



# **Supply Chain Management Conference**

**Sustainability, Social Responsibility, and  
Resilience in Supply Chains**

**February 23-24, 2024**

**Gies College of Business**

**Venue: I Hotel & Illinois Conference Center,  
1900 S 1st St, Champaign, IL 61820**

## Friday, February 23

**8.00 AM – 8:30AM | Registration & Breakfast**

**8:30 AM - 9:00 AM | Inauguration & Welcome**

**Mili Mehrotra**, Associate Professor of Business Administration, Director of Illinois Supply Chain Management Program

**Carlos J. Torelli**, Anthony J. Petullo Professor of Marketing, Head of the Department of Business Administration

**Mark Peecher**, Deloitte Professor of Accountancy and Executive Associate Dean of Faculty and Research

**9:00 AM – 10:30 AM Session 1: *Sustainability and Social Responsibility in Agriculture Supply Chains***

Moderator: Mehmet Eren Ahsen

1. **Priyank Arora**, Assistant Professor, Darla Moore School of Business, University of South Carolina

**Title:** [Farm Equipment Sharing in Emerging Economies](#)

**Abstract:** Farm equipment sharing platforms rely on “booking agents” to collect demand from individual farmers and submit the aggregated demand. We explicitly model the role of booking agents on the platform, and our analysis shows how their presence affects the platform's optimal pricing and wage decisions and the equilibrium outcomes.

2. **Burak Kazaz**, Steven R. Becker Professor of Supply Chain Management, Syracuse University

**Title:** [Retailing Strategies of Imperfect Produce and the Battle Against Food Waste](#)

**Abstract:** We examine retailing strategies of edible but cosmetically substandard produce: discarding imperfect produce, bunching with cosmetically-perfect produce, and differentiating (i.e., selling perfect and imperfect produce separately at different prices). Using a multinomial logit model, we determine optimal ordering and pricing decisions.

3. **Sandeep Srinivas**, PhD Student, University of Illinois, Urbana-Champaign

**Title:** [Impact of Blockchain Technology on Food Safety](#)

**Abstract:** Several regulatory bodies have underscored the significance of traceability in the food supply chain to safeguard consumer health. Numerous food and beverage companies have recently adopted blockchain technology to enhance supply chain traceability. This study explores the effectiveness of blockchain traceability in improving food safety outcomes, specifically food recalls.

**10:30 AM -10:45 AM Break**

## 10.45 AM – 12:00 PM Keynote – Session Moderator – Ujjal Mukherjee

**Sridhar Seshadri**, Alan J. and Joyce D. Baltz Endowed Professor and Professor of Business Administration, University of Illinois Urbana-Champaign

**Title:** [Supply Chain Resiliency lessons from the Covid-19 disruptions](#)

## 12:00 PM – 1:00 PM Lunch

## 1:00 PM – 2:30 PM – Session 2: Supply Chain Resilience and Sustainability

Moderator: Cagri Haksoz

### 1. **William Schmidt**, Associate Professor, Emory University

**Title:** [The High Impact of Disasters on Prices in Low-Income Communities](#)

**Abstract:** Millions of people are affected by natural mega-disasters. We use major disaster declarations in the U.S., household demographic data, and grocery store sales data to investigate whether the operational impact of such disasters disproportionately impacts low-income communities. Our findings inform disaster responses that anticipate heterogeneous impacts across different community types.

### 2. **Johnny Rungtusanathan**, Ohio Eminent Scholar and Professor, Linder College of Business

**Title:** [Managing \*for\*, Instead of Managing, Supply Chain Disruptions: Research-Based Insights](#)

**Abstract:** Supply chain disruptions are unintended interruptions in the physical flow of goods in supply chains. The pandemic, political instability, and natural disasters have heightened public awareness of supply chain disruptions, despite the fact that supply chain disruptions are neither new nor recent. In this presentation, I emphasize what managing *for* supply chain disruptions means, how managing supply chain disruptions is a small part of managing *for* supply chain disruptions, and my current projects on this topic.

