Background

Although cycling is growing as a transportation mode in the United States, significant barriers still exist for this mode when compared to driving, including poor infrastructure throughout most of the United States. Relatively little is known about the impact of transportation infrastructure on perceived bicycle service quality, and this lack of understanding makes it more difficult for transportation planners and engineers to fully justify their transportation design decisions when planning for alternative modes of transport.

Objectives

- How does experience with well-developed cycling infrastructure influence perceived service quality?
- What types of cycling infrastructure do Ames area cyclists prefer?

Methods

A 13 question survey was distributed in-person to Ames area cyclists through three local bike shops, an ISU Earth Day Event, and a local bike rodeo. Additionally, an online version of the survey was distributed through the ISU Cycling Club and the Ames Bicycle Coalition. Data was collected between March 26th and April 23rd.

Response

96 respondents completed the survey. Most of the respondents were between 18 and 25 years old, with an even split between male and female respondents, as seen below.

Analysis

Independent variables for analysis included age, gender, cycling frequency, reasons for cycling, biking regularity, and an indicator variable for exposure to high-quality cycling infrastructure. Dependent variables included ratings of cycling infrastructure and geometric features. An ordered probit model was used because the dependent variables consist of a series of rankings that include more than two outcomes which are assumed to be normally distributed. The generated models have the following form:

\[ y_i = x_i \beta + e_i \]

- \( y_i \) is the observed dependent variable
- \( x_i \) is observed independent variable
- \( \beta \) is the parameter coefficient
- \( e_i \) is the error term

Results

- Bike-Friendly Locations coefficient reflects the effects of biking outside of Ames relative to only biking in Ames

Conclusions

- Cyclist experience with other bike-friendly locations is the most statistically significant predictor of cyclists’ attitudes toward infrastructure
- Ames cyclists overwhelmingly prefer bike-specific infrastructure (i.e., separate bike trails, dedicated bike lanes, or barrier separated bike lanes)
- Ames cyclists generally rate separated bike infrastructure better than mixed traffic infrastructure

Further Work

- Extend study period to achieve a larger response rate
- Develop better categorization of Ames area cyclists (e.g., year-round versus seasonal riders)
- Expand model to focus on specific intersections in the Ames area