

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

Robust Optimal Production Structure for Assembly with Information Asymmetry

by

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Time: 10:30am - 11:30am
Venue: R601, Shirley Chan Building
The Hong Kong Polytechnic University

(Conducted in English)

Abstract:

We investigate how an assembler should organize her production structure when procuring complementary components from multiple suppliers whose linear production costs are private information. We abandon the assumption that there exists a common prior distribution for suppliers' types and embrace the max-min criterion that maximizes the assembler's worst-case expected profit by making use of limited information. We propose a joint optimization approach to finding the robust optimal contract menus for both an integrated production model (under which multiple components are manufactured by the same supplier) and a component production model (under which different suppliers manufacture different components). We demonstrate that in each case, the assembler chooses a balanced ordering policy that makes the ex-post profit to be piece-wise linear with respect to suppliers' types if the partial information is limited to average production costs. When the heterogeneity of components (or suppliers) increases, the max-min assembler tends to prefer component production. By extending the analysis to the case wherein the average and variance of production costs are known, we show that the assembler's optimal worst-case profit is a U-shaped function of the variance.

Bio:

Erick (Zhaolin) Li received a Ph.D. in Business Administration from The Pennsylvania State University, a Master of Commerce in Accounting from The University of New South Wales, and a Bachelor of Engineering in Materials Science & Industrial Engineering from Shanghai Jiao Tong University. Dr. Li has been with The University of Sydney Business School since January 2009. Before moving to Sydney, he had worked in Ernst & Young LLP, Southern Arkansas University, and City University of Hong Kong. Dr. Li is among the top 25 Operations & Supply Chain Management (O&SCM) scholars of Asia, according to Babbar et al., (2017, 2018).

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All are welcome!