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# CHAPTER 7

## PARKING PRICING

Michael Manville

### ABSTRACT

*Purpose – Drawing primarily on examples from the United States, this chapter explains how cities often misprice street parking, and the consequences that flow from that mispricing. The chapter then discusses progress toward charging market prices for street parking. In particular I examine equity- and fairness-based objections to market prices and find that most of these objections do not withstand scrutiny*

*Methodology/approach – I present street parking as an example of price controls, and use a sample of American cities to show that many street parking regimes exhibit the four hallmark consequences of price ceilings: shortages, misallocation, search costs, and shadow markets.*

*Findings – Most parking in American cities is free or underpriced (relative to nearby off-street parking), which creates the conditions for cruising and the justification for minimum parking requirements. Contrary to perceptions, off-street parking in US downtowns is usually available – most garages have at least 20 percent vacancy. Lastly, on-street parking charges are often lower than round-trip transit fares, even though drivers are on average more affluent than transit riders.*

*Practical implications – The chapter demonstrates the logical inconsistency of keeping street parking free, as well as the practical problems*

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*that arise by doing so. It also addresses the common concerns that dense areas have insufficient parking, and that accurately priced street parking would burden low-income people.*

*Originality/value of paper – By using the price control framework, the chapter provides a novel way to think about parking pricing, one that emphasizes the distortions created by governments' refusal to price their valuable street space. The chapter also provides new evidence about the relative prices of on- and off-street parking, and the burdens of parking charges relative to charges for transit.*

**Keywords:** Parking; pricing; land use; public finance; markets; cruising

The history of parking pricing in the United States, and indeed most of the world, is one of price controls, or no prices at all. In this chapter I focus on the United States, but the broad picture I paint applies to most cities around the globe, although the details of course change. Suppose you drive into Manhattan and park on 116th Street near Morningside Drive. This is not the most expensive part of New York, but it is nevertheless home to Columbia University, a bustling park, and many businesses and residents. The area's property values reflect its wide variety of people and activities. In the Census tract where you are parked, the median value of an owner-occupied home is almost \$835,000. The average apartment rent is \$1,700 per month.

Now suppose a few days earlier you had parked on Main Street in downtown Bozeman, Montana. Bozeman is beautiful. Yet while it offers some amenities New York lacks (mountain air, moose sightings, fly-fishing), on balance a person in Bozeman has access to fewer opportunities than a person in New York. As such, the demand to live in Bozeman is lower, and so too are housing costs: the median home value is \$269,000, while average rent is \$826. Perhaps none of this is surprising: the way a property's surroundings determine its value – “location, location, location” – is now a tired cliché. Prices rise with access to destinations.

Yet not all real estate adheres to this rule-of-thumb. If location matters, your Manhattan parking space should cost more than your Bozeman space. The world outside your car door on Morningside Drive is bigger and faster than the world on Bozeman's Main Street. But New York City

offers you this Manhattan space, which has a vastly greater *value* than the Bozeman space, for exactly the same *price*, and that price is zero. One-hundred-seventy square feet of New York real estate is yours for nothing, so long as you bring a car. Nor is that all. The price of parking on both Morningside Drive and Main Street is never *not* zero, even though the value of each space undoubtedly fluctuates by day and by hour.<sup>1</sup> In Manhattan and Bozeman alike, a parking space offers access to more opportunities at midday than midnight, and on a weekday than a weekend. Anyone who doubts this can simply watch prices rise and fall in private off-street garages, with their early-bird specials, evening and weekend rates, and higher prices during special events. The price on the street, however, doesn't change.

Were we to price other forms of real estate this way – if housing in New York and Bozeman were always and everywhere free, or if its price never changed – chaos would ensue. Of course this couldn't happen. Many different people own housing, and good luck convincing any of them – let alone all of them – to give it away. In the world of parking, however, the most convenient, ground floor real estate – the curb – is owned by single monopoly providers: city governments. And these governments overwhelmingly give this real estate away for free. Even when they don't, they often charge prices based on the amount of revenue they hope to collect, not on a desire to effectively manage street spaces and deliver a high-quality service to drivers. The resulting system serves neither drivers nor residents nor city governments well, and it has consequences that reverberate throughout the urban economy.

