

Professor Jia Yan

School of Economic Sciences

Washington State University

Bio

Jia Yan, Associate Professor of Economics at Washington State University, specializes in transportation, empirical industrial organization and applied econometrics. His recent research projects cover various topics including cost-benefit analysis of transport infrastructure, congestion pricing and deregulation of transport sectors.

Professor Yan served in the past as Associate Editor of Journal of Air Transport Management and has served as a member of the editorial board of Transportmetrica. He serves as member of the Airport Cooperative Research Program Project Panel of the Transportation Research Board in the National Academies of Sciences, Engineering and Medicine. He received the best dissertation award from the Transport and Public Utility Group of the American Economic Association in 2002, the best paper award from the Transportation Research Forum in 2009 and the best paper award from the International Transport Economics Association in 2011. He was a visiting professor at the University of Sydney in Australia and Nankai University in China.

An Empirical Model for Optimal Highway Durability in Cold Regions

We developed an empirical tool to estimate the optimal highway durability in cold regions. In order to test the model, we assembled a data set containing all highway construction and maintenance projects in Arizona and Washington state from 1990 to 2014. The data set includes information on location, time, type (resurfacing, construction or lane widening), pavement material and thickness and total expenditure of these projects. From the data we first estimate how highway maintenance costs and highway duration depend on pavement thickness and traffic loading. We then calibrate the effects of different deicers on highway durability and thus highway maintenance costs. We finally demonstrate how the estimated and calibrated model can be used by planners to make optimal decisions on highway pavement and winter operations in cold regions.