



PRESS RELEASE (2026/02/12)

Shared e-mopeds and equity implications: Insights from trip-level data in Fukuoka, Japan

Research suggests shared e-mopeds may help shorten commutes in transit-poor areas, while their costs may still present a challenge for some residents there

Fukuoka, Japan—Saving on rent often means paying on time. In many suburban areas, limited rail access and infrequent, often delayed bus services make everyday travel difficult.

Shared electric mopeds (e-mopeds) have emerged as a new form of micromobility well suited for trips that are too long for walking but not long enough to justify using public transit. A study published in the *Journal of Transport Geography* in October 2025 shows that shared e-mopeds offer significant time savings over buses and rail, though high costs may prevent the people who need them most from fully benefiting.

"Our city, Fukuoka, is not like Tokyo, where public transport is everywhere," says [Sunbin Yoo](#), Associate Professor at Kyushu University's [Faculty of Engineering](#). In Fukuoka, access to transportation varies greatly by location: central, high-land-price areas are well served by rail and buses, while low-land-price neighborhoods face shrinking transport networks. The city's hills and sloping roads also limit the use of shared bicycles. "We wanted to see if e-mopeds could improve convenience and advance transport equity."

To answer the question, Yoo led a joint research team from Kyushu University, Fukuoka University, and Korea University, analyzing nearly 100,000 shared e-moped trips in Fukuoka spanning 2022 to 2024. The data, obtained from a major local service provider, captured real-world usage patterns, including origins, destinations, travel times, distances, and costs.

The study reveals that shared e-moped trips follow shorter, more direct routes than rail journeys. Additionally, they provide significant time savings over both buses and rail, improving access to stations and city centers. This benefit is more apparent in low-density areas with limited transit coverage, where residents face the classic "first-and-last-mile problem"—the difficulty of getting to and from transit stations.

Despite their design for quick and flexible travel, e-mopeds are still not effective enough in suburban areas. One reason is that docking port coverage is sparser than in city centers, which forces users to walk longer to find available vehicles.

More critically, the time-saving advantage comes with a trade-off in affordability. According to the study, for every one percent increase in local land prices, trip costs decrease by approximately 0.06 percent.

"That figure may seem small, but land prices vary dramatically across regions, and the gap can exceed 200 percent," Yoo explains. "When you do the math, residents in low-land-price areas can end up paying approximately 12 percent more. This creates a

meaningful financial burden for everyday users who already face limited transport options."

To address these challenges, the team suggests expanding docking points in areas with low transit connectivity and reconsidering pricing strategies. For instance, trips starting in remote areas could be discounted, or the current linear time-based pricing model could be replaced with tiered zones to keep costs manageable.

By functioning as transit connectors or independent point-to-point travel alternatives, shared e-mopeds foster a more sustainable and inclusive transportation ecosystem. Yoo's team is currently examining how this flexibility can reduce transit inefficiencies, such as time lost during transfers. However, realizing the full potential of e-mopeds to reduce spatial and economic disparities will require collaboration between policymakers and service operators to ensure equitable access and pricing.

"These transport challenges are not unique to Japan. Many mid-sized cities around the world face similar issues. We hope our data can help urban planners and mobility service providers design transport systems that are fairer, more resilient, and better for everyone," Yoo concludes.

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For more information about this research, see "Shared e-mopeds and equity implications: Insights from trip-level data in Fukuoka, Japan," Sunbin Yoo, Junya Kumagai, Sung Hoo Kim, Shunsuke Managi, *Journal of Transport Geography*, <https://doi.org/10.1016/j.jtrangeo.2025.104445>

About Kyushu University

Founded in 1911, [Kyushu University](#) is one of Japan's leading research-oriented institutions of higher education, consistently ranking as one of the top ten Japanese universities in the Times Higher Education World University Rankings and the QS World Rankings. Located in Fukuoka, on the island of Kyushu—the most southwestern of Japan's four main islands—Kyushu U sits in a coastal metropolis frequently ranked among the world's most livable cities and historically known as Japan's gateway to Asia. Its multiple campuses are home to around 19,000 students and 8,000 faculty and staff. Through its [VISION 2030](#), Kyushu U will "drive social change with integrative knowledge." By fusing the spectrum of knowledge, from the humanities and arts to engineering and medical sciences, Kyushu U will strengthen its research in the key areas of decarbonization, medicine and health, and environment and food, to tackle society's most pressing issues.



A new study from Kyushu University shows that shared e-mopeds can improve accessibility by reducing travel time and distance. These benefits are more significant in lower land-price areas, though higher costs there continue to pose a financial burden.

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