

Electric Vehicle Carsharing is Helping to Fill Transit Gaps and Improve Mobility in Rural California

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In rural areas, cost-effective transit service is challenging to provide due to greater travel distances, lower population densities, and longer travel times than in cities. Access to a personal car is often essential to the quality of life for most residents, enabling them to readily access essential services. However, keeping one or two vehicles in reliable working order can be prohibitively expensive for low-income families. To address this issue, multiple organizations partnered to launch an electric vehicle (EV) carsharing pilot called Míocar in 2019. This non-profit service in the rural San Joaquin Valley of California differs from the dominant carsharing model of for-profit businesses serving affluent communities that already have high-quality transit. Míocar seeks to provide carsharing to price-sensitive populations with low transit access at a price point that is more affordable than owning a personal vehicle. The service currently has 27 EVs located at eight hubs throughout the San Joaquin Valley.

Researchers at the University of California, Davis evaluated Míocar using data collected from the 10-month ramp-up of the service. The evaluation links members' use of Míocar vehicles with results from initial and periodic member surveys. The results provide initial insight into member characteristics and vehicle use. The results are preliminary and intended to be exploratory.

Key Research Findings

Míocar is improving the mobility of individuals in communities with low access to public transit and personal vehicles. Based on member surveys, most trips taken with Míocar (63%) would not have occurred in the absence of the service. This suggests that the service is playing a role in helping families with different resources gain equal access to transportation opportunities.

Míocar is reducing greenhouse gas emissions by replacing conventional vehicle travel with EV travel. All members who reported that they would still have taken their trips in the absence of Míocar (17% of all surveyed trips) stated that they would have used a conventional internal combustion engine vehicle. Additionally, members commonly used EVs for long-distance inter-city and inter-county trips that are not supported by current bus or train routes. For these trips, Míocar is serving as a substitute for personal vehicles rather than for transit, and represents a reduction in GHG emissions.

Low-income households with insufficient access to personal vehicles are the most active users of Míocar. Members who used Míocar with high frequency were less likely to have at least as many vehicles as adults in their household. Most high-frequency users also had an income of less than \$15,000 per adult in the household. This

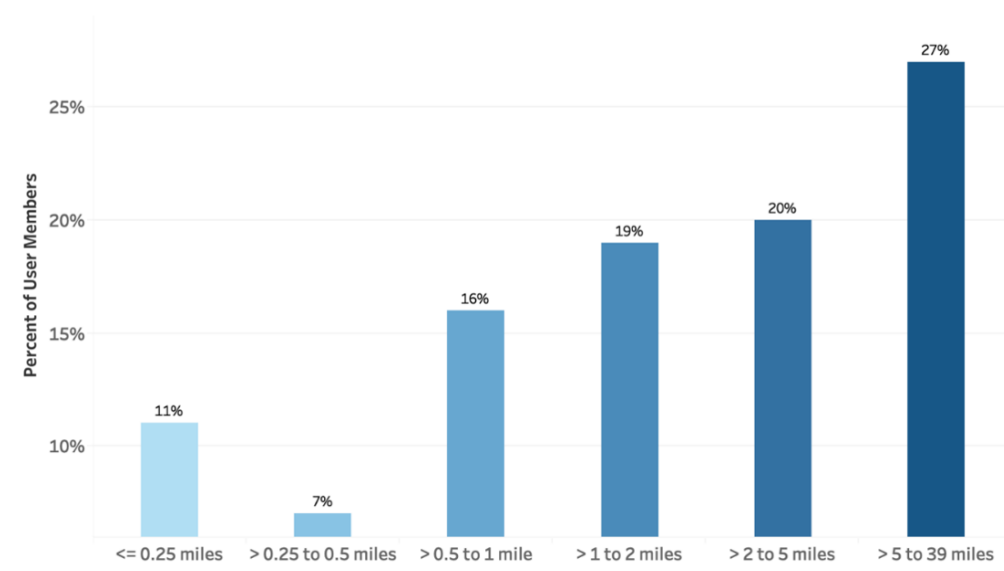


Figure 1. Distance from member's home location to nearest Míocar hub (N = 108)

suggests that the pilot is serving the intended purpose of benefitting low-income individuals who may face cost barriers to personal vehicle access.

Individuals are willing to travel long distances to access Míocar, highlighting the need for the service. Many members live in communities without Míocar hubs, and 27% of members regularly traveled more than 5 miles from their homes to access the vehicles (Figure 1). Members' willingness to travel long distances to access Míocar indicates that there are limited appealing transportation alternatives and suggests a demand for more hubs to be added in surrounding communities.

In its current form, the Míocar model requires ongoing support from public funding. Míocar is currently supported by state and federal grant funding and has limited ability to increase revenues from its target population. However,

upcoming efforts will test hubs in more central urban areas to help offset costs of the rural hubs and explore group memberships for local organizations such as affordable housing developments and community health clinics to increase revenues.

Further Reading and More Information

This policy brief is drawn from the report "Early Results from an Electric Vehicle Carsharing Service in Rural Disadvantaged Communities in the San Joaquin Valley" prepared by Caroline Rodier, Brian Harold, and Yunwan Zhang with the University of California, Davis. The report can be found here: www.ucits.org/research-project/2019-44.

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

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