### 3. **Li Chen**, Emerson Professor of Manufacturing Management, Cornell University

**Title:** [Ultra-Fresh Fashion and Sustainability](#)

**Abstract:** The emergence of ultra-fast fashion companies has created great interest in companies pursuing supply chain agility. The leaders among such companies, such as Shein and Temu, utilized their extremely agile supply chain to design and generate new products fast and frequently, capturing the latent demands of customers, a strategy we term as "ultra-fresh fashion." While such companies have achieved great business success in the market, they have also been under scrutiny on the sustainability impacts of their ultra-fresh strategies. In this talk, we present an analytical model that captures the quantitative impacts of the ultra-fresh strategies on the multiple dimensions of sustainability and derive qualitative insights about the potential measures that can improve its sustainability.

## 2.30 PM – 3:30 pm: Industry Panel, Session Moderator – Mohammad Moshref Javadi

1. **Matt Francis**, Global Supply Chain Manager, Caterpillar Inc.

2. **Dave Carrizales**, Director of Sales – International Supply Chain, Noatum Logistics

3. **Michael Ritter**, Chief Operating Officer, Horizon Hobby

### 3:30 PM -3:45 PM Break

### 3:45 PM – 5:15 PM – Session 3: Sustainable Manufacturing and Operations

Moderator: Vanitha Virudachalam

1. **Amrou Awaysheh**, Associate Professor of Operations and Supply Chain Management, OneAmerica Foundation Endowed Chair, Indiana University

**Title:** [Reducing Industrial Water Consumption: The Impact of Organizational Learning](#)

**Abstract:** Using factory-level data from a large multinational manufacturer, we examine the effects of both organizational experience and knowledge transfer on an increasingly critical environmental performance measure, the consumption of water required for manufacturing. We estimate the direct effects on water consumption from in-factory cumulative production experience and the vicarious learning from peer factories in the same product category. We consider vicarious learning from three potential sources: observation of peer factories' cumulative production experience; and benchmarking of water consumption performance with the best and worst performing peer factories.

2. **Nitin Bakshi**, Professor, University of Utah

**Title:** [Team Operations and Peer Reporting](#)

**Abstract:** Team operations are plagued by shirking aggravated by free riding. Shirking by peers is not reported by agents who are loyal. Using a dynamic game, we show that if a teammate is loyal even with a tiny probability, shirking becomes rampant and is unreported even by peers who are not loyal. Interventions that destigmatize peer reporting (e.g., pulling the Andon cord) can potentially alleviate this problem.

3. **Suvrat Dhanorkar**, Associate Professor, Pennsylvania State University

**Title:** [Does Legalizing Marijuana Degrade Manufacturing Operations?](#)

**Abstract:** Over the past few decades several states in the U.S. have legalized the use of marijuana. At the same time, research indicates that when individuals use marijuana, they could experience several negative consequences that adversely affect their work. Because human resources play a vital role in many manufacturing operations, increasing legal access to marijuana could adversely affect the efficiency of manufacturing operations. In this research, we leverage a quasi-experimental setting that arises with the staggered enactment of marijuana legislation by different states in the U.S. We augment this setup with data on the operational performance of manufacturing facilities obtained from Environmental Protection Agency's Toxics Release Inventory program. Our analysis reveals that when states legalize marijuana for medical use, it degrades the operational outcomes of manufacturing facilities located in the state. We also observe that legalizing marijuana for recreational use further erodes operational efficiency at manufacturing facilities.

