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Electric Bike-share in the Sacramento Region is Replacing Car Trips and Supporting More Favorable Attitudes Towards Bicycling

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Issue

Bike-share services have rapidly expanded in cities worldwide and attracted substantial ridership, especially as electric and dockless bike- and scooter-share services have entered the market. These services have the potential to offer a healthier and more environmentally sustainable mobility option if used as an alternative to car travel and a connection to transit. However, little is known about the influence of bike-share systems on individual travel behavior; particularly if bike-share trips are replacing vehicle trips and increasing transit use.

To address this knowledge gap, researchers at the University of California, Davis surveyed Sacramento-area residents before and after the 2018 implementation of a JUMP/Uber-operated dockless electric bike-share program to examine how the micromobility service influenced general travel behavior and attitudes. Surveys were sent to residents in downtown Sacramento, West Sacramento, and Davis within the bike-share service area and to a control group in Sacramento outside the service area. Key findings from the research are summarized in this brief.

Key Research Findings

A substantial number of Sacramento-area residents have used the bike-share service. Three percent of Davis respondents and 13% of West Sacramento and downtown Sacramento respondents in the bike-share service areas indicated they had used the bike-share service at least once, substantial percentages given how recently the bike-share had been introduced. These rates suggest many people are at least willing to try the bike-share service. Bike-share users tended to be much younger (more than 10 years on average) than non-users, and they were much more likely to be students. Users and non-users reported similar distributions of income, race, and gender, although certain demographics were under-represented in the survey.

Bike-share use in the Sacramento region appears to be most commonly replacing car travel, walking, and personal bicycle use. When asked what they would have done if bike-share had been unavailable for a past trip, about one-third of survey respondents said they would have taken a car and another third would have walked (Figure 1). These trip-level substitution results suggest that bike-share is reducing car use (including ridehailing trips provided by a taxi, Uber, or Lyft). In addition, residents in West Sacramento

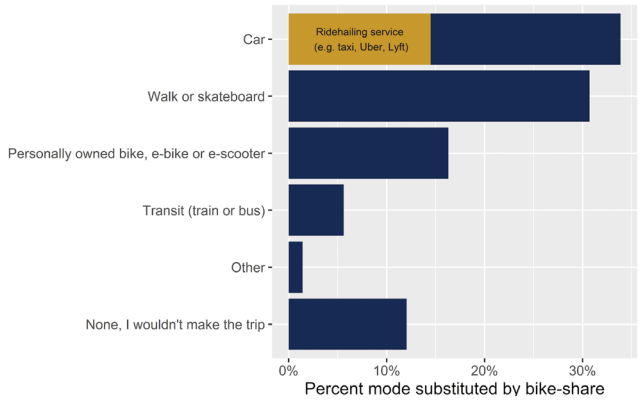

Figure 1. Bike-share users' responses when asked what travel mode they would have used if bike-share was unavailable. Car trips include both private car and ride-hailing trips

and downtown Sacramento reported lower weekly vehicle miles traveled after the bike-share service was introduced, while residents outside the bike-share service area reported the opposite. While these results are notable, they are not conclusive since factors other than proximity to the bike-share service could explain the differences.

Attitudes toward bicycling were more favorable after bike-share was introduced (Figure 2). While the change in attitudes toward bicycling could be due to other factors such as bike infrastructure changes or attitudinal differences in survey samples, these results suggest that the presence of bike-share has potentially led to more positive attitudes towards bicycling and may be shifting attitudes about travel norms (Figure 2). This is important because, in general, travel attitudes are strongly associated with travel behavior. In this case, however, the changes in residents' bicycling perceptions did not correspond with more bicycling overall. Self-reported bicycling frequency was slightly lower for all residents living in the bike-share service area after bike-share was introduced, although slightly higher for the subset of residents who had used bike-share.

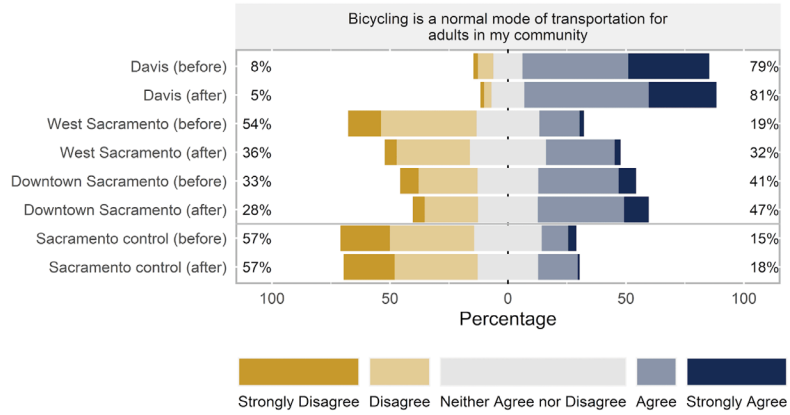

Figure 2. Comparison of attitudes toward bicycling before and after bike-share was introduced in three communities in the bike-share service area and a community outside the service area.

Bike-share users reported infrequently using the service to connect to transit. Half of bike-share users reported using the service to connect to transit at least infrequently; however, only 5% of users reported connecting to transit on their recent bike-share trips. Substantial emissions reductions are possible if people use bike-share to connect to transit instead of driving. Based on these results, it appears that those benefits are largely unrealized in the Sacramento region. Policymakers trying to facilitate more transit use may need to consider incentivizing bike-share to transit connections.

Conventional methods of measuring bike-share user demographics from trip data may not be accurate. UC Davis researchers found little correspondence between the socio-demographics of bike-share users and census block groups from which users start or end their trips. This finding has implications for measuring equitable access, as cities and regions often assess whether services are accessible to disadvantaged residents based on census population statistics of areas where bike-share trips begin and end.

Residents who haven't used shared e-bikes and e-scooters mostly agree that shared e-bikes and e-scooters are used responsibly. Counter to media reports, most non-users of shared e-bikes and e-scooters are not annoyed by users of these two modes and are not worried about running into or getting run into by people on e-bikes and e-scooters. However, non-users are generally split about whether e-bikes and e-scooters are parked responsibly. Additionally, both users and non-users tend to know e-bikes and e-scooters are not allowed on sidewalks but are less clear about parking rules.

More Information

This policy brief is drawn from the report "Investigating the Influence of Dockless Electric Bike-share on Travel Behavior, Attitudes, Health, and Equity," available at: www.ucits.org/research-project/2019-03a. For more information, contact Dillon Fitch at dtfitch@ucdavis.edu.

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