Again perhaps this is not surprising. Anyone who has suffered through an economics class has learned (or at least been told) that bad things happen when governments divorce price from value. Policies that hold down prices yield four predictable results: shortages, misallocation, high search costs, and shadow markets (the cost of the unpriced good end up in the price of other goods). The canonical examples are Soviet breadlines, America's gasoline price controls of the 1970s, and rent controlled housing, especially in New York City. Certainly these examples fit the bill. But they are also rather exotic, and students reading about them might wonder if price controls even exist anymore. The Soviet Union and the 1970s are both long gone. Rent control, for better or worse, is a dinosaur lumbering toward extinction. Fewer than two percent of US local governments have any sort of rent control, and even in New York City, where almost 2/3 of the housing stock is subject to rent regulation, only two percent of the housing stock has an actual hard price ceiling (Arnott, 1995).

By contrast, *every* city in the country, *right now*, keeps most of its street parking free or underpriced. (Every city also keeps its streets and roads free, which is a related and highly relevant topic but best reserved for another essay). Gasoline price controls were a temporary response to a temporary crisis, and they badly distorted driver incentives. Parking price controls are an ongoing policy, enacted in response to no crisis, that also badly distorts driver incentives. Rent controlled housing might be on its way out, but the United States, and in fact most of the world, operates a large rent control program for cars, with textbook results. First, when demand is high, curb parking spaces rapidly fill up (shortages). Second, drivers who urgently need spaces and who would pay high prices to park for just moments cannot do so, while people who place little value on spaces can luck into them and remain parked for hours (misallocation). Third, drivers who arrive to find no vacancies often choose not to pay for the more-expensive, uncontrolled off-street spaces, and instead circle the block in the hope that someone leaves. This behavior results in extra driving, extra congestion, and increased pollution (high search costs). Fourth, cities, faced with these problems, force all new developments to provide off-street parking. In essence, cities create problems by refusing to manage parking on their public streets and then react and create more problems by forcing developers to provide parking on private property. The costs of the controlled good spill into the uncontrolled sector. The price of development rises to keep the price of parking low, and people pay for street parking in the price of housing and other goods (shadow markets).

Several scholars have described street parking as a tragedy of the commons ([Epstein, 2002](#); [Guo & Xu, 2012](#); [Shoup, 2006](#)). I don't disagree with that interpretation, and my argument here is compatible with it. Street parking spaces are rival but not excludable, and left unpriced they can be overused. But suggesting that street parking is a commons risks lending it a complexity it doesn't deserve. Commons problems are difficult to solve when property rights are hard to establish. But unlike the air or the oceans (or the fish in the oceans), parking spaces are visible, tangible, immobile, and controlled by a single jurisdiction. I use the lens of price controls because I want to emphasize that governments have *chosen*, even if only through inaction, to keep curb spaces free or cheap. Efforts to price roads and parking spaces are often met by protests about unjust government interference. Yet the decision to keep a public service free is a decision. Sometimes this decision is warranted, sometimes not. In the case of parking it has caused no end of trouble.

## THE SCARCITY OF PAID PARKING

Why is most curb parking free? It's a good question. Parking spaces are land, and most land isn't free to users, but most parking spaces are. One could argue that parking spaces are a particular kind of land – public infrastructure, a utility – but most utilities aren't free either. Water and electricity and fuel are all metered, while most street parking isn't. Perhaps parking is more akin to libraries than utilities. Certainly cities treat some parking spaces like library books: the government supplies them at no charge, and asks users only to give them up after a reasonable period, or else pay a fine. But free libraries encourage the accumulation of knowledge, making society as a whole better off. Free parking encourages more driving, which makes some drivers better off but leaves society – through congestion and pollution – worse. And of course many street parking spaces are neither priced nor time-limited. To be sure, some street spaces are free because free is the right price: in places where few people want to park, pricing makes little sense. Yet this does not describe many streets in cities large and small, where people often complain about congestion at the curb.<sup>2</sup>

At the simplest level, cities keep curb parking free because it has been free for a long time, because most voters are drivers, and most drivers like the status quo of free street parking. This explanation, while doubtless valid, only raises the question of why parking has been free for a long time. After all, most voters are water and power users as well, but no one revolts against water meters. To my knowledge no systematic examination of this topic exists, but I can speculate. I think parking meters have occupied an unusual place in both public opinion and public finance, and this position has led their pricing astray. Most utility charges are collected quietly (the water meter is in the basement, not mounted in the shower, and the bill only comes once a month), and often by government agencies that finance themselves exclusively via those collections. The charges are not salient, and even when they are, users often understand that the money they pay finances the utility itself. No one therefore has strong incentives to reduce or cease pricing. In contrast, drivers directly feed parking meters, often with cash, every time they park, and the revenue disappears into the city's general fund. Voters are thus both more aware of parking charges and more likely to resent them, and elected officials more likely to see meters as sources of revenue rather than instruments of allocation.

