Institute of Transportation Studies
UNIVERSITY OF CALIFORNIA

Rural Electric Vehicle Carsharing is Improving Household Mobility and Reducing Reliance on Personal Vehicles

Caroline Rodier, PhD, and Brian Harold, MBA
Institute of Transportation Studies, University of California, Davis

October 2022

Issue

Households in marginalized areas of rural California contend with difficult transportation challenges resulting from infrequent transit service, limited access to app-based rideshare services, and higher vehicle ownership costs associated with long travel distances. In 2014, researchers at the University of California, Davis partnered with the San Joaquin Valley Metropolitan Planning Organization to engage with stakeholders to understand the challenges facing rural residents and develop solutions for improving mobility while reducing greenhouse gas emissions. One outcome of this work was the creation of an electric vehicle (EV) carsharing service known as Míocar. Míocar launched in 2019 and now has 27 vehicles located in eight affordable housing complexes in Tulare and Kern counties. Míocar provides a transportation option that helps to improve the mobility of individuals and households in marginalized communities and reduce greenhouse gas emissions by decreasing reliance on conventional personal vehicles.

As part of its ongoing efforts to evaluate Míocar's performance and impact, the research team conducted a survey with Míocar users between January and March 2022. They gathered detailed information on household transportation needs and capabilities and the role of Míocar as a transportation option for users and their households. Of the 148 Míocar users, 57 responded to the survey. Results for individual income categories below are based on limited sample sizes in each category and are intended to be exploratory.

Key Research Findings

EV carsharing has increased household travel, particularly for lower-income households. The majority of respondents (65%) reported that Míocar had increased their household's total number of trips. Respondents in the lower income categories were more likely to report that Míocar had increased their total trips compared to respondents in the higher income categories. Users in the lower income categories may be more likely to use Míocar to travel to destinations that they would not have otherwise traveled to. Finally, 72% of respondents reported that they are now able to travel to where they need to go, compared to 26% when asked before they joined Míocar.

EV carsharing has reduced personal vehicle use, particularly for higher-income households. The majority of respondents (65%) indicated that Míocar had caused their household to use its vehicles less, and no respondents indicated that it had led to increased personal vehicle use. Respondents in higher income categories were more likely to report that Míocar had decreased their household's personal vehicle use. Additionally, three respondents reported that they had shed a personal vehicle due to the availability of Míocar, and eight respondents had delayed the purchase of one or more vehicles due to the availability of Míocar.

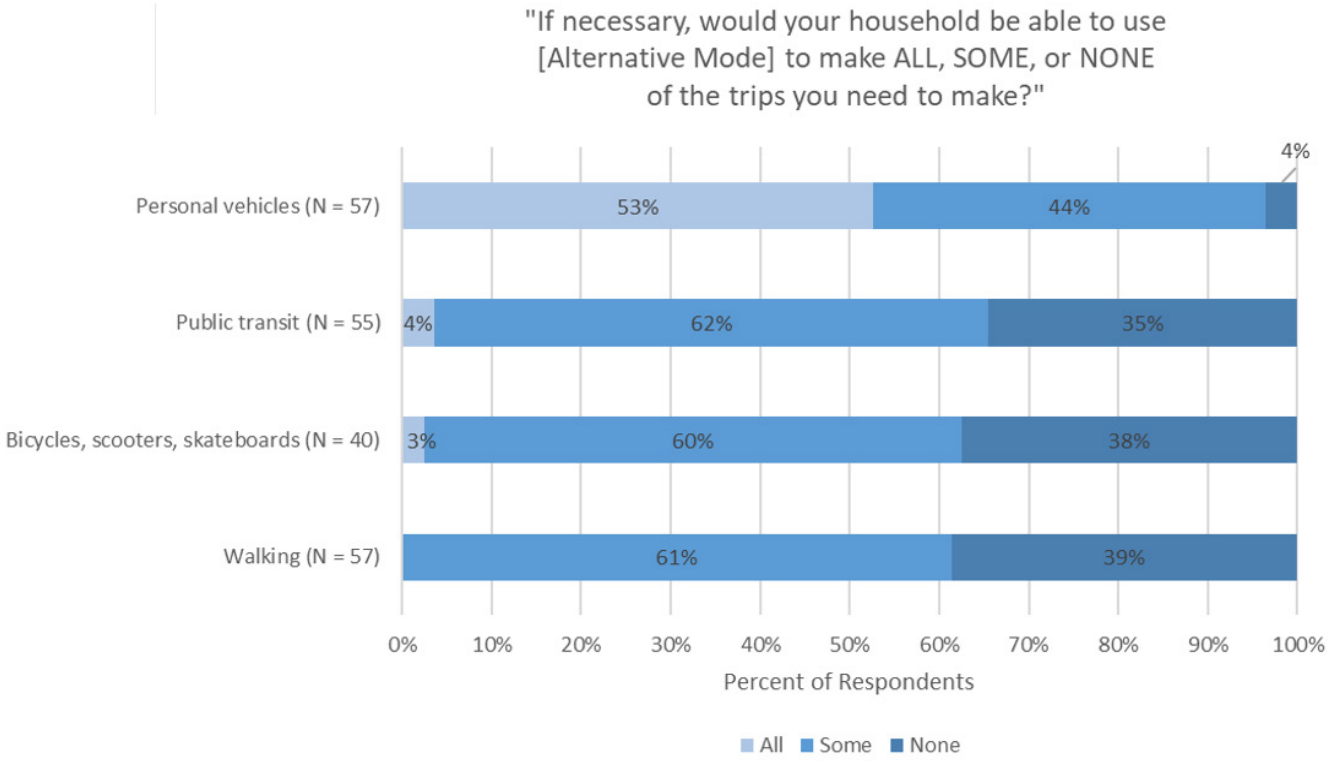

Figure 1. Member household ability to make trips using modes other than Míocar

Aside from using Míocar, members primarily rely on personal vehicles to meet their transportation needs but experience issues with personal vehicle availability and reliability. When asked about the viability of other modes of transportation besides a personal vehicle, few respondents reported that they could make all their necessary trips with transit or active transportation modes, and 35% stated that they would not be able to make any of their trips with transit (Figure 1). A slight majority of respondents (53%) reported that their household could make all its trips with personal vehicles, but 49% also reported that they have less than one reliable vehicle per household adult. Additionally, about one-third of respondents from households that commute to work reported that they have less than one reliable vehicle per employed household resident.

Further Reading and More Information

This policy brief is drawn from the report "Retrospective User Survey for a Rural Electric Vehicle Carsharing Pilot in California's Central Valley" prepared by Caroline Rodier, Brian Harold, and Yunwan Zhang with the University of California, Davis. The report can be found at www.ucits.org/research-project/2021-01/.

For more information about findings presented in this brief, contact Caroline Rodier at cjrodier@ucdavis.edu.

Research presented in this policy brief was made possible through funding received by the University of California Institute of Transportation Studies (UC ITS) from the State of California through the Public Transportation Account and the Road Repair and Accountability Act of 2017 (Senate Bill 1). The UC ITS is a network of faculty, research and administrative staff, and students dedicated to advancing the state of the art in transportation engineering, planning, and policy for the people of California. Established by the Legislature in 1947, the UC ITS has branches at UC Berkeley, UC Davis, UC Irvine, and UCLA.

Project ID UC-ITS-2021-01 | DOI: 10.7922/G2H993HF