PRICING PROMINENCE

Research reveals the effect of public parking fees and fines in U.S. cities.

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Off-street parking prices—not meter prices, fines, or time limits—appear to affect whether people drive or use transit. Parking supply and cost may influence how often people choose to use public transit, but without large-scale data, little can be said conclusively. Free worksite parking is associated with a higher probability that workers will drive alone rather than use transit, and where the parking benefit is monetized (or cashed out), people will use alternatives such as carpool when there are few or no transit alternatives.

Research shows a driver is more likely to use an automobile to travel to work, even when transit is convenient, if he or she has a designated parking space at home. Most of these studies focus on just one city or worksite and no study has looked at the balance between revenue-raising activity for local authorities, the desire to avoid deterring visitors (and damage urban vitality), and the need to manage transport demand. Hence, the use of parking fees and fines to ensure smooth functioning of the transportation system is not well understood. Furthermore, the level at which fees and fines become meaningful management levers, assuming such a threshold exists, is unexplored. The lack of large-scale data on public parking fees and fines and public planning that relates to parking has hampered such analysis.

To address that lack, we asked public parking agency representatives in cities across the U.S. to report on parking conditions and characteristics in their jurisdictions. Survey questions covered fines for various parking violations, fees for on-street metered parking and off-street parking, and maximum time periods for on-street parking; 107 city parking supervisors responded. Some data, such as off-street midday and daily rates, were supplemented from secondary sources, as parking lots are frequently managed by private entities and city employees have limited working knowledge of rates.

We matched 2010 parking policy data with public transit passenger miles traveled in 2009. U.S. Census data from 2000 provided city population density (population per square mile of land), percentage of the population in poverty, retail sales per capita, and number of firms. The transit data are from the National Transit Database but compiled by the Texas A&M Transportation Institute and published in its *Urban Mobility Report*.

In addition, because density is known to influence walk trips, prevalence of transit, and intensity of parking and transit demand, we created a city-level indicator for population density. Approximately 6,000 people per square mile is the density at which a significant decrease appears in vehicle miles traveled and the density at which public transit becomes more feasible to sustain at higher frequency of service. We used this as the threshold to define high or low density for cities in the study.


3 HOUR
PARKING
9A.M. TO 6PM
NO
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TABLE 1		
Item	High-Density Cities	Low-Density Cities
Off-street/day	$17.00	$10.00
Off-street/hour	$6.00	$3.00
Meter/hour (median price)	$1.25	$1.00
Meter maximum time (median)	2 hours	2 hours
Parking fines (handicap space violation)	$190.00	$225.00
Expired meter fine (median)	$33.00	$20.00

Parking Rates

Among the 107 cities in the sample, 45 percent (48 cities) had relatively high-cost parking. Parking fees and fines varied consistently across high- and low-density cities (see Table 1). We found reliably higher fees and fines in high-density cities. In some cases, the differentiation was so strong that the lowest fines and fees in dense cities exceeded the highest fines and fees in low-density cities.

Only 36 percent of low-density cities had any high fees and/or fines for parking, while 67 percent of high-density cities were in the highest category for some fee or fine (Table 1). Hourly fees at on-street parking meters were low; the median meter price is $1 per hour. In high-density cities, the median meter price is $1.25 per hour; only about 10 of the largest cities surveyed had fees that were $2 per hour or more.

Off-street parking fees were low for low-density cities: Median midday hourly and all-day rates were less than $3 per hour and $10 per day, respectively; fees in higher-density cities with better transit and more transit use were approximately double—$6 per hour and more than $17 per day, respectively.

The average meter time limit for the central business district was two hours. Midday peak meter occupancy rates were 85 percent in high-density cities and 76 percent in low-density cities (but only 60 percent of cities reported meter occupancy). High-density cities had twice as many meters per capita than smaller cities (11 per 1,000 people vs. five per 1,000 people, respectively).

Fines

Parking in a handicapped space incurred the highest fines—approximately $200—with fines in five cities exceeding $440. Fines for fire hydrant/fire lane parking were approximately $50 (more than $115 in five cities). Fines for handicapped and fire hydrant violations did not differ by city size and were not correlated with oth-

er violations. The highest fines for prohibited parking, expired meter, and overtime parking violations averaged approximately $35 in high-density cities and $25 in low-density cities (of these, prohibited parking had the highest fines; five cities maintained fines of more than $80 for parking in a no-parking zone).

Transit Use

Transit use is positively correlated with off-street daily parking rates. Exploratory linear regression models confirmed this relationship. Looking only at high-density cities and taking account of state gas price and city economic variables, including prevalence of poverty, retail sales per capita, and number of firms, we found higher parking cost to be associated with a 2.3-fold increase in per-capita public transit passenger use. At the same time, we found little or no association with transit use and parking fines, nor did we find any for low-density cities, presumably because parking costs are too low to matter.

In sum, parking fees and fines varied by city size, particularly for off-street parking where larger cities charged approximately $3 more per hour and $7 more per day. Most on-street meters allowed parking for up to two hours and had fairly low fees regardless of city size and density. Fines for violating parking regulations varied widely; handicapped parking violations far exceeded fire hydrant/lane and other fines for parking violations. Transit miles were positively correlated with off-street daily parking rates and, to a lesser extent, cities that ranked highest for at least one fee or fine had more per-capita public transit miles.

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What It Means for Cities

Our analysis shows a clear relationship between more costly off-street central business district parking and public transit use in denser cities. We have not shown the causality; it is possible that raising parking cost does not lead to more transit ridership directly but that instead the same conditions (such as high density) that foster transit use also lead to high parking costs. Other studies have linked free/reduced-cost worksite parking and/or residential parking availability to higher driving probabilities and lower transit use; curbside meter and violation costs have not systematically been linked to travel mode.

In this study, results were adjusted for state-level gas prices and city-level economic features; however, there are myriad interrelated factors not included in these analyses that could contribute to high private vehicle use and relatively low use of public transportation in the U.S. Other factors, such as state- and local-level land use and transportation policies, access to transit, and transit costs, may also explain the observations and the low cost of parking. Ready availability in low-density locations may account for the lack of an association in smaller cities.

Nevertheless, there are two main points to take from this analysis: Where prices better reflect market conditions, pricing affects the choice between transit and driving. On the other hand, high variability across similar cities and irrational consistency (such as meter rates being very similar regardless of other factors) show that many cities are not managing their parking to best advantage. This is an area in which cities can take cues from San Francisco, Seattle, Pasadena, and Washington, D.C. These cities have reviewed their legacy parking policies and specifically price their parking to achieve broader transportation and economic objectives.

Conclusions

While we conclude that parking policies could play a stronger role in rebalancing travel choices, optimizing across transit, automobile, and active transport modes (walking and cycling), numerous challenges exist to implementing innovative policies. Some parking policies are too costly to enforce (an example is overtime meter violations that require frequent inspection) and general dependence on automobiles has fostered fierce opposition to increasing the costs of parking, making the political cost difficult to overcome—even though to do so may, in fact, increase the convenience.

In many cities and regions, there is high fragmentation of parking and transportation decision-making. Some difficulties encountered while collecting data for this study serve as a small-scale exemplar of city-level fragmentation: There were multiple agencies (and in some cases, private entities) involved with data related to public parking, and most parking and public works officers knew very little about land use development/zoning for parking or employer cash-out policies or even revenues generated from parking.

The baseline data reported here can be used to compare future parking data and potentially assess effects of parking and/or transportation policy on changes in transportation behaviors. This work sets the stage for future studies that could examine synergies between incentives and disincentives related to better managing cities by better managing parking.

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