This last mistake – seeing metered parking primarily as a path to revenue – is costly. Parking charges are rent for using space, and the



economic benefits of rent come from collecting it, not in how its revenue is used. Housing rents allocate housing units, regardless of how landlords spend the proceeds. Water companies don't meter because (or entirely because) they need to cover costs.<sup>3</sup> They meter to prevent people from turning on the tap and then leaving for hours without turning it off. Collecting the rent yields social benefits; the revenue is a byproduct of the socially beneficial activity. With parking, somewhere this distinction got lost. Because cities and voters alike see parking meters as revenue tools, it has always been tempting to defer rate increases, or to think that removing prices would do users a favor. It is hard to imagine an electric utility, in anticipation of a record heat wave, announcing that all electricity will be free. Yet during the holiday shopping season many city councils declare "meter holidays" in their downtowns, eliminating parking prices and inviting shoppers to experience a shortage.<sup>4</sup>

Just how much curb parking is free or underpriced? Table 1 shows, for 20 American cities, the number of paid street spaces, the number of centerline miles of street, and the ratio of paid street spaces to centerline mile. Interpreting these ratios is difficult. A centerline mile of street is what it sounds like – the linear distance of street as measured from the middle of the road. A street parking space is typically 20 feet long, so if every foot of centerline was part of parking space, and every street had parking on both sides, then the maximum ratio of paid spaces to centerline mile would be 528 ( $5,280 \times 2 \div 20$ ). As the table's third column shows, no city comes remotely close to this ratio. The average number of paid spaces per centerline mile is 6.5; even San Francisco, which stands out for having 35 paid street spaces per centerline mile (over 5 times the sample mean), still prices less than one-fifteenth of its street spaces.

The denominator in this calculation, however, is not realistic. Many centerline miles of street cannot or do not hold parking spaces. Street-miles are interrupted by intersections, driveways, curb cuts, bus stops and loading zones. Some streets are too narrow to hold parking on one or both sides, and many cities ban parking on some wide streets to prioritize vehicle flow.<sup>5</sup> So what is the correct denominator – what share of street-miles hold parking spaces? The only American city for which we can answer that question is San Francisco, because San Francisco completed a parking census in 2010. The census found that the city had 280,000 on-street spaces, or 329 spaces per centerline mile. Thus the city's actual count of parking spaces was about 62 percent of its theoretical maximum, and the city priced about 11 percent of its street spaces ( $35.3 \div 329$ ). In other words, even after

**Table 1.** Incidence and Distribution of Paid Parking, Select US Cities (2013).

City	Paid Street Parking Spaces	Centerline Street-Miles	Paid Spaces/Centerline Mile	Percent Parking Priced	Max. Hours Paid Parking	Max. Days Paid Parking
Atlanta	2,500	1215	2.1	0.8	12	6
Boston	7,000	785	8.9	3.4	12	6
Charlotte	1,100	2,400	0.5	0.2	24	7
Chicago	36,000	4,000	9.0	3.4	24	7
Cincinnati	4,979	985	5.1	1.9	11	6
Columbus	4,215	2,053	2.1	0.8	13	6
Dallas	4,513	3,538	1.3	0.5	12	6
Denver	6,300	1,860	3.4	1.3	24	6
Houston	7,000	5,700	1.2	0.5	11	6
Indianapolis	3,700	3,000	1.2	0.5	14	6
Los Angeles	40,000	6,500	6.2	2.3	12	6
Miami	9,300	663	14.0	5.3	12	7
Minneapolis	7,000	1,081	6.5	2.5	18	7
New York	85,000	6,300	13.5	5.1	14	6
Philadelphia	9,843	2,525	3.9	1.5	12	6
Phoenix	2,300	4,837	0.5	0.2	8	5
Pittsburgh	9,000	1,031	8.7	3.3	10	6
Portland	9,700	2,062	4.7	1.8	11	7
San Diego	5,200	2,800	1.9	0.7	10	6
San Francisco	30,000	850	35.3	13.4	13	7
San Jose	2,600	3,334	0.8	0.3	13	7
Seattle	13,000	1,677	7.8	2.9	12	6
Washington, DC	17,000	1,392	12.2	4.6	15	6
Mean			6.5	2.5	13.8	6.3

Source: Author’s research. “Percent parking priced” assumes that half of a city’s centerline miles are street parking spaces.

adjusting the data, the city with the *most* paid parking nevertheless kept almost 90 percent of its street spaces free.

