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Data Analytics and Prediction/Causality Trade-offs in Transportation Modeling: The Example of Highway-Safety Analysis

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Thursday, April 28, 2022
9:00 to 10:15 AM US Arizona (MST)
Register for Virtual Attendance: https://bit.ly/3NIWUO1

About the Speaker

Dr. Fred Mannering is the Executive Director of the Center for Urban Transportation Research and a Professor of Civil and Environmental Engineering at the University of South Florida in Tampa. He was previously the Charles Pankow Professor and Head of Civil Engineering at Purdue University, Professor and Chair of Civil and Environmental Engineering at the University of Washington, and an Assistant Professor at Pennsylvania State University. He received his undergraduate degree from the University of Saskatchewan, Master's from Purdue University, and PhD from the Massachusetts Institute of Technology. Dr. Mannering has published over 160 refereed journal articles, 2 textbooks, over 60 other publications, and has given over 150 invited lectures, keynote speeches, and presentations at professional conferences. Dr. Mannering is one of the most highly cited scholars in the field and has served as editor-in-chief for *Transportation Research Part B* and *Analytic Methods in Accident Research.* He was awarded the Council of University Transportation Centers (CUTC)-HNTB Lifetime Achievement Award for University Transportation Education and Research in 2020. More information about Professor Mannering may be obtained at https://sites.google.com/view/fredmannering.

About the Talk

The analysis of transportation data has been dominated by traditional statistical methods (standard regression-based approaches), advanced statistical methods (such as models that account for unobserved heterogeneity), and data-driven methods (machine learning, neural networks, and so on). In the analysis of highway safety data, these methods have been applied mostly using data from observed crashes, but this can create a problem in uncovering causality since individuals that are inherently riskier than the population as a whole may be over-represented in the data. In addition, when and where individuals choose to drive could affect data analyses that use real-time data since the population of observed drivers could change over time. This issue, the size of the data (which can often influence the analysis method), and the implementation target of the analysis imply that analysts must often tradeoff the predictive capability (dominated by data-driven methods) and the ability to uncover the underlying causal nature of crash-contributing factors (dominated by statistical and econometric methods). However, the selection of the data-analysis method is often made without full consideration of this tradeoff, even though there are potentially important implications for the development of safety countermeasures and policies. This talk provides a discussion of the issues involved in this tradeoff with regard to specific methodological alternatives and presents researchers with a better understanding of the trade-offs often being inherently made in their analysis.

This seminar will be webcast live to a worldwide audience using Zoom.

To register for the webinar, please visit: https://bit.ly/3NIWUO1

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