Quantifying and comparing the effects of weather on bicycle demand in Melbourne (Australia) and Portland (USA)

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ABSTRACT

This paper examines the relationship between weather and travel behavior specifically in the context of cycling. A literature review is used to highlight not only the methodologies which have been employed in previous studies but also the nature of the insight they have provided into the extent to which weather impacts bicyclist behavior. Ridership counts and weather data are then used to develop an aggregate demand model which provides quantitative insight into the effects of weather on bicyclist volumes. The study draws on data from two cities which have been active over many years in encouraging the use of the bicycle for transportation. The two cities considered are Portland, Oregon (USA) and Melbourne, Victoria (Australia). The aggregate demand models facilitate not the identification of important non-linear effects in the relationship between temperature, rainfall and ridership. There are also substantial differences in the extent to which weather related variables are able to explain variability in ridership volumes in the two cities. The paper identifies the relevance of this research to the field of transportation policy in general, and bicycle transportation in particular. Important directions for future research are also identified.