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Where Do Ridehail Drivers Go Between Paid Trips? A San Francisco Case Study

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Issue

App-based ridehailing services such as Uber and Lyft have revolutionized urban travel. These services improve mobility and reduce demand for parking, but also increase vehicle travel and shift some trips away from walking and public transit.[1] As a result, ridehailing has been the largest contributor to increased congestion in recent years in cities such as San Francisco.[2] Ridehil services could also be contributing to traffic congestion and pollution when vehicles are out of service between paid rides. Drivers might **cruise** (circle around while waiting for the next paid ride) or **reposition** (move to another location in anticipation of the next ride request), both of which can exacerbate congestion and pollution. They might also **park** (either on- or off-street), which would reduce congestion and pollution but may affect parking and curbspace availability or interfere with other street activities such as drop-offs and deliveries.

To gain a better understanding of ridehail driver behavior between paid rides, UC researchers evaluated over 5.3 million ridehail trips in San Francisco in November and December 2016. Each trip was divided into cruising, repositioning, and parking segments.

Key Research Findings

About 19 percent of ridehail vehicle travel is spent out of service. While other studies have estimated that as much as 40 percent of ridehail vehicle travel occurs out of service,[3] this study only considered the time period between when the driver turns on the ridehail app and before they accept a ride request. Other studies often include the travel from ride acceptance to passenger pickup as well. High demand and short distances within San Francisco may also account for the lower estimate.

Drivers spend most out-of-service time repositioning. Cruising accounts for 23 percent of out-of-service time, repositioning accounts for nearly two-thirds (63 percent), and parking accounts for the remaining 14 percent (Figure 1). Repositioning to higher demand areas is an efficient business strategy, but generates more vehicle travel and can be inequitable toward some neighborhoods. Cruising and repositioning can exacerbate congestion and pollution, while parking may take away valuable curbside and off-street spaces or interfere with other street activities such as drop-offs and deliveries. These findings exclude short trips (less than two minutes out of service), where it is difficult to ascertain the driver's intent.

The more hours drivers work per week, the less they cruise. Since ridehail drivers cannot pick up passengers off the street (as can taxis, for example), cruising seems to offer few advantages to attracting a fare. While it is difficult to explain why ridehail drivers cruise between paid rides, evidence suggests that the more paid rides drivers make in a given week, the less they cruise versus repositioning or parking — possibly because they are more experienced.

Drivers for large ridehail platforms spend less time out of service. Drivers for the two ridehail platforms operating in San Francisco — Uber and Lyft — spend almost identical proportions of their time parking, cruising, and repositioning. However, out-of-service trips are longer for Lyft drivers (0.8 miles, compared to 0.5 miles for Uber drivers). Since Uber accounts for three-quarters of the trips in the study's sample, it is likely that economies of scale lead to their drivers obtaining a paid fare more quickly, reducing the amount of out-of-service travel required.
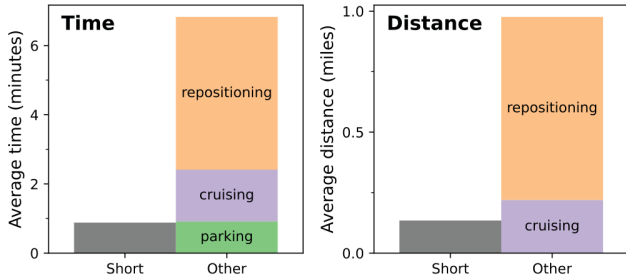
Table 1: The Share of People Experiencing Homelessness Counted on Transit in Various Areas

Drivers have a slight tendency to avoid neighborhoods with high proportions of residents of color. Ridehail drivers are more likely to leave a neighborhood with more Asian, Latinx and Black residents in search of a new ride. These effects are small, but this finding supports previous studies of racial bias among taxi drivers and, to a less extent, ridehail drivers.[4]

Policy Considerations

The impacts from cruising, repositioning, and parking by out-of-service ridehail vehicles might be partly mitigated by providing information and instruction to drivers and through parking management. For example, cities could encourage drivers to park in locations where they do not compete with other curbspace users by permitting them to park temporarily in designated locations, or by imposing a distance-based fee to discourage cruising, as described below. Cruising, meanwhile, might also be reduced through tweaks to driver-facing ridehail apps, prompting drivers to find a safe place to park while waiting for their next ride.

Pricing policies, however, are likely to be much more effective. Many cities already levy ridehail fees or taxes on a per-trip or percentage basis, but these charges only apply to the in-service portion of a trip. San Francisco levies a 3.25% tax on ridehail fares, reduced to 1.5% for shared rides. Chicago levies a flat tax of $1.25 per trip, with a reduction for shared rides and a surcharge for most trips to or from downtown, airports, and other special zones.

To more comprehensively address congestion and pollution, policy makers may want to consider revising fee structures to be distance- and time-based. For example, ridehail firms could be assessed a fee for each mile and hour driven, regardless of whether a passenger is in the vehicle. The per-mile fee would discourage cruising and long repositioning trips, while the per-hour fee would provide an incentive to avoid congested traffic and also compensate a city for lost parking revenue. An even more sophisticated program could vary the fees and levy higher charges in downtown and in busy commercial districts with scarce parking. Ridehailing is the primary cause of increased congestion in recent years in cities such as San Francisco,[2] and so ridehail-centered congestion pricing may be a logical path forward.

Further Information

This policy brief is drawn from the report entitled "Where Ridehail Drivers Go Between Trips: Implications for Vehicles Miles Traveled, Congestion, and Curb Availability," prepared by Adam Millard-Ball with the UCLA Urban Planning Department, Liwei Liu with the UC Santa Cruz Economics Department, Whitney Hansen with the UC Santa Cruz Environmental Studies Department, and Drew Cooper and Joe Castiglione who are both with the San Francisco County Transportation Authority. The report and this policy brief can be downloaded at ucits.org/research-project/2020-15. For more information about this research, please contact Adam Millard-Ball at adammb@ucla.edu.

[1]Bradley, M., Greene, E., Sana, B., Cooper, D., Castiglione, J., Israel, S., and Coy, C. (2021). "Results of the First Large-scale Survey of TNC Use in the Bay Area." Paper presented at Transportation Research Board Annual Meeting, Washington, DC, January 2021.

[2]Erhardt, G. D., Roy, S., Cooper, D., Sana, B., Chen, M., & Castiglione, J. (2019). Do Transportation Network Companies Decrease or Increase Congestion? Science Advances, 5(5), eaau2670. https://doi.org/10.1126/sciadv.aau2670

[3]For example, Cramer, J., & Krueger, A. B. (2016). Disruptive Change in the Taxi Business: The Case of Uber. American Economic Review, 106(5), 177–182. https://doi.org/10.1257/aer.p20161002

[4]For example, Ge, Y., Knittel, C. R., MacKenzie, D., & Zoepf, S. (2020). Racial discrimination in transportation network companies. Journal of Public Economics, 190, 104205. https://doi.org/10.1016/j.jpubeco.2020.104205.

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