### 5.45 PM - 7:45 PM: Dinner

## Saturday, February 24

### 8.30 AM – 9:00 AM: Registration and Breakfast

### 9:00 AM – 10:30 AM: Session 4: Environmental and Social Responsibility

Moderator: Ismail Kirci

1. **Madhu Khanna**, ACES Distinguished Professor of Environmental Economics and Alvin H Baum Family Chair and Director of the Institute for Sustainability, Energy and Environment

**Title:** [Economic Incentives for Environmentally Sustainable Supply Chains](#)

**Abstract:** Concerns about climate change and the adverse environmental impacts of production activities are leading to increasing interest in making supply chains circular by reducing, recycling and reusing wastes to reduce demand for materials and fossil fuels. Many firms are claiming to pursue net zero carbon emissions and zero waste goals. Changes in technology and management practices offer significant potential to transform supply chains from linear to circular systems. However, adoption of these systems depends on regulatory, institutional and market incentives; these differ across pollutants, sectors, and countries. This presentation will describe the rationale for the prevalence of existing linear systems, motivations for firms to transition to environmentally friendly systems and evidence on their implications for environmental outcomes. It will conclude with a discussion of the transformations to regulatory and market systems needed to achieve environmentally sustainable supply chains.

2. **Owen Wu**, Associate Professor, Kelley School of Business, Indiana University

**Title:** [Care More, Get More, and Give More—When Your Wallet Agrees: Resource Allocation Under Utility Heterogeneity and Income Disparity](#)

**Abstract:** The challenge of equitably allocating a divisible resource and its associated costs or savings among consumers with heterogeneous incomes and private levels of resource utility arises in many situations. The challenge lies in the dual dimensions of consumer characteristics and the coupled allocation problems. We devise and analyze various resource allocation schemes, using utility-led community solar as a focal application. Our model incorporates consumer heterogeneity in both income levels and utility for the resource. We formulate the problem of allocating the resource and its associated cost or savings, with the objective of maximizing the aggregate welfare. We present lower and upper bounds for this problem, and study various alternative allocation schemes. The most sophisticated scheme offers consumers income-dependent menus (IDM) of quantity and cost options. Using numerical studies calibrated by real-world community solar program data, we find that the IDM approach has remarkable performance, nearly achieving the first-best. Moreover, by endogenizing the size of the community solar program, we find that our IDM approach also promotes larger solar projects, enhancing both environmental and social benefits of solar energy. Implementing our proposed IDM approach in the context of community solar allows environmentally conscious consumers to opt for greater capacity and contribute more, contingent on individual financial capacities. In simpler terms: “care more, get more, and give more—when your wallet agrees.”

3. **Gökçe Esenduran**, Associate Professor, Purdue University

**Title:** [Manufacturing as a Service: Bringing Job Opportunities to the Bottom of the Pyramid](#)

**Abstract:** We study a Manufacturing as a Service environment motivated by an initiative that brings mobile manufacturing environments (i.e., Factories on Wheels -FOWs-) to low-income communities (i.e., labor firms) so these communities make/sell products and achieve economic growth. We model the interaction between a social planner, labor firms, and FOWs.

## 10:30 AM -10:45 AM Break

## 10:45 AM – 12:15 PM: Session 5: Social Responsibility

Moderator: Swathi Baddam

### 1. **Basak Kalkanci**, Associate Professor, Georgia Institute of Technology

#### **Title: Tip Your Farmer? Implications of Tipping in Agriculture on Sustainability and Financial Inclusion**

**Abstract:** An emerging financial innovation enabled by technological advancements in agricultural supply chains is the capability to “tip the farmers.” This innovation empowers socially-conscious customers to identify the individual farmers of their sustainably-sourced products and reward these farmers by sending them direct payments, or tips, through mobile apps. To shed light on the implications of a tipping mechanism on different market participants, we construct a model that captures the interactions between a mass of infinitesimal farmers, a population of socially-conscious customers, and an agricultural firm who plays the intermediary role between farmers and customers. We characterize the equilibrium of the game with and without tipping and identify the conditions under which each group of stakeholders (farmers, customers, and the firm) may be better or worse off with tipping. In particular, we show that if tipping is implemented under the right conditions (e.g., when farmers’ outside option is moderate and customers are relatively socially conscious about farmers’ earnings), it can create a triple win for all supply chain members including every individual farmer. In contrast, when these conditions do not hold, farmers and/or consumers could be worse off in the presence of tipping. Furthermore, even in situations where farmers benefit from tipping in expectation, this financial innovation can entail disparity and exacerbate inequity in the farmer population, which is undesirable from a social responsibility standpoint. Thus, firms must exercise caution in implementing the tipping capability as it may lead to a reduction in farmers’ expected and actual income and consumer welfare.

