

PRESS RELEASE

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“Early Bird Car-Sharing Drivers” Can Reduce Traffic Jams

Bonn, Mannheim, 06.03.2024 – **The usage of shared electric vehicles peaks earlier than overall traffic – a study of road trips in Madrid shows. This effect can help to smooth road traffic, reducing congestion and emissions in big cities. These are findings of the discussion paper “Observed Patterns of Free-Floating Car-Sharing Use” published by the EPOS Economic Research Center at the Universities of Bonn and Mannheim.**

Free-floating car-sharing services are paid for by the minute. They allow drivers to use the rented car for their journey and park it anywhere within a defined zone. The cars provided are often electric vehicles. “In our study, we find that car sharers in Madrid often make their trips before rush hour,” says Mateus Souza from the EPOS Economic Research Center. “Our explanation: By getting up and driving to work earlier, drivers in the Spanish capital probably want to avoid higher costs for longer journeys during rush hour. To the extent that drivers are substituting away from their private polluting vehicles, this then leads to less congestion and less emissions in the city.”

High utilization rate of car-sharing vehicles

The researchers find a second positive effect: a more efficient use of vehicles. The utilization rate of free-floating car-sharing vehicles is close to 23%. This share of hours during which the vehicle is actually being driven compares to an estimated 4 percent rate for private vehicles.

Loyal customers live in middle-income areas with limited public transport

The effects of electric car-sharing services not only depend on drivers’ usage patterns. It also matters whether the shared services complement or substitute public transport. The study in the Spanish capital shows that the most loyal customers typically live in middle-income neighborhoods with relatively limited public transport options. These areas also have high pre-existing car ownership rates.

“In these middle-income areas of Madrid, public transport options can be limited, such that residents often prefer to drive to move across areas of the city,” Souza says. “In this context, car sharers do not represent new cars on the road, and do not lower public transport use and thus do not increase urban congestion.” The study also emphasizes the importance of parking availability. Car sharers are less likely to drive to areas with limited public parking, as they wish to avoid the costs of time wasted searching for a spot.

The researchers analyzed the road trips of a major free-floating electric car-sharing service in Madrid during 2019. They compared the usage patterns with data on traffic conditions, demographics, public transit, and parking availability across the city.

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The presented discussion paper is a publication without peer review of the Collaborative Research Center Transregio 224 EPoS. Access the full discussion paper here: <https://www.crctr224.de/research/discussion-papers/archive/dp512>

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The Collaborative Research Center (CRC) Transregio 224 EPoS

Established in 2018, [the Collaborative Research Center Transregio 224 EPoS](https://www.crctr224.de), a cooperation of the universities Bonn and Mannheim, is a long-term research institution funded by the German Research Foundation (Deutsche Forschungsgemeinschaft, DFG). EPoS addresses three key societal challenges: how to promote equality of opportunity; how to regulate markets in light of the internationalization and digitalization of economic activity; and how to safeguard the stability of the financial system.

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