Can we assume San Francisco’s denominator applies to all cities? On the one hand, San Francisco is unlike other cities: with its density and older street grid, it probably has more transit stops and intersections than most other municipalities. Yet these characteristics might be cancelled out if San Francisco also has fewer curb cuts and driveways, since fewer of its buildings have off-street parking. Further, cities that have plentiful

off-street parking, such as Phoenix, may be more likely to ban street parking on major arterials.

Because there are no data to help answer this question, I will be conservative and simply cut the theoretical maximum in half, and use that to (roughly) estimate the share of street parking that cities price. Thus in the fourth column of [Table 1](#) I assume cities can have a maximum of 217 spaces per centerline mile, and then derive the share of street spaces that are priced. I emphasize again that this estimate is crude, but the results are nevertheless astonishing. On average, the cities price only *2.5 percent* of their street spaces. After San Francisco, the cities that price the greatest share of their street spaces are New York and Miami, at 5 percent each. Nine cities price fewer than 1 percent of their street spaces; Phoenix prices two-tenths of one percent of its street parking.

Even the priced spaces are not priced all the time. Sometimes these spaces are free because there is no demand for them, or because parking isn't allowed overnight. But many cities turn off their meters on weekends regardless of demand, and charge no evening prices in neighborhoods full of restaurants, theaters, and nightclubs. Columns 6 and 7 show the maximum number of hours per day, and days of the week, that the city charges for street parking. Note that this is the maximum and not the mode: in most places parking is priced for fewer hours, and sometimes on fewer days. For example, parking is priced all day every day in Chicago's Loop (the densest part of the Central Business District), but most of the city's parking is priced only ten hours a day. Likewise Charlotte maintains 24-hour pricing only on South Boulevard: everywhere else it prices parking 5 days a week, from 7 a.m. to 6 p.m. Yet even using these inflated figures, in 12 of the 25 cities priced spaces are free at least half the day, and in 20 cities priced spaces are free on Sundays. Since these estimates are biased upward, it is reasonable to conclude that most street parking spaces are not priced, and that most priced spaces are still free most of the time.

## THE CONSEQUENCES OF LOW OR NO PRICES

Street parking is the ground floor real estate of parking. Because it offers the best proximity to most destinations (and the greatest ease of arrival and departure), it should command the highest price per hour. As such, most people should therefore consume street parking in relatively small increments of time. Cities should see rapid turnover in higher-rent street spaces,

and longer parking durations in off-street spaces where per-hour rates are lower. When cities price parking below its market value, however, they upset this logic, because the more valuable street spaces become cheaper than the less valuable garage spots. At this point the unfortunate chain of events I described earlier begins: more people want spaces, for longer periods of time, than there are spaces to sell for those durations. A shortage results, and the shortage is compounded by misallocation. Drivers arriving to find a full street almost always have the option of pulling into an off-street lot, but the off-street parking is not price-controlled and therefore comparatively expensive, while the street parking – though unavailable – is cheap or free. To drivers, the price of the less-desirable off-street parking seems too high, when in fact the problem is that the price of the more-desirable on-street parking is too low.

This imbalance between on- and off-street prices leads drivers to skip garages and circle the block in search of street parking, a behavior called cruising. Table 2 illustrates cruising's benefits for drivers. The table shows, for the CBDs of 25 American cities, the highest price for one hour of street parking, and then the low, median, and high prices for one hour of off-street structured parking. (I gathered the on-street data; the off-street rates are from Collier's International (Cook & Simonson, 2012).) The on-street prices are the highest the city charges at any time – thus the \$5 for New York represents a Friday night in Greenwich Village, not the lower rates that prevail in most places most of the week, and the \$6.50 in Chicago represents the peak time and place as well. Yet even biasing the street parking price upward in this way, in over half the cities the *lowest* price in an off-street CBD structure is higher than the *highest* CBD price at the curb. In *every* city the highest on-street price is lower than the median off-street price.

