

Do Multi-Use Path Accessibility and the Clustering Effect Play a Role in Residents' Choice of Walking and Cycling?

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Dr. Chih-Hao Wang
Dr. Na Chen



This research investigates whether, for people who do not walk or cycle at all, the decision not to use active modes is associated with the lack of accessibility to multi-use paths (MUPs) or their own travel attitude of not liking walking or cycling; for those who walk or cycle, the question is whether accessibility to MUPs and the clustering effect encourage them to do more walking or cycling.

Study

Accessibility to multi-use paths by walking or cycling is first calculated for Salt Lake City, Utah. The metric measures the total length of multi-use paths (walkway and bikeway) a resident could reach from their household location with a 15-min walk or 20 min of cycling based on the average travel time from the 2012 Utah Travel Survey. For spatial modeling, all typical explanatory variables from the literature (individual socioeconomics, built environment features, and travel attitudes) are also collected, together with two new added variables (MUP accessibility and the clustering effect). We regarded this

Methods

as a methodological contribution that has been neglected in past studies. Then, a spatial probit model is estimated to see whether and why people walk or cycle. A spatial autoregressive model is also estimated to examine what factors encourage walkers or cyclists spend more time with active modes.

Findings

Most typical socioeconomic characteristics (e.g., gender, age, employment, race, bike and vehicle ownership, and number of adults in family), attitudes towards walking and cycling, and some built-environment features (e.g., street intersection density, land-use diversity) do affect people's decisions about active mode choices (walking and biking) to some extent. However, the current distribution of active transportation investments in terms of accessibility to multi-use paths only plays a role for existing walkers and cyclists. In other words, providing better MUP accessibility might not necessarily encourage people who already walk and cycle. Moreover,

respondents' active travel behavior is affected by their neighbors in two opposite ways. A clustering effect exists among doers (walkers and cyclists), meaning that walkers and cyclists spend more time in walking and cycling if they see more doers around the community/city. Between doers and non-doers, there is a competing effect, meaning that a resident who walks or cycles is more likely to live with neighbors who do not do so, possibly due to the lack of trail-activity culture, the preference for using other means for exercise, trail congestion, or different lifestyles.

The two-level spatial modeling approach in this study gives decision-makers empirical evidence towards understanding the importance of separating the design and promotion of active transportation strategies for different groups of users. The study considers all salient correlates (typical and novel) of active travel behavior.

Policy/Practice

The results suggest that decision-makers need to design different active transportation strategies to promote active travel for the two different groups: doers (walkers and cyclists) and non-doers (non-walkers and non-cyclists). For doers, it is important to improve the existing multi-use paths by increasing the amount of MUPs or enabling better connectivity; it is also important to use the clustering effect as leverage to create a walking and cycling culture. For non-doers, on the other hand, it would be more efficient to adopt non-physical strategies, since the supply of physical infrastructure does not play a role in these residents' active travel behavior, and a walking or cycling culture might not exist yet.

Recommendations

About the Authors

PI: Chih-Hao Wang, PhD, is an associate professor of the Department of Geography and City & Regional Planning at California State University, Fresno, where he has taught since 2014. He received his PhD (2013) and Master's (2010) degrees in City and Regional Planning from The Ohio State University. Dr. Wang's research focuses on environmental planning from the perspective of natural hazard mitigation. Another of his research interests is the application of spatial statistics to analyze spatial or social interactions in the earthquake process, as well as water management, transportation planning, and community development. His research has been published in journals in the areas of environmental planning, transportation, and geography.

Consultant: Na Chen, PhD, is an Assistant Professor in School of Planning at the University of Cincinnati. She received a BA degree in Public Policy from Sun Yat-Sen University, Guangzhou, China, in 2008, MA degree in Community Planning and Public Administration from Auburn University, AL, in 2011, and a PhD degree in City and Regional Planning from The Ohio State University, OH, in 2016. She worked as a Postdoctoral Scholar in the Department of Technology Management at the University of California, Santa Cruz, after receiving her PhD. Dr. Chen's research interests include transportation planning, activity-based travel behavior modeling, accessibility, activity space, transportation equity, land-use modeling, spatial econometrics, and Geographic Information System (GIS) applications for urban planning. Based on her research interests and background, she has published many papers in peer-reviewed journals and presented at international conferences.

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