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Comprehensive Urban Approach Can Affect Travel Choices -- Even in Auto-Dependent U.S.

COLLEGE PARK, Md. (Nov. 14, 2005) – Urban planners can change travel behavior, reduce vehicle miles traveled and the rate of automobile ownership – even in the car-oriented United States – by comprehensively supporting higher densities, increased investment in transit systems and by putting housing in closer proximity to jobs, according to a new study by a University of Maryland-led research team.

“Each of these measures individually reduces the vehicle miles traveled by only a little, but by combining them all together – density, transit and jobs-housing balance – you can have a substantial effect,” said Antonio M. Bento, the lead researcher on the project and a research professor at the University of Maryland’s National Center for Smart Growth Research and Education.

This is important as urban planners and elected officials decide where in their cities to make investments in transit or plan for higher density development, Dr. Bento said. The study, entitled, “The Effects of Urban Spatial Structure on Travel Demand in the United States,” compared results in six U.S. cities: Atlanta, Boston, Chicago, Houston, New York City, and San Diego.

The researchers concluded that the combination of urban form and transit supply has “a significant effect on travel demand.” For example, when the researchers compared sample households in a city with the sprawling characteristics of Atlanta with households in a city with the more compact, transit-oriented characteristics of Boston, they found that the number of vehicle miles traveled can be reduced by as much as 25 percent per year. For an average commuter, that could mean the difference between driving 5,450 miles a year in Atlanta and 4,565 a year in Boston – a reduction of 885 miles a year. Not surprisingly, the study found that residents were much less likely to drive to work in the

three older cities, Boston, Chicago and New York, all of which offer more extensive rail and bus systems than the three newer cities.

“Our study suggests that even in a country like the U.S. that is heavily dependent on the automobile, urban form does affect travel demand,” said Bento, who is also an assistant professor at the University of Maryland’s School of Public Policy. The other authors of the study include Maureen L. Cropper of the University of Maryland and The World Bank; Ahmed Mushfiq Mobarak of the University of Colorado, Boulder; and Katja Vinha of the Universidad de Los Andes, Colombia. The study was published in a recent edition of *The Review of Economics and Statistics*, a publication of Harvard College and the Massachusetts Institute of Technology.

The research focused on the question of how urban form (“whether measured by the spatial distribution of population or employment or the public transit network”) affects vehicle ownership and the number of miles driven by households in the U.S. It did so by looking at measures of urban form and the availability of transit in 114 urban areas in the U.S., based on data from the 1990 Nationwide Personal Transportation Survey, the most recent data available at the time the research was launched.

The study found that cities with higher concentrations of population in their central core or which had a greater balance of jobs and housing were places where workers were more likely to walk or bicycle to work.

By looking at the 26 American cities with rail transit systems, the study found that “rail supply has the largest effect on driving of all our sprawl and transit variables.” The study concluded that a 10 percent increase in rail supply reduces the probability of driving by 4.2 percent. Conversely, it found that a 10 percent decrease in jobs-housing balance increases the probability of driving by 1.5 percent.

Of the measures of urban form used in the study, only the degree to which population was centrally located in a city had a significant impact on the odds of car ownership. The research concluded that households in less sprawling cities were less likely to own one or more vehicles than those in more sprawling cities and that even the shape of a city (i.e., whether it is circular or not) can have the effect of reducing both car ownership and vehicle miles traveled.

For more information about the research, or for a copy of the study, contact Dr. Bento at (301) 405-3429 or by e-mail at: abento1@umd.edu.