The median return to cruising for someone who parks for an hour is the highest on-street price subtracted from the median off-street price. It ranges from 42 cents in Little Rock to \$14 in New York City; across all cities in the table returns to cruising average just over \$4. Thus a driver in downtown Philadelphia knows the least he will pay is \$9.50 for an hour in an off-street structure, while in half the garages he will pay \$13 or more. If he keeps circling the block, however, he could get lucky and pay only \$2.00. His median return to cruising is approximately \$11.00 an hour.<sup>6</sup> For many people in this situation, cruising is entirely rational.

A series of rational actions, however, can add up to a profoundly irrational outcome. Many drivers circling the block for even short periods can generate vast amounts of excess travel and congestion. Shoup (2006)

**Table 2.** Returns to Cruising in American CBDs (2012).

City	Highest Meter Rate (\$/Hr)	CBD Hourly Off-Street Parking Rates			Median Return to Cruising	CBD Off-Street Occupancy (%)
		Low	Median	High		
Atlanta	2.00	\$1.00	\$4.00	\$8.00	\$2.00	60–80
Boston	1.25	\$6.00	\$12.00	\$26.00	\$10.75	60–80
Charleston	1.00	\$1.00	\$2.00	\$4.00	\$1.00	>80
Chicago	6.50	\$10.00	\$19.00	\$28.00	\$12.50	60–80
Cincinnati	2.00	\$1.00	\$3.50	\$6.50	\$1.50	60–80
Columbus	1.00	\$1.00	\$3.00	\$8.00	\$2.00	60–80
Dallas	1.50	\$1.00	\$4.60	\$10.00	\$3.10	60–80
Denver	1.00	\$2.00	\$8.00	\$10.00	\$7.00	60–80
Hartford	1.00	\$2.00	\$3.00	\$5.00	\$2.00	<60
Houston	2.00	\$3.00	\$4.50	\$13.00	\$2.50	>80
Indianapolis	1.50	\$1.00	\$5.00	\$13.00	\$3.50	>80
Little Rock	1.00	\$1.09	\$1.42	\$1.50	\$0.42	>80
Los Angeles	6.00	\$1.00	\$12.50	\$25.00	\$6.50	60–80
Miami	1.50	\$3.00	\$5.00	\$6.00	\$3.50	60–80
Minneapolis	2.50	\$2.00	\$4.00	\$8.00	\$1.50	60–80
New York	5.00	\$7.00	\$19.00	\$40.00	\$14.00	60–80
Oakland	2.00	\$2.25	\$4.00	\$6.00	\$2.00	60–80
Philadelphia	2.00	\$9.50	\$13.00	\$17.00	\$11.00	60–80
Phoenix	1.50	\$2.00	\$3.00	\$3.00	\$1.50	60–80
Portland	1.60	\$1.50	\$5.00	\$12.00	\$3.40	60–80
San Diego	1.25	\$6.00	\$8.00	\$10.00	\$6.75	>80
San Francisco	5.50	\$2.50	\$10.00	\$18.00	\$4.50	60–80
San Jose	2.00	\$2.25	\$3.00	\$3.75	\$1.00	60–80
Seattle	4.00	\$5.00	\$9.00	\$13.00	\$5.00	60–80
Washington, DC	2.00	\$9.00	\$11.00	\$12.00	\$9.00	60–80
Average	2.34	\$3.32	\$7.06	\$12.27	\$4.72	

Sources: Author's research and Cook and Simonson (2013).

estimated that in the Westwood Village neighborhood of Los Angeles, drivers cruised for an average of just over three minutes each, and traveled about a half mile – but this cruising added up to 260 hours of excess travel and 3,500 excess vehicle miles driven per day. Most of this travel is pure social waste. Travel is valuable to society when people get where they need to go – to school or work or other activities. Cruisers, however, are not going anywhere. They have already arrived, and are just searching for a place to park.<sup>7</sup> Because they are searching while driving, cruisers are also distracted: they move slowly, start and stop, hover between lanes, watch

the curb instead of the road, and hold up the traffic behind them (including transit vehicles).

Often these drivers' frustrations are needless: they are circling neighborhoods where parking is plentiful. The final column of the table shows, for each city, the average occupancy in CBD parking structures. In 20 of the 25 CBDs, the structures are usually less than 80 percent full. Thus mispricing leads drivers to orbit empty garages while complaining about a shortage of parking.

