Pre-order Sales for Advance Selling with Capacity Constraint

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Abstract

Two possible pricing formats are commonly used in advance selling: discount and premium that depends on the pre-order price is lower or higher than the spot selling price. Discount price induces the early purchase of the customers who are uncertain about the quality of the product, and premium price grants the product availability for those who are eager to obtain the product. We use a two-period model, advance selling and spot selling to denote the profit optimization for a retailer who sells one product. The retailer faces two types of customers: novice customers who barely know the product and veteran customers who are familiar with the similar product. Population size of these two types of customers and product capacity in the spot selling period affect the price decision in advance selling for the retailer. A Stackelberg game is used to characterize the optimal price decisions, and in numerical study, several settings of scenarios are examined to gain more managerial insights.

Keywords
Advance selling, Pre-order, Price discount, Capacity and Stackelberg game.

Acknowledgements

Biographies
Kwei-Long Huang is an Associate Professor of Institute of Industrial Engineering at National Taiwan University. He received his Ph.D. degree from the department of industrial and manufacturing engineering at The Pennsylvania State University, USA. He has involved several projects sponsored by Ministry of Science and Technology of Taiwan, in which quantitative methods are applied to solve problems related to revenue management and scheduling in manufacturing and service industries. His research interests include production and operation scheduling, supply chain management and applied operations research.

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