

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

**Bilateral Interactions in Two-Sided Networks --- Intervening
Opportunities and
Matching Theories in Transportation, Trade and Supply Chains
Analysis**

by

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Date: 18 January 2016 (Monday)

Time: 11:00am - 12:00nn

Venue: N113, Block N

The Hong Kong Polytechnic University

(Conducted in English)

Abstract:

Bilateral interactions in two-sided networks are universal phenomena in the areas of regional and international trade, transportation, supply chains, e-commerce and share economy. It is important to understand the individual stakeholder's behaviors and decision about with whom, why and how much to interact (e.g. trade, transport) in competitions and game environments, which is not yet satisfactorily explained by the traditional methods such as gravity models, and partial/general equilibrium models. By advancing intervening opportunities and matching theory

as well as developing the corresponding estimation models, we are able to account for agent-based behavior and interactions, develop market forecasts and design markets/platforms for two-sided networks. These newly advanced theories lay the solid foundation for empirical studies in trade, supply chains, transportation, and port economics. In the final part of the talk, we will share important findings from our recent empirical study on large-scale food supply chain (published in *Environmental Science & Technology*), showing that food supply chain localization without systems analysis could result in negative economic and environmental impacts, an unintended consequence which the general public and policy makers are unaware of.

Bio:

Dr. He's research focuses on theoretical and empirical two-sided network analysis for studies in transportation, trade and supply chains. He develops generalized intervening opportunities theory and matching theory to better characterize the individual behaviors in bilateral interactions within two-sided networks, which can be applied in transportation studies, international trade, migration study, E-commerce and market design of share economy. He also builds complex transshipment models to account for the spatial, temporal, economic and environmental aspects of large-scale supply chains. His empirical study published in *Environmental Science and Technology* reveals that supply chain localization without systems analysis could result in negative economic and environmental impacts (e.g., increased cost as well as emissions), as is opposing to the popular view and arguments that could be misleading. Dr. He got his Ph.D. in Transportation Systems Engineering from Cornell University, with minors in Applied Economics & Management, and Operations Research & Information Engineering. Before that, he received degrees from UC Davis (M.S. Transportation, 2011) and Zhejiang University (B.E. Civil Engineering, 2011).

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All are welcome!