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# Travel Varies Greatly Between Voluntary Versus Involuntary Carless Households in California

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## Issue

In spite of the critical importance of mobility for quality of life and economic well-being, the travel behavior of households without motor vehicles has received insufficient attention even though “carlessness” may be the most vivid expression of mobility disadvantage in our car-centric society.<sup>1</sup> Approximately 10.6 million (9 %) of U.S. households do not own a motor vehicle (car, pickup, van, SUV, or motorbike), including over one million in California.<sup>2</sup> These “carless” households form two groups: (1) involuntarily carless households who are forced to live without cars, and (2) voluntarily carless households who chose to do so.

Since one of the strategic goals of federal transportation policy is “to increase transportation choices and access to transportation services for all”<sup>3</sup> it is essential to understand the travel behavior of households who are unable to own a motor vehicle. Indeed, many involuntarily carless households are experiencing economic hardship, disabilities, racial and age discrimination, or cultural barriers. Understanding the travel pattern of voluntarily carless households is also necessary to formulate policies aimed at decreasing vehicle use. Reducing personal vehicle use would help relieve congestion, decrease road accidents, improve air quality, cut emissions of greenhouse gases, and improve the health of people who switch to more active modes, such as walking and biking.

To compare and contrast the travel patterns of voluntarily

and involuntarily carless households with those of motorized households, we analyzed travel diary data from the 2012 California Household Travel Survey.

## Key Research Findings

**Involuntarily carless households do not travel as frequently.** A larger percentage of involuntarily carless households did not travel on their survey day compared to voluntarily carless households (27.7% versus 21.9%) and motorized households (12.3%). Overall, voluntarily carless households are more mobile than their involuntarily carless counterparts.

**Carless households take twice as many linked trips than motorized households.** Linked trips refer to including multiple destinations in one trip versus each destination serving as a separate trip. Carless households link 32.1% to 40.7% of their trips compared only 14.8% for motorized households, which lengthens their travel time.

**Involuntarily carless households travel farther than voluntarily carless households.** Involuntarily carless travel an average of 1.6 miles per trip versus about 1.3 miles for voluntarily carless households, which is an indication of transport disadvantage. Carless households also take a much higher percentage of short trips (<1 mile) than motorized households. Conversely, motorized households take a higher percentage of trips over two miles (especially over 15 miles). See Panel A of Figure 1.

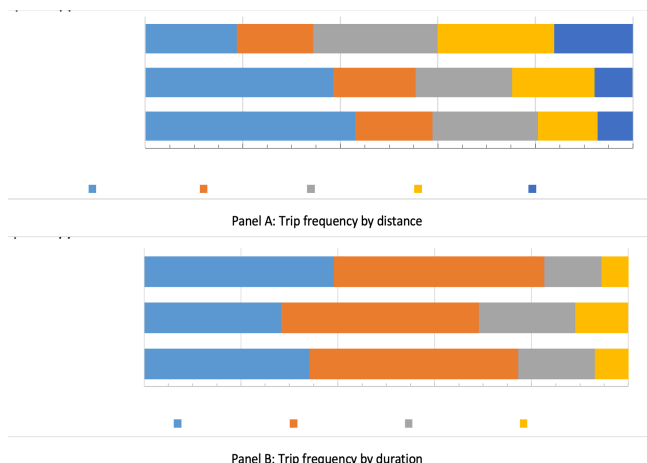


Figure 1. Linked trips distance (miles) and duration (minutes)

**Trips by involuntarily carless households take longer.** The median duration of trips by voluntarily carless households (15 min.) is similar to that of motorized households but substantially less than involuntarily carless households (20 min.).

**Voluntarily carless households take more short trips.** The frequency of short trips (up to 10 min) is higher for voluntarily carless (34.1%) than for involuntarily carless (28.2%) households, but not as high as for motorized households (39.1%). Conversely, voluntarily carless households take fewer trips that last over 30 minutes than involuntarily carless households. See Panel B of Figure 1. The

higher proportion of longer trips for involuntarily carless households may be another sign of transport disadvantage.

**Voluntarily carless households use transit less, but walk/bike more.** Motorized households rely much more on motor vehicles for most of their trips (87.8%), and much less on public transit (2.2%), or walking and biking (9.5%). Compared to involuntarily carless households, voluntarily carless households use public transit less frequently (28.1% vs. 33.8%) but walk more (49.1% vs. 41.0%).

## More Information

Mitra, S.K., Saphores, J.D.M. How do they get by without cars? An analysis of travel characteristics of carless households in California. *Transportation* 47, 2837–2858 (2020). <http://dx.doi.org/10.1007/s11116-019-09994-6>

Mitra, S. K, & Saphores, J. (2018). An Analysis of Travel Characteristics of Carless Households in California. UC Office of the President: University of California Institute of Transportation Studies. <http://dx.doi.org/10.7922/G2W957DN>

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<sup>1</sup>Clifton, Kelly, and Karen Lucas. “Examining the empirical evidence of transport inequality in the US and UK.” *Running on Empty: Transport, Social Exclusion and Environmental Justice* (2004): 15-38.

<sup>2</sup>American Community Survey (2012-2016). Tenure by vehicles available. [https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS\\_16\\_5YR\\_DP04&src=pt](https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_16_5YR_DP04&src=pt)

<sup>3</sup>U.S. Department of Transportation. *Transportation for a New Generation. Strategic Plan – Fiscal Years 2014-2018.* (2013). [https://www.transportation.gov/sites/dot.gov/files/docs/2014-2018-strategic-plan\\_0.pdf](https://www.transportation.gov/sites/dot.gov/files/docs/2014-2018-strategic-plan_0.pdf)

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