

# MOUNTAIN-PLAINS CONSORTIUM

RESEARCH BRIEF | MPC 22-481 (project 555) | September 2022

## Irrationality in Metered Parking Payment Compliance



### the ISSUE

The existing parking system assumes that drivers can pay the correct price for parking, but a field study reveals that drivers either overpay or underpay for parking at on-street parking meters 98% of the time. This misalignment between parking payments and presumed price can mask the price signal and reduce its power to influence driver behavior.

### the RESEARCH

Researchers challenged the assumption that drivers can pay the correct price for parking most of the time. They examined the frequency, magnitude, and intentionality of parking payment inaccuracies with a field study of parking behavior.

They observed payment behavior at parking meters on 42 block faces in the Denver Lower Downtown (LODO) area for two- or three-hour periods during weekdays (when parking meters usually require payments) over a three-week period from April 2 to April 20, 2018. The selection of block faces and observation time was based on a sampling strategy derived from 2015–2016 parking meter transaction data provided by the City of Denver and represented two peak and one off-peak periods during the day, as well as locations with different occupancy rates in the area. We observed or computed the following variables: time of vehicle arrival, departure, payment start time, payment amount (or lack of), payment on the meter prior to arrival, and payment left on the meter at departure. We observed 914 parking events, of which 567 had enough information to use in the analysis.

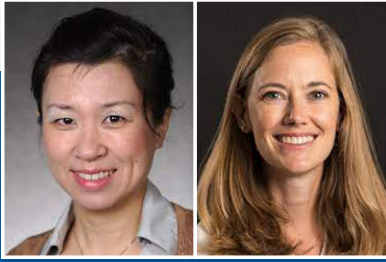


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## Project Title

Testing Irrationality in  
Metered Parking Payment  
Compliance

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## the FINDINGS

The study showed that of the 567 parking events we observed in the LODO area, only 2% (n = 13) were paid exactly correct (and two of these stayed for less than one minute and paid nothing), 51% (291) were overpaid, and 34% (191) were underpaid. The remaining 13% (n = 72) did not have enough information for us to determine payment accuracy.

When drivers underpaid, it was for an average of 19.38 minutes (\$0.32), and when drivers overpaid, it was for an average of 30.68 minutes (\$0.51). Note that even if we relaxed the definition for accuracy to include approximately accurate payment, including events underpaid or overpaid by five minutes or less, only 19% (108) of drivers crossed this threshold as making approximately accurate payments.

## the IMPACT

Our findings have two implications. First, we argue that it is unfair and unwise for the system to punish drivers for inaccurate payment. The use of deterrence in this context is unjustified. Furthermore, the expectation that pricing on-street parking meters can manage demand is based on faulty assumptions of rational decision making. Instead, parking systems should use available technology to switch to an automatic system that eliminates the need for drivers to estimate their parking duration. In this scenario, parking pricing would be fairer and better equipped to manage parking demand.

For more information on this project, download the Main report at <https://www.ugpti.org/resources/reports/details.php?id=1102>

For more information or additional copies, visit the Web site at [www.mountain-plains.org](http://www.mountain-plains.org), call (701) 231-7767 or write to Mountain-Plains Consortium, Upper Great Plains Transportation Institute, North Dakota State University, Dept. 2880, PO Box 6050, Fargo, ND 58108-6050.



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