If cities priced street parking correctly, many circling vehicles would find homes in these structures. Cities, however, have adopted a different solution for cruising: minimum parking requirements. Much has been written about these laws, including a full chapter in this volume, so I won't belabor them here. There is by now ample evidence that places with higher parking requirements have higher vehicle densities and lower housing densities (Manville, Beata, & Shoup, 2013); that parking requirements increase both vehicle ownership and driving (Guo, 2012, 2013; Weinberger, 2012); and that they limit infill development, prevent the reuse of older buildings, and make lower-priced housing difficult to construct (Manville, 2013). There is no need for me to retread these arguments here.

I will make only two points. First, there is little evidence that minimum parking requirements accomplish their nominal purpose, which is to decongest the curb. So long as street spaces are free, many people will want them; only after street spaces are full will drivers migrate toward off-street parking. We see evidence of this in the vacant CBD garage spaces in Table 2. Guo and Xu (2012) discuss residents of New York City (of all places!) who have garages but nevertheless jockey for street space, because it is more convenient, and lets them use their garages to store household goods.

The second, related point is that for all the damage they do, minimum parking requirements are not the core problem of urban parking. They are instead a poor solution to the core problem. Minimum parking requirements are cities' response to a different problem they have caused – mispriced, and therefore congested, street parking. Mispricing on the street is the central problem of urban parking; it is the original distortion from which the other distortions flow. When cities price street parking correctly, no one will have an incentive to search for cheap or free curb space. Curb spaces will be available, but they will be available precisely because they *aren't* free. And when a few curb spaces are always available, the justification for minimum parking requirements will disappear. Thus to solve the problem at its source, cities must charge the right price for street parking.

## TOWARD MARKET PRICES FOR CURB PARKING

Researchers generally recommend that cities price their curb parking so that one to two spaces are always available on a block. At this price an arriving driver can always find a space, but most spaces are occupied most of the time. If we think of parking as a commodity, the right price is one where any willing buyer finds a seller and sellers are not saddled with excess inventory — a few spaces are always open but most are full. One might argue in response that parking should not be a commodity. I will not fully address this objection; certainly markets are not the proper allocation mechanism for everything. But the harms from not pricing parking are large, and philosophers who argue against market allocation often do so for goods with long time horizons and considerable uncertainty, like human organs or votes or health care. Parking spaces do not meet these criteria. Indeed, there is already a vibrant market in off-street parking, which few people object to. Lastly, not charging people money for parking often means charging people in time. Money has the advantage of being fungible. Cities can reinvest the revenue from parking charges, even return some of it to drivers. Time, once spent, is gone forever.

Certainly voters like free parking and dislike the idea of paid parking. But experience with congestion charges on roads suggests that voters who initially dislike pricing grow to appreciate it once it is in place, because it works: congestion does in fact decline (i.e., [Harsmann & Quigley, 2010](#); [Santos, 2008](#)). Drivers pay, but they get something in return: reliable travel on uncongested roads. In principle, the same should be true of market-priced parking. The challenge, therefore, lies in initial implementation: how to win approval for performance pricing? [Shoup \(2005\)](#) argues that cities can win acceptance for priced street parking through astute use of the revenue. He proposes that cities dedicate parking revenue to the neighborhoods where the meters are located, and use it to finance public services that neighborhoods value. Thus while revenue is not the economic purpose of metering (allocation is), cities can use revenue to build political support for pricing. Market-priced parking that finances public improvements can let cities deliver excellent service to people driving *to* neighborhoods and people who live and work *in* neighborhoods.

Market prices should be dynamic: rates should change with the time of day, day of week, and time of year. Cities planning to charge market prices must therefore upgrade their meters. Meters now accept credit and debit cards as well as municipal “smart parking” cards (a sort of local debit card that can, among other things, let cities charge residents less to park on their

own streets, which helps local build support for more meters). Almost all new meters let drivers pay via mobile phone. Meter pay stations can accept payment for up to 20 parking spaces, allowing cities to price parking in places that lack room for many single-space meters, or in places – such as historic districts – where people think meters are aesthetically inappropriate. Some meters are solar powered, and there are even “mobile” meters, like E-Z passes, that drivers can load with money and simply hang from their rearview mirrors. All these meters rarely break down, and when they do they communicate with central servers to alert municipal officials. Cities can also deploy these meters in conjunction with sensors embedded in the pavement below parking spaces. The sensors track occupancy and can help cities determine the correct prices for different neighborhoods at different times, and can also make parking enforcement more efficient, by identifying areas where many vehicles are parked but few are paying.

