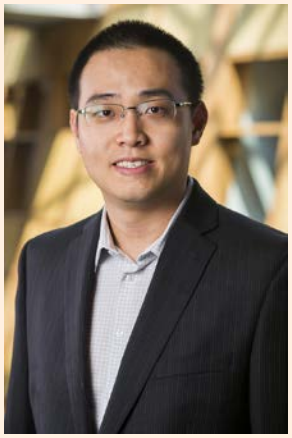
The Hong Kong University of Science and Technology

Dept of Information Systems, Business Statistics and Operations Management
Dept of Industrial Engineering & Decision Analytics

Joint Seminar Announcement



Emission Reduction through Regulating Indirect Sources (joint work Luyi Gui and Sai Zhao)

by

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Date	:	**6 May 2022 (Friday)**
Time	:	**10:30 - 11:45 AM**
Zoom ID	:	**978 2332 0242 (passcode 370129)**

Abstract: Emission from diesel trucks such as Nitrogen Oxides causes severe air pollution. However, direct regulation on trucking companies for their use of diesel trucks typically falls out of the jurisdiction of local governments. A legislative alternative is to regulate other sectors that prompt diesel truck usage in the local region, called indirect emission sources. The first of such regulations is Southern California's Rule 2305, the Warehouse Indirect Source Rule (ISR). Passed in May 2021, the ISR holds local warehouses responsible for the diesel truck trips to their facilities through a mitigation fee. The goal of the ISR is to incentivize warehouses to hire electric semi-trucks to improve air quality and thus public health. Motivated by this new policy, we explore the environmental impact of the ISR and the industry burden that it introduces, compared to a hypothetical direct source rule (DSR) that regulates trucking companies. We find that ISR can indeed lead to higher adoption of electric semi-trucks than DSR, especially when the mitigation fees for diesel truck trips are small. However, using the mitigation fee collected from warehouses to subsidize trucking companies' electric semi-truck investments, a current practice of the ISR, can backfire and reduce industry adoption of electric semi-trucks. Interestingly, depending on the distribution of truck trips' distances, a higher mitigation fee for using diesel trucks can also lead to lower adoption of electric semi-trucks. Finally, we explore the practical implications of the ISR using real warehouse data from Southern California.

Bio: Dr Shiliang (John) Cui is a Provost's Distinguished Associate Professor of Operations and Information Management at Georgetown University's McDonough School of Business. His research interests focus on process improvement of products (more specifically, product design and supply chain strategies) and services (more specifically, innovative service mechanisms). He has published research at MS, OR, MSOM, POM and JOM, etc.

All interested are welcome!

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