Transportation Center Seminar Series presents…..

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Induced Demand and Rebound Effects in Road Transport

Thursday, April 2, 2009
4:00 – 5:00 pm

Refreshments available at 3:30 pm

Abstract: This paper analyzes aggregate personal motor-vehicle travel within a simultaneous model of aggregate vehicle travel, fleet size, fuel efficiency, and congestion formation. We measure the impacts of driving costs on congestion, and two other well-known feedback effects affecting motor-vehicle travel: its responses to aggregate road capacity (“induced demand”) and to driving costs including those caused by fuel-economy improvements (“rebound effect”). We measure these effects using cross-sectional time series data at the level of US states for 1966 through 2004. Results show that congestion affects the demand for driving negatively, as expected, and more strongly when incomes are higher. We decompose induced demand into effects from increasing overall accessibility of destinations and those from increasing urban capacity, finding the two elasticities close in magnitude and totaling about 0.15, somewhat smaller than most previous estimates. We confirm previous findings that the magnitude of the rebound effect decreases with income and increases with fuel cost, and find also that it increases with the level of congestion.

BIO: Kenneth A. Small, specializes in urban, transportation, and environmental economics. Recent research topics include urban highway congestion, measurement of value of time and reliability, effects of fuel efficiency standards, public transit pricing, and fuel taxes. He recently stepped down after four years as Associate Editor of Transportation Research Part B–Methodological, and he remains on the editorial boards of this and four other professional journals. He previously was North American Co-Editor of the international journal, Urban Studies. He has served on several study committees of the National Research Council, examining among other things cost-benefit analysis and the federal program on congestion management and air quality. His book Urban Transportation Economics, recently updated in a new edition (Economics of Urban Transportation), became a widely cited standard reference in the field. He was honored in 1999 with the Distinguished Member Award by the Transport & Public Utilities Group, American Economic Association, and in 2004 with the Distinguished Transportation Research Award by the Transportation Research Forum. He is the recipient of the Faculty Achievement award at UC-Irvine in 2007, and is a Fellow of Regional Science Association International. Professor Small has advised many public and private groups including the Canadian Royal Commission on National Passenger Transportation, the European Union, the South Coast Air Quality Management District, the World Bank, and the California Air Resources Board. At Irvine, he previously served as Chair of Economics and Associate Dean of Social Sciences.