Despite this technological progress, many medium-sized and smaller American downtowns continue to use older coin-operated devices, for the simple reason that newer machines are expensive. Pay station kiosks, for instance, cost between \$7,000 and \$8,000 apiece. Because each kiosk replaces five or six regular meters, and lasts about ten years, they should pay themselves back, at least in cities of some size. But many cities lack the money upfront to invest in them. These cities continue with older meters that break easily, require coins, and cannot charge different prices at different times.

In the past decade large cities have begun modernizing their meter stocks, in three ways. Some have invested their own funds, others – most notably Los Angeles and San Francisco – have buttressed their own spending with grants from the federal government, and two others (Chicago and Indianapolis) have privatized their meters. In 2008 Chicago leased its spaces to a private consortium for 75 years. The consortium agreed to install modern meters and pay the city about \$1 billion upfront. In return, the consortium is entitled to all the revenue from the meters over the 75-year period. At the end of the 75 years, the consortium returns the meters to the city. In Chicago’s wake, Sacramento, Cincinnati, and some smaller cities have also considered meter privatization.

Chicago’s lease has been controversial, largely because critics believe the city negotiated poorly: over the course of 75 years, the consortium is expected to net \$9 billion, for an initial investment of \$1 billion plus the meter upgrade. To critics, this amounts to a massive giveaway. I am inclined to agree with that assessment, but there is nothing about privatization that says cities must negotiate poorly – Indianapolis, for example, seems to have driven a harder bargain than Chicago. My concerns about



meter leases are different. My first worry is that these leases confuse markets with privatization; one needn't imply the other. Granted, a private firm may have more motivation to charge market prices, and privatization can give cities political cover if drivers grow angry over higher prices. For the next six decades, Chicago politicians can shrug helplessly when voters become irate about parking prices, and blame their predecessors who signed a binding contract from which they cannot escape. (This is not, I should emphasize, a small advantage). But a public agency can harness market forces. A city willing to take the plunge can charge market prices for its parking; it needs no help from the private sector do so.

Second, a publicly run market in parking might work better than a privately run market for the simple reason that the socially optimal parking charge might be different from the profit-maximizing charge. The goal of a private operator is to maximize revenue; the goal of a city operator is (or should be) to maximize *performance* – to ensure that spaces are available for drivers. Consider the difference between Chicago's pricing structure and that of *SFpark*, San Francisco's municipal experiment in market-priced parking run by the city government. When Chicago signed its lease in 2008, it agreed to pre-set rate increases for years going forward. The 2008 agreement, for instance, called for meter rates in the Loop to rise to \$6.50 per hour in 2013. These increases would occur regardless of actual demand. In San Francisco, by contrast, the city regularly evaluates occupancy rates and changes prices every two months based on the observed occupancy. It would be impossible for *SFpark* officials to know, as Chicago officials do, what the price in a given neighborhood will be 5 or 15 years hence. Yet this sort of demand-responsive pricing is possible because maintaining vacancy, not maximizing revenue, is the program's goal.

## PRICED PARKING AND FAIRNESS

Is it fair to charge prices, and potentially high prices, for a public resource? This concern takes two forms. First, people sometimes object that priced parking is a form of "double-taxation"; voters have already paid for spaces with their property taxes, so forcing them to pay each time they use a space is unfair. Second, voters object that the regressive nature of priced parking will harm low-income people.

The double-taxation argument confuses the provision of a good with its allocation. While it is true that cities use property taxes (and most likely

grants from higher levels of government as well) to construct parking spaces, the cost of constructing and maintaining spaces is wholly different from the price needed to manage demand for them. A house built in Bozeman sells for less than an identical one in New York, simply because more people want to live in New York than Bozeman. Similarly, cities use a combination of taxes, grants, and fees to construct water treatment facilities, sewer pipes, and power plants and power lines. Yet few people argue that water, gas, or electric meters are instruments of double-taxation. Nor do these services regularly disappoint. Roads and street parking spaces are the only forms of public infrastructure that fail from overuse multiple times a day. They are also the only form of public infrastructure we leave largely unpriced.

That said, we cannot simply dismiss the idea of double-taxation. The logic above has a surprising implication, which is that the double-taxation argument carries some weight if the city is charging a below-market price. If metering is justified because it allocates space properly and eliminates congestion, then the meter price must be high enough to actually accomplish those goals, or else drivers are not getting a service in return for their money. When parking prices are set to ensure some vacancy at all times, the meter price is a fee-for-service; the driver pays the city, and the city delivers an open space. When the price is too low but not zero, the driver gets the worst of both worlds — a fee with bad service. Drivers circle the block and are charged for their trouble. In these circumstances drivers can be forgiven for thinking they get nothing for something.

