Commute Time Quality:
Exploring the role of mode and other factors using the UC Davis Campus Travel Survey

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University of California, Davis
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Commute Quality Framework

Subjective well-being – life satisfaction - happiness

Commute well-being – commute satisfaction

Stress

Enjoyment

Positive utility

Mode liking
UC Davis Campus Travel Survey

• Annual survey of students, staff, and faculty
• Stratified random sample to ensure sufficient numbers in each role
• Email recruitment in three rounds with drawing for prizes
• Response rate for 2016 survey about 14% for about 4000 valid responses
• On-line survey programmed in Qualtrics with questions on:
  • Travel to campus
  • Attitudes
  • Demographics
  • Special topics
## Mode Options

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Percent Biking to Work in Smaller Cities

Source: Handy, Heinen, and Krizek, 2012
Measures of commute quality

• Agreement that “Traveling to campus stresses me out”
• Agreement that “Travel time is wasted time”
• Mode liking constructed from:
  • Agreement that “I like biking”
  • Agreement that “I like driving”
  • Agreement “I like using transit”
Framework for this analysis...

- Commute mode
- Campus role
- Gender
- Location/distance

- Commute stress
- Wasted time
- Liking

Commute quality
“Traveling to campus stresses me out”
Commute stress by home location

Living in Davis

Living outside Davis

Percent agreeing that “Traveling to campus stresses me out”
Commute stress by mode

Percent agreeing that “Traveling to campus stresses me out”

- Walk: 15%
- Bike: 20%
- Drive alone: 30%
- Drive with others: 30%
- Bus: 45%
- Train: 25%

n=3232
Commute stress by gender

Percent agreeing that “Traveling to campus stresses me out”

Female: 35%  
Male: 20%

n=3232
## Stressed out – ordered logit model

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“Travel time is generally wasted time”
Wasted time by home location

Percent agreeing that “Travel time is generally wasted time”

Living in Davis: 40%
Living outside Davis: 50%

n=3232
Wasted time by mode

Percent agreeing that “Travel time is generally wasted time”

- Walk: 40%
- Bike: 30%
- Drive alone: 50%
- Drive with others: 40%
- Bus: 55%
- Train: 20%

n=3232
Wasted time by gender

Percent agreeing that “Travel time is generally wasted time”

Female: 60%
Male: 40%

n=3232
### Wasted time – ordered logit model

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Mode Liking

“I like biking”

“I like driving”

“I like using transit”
Mode liking by home location

Percent agreeing that they like their usual commute mode

Living in Davis

Living outside Davis

n=3232
Mode liking by mode

Percent agreeing that they like their usual commute mode

- Bike: 100%
- Drive alone: 70%
- Bus: 60%
- Train: 90%

n=3232
Mode liking by gender

Percent agreeing that they like their usual commute mode

Female: [Bar Graph]
Male: [Bar Graph]

n=3232
## Mode liking – ordered logit model

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Undergraduates – liking biking by mode

![Graph showing likes biking by mode: Bike and Bus comparison. Bike has a significantly higher percentage of likes compared to Bus.]
Undergrads - commute stress by mode and liking

Percent agreeing that “Traveling to campus stresses me out”

- Likes biking, bikes: 20%
- Likes biking, bus: 35%
- Doesn't like biking, bikes: 45%
- Doesn't like biking, bus: 40%
Components of liking biking

Components of liking driving
Mode beliefs – Biking vs. Driving

Percent agreeing that biking or driving is...

- Good for Envt
- Healthy
- Fun
- Relaxing
- Convenient
- Safe

Biking vs. Driving

n=3892+
Components of mode liking

Spearman correlation coefficient between liking and belief

Fun
Relaxing
Convenient
Healthy
Safe
Good for Envt

Like Biking
Like Driving

n=3174+
What is so fun about biking?

*Using our 20012 in-depth interviews...*

“And it’s just fun.”

“I love it. I just love it.”

“It was fun. It was a lot of fun.”

“Well, it’s fun.”

“You can like pedal around and you sort of feel like a kid, and you’re outside and it’s fun.”

“It’s just fun.”
"You can’t buy happiness but you can buy a bicycle and that’s pretty close."

Thinley Namgyel
Minister of the Environment
of Bhutan
Velo-City 2017
Take aways...

• Those poor undergraduates! Those who don’t like biking are taking the bus, and it stresses them out and feels like wasted time.
• Women are more negatively affected by their commutes than men! Related to time pressures, household duties, safety concerns?
• Bicyclists are the happiest! Liking biking is more closely tied to biking to campus than liking driving is tied to driving to campus.
• Biking seen as far healthier and better for the environment than driving, but these differences don’t factor into liking.
• The most important component of liking is “fun”!
How to increase commute quality?

• Improve quality of current mode? especially bus
• Encourage shift to higher quality modes? to bike and train
• Foster liking of higher quality modes? of bike and train

*Same strategies as for increasing sustainability!*
Thanks! Questions?

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