

The Hong Kong University of Science and Technology

Dept of Information System, Business Statistics
and Operations Management
Dept of Industrial Engineering and Logistics Management

Joint Seminar Announcement

Consumer Choice Models with Endogenous Network Effects

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Date : 14 July 2015 (Tuesday)
Time : 11:00 am - 12:15 pm
Venue : LSK 3003



Abstract: Network externality arises when the utility of a product depends not only on its attributes, but also on the number of consumers who purchase the same product. In this paper, we study consumer choice models that endogenize such network externality. We first characterize the choice probabilities under such models and conduct comparative statics studies. Then we investigate the assortment optimization problem under such choice models. Although the problem is generally NP-Hard, we show that a new class of assortments, called *quasi-revenue-ordered assortments*, which consist of a revenue-ordered assortment plus at most one additional item, is optimal under mild conditions. Finally, we propose an iterative estimation method to calibrate the new choice model, for both complete and incomplete data cases. An empirical study on a mobile game dataset shows that our proposed model can provide better fits for the data, increase the prediction accuracy for consumer choices and potentially increase the revenue.

Bio: Ruxian Wang joined the Johns Hopkins University -- Carey Business School in 2013. Before returning to academia, he worked in HP Labs of Hewlett-Packard Company for several years. He is currently an Assistant Professor in the research track with expertise in the areas of assortment management, pricing, consumer choice models, revenue management, and supply chain management. He received his Ph.D. at Columbia University, B.S. and M.S. at Nanjing University. His research articles have appeared in *Operations Research*, *Manufacturing & Service Operations Management*, *Production and Operations Management*, among others.