



## Séminaire du CIRRELT Seminar

**Robert Bray**

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### Ration Gaming and the Bullwhip Effect

**Abstract:** We model a single-supplier, 73-store supply chain as a dynamic discrete choice problem. We estimate the model with transaction-level data, spanning 3,251 products and 1,370 days. We find two phenomena: ration gaming (strategic inventory hoarding) and the bullwhip effect (the amplification of demand variability along the supply chain). To establish ration gaming, we show that upstream scarcity can trigger an inventory run, as the stores scramble to secure supply. And to establish the bullwhip effect, we show that shipments from suppliers are more variable than sales to customers. We estimate that the bullwhip effect would be 12% smaller in the counterfactual scenario without ration gaming incentives, confirming the long-standing hypothesis that ration gaming causes the bullwhip effect.

**Note:** Robert Bray is an associate professor of operations management at the Kellogg School of Management. He is an empiricist who studies supply chains. He received his B.S. in Industrial Engineering, Operations Research from UC Berkeley in 2006, and his Ph.D. in Business Administration from the Stanford Graduate School of Business in 2012. He grew up in Palos Verdes, CA.

LUNDI / MONDAY

10 avril 2017 /  
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10h30

Salle / Room 5441  
Pavillon André-Aisenstadt  
Université de Montréal

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**Organisateur / Organizer**  
**Marie-Ève Rancourt**



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