

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

Revenue-Maximizing Pricing and Service Policies for Queueing Systems with Strategic Customers

by

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Date: 22 June 2016 (Wednesday)
Time: 11:00am - 12:00nn
Venue: M714, Li Ka Shing Tower
The Hong Kong Polytechnic University

(Conducted in English)

Abstract:

Firms in many industries are capacity-constrained and face delay-sensitive customers who are willing to pay more for faster service. I will discuss some of my work on the problem of designing revenue-maximizing pricing and service policies in such environments.

My talk will focus on the question of incentive-compatible price and service differentiation: How to design a static price/lead-time menu, and a corresponding scheduling policy, to maximize revenues from heterogeneous customers with private information on their attributes?

I will start with a review of the case where customers have *unit* demand ([1], [2], [3]). In this case, delay cost heterogeneity is the key driver of the optimal policy. I will then discuss new work on the case where customers have demand on *multiple* occasions ([4]). We assume customers do *not* differ in their delay costs. Yet we show that priority service may be optimal as a result of demand rate heterogeneity.

Time permitting I will conclude by outlining some underexplored demand characteristics that point to future directions for research on the design of pricing and service policies.

References

[1] Afèche, P., H. Mendelson. 2004. Pricing and priority auctions in queueing systems with a generalized delay cost structure. *Management Science*, 50, 869-882.

[2] Afèche, P. 2013. Incentive-compatible revenue management in queueing systems: optimal strategic delay. *Manufacturing & Service Operations Management*, 15, 423-443.

[3] Afèche, P., M. Pavlin. Optimal price/lead-time menus for queues with customer choice: segmentation, pooling, strategic delay. Forthcoming in *Management Science*.

[4] Afèche, P., O. Baron, J. Milner, R. Roet-Green. Pricing and prioritizing time-sensitive customers with heterogeneous demand rates. Under revision for *Operations Research*.

Bio:

Philipp Afèche is Associate Professor of Operations Management at the University of Toronto's Rotman School of Management. He received a M.S. in Electrical Engineering and a Ph.D. in Business (Operations, Information & Technology) from Stanford University. Philipp is primarily interested in problems at the interface of operations, marketing, and economics. His research so far has mainly focused on pricing, service design, and lead-time management for congestion-prone systems in the presence of strategic customer behavior. More recently he is also interested in modeling, estimation, and control problems related to dynamic matching, road pricing, and the integration of operations with customer relationship management. His work has appeared in the leading INFORMS journals and recently earned him the M&SOM Best Paper Award. Philipp served on expert panels for the U.S. National Science Foundation and as external reviewer for the Research Grants Council of Hong Kong and for the Israel Science Foundation. He is also a past Chair of the M&SOM Service Management Special Interest Group.

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All are welcome!