



TOMNET Transportation Center

Teaching Old Models New Tricks

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TOMNET LEADERSHIP WEBINAR SERIES

Imputing Attitudes into Travel/Activity Diary Databases: Does Targeted Marketing Information Help?



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About the Talk

Large-scale regional or national travel survey databases (such as the National Household Travel Survey, or NHTS) provide a wealth of information on transportation behavior, but relatively little information about the attitudes which may be heavily influencing that behavior. Conversely, smaller-scale, research-oriented survey datasets may capture numerous attitudes, but often obtain only a few, and relatively crude, markers of travel behavior. Given the costs and respondent burden of directly measuring attitudes in a survey such as the NHTS, we are investigating how effectively we can predict or impute attitudes for those survey respondents, using sophisticated machine learning methods. The approach is to calibrate (train) a “learning function” on the smaller-scale, attitude-rich dataset (the “donor” sample), using explanatory variables that are available to both datasets. That function is then applied to the behavior-rich dataset (the “recipient” sample) – the 2017 NHTS, in our case – to predict the “missing” attitudes. Having successfully demonstrated a proof-of-concept in an earlier study, in the present study we are exploring the extent to which adding targeted marketing variables (i.e., a variety of lifestyle markers obtained from commercial vendors) to the learning function will improve our predictions. We will present the results of applying this approach, including how well the learning function predicts on the training sample, as well as an external validation exercise in which the performance of the imputed attitudes is tested in a travel behavior model.

About the Speaker

Patricia Mokhtarian is the Susan G. and Christopher D. Pappas Professor of Civil and Environmental Engineering (CEE) at the Georgia Institute of Technology. She joined Georgia Tech in 2013, after 23 years at the University of California, Davis, where she was a CEE Professor, Associate Director for Education of the Institute of Transportation Studies, and Founding Chair of the Transportation Technology and Policy Graduate Group. Prior to that, she spent nine years in regional planning and consulting in Southern California, after completing her PhD at Northwestern University. Dr. Mokhtarian has specialized in the application of rigorous quantitative methods to the study of travel behavior for more than 35 years. A key research interest has been the impact of telecommunications technology on travel behavior, with additional interests in land use and transportation interactions (especially the influence of the built environment on travel behavior, after accounting for self-selection), attitudes toward travel itself, multitasking, travel time budgets, induced demand, and congestion-response behavior. She has authored or co-authored more than 200 refereed journal articles, technical reports, and other publications. She is a recent Past Chair of the International Association for Travel Behaviour Research, and serves on the editorial boards of seven transportation journals.

The webinar will be webcast live and recorded. No registration is required.

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TOMNET is a US Department of Transportation Tier 1 University Transportation Center that aims to develop new methods, tools, and algorithms for integrating attitudes, values, and perception variables in regional transportation planning models in an effort to enhance behavioral realism and sensitivity of travel forecasts when analyzing a wide variety of future scenarios. The Center is led by Arizona State University, and includes Georgia Tech, University of South Florida, and the University of Washington as consortium partners. The Center is conducting the TOMNET Leadership Webinar Series to help advance technology transfer, disseminate research, and foster workforce development.

