

The Hong Kong Polytechnic University
Department of Logistics and Maritime Studies
Research Seminar

Intertemporal Pricing under Minimax Regret

by

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Time: 11:00am - 12:00nn

Venue: N114, Block N

The Hong Kong Polytechnic University

(Conducted in English)

Abstract:

We consider a firm's pricing problem when there is little demand information available. The firm sells a product over a finite time horizon. Customers are heterogeneous in their willingness-to-pay for the product and arrival time during the selling season. We assume that the seller knows only the support of the customers' valuations and do not make any distributional assumptions about customers' willingness-to-pay or arrival time. We consider a robust formulation of the seller's pricing problem based on the minimization of her worst-case regret. Two distinct cases of customers' behaviors are studied: myopic and strategic. For myopic customers, the regret is determined by the price at a critical time, and we show that the optimal pricing strategy is not

unique except at this critical time. For strategic consumers, we develop a robust mechanism design approach to compute an optimal policy. The optimal price then equalizes the regrets generated by different customer types that arrive at the beginning of the selling season. Interestingly, a seller that does not know whether the customers are myopic should price as if they are strategic.

Bio:

Ying Liu is a Ph.D. candidate from Stern School of Business, New York University. She received her Bachelor degree in Electrical Engineering from Zhejiang University in Hangzhou, China. Then she received her Master degree in Electrical and Systems Engineering from the University of Pennsylvania.

Ying's research focuses on new approaches to dynamic pricing and data-driven revenue management. She is primarily interested in the intertemporal pricing policy and dynamic allocation problem with limited data and demand information. She has also worked on the problems that affect many different market situations, including markets with vertically differentiated products and markets with changing environments. She is also interested in data-driven revenue management. One of her current projects is to identify from the realworld transaction data the customer's "consideration set". The purpose is to explore the behavioral aspects of the consumer decision-making process, and to have more accurate demand estimation. Ying has adopted interdisciplinary approaches to her research by combining robust optimization, game theory, mechanism design and optimal control.

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All are welcome!