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DEPARTMENT OF MANAGEMENT SCIENCE AND STATISTICS RESEARCH SEMINAR SERIES

Friday, Mar. 24
2 – 3 p.m. (CST)

Meeting Link: https://utsa.zoom.us/j/96345787634
Meeting ID: 963 4578 7634

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"The Spillover Effect of Suspending Non-essential Surgery:
Evidence from Kidney Transplantation"

Abstract

The COVID-19 pandemic has posed an epic challenge to the U.S. healthcare industry. Between March and April 2020, multiple state governors issued orders to temporarily suspend non-essential surgical procedures. The suspensions caused the healthcare industry to shed millions of jobs, raising concerns about the availability of essential procedures. In this paper, we estimate the potential spillover effect of suspending non-essential surgery on patient access to essential health services, using deceased-donor kidney transplantation as the clinical setting. Through analyzing a dataset of all U.S. kidney transplantation procedures, we observe a steep reduction in the volume of deceased-donor kidney transplantation across nearly all states amid the initial months of the pandemic. However, states that suspended non-essential surgery experienced far steeper reductions than those without. Using a difference-in-differences approach, we estimate a state-level suspension of non-essential surgery led to a 23.6% reduction in the transplant volume. Our study reveals the spillover effect of state-level health policies on patient access to essential services such as deceased-donor kidney transplantation. Our mediation analysis shows 38.7% of the

spillover effect can be attributable to the change in healthcare employment, indicating these suspensions caused hospitals to reduce the size of their workforces required for all procedures, which ultimately had a negative impact on access to essential procedures. Instead of suspending all non-essential surgery in the event of a future pandemic, policymakers should consider more granular approaches to safeguarding the healthcare workforce critical to supporting essential services.

Short Bio

Guihua is an Assistant Professor of Operations Management at the Naveen Jindal School of Management, University of Texas at Dallas. He obtained his PhD from the University of Michigan, MSc from the Georgia Institute of Technology, MSc and BEng from the National University of Singapore. Prior to his PhD study, Guihua worked as a supervisor of the industrial engineering department at UPS Asia headquartered in Singapore. Guihua's research focuses on the intersection of empirical econometrics and machine learning with application to personalized healthcare. More specifically, Guihua has developed new causal machine learning techniques such as instrumental variable forest and first-difference causal forest for heterogeneous treatment effect analyses using observational healthcare data.

Guihua's research has been published at Management Science, Manufacturing & Service Operations Management, Production and Operations Management, Advances in Applied Probability, Surgery, and Annals of Thoracic Surgery, and received media coverage by Associate Press, Crain's Detroit, Houston Chronicle, Medical Xpress, National Interest, NPR, PRI, Science Daily, Simply Flying, The Conversation, and Yahoo! News. His research on organ transplant was named a runner-up for the Responsible Business Education Award by the Financial Times. He was the Winner of the INFORMS Health Application Society Student Paper Competition, two-time Finalists of the MSOM Student Paper Competition and the INFORMS Service Section Best Paper Competition.