It is found that the optimal order quantity with the CVaR objective is decreasing in the confidence level, and thus is smaller than the optimal order quantity to maximize the expected utility. It is proved that under the optimal order quantity with the CVaR objective, the loss-averse newsvendor's expected utility is decreasing in the confidence level. It further confirms that high risk implies high return and low risk comes with low return.

Key words: Inventory control, Conditional Value-at-Risk, Backorder, Lose-averse

1 Introduction

The newsvendor model is a famous model in inventory control literature and has been applied to various fields such as production plan and yield management. With the de-

*Corresponding author. E-mail: xxs0905@163.com. Tel: 0086-543-3190176

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