

NYU Stern School of Business
Department of Information, Operations & Management Sciences
OPERATIONS MANAGEMENT RESEARCH SEMINAR

TOPIC: Mechanism Design (for a Capacity Investment Decision) under Dynamic Evolutions of Asymmetric (Demand) Information

SPEAKER: Özalp Özer (UT Dallas)

DATE: Wednesday, October 3, 2012

TIME: 11:00 AM-12:30PM

PLACE: 5-90 KMC

ABSTRACT

This presentation will focus on issues arising in demand forecast information sharing and capacity investment in a supply chain. More generally, we will consider the role of time in information sharing and a strategic investment decision. To do so, we will provide a framework to model evolutions of asymmetric forecasts generated by multiple decision makers who forecast demand for the same product. This model will help us study mechanism design problems in a dynamic environment. We will consider a supplier's (principal's) problem of eliciting credible forecast information from a manufacturer (agent) when both firms obtain asymmetric demand information for the end product over multiple periods. The supplier uses demand information to better plan for a capacity investment decision. When the supplier postpones building capacity, the supplier and the manufacturer can obtain more information and update their forecasts. This delay, however, may increase (or decrease) the degree of information asymmetry between the two firms, resulting in a higher (or lower) cost of screening. The capacity building cost may also increase due to the subsequent tighter deadline. Considering all such tradeoffs, the supplier has to determine (i) when to stop obtaining new demand information and invest in capacity, (ii) whether to offer a screening contract to credibly elicit private forecast information or to determine the capacity investment level without information sharing, (iii) how much capacity to build, and (iv) how to design the overall mechanism so that both firms benefit from this mechanism. This presentation will answer these questions and provide a framework to quantify the option value of time for a strategic investment decision under the dynamic evolutions of asymmetric forecasts. (Joint work with S. Oh).

Bio

Özalp Özer is Professor of Operations Management at The University of Texas at Dallas, School of Management. Previously he was a faculty member at Columbia University and Stanford University. His general research interest is to investigate the impact of technology and information on product development, production, and distribution of goods and services, management and coordination of supply chains, and pricing management. He has received the Wickham Skinner Early-Career Research Accomplishment Award from the Production and Operations Management Society in 2004, and the Eugene Grant Teaching Award at Stanford by vote of students in 2003 and 2004 and at Columbia in 2009. He is an editor of *The Oxford Handbook of Pricing Management* published by OUP in 2012. His articles have appeared in

journals such as *Management Science*, and *Operations Research*. He is currently serving as an associate editor for *Management Science*, *M&SOM*, *Operations Research*, and *Production and Operations Management*. He is an active consultant to industry and has consulted companies including Ericsson, General Motors, Hitachi GST, and Hewlett Packard. He received his Ph.D. and M.S. degrees from Columbia University.