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

Traceability and Food Waste in Fresh Produce Supply Chains

By

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Date	:	**20 Apr 2026 (Monday)**
Time	:	**3:00 – 4:15 PM**
Venue	:	**Classroom 3001, 3/F, LSK Business Building**

Abstract: Grocery supply chains account for approximately 42% of global food waste. Monitoring technologies, process improvement, and waste penalties are policy levers to improve product freshness and reduce waste. Understanding how these levers interact and the conditions that lead to incentive-compatible adoption of such tools is critical for effective policy design. We study a fresh produce supply chain in which the retailer invests in traceability (to obtain signals of batch-level produce freshness), while the supplier invests in improving average freshness (process conformance). Consumer demand increases with product freshness. We show that traceability has a non-monotonic effect on process conformance. When conformance costs are high, increasing traceability improves freshness. When conformance costs are low, however, higher traceability can backfire, producing more variable, lower-freshness products and greater food waste. When traceability induces greater conformance, the associated costs are partially passed through to wholesale and retail prices, while higher freshness increases demand and enhances consumer utility. We examine a social planner who can penalize retail food waste and subsidize traceability investments. While both instruments can be effective, each may backfire depending on the conformance costs. We identify conditions under which these policies simultaneously reduce waste and increase food availability – a win–win–win for consumers, firms, and the environment. Finally, we derive an upper bound on traceability costs below which subsidizing traceability is strictly more effective than waste penalties, offering guidance for optimal policy design in fresh produce supply chains.

Bio: Javad Nasiry is a professor of Operations Management at McGill's Desautels Faculty of Management where he joined in 2019. His main research interests are in **behavioral operations**, **supply chain management, sustainability**, **retail operations**, **operations-marketing interface**, and **empirical operations-finance interface**. His work in behavioral operations elaborates on whether and how psychological phenomena such as reference effects may affect aggregate variables (e.g., market demand) and their implications on firms' operational policies especially in pricing, inventory, and assortment. He employs both analytical and experimental research methods to explore the related research questions. His research in sustainable operations focuses on the environmental consequences of new business models in apparel, renewable energy, and agriculture industries. From August 2022 to December 2025, Javad was the director of Sustainable Growth Initiative (SGI) which is a cross-faculty initiative to mobilize the talent and expertise within McGill University to help businesses move towards more socially and environmentally sustainable

business models. Prior to joining McGill, he was an associate professor of operations management in the School of Business and Management at the Hong Kong University of Science and Technology (HKUST) where he joined in 2010.

All interested are welcome!

Enquiries: Dept of ISOM