

The Hong Kong University of Science and Technology  
Dept of Information Systems, Business Statistics  
and Operations Management  
Dept of Industrial Engineering & Decision Analytics  
Joint Seminar Announcement



**The Limits of Bundling:  
High Demand with Limited Inventory**

by

**Dr Tarek Abdallah**

**Assistant Professor**

**Kellogg School of Management**

**Northwestern University**

**Date** : **5 November 2021 (Friday)**  
**Time** : **10:30 - 11:45 AM**  
**Zoom ID** : **958 7450 2573 (passcode 419621)**



**Abstract:** There is an increased interest in bundle selling mechanisms especially with the rise of subscription services. This rise was mainly fueled by the success of subscription services in the digital markets where inventory is unlimited. However, recently there is a slew of subscriptions services that emerged in the retail industry where inventory is limited. In this paper, we take a first step towards understanding the impact of key operational metrics such as inventory levels and limited selling horizons on the optimal bundle selling strategy. We study a dynamic bundle pricing problem when the firm is selling multiple items but with limited inventory. We propose a new scaling regime to study this problem, called high-demand regime, where we scale the arrival rate in order to capture markets where demand is high but inventory is limited. Our results highlight a fundamental limitation of bundling in such markets. Firms should avoid bundling fast moving items together and should rather sell them separately (or bundle fast moving items with slow moving items). Moreover, depending on the tail of the valuation distribution, the firm should either consider static pricing of the items or dynamic pricing. We provide closed form solutions for the static and dynamic pricing policies.

**Bio:** Dr Tarek Abdallah joined in 2018 the faculty of the Operations Division of the Managerial Economics, Decision Science, and Operations Department at the Kellogg School of Management, Northwestern University. Prior to joining Kellogg, he received his Ph.D. in Operations Management from NYU Stern School of Business. Tarek's research lies at the intersection of operations management, economics, and marketing. His research focuses on the pricing and revenue management problems that arise in traditional and innovative marketplaces. He is particularly interested in the analysis of subscription services and the design of practical yet efficient bundle pricing mechanisms. He is also interested in empirical research and data analytics.

All interested are welcome!  
Enquiries: Dept of ISOM