



Differentiating Commuters on Perceived Bike Safety & Transportation Attributes

Tian Guo, M.S., Arielle Courtney, Graduate Research Assistant, & Ingrid Schneider, Ph.D.

Introduction & Purpose

Active transportation is beneficial for both human health & the environment. Biking is positioned to become a major form of active transportation given existing recreational use. Biking for outdoor recreation increased 63% from 1983 to 2009. Still, fewer than 1% of workers bike commuted (U.S. American Community Survey, 2009). Toward understanding & potentially moving recreational bikers to commuting, differences among 3 groups of commuters were assessed regarding

- perceived bike safety,
- transportation attributes, &
- demographics.

These areas were chosen based on past research & the opportunity to overcome differences in satisfaction & safety perceptions.

Methods

Data collection

- Mail survey to a random, representative sample of Minnesotans in 2011 using Dillman et al. (2009) technique
- 1750 returns from the Twin Cities metropolitan area with regional response rate of 43%

Measurement

- Transportation mode & outdoor biking within last 12 months
- Perceived bike safety & satisfaction with transportation attributes on 7-point Likert scales (See below for example)

Analysis

- Descriptive statistics & comparison using ANOVA & ANCOVA, controlling for commute distance

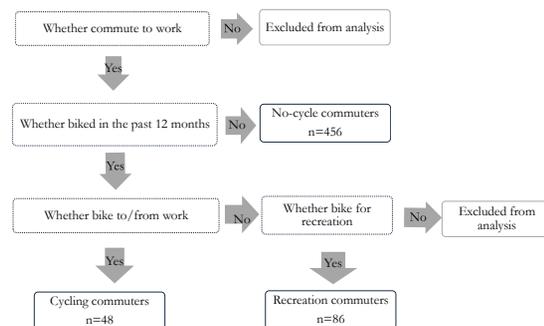


Figure 1. Sample segmentation by cycling participation: commuting, recreation or none

Results: Commute choices

Of the 1750 responses from metro area residents, 57% commuted to work. Among commuters:

- Majority male (67%), non-Hispanic (98%), & white (100%); average age 51
- Driving alone dominant transport option for work, shopping, & recreational trips, 5% of commuters commuted to work by bike 78% also drove alone to work.

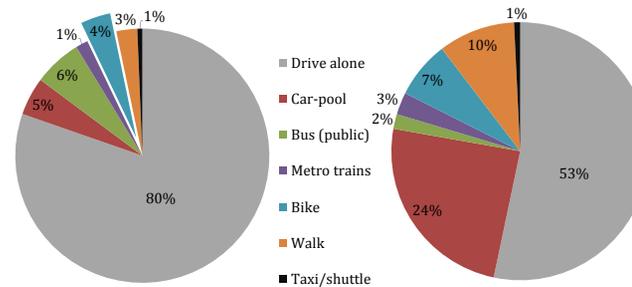


Figure 2. Travel mode for work among Twin Cities sample, Minnesota, 2011 (%)

Figure 3. Travel mode for recreation among Twin Cities sample, Minnesota, 2011 (%)

Results: Perceived safety & satisfaction with transportation attributes

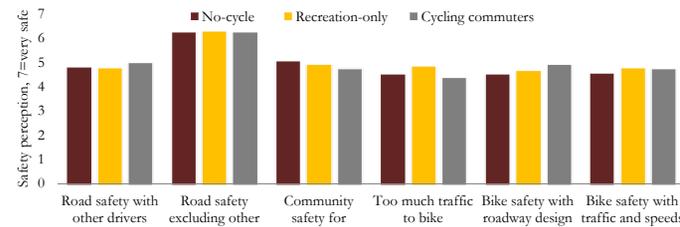


Figure 4. Average perceived bike safety, Twin Cities, Minnesota, 2011

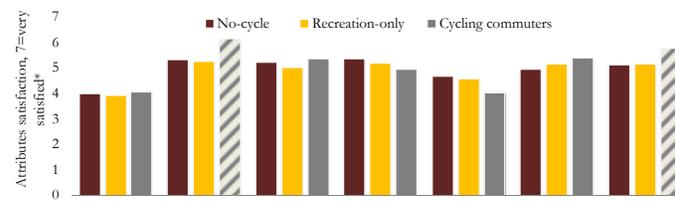


Figure 5. Average satisfaction with transportation attributes, Twin Cities, Minnesota, 2011. *Note: For air pollution, 7=it is an issue in the community; striped bars indicated statistically significant difference

Results: Comparing commuters

Controlling commute distance & perceptions

- No differences in safety perceptions
- No controls, cycling commuters > satisfied with commuting time (F-value=4.63, p-value=0.01) & > aware of air pollution issues in their community (F-value=3.46, p-value=0.03)
- Controlling for commute distance: commute time & air pollution no longer significant, bike commuters < satisfied with clearing sidewalks of snow & ice (F-value=3.31, p-value=.05)

Bike frequency, commute distance, & demographics

- Bike frequency: cycling commuters >recreation-only cyclists
- Commute distance: cycling commuters < recreation-only cyclists or no-cycle commuters
- Age: cycling commuters < no-cycling commuters
- Recreation-only commuters > male & > income than other groups

Discussion

Overall summary

- Perceived bike safety & most transportation attributes did not significantly differ among groups, despite contrary findings in past literature
- Twin Cities bike culture may provide a higher sense of safety due to existing infrastructure
- The overall perception of commuting by bike might be a more important factor than perceived bike safety
- Changing people's perception of biking as not only a recreational activity, but also a commute mode, may be a useful strategy to promote active transport

Future Research

- Differentiate between biking purposes
- Experiments with controlled perceived bike safety



Acknowledgments

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