

CEH SEMINAR: DR. EMILY TUCKER

Effects of Geopolitical Strain on Global Pharmaceutical Supply Chain Design and Drug Shortages

HOST: DR. SANJAY MEHROTRA

Pharmaceutical supply chains have experienced on-going struggles to meet the domestic and global demand for drugs for decades. Shortages are caused by supply-demand mismatches and supply strain, including disruptions due to quality and natural disasters. A recent strain – export bans – has emerged as a result of recent geopolitical instability and persistent shortages. These may be mitigated by strategic alliances, but effects on design decisions are unknown. In this work, we present one of the first global supply chain design models for the pharmaceutical industry. We present a stochastic integer programming approach to optimize a company's supply chain under geo-political strain, endogenous pricing, strategic alliances, and global demand. The model is solved by integrating Sample Average Approximation and L-shaped methods. We observe large disparities in access by country income level and analyze policies to improve global access.

BIOGRAPHY

Dr. Emily Tucker is an Assistant Professor at Clemson University in the Department of Industrial Engineering and a Faculty Scholar in the School of Health Research. Her research focuses on improving access to social good in systems under strain. She received her PhD and MSE in Industrial and Operations Engineering from the University of Michigan. She was supported by an NSF Graduate Research Fellowship and her dissertation work was awarded the University of Michigan Richard and Eleanor Towner Prize for Outstanding Ph.D. Research. Prior to graduate school, she worked as a Research Health Economist at RTI International and received her BS in Industrial Engineering from NC State.



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Virtual
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