

## TRANSPORT FINDINGS

# The Connection Between Mode Beliefs and Mode Liking: Biking versus Driving

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## Transport Findings

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This paper examines the connection between beliefs about modes and liking of modes using data from the annual Campus Travel Survey at the University of California, Davis. The analysis, which focuses on biking and driving, shows that the beliefs about these modes differ significantly but that in both cases the beliefs that the mode is fun and relaxing are more strongly correlated with liking than other beliefs.

## RESEARCH QUESTION AND HYPOTHESIS

This article examines the connection between beliefs about travel modes and how much that mode is liked, with a focus on driving and bicycling. We hypothesize that in both cases, mode beliefs are closely tied to mode preference. We answer the following questions:

1. Do beliefs about biking and driving differ?
2. Do beliefs about biking and driving differ among those who bike and those who drive?
3. Which beliefs are most closely tied to mode preference?
4. Do the same beliefs affect the extent to which each mode is liked?

## METHODS AND DATA

The setting for this study is the University of California, Davis (UC Davis). Owing to the city's flat topography, mild weather, and extensive network of bicycle infrastructure (Buehler and Handy 2008), biking in Davis is both safe and commonplace. Nearly half (47.5%) of UC Davis students and employees who live in Davis commute to campus by bike, almost 2.5 times those who drive or carpool (19.2%) (Heckathorn 2017). Davis's good infrastructure and high concentration of bikers make it an ideal place to study the extent to which biking is liked by users; it is relatively easy to recruit a sufficient sample of respondents, and Davis bikers represent a wide range of attitudes and abilities.

The analysis presented here uses data from the 2016–2017 Campus Travel Survey. The survey, as explained in more detail in Heckathorn (2017), was administered to a stratified sample of UC Davis students, staff, and faculty using email recruitments and an online survey programmed in Qualtrics. During the three weeks that the survey was live, 4,467 valid cases were recorded

(about 18% of those invited). The survey included questions on beliefs about biking and driving as well as measures of how much each mode is liked. Beliefs were measured using two sets of six statements borrowed from Kroessen and Handy (2014) (Kroesen and Handy 2014). Respondents were asked to indicate whether they agreed or disagreed (on a 5-point Likert scale) with statement options “Biking is...” and “Driving is...”: Convenient, Healthy, Safe, Good for the environment, Relaxing, and Fun. How much each mode was liked was measured as agreement with two statements (included in a long series of attitudinal statements): “I like biking” and “I like driving.”

## FINDINGS

The survey results show that UC Davis commuters (students, staff, and faculty) have largely favorable views of both biking and driving, with well over half of them either somewhat or strongly agreeing with the statements “I like biking” and “I like driving” (Table 1). Not surprisingly, respondents who usually bike to campus (“Bikers”) are more likely to agree that they like biking than those who drive (“Drivers”); drivers are more likely than bikers to agree that they like driving. But the degree to which respondents like their own mode differs: bikers like biking (88%) more than drivers like driving (68%). Because bikers outnumber drivers in the sample, overall liking of biking (67%) is somewhat stronger than liking of driving (58%), while dislike of driving is slightly higher than dislike of biking.

Beliefs about the two modes are starkly different (Table 2). Almost all respondents agree that biking is “Good for the environment,” while just 4% say the same for driving. Belief that biking is “Healthy” is also far higher (94%) than the same belief for driving (11%). Differences for other beliefs are also significant but much smaller. Biking scores almost 18 percentage points higher for “Fun” and over 10 percentage points higher for “Relaxing.” In contrast, driving scores over 27 percentage points higher for “Convenient” and almost 10 percentage points higher for “Safe.”

Differences in beliefs between bikers and drivers are statistically significant but not always large (Table 2). Bikers report stronger agreement on all beliefs for biking than drivers do; drivers report stronger agreement on all beliefs for driving than bikers do. The differences between bikers and drivers are far smaller for beliefs about driving than for beliefs about biking. The most substantial difference for driving beliefs is for “Convenient,” with 95% of drivers agreeing versus 78% of bikers agreeing. The differences for the beliefs that biking is “Fun,” “Relaxing,” “Convenient,” and “Safe” are all greater than those for driving. The agreement that biking is “Convenient” differs by over 50 percentage points between bikers and drivers.

While beliefs about the two modes differ significantly, preferences are the same for their corresponding modes (Table 3). For both biking and driving, the belief that the mode is “Fun” and “Relaxing” have the strongest correlations

with how much they are liked. “Convenient,” “Healthy,” and “Safe” have moderate correlations with how much those modes are liked. The largest difference in correlations for the two modes is for “Convenient,” with higher correlations with how much biking is liked than that of driving. “Good for the environment” has the weakest correlation, suggesting that while respondents strongly believe that biking is good for the environment, this belief does not explain their preference for biking. What does largely explain their preference for biking is the belief that biking is fun and relaxing; and the same is true for driving.

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Table 1: Liking of Biking and Driving by Usual Mode

	"I like biking"			"I like driving"			Biking–Driving
	Bikers	Drivers	All	Bikers	Drivers	All	
Strongly disagree	1.1	12.6	7.8	9.3	4.7	8.3	-0.5
Somewhat disagree	3.3	11.6	9.4	13.7	9.1	11.9	-2.4
Neutra	7.4	18.5	15.5	21.8	18.6	21.2	-5.7
Somewhat agree	36.3	35.1	34.9	29.1	35.5	32.1	2.8
Strongly agree	51.8	22.2	32.3	26.1	32.1	26.1	6.2
n	1690	1257	4196				

Differences in percentages between bikers and drivers significant at 0.01 level for liking for both modes. Numbers indicate percent responding.

Table 2: Beliefs about Biking and Driving by Usual Mode

Percent agreeing <sup>1</sup> that mode is:	Biking			Driving			Biking–Driving
	Bikers	Drivers	All	Bikers	Drivers	All	
Good for environment	98.1	92.6	94.7	2.9	5.0	4.2	90.4
Healthy	98.5	90.9	94.1	9.6	12.5	11.0	83.1
Fun	81.8	60.3	69.3	52.7	53.6	51.6	17.7
Relaxing	76.6	48.4	60.4	47.0	53.4	49.5	10.8
Convenient	87.3	32.8	59.1	77.9	95.0	86.5	-27.4
Safe	46.8	26.5	35.0	43.7	50.6	45.0	-9.9

Differences in percentages between bikers and drivers significant at 0.01 level for all beliefs.

<sup>1</sup>Somewhat or strongly

Table 3: Correlation<sup>1</sup> Between Mode Beliefs and Liking

Mode is...	"I like biking"	"I like driving"	Biking–Driving
Fun	0.667	0.683	-0.016
Relaxing	0.612	0.626	-0.014
Convenient	0.482	0.364	0.118
Healthy	0.376	0.356	0.020
Safe	0.349	0.349	0.000
Good for environment	0.264	0.225	0.039

<sup>1</sup>Spearman's rho

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