

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

Dynamic Pricing with Reference Price Effects

by

Dr Peng HU
Professor
School of Management
Huazhong University of Science and Technology

Date: 29 March 2017 (Wednesday)
Time: 11:00am-12:00nn
Venue: M802, Li Ka Shing Tower
The Hong Kong Polytechnic University
(Conducted in English)

Abstract:

This study analyzes a single-product dynamic pricing problem in which demand at each period depends on not only the current price but also past prices through reference prices. A unique feature but also a significant challenge in this model is the asymmetry in reference price effect. For the loss-averse case, we identify a few key structural properties and develop strongly polynomial-time algorithms to compute the optimal prices for several plausible scenarios. We complement our exact algorithms by proposing an approximation heuristic with an upper bound on the optimal objective value and conduct numerical experiments to study the optimal price path and demonstrate the value of dynamic pricing when demands are seasonal. For the gain-seeking case, we find that even the myopic pricing strategy belongs to one type of discontinuous maps, which can exhibit complex dynamics over time. Nevertheless, we show for a special case that a cyclic skimming pricing strategy is optimal, and we provide conditions to guarantee the optimality of high-low pricing strategies.

Bio:

Peng HU is a professor in the School of Management at Huazhong University of Science and Technology. He received his Ph.D. degree in Operations Research from the University of Illinois at Urbana-Champaign, his master degree in Control & Operations Research from Chinese Academy of Sciences, and his bachelor degree in Statistics from Peking University. His research interests include optimal pricing and inventory management, and customer behavior in operations management.

Please email to eunice.yt.wong@polyu.edu.hk for enquiries.

All are welcome!