

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

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1 **ABSTRACT**

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