The Hong Kong University of Science and Technology
Department of Information Systems,
Business Statistics and Operations Management

Joint OM/IE Seminar Announcement

Dynamic Coalitional Stability in Supply Chain Games

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Date: Friday, 17 February 2012
Time: 11:00 – 12:30 pm
Venue: Room 4219, 4/F (Lift 19)

Abstract:

Coalition formation and stability is a topic of interest to game theorists, applied mathematicians, economists and recently operations management researchers. Traditional analysis looked at two issues: one characterizing stable or equilibrium outcomes for a specific game or two calculating allocation rules that resulted in a specified form of coalitional stability. However, in practical settings, often of interest in operations management, the above two settings do not fully answer the underlying questions.

We first present complexity results on coalitional stability in supply chain games. Next we show an "invariance principle" that goes towards addressing the above issue. In particular, we characterize sufficient conditions under which when the number of players is large, farsighted stable coalition structures for a significant class of games remain invariant to the specific allocation rules used to divide profit within coalitions. We explore the associated class of games and allocation rules and discuss the implication to supply chain settings. Finally, we present a result in the spirit of Nash's program. We present a non-cooperative random graph-theoretic model whose Sub-game perfect Nash equilibrium correspond to the cooperative game theoretic predictions.

Bio:

Mahesh did his undergraduate degree from the Indian Institute of Technology, Bombay. He did his graduate education in math and operations at Caltech and the University of Southern California in Los Angeles and obtained his PhD in operations management. He joined the Sauder school of business, U.B.C in 2003, where he has been since his PhD. He is now an associate professor and holds the Alumni professor of financial modeling and stochastic optimization.