### 2. **Nikhil Sharma**, PhD Student, Ohio State University

#### **Title: Optimizing Recycling Behaviors Through AI and Green Nudges**

**Abstract:** We investigated the effects of green behavioral nudges on household’s recycling performance by conducting a field experiment with households in East Lansing, Michigan. Compared to the control group households, the households that received Pure Nudge had approximately 11%, and Moral Nudge had 20% fewer total contaminants.

### 3. **Dmitrii Sumkin**, Postdoctoral Researcher, University of Illinois, Urbana-Champaign

#### **Title: Does Blockchain Facilitate Responsible Sourcing? An Application to the Diamond Supply Chain**

**Abstract:** Blockchain technology is applied nowadays for tracking the origin of physical durable goods, notably in the diamond industry, where it signals the origin and justifies higher prices for ethically sourced diamonds. However, our economic model reveals a paradox: while blockchain reinforces origin credibility, it may inadvertently discourage diamond resale opportunity and favor sourcing from less ethical suppliers for the retailer. The model suggests offering blockchain as an option, not a mandate, to mitigate these

unintended effects and maintain market segmentation strategies. This study cautions against indiscriminate blockchain adoption, especially when durability and ethical sourcing intersect, as it may unexpectedly undermine ethical sourcing efforts.

## 12:15 PM – 1:00 PM Lunch

## 1:00 PM – 2:30 PM – Session 6: Environmental and Agricultural Sustainability

Moderator: Iris Wang

1. **Qiong Wang**, Associate Professor, ISE, University of Illinois, Urbana-Champaign

**Title:** [The Influence of Tariffs and Subsidies on Lead Pollution in Bangladesh](#)

**Abstract:** Informal recycling of lead acid batteries is causing disastrous lead pollution in Bangladesh. We develop a circular supply chain model to analyze the use of tariffs and subsidies to address the problem, and present conditions for increasing or decreasing the tariff on importing lead or subsidy of exporting used batteries.

2. **Natalie (Ximin) Huang**, Assistant Professor, University of Minnesota

**Title:** [Fighting the Plastic Pollution: Product Ban Regulation and Voluntary Compliance](#)

**Abstract:** We study the product ban regulation that restricts the market sales of related products to tackle the plastic waste pollution problem. We also account for firms' voluntary recycling commitments as a proactive regulatory compliance strategy. We explore the economic and environmental implications of the regulation.

3. **Can Zhang**, Associate Professor, Duke University

**Title:** [Sustainable Sourcing of Agricultural Products: Fixed vs. Flexible Premiums](#)

**Abstract:** Sustainability certifications have gained increasing popularity for agricultural product sourcing. To help smallholder farmers achieve a living income, these certifications set a premium that firms must pay to farmers for certified crops in addition to the market price. A popular premium approach adopted by several major certifications is the so-called fixed premium, under which farmers receive a fixed level of premium independent of the market price. Although this approach is simple, it has been criticized for not protecting farmers from low market prices. An alternative approach called flexible premium, under which farmers receive a higher level of premium when the market price is lower, has been advocated by farmer advocacy groups and implemented by some recent certifications. This paper analyzes and compares the effectiveness of these two premium approaches.

## 2:30 -2:45 PM – Concluding Remarks

**Carlos J. Torelli**, Anthony J. Petullo Professor of Marketing, Head of the Department of Business Administration  
**Gopesh Anand**, Professor of Business Administration, Area Chair for IOSA and William N. Scheffel Faculty Scholar and Deloitte Scholar