Increasing the price to the market rate can eliminate these concerns, although it does not remove the concern that parking prices might harm the poor. A parking charge is regressive (its burden falls proportionally more on people with lower incomes) so it would appear to violate horizontal and vertical notions of equity. At the same time, however, one pays a parking charge only if one in fact uses a parking space, so market-priced parking adheres to the “benefits received” or “user pays” principle of equity. Moreover, to the extent a parking charge is a pure fee-for-service, its regressivity is meaningless with respect to the distribution of income (Fischel, 2002). Suppose a person pays a private vendor the going rate for a parking space; most people would consider this a market transaction and think little of its equity impact. If the city took over the garage and charged the same price, would the transaction suddenly become a regressive tax? If so, then a transaction can become a regressive tax based on nothing but the identity of the revenue collector. This idea is incoherent. In the name of fairness, cities could privatize their meters, transforming regressive taxes into market

exchanges simply by transferring ownership. If a parking charge is a fee-for-service, it makes no more sense to call it regressive than it does to call purchasing a gallon of gasoline, or indeed purchasing a vehicle, regressive.

Even if we accept that a parking charge is regressive, it is regressive through the *driving* population, not the population at large. The poorest people tend not to drive at all (often they are on buses, being slowed down by people cruising), and richer people drive more than poorer people. Thus while free street parking gives some poor people some benefits, it gives affluent people much larger benefits. If we want to alter across-the-board prices to make travel less expensive for the poor, we would be better off increasing transit subsidies. Transit fares are also regressive, and transit riders are much more likely than drivers to have low incomes. Table 3 shows, for 20 American cities, the highest hourly rate for curbside parking and lowest transit fare (for cities that have rail systems, it is the lowest one-way rail fare, for other cities it is the lowest one-way bus fare). Although the average maximum one-hour parking price is 45 cents more than the average minimum transit fare, the parking price mean is biased upward by a handful of cities with expensive downtown parking. In 11 cities, the highest one-hour parking price is less than the lowest one-way transit fare. In 16 of the 20 cities, the highest one-hour parking price is lower than *two* one-way transit fares. These disparities exist even though, as the final four columns of the table demonstrate, solo drivers are twice as likely as transit riders to earn more than \$75,000 a year, and less than half as likely to be poor.<sup>8</sup> Further, it is worth considering what the parking charge and the transit fare can buy. In New York City, for example, a driver paying \$5 can occupy 170 square feet of land in Greenwich Village for an hour on a Friday night. A transit rider who pays the same amount gets a seat (and sometimes not even that) on two subway trips that could be as short as five minutes.

None of these points means that low-income people would never be burdened by market-priced street parking. The discussion does suggest, however, that the number of vulnerable people harmed might be small, and some further reflection suggests that the problem would be neither unique nor unsolvable. Water, heat, and electricity are certainly more important than curbside parking, and some low-income people cannot afford them. Yet we rarely look at this problem and decide that all water and heat prices are too high; we conclude instead that some people's incomes are too low. Rather than slash rates across-the-board, or keep all utilities free so the poorest can afford them, we identify vulnerable people and give them targeted assistance. I see no reason governments cannot do the same for street parking. Cities with smart meters could distribute special debit cards

**Table 3.** Parking Charges, Transit Fares, and Economic Characteristics by Commute Mode.

City	Highest Meter Rate (\$/Hr)	Lowest One-Way Transit Fare	Workers Earning Over \$75k		Workers in Poverty	
			Drive Alone (%)	Transit (%)	Drive Alone (%)	Transit (%)
Atlanta	2.00	\$2.50	26	6	7	22
Boston	1.25	\$2.00	24	12	6	11
Charlotte	1.00	\$2.00	17	9	6	21
Chicago	6.50	\$2.25	17	15	6	12
Cincinnati	2.00	\$1.75	14	3	10	29
Columbus	1.00	\$2.00	6	2	10	27
Dallas	1.50	\$2.50	10	4	8	23
Denver	1.00	\$2.25	15	5	9	22
Hartford	1.00	\$1.30	18	11	8	16
Houston	2.00	\$1.25	7	2	9	22
Indianapolis	1.50	\$1.75	16	7	9	24
Los Angeles	6.00	\$1.50	11	3	8	22
Miami	1.50	\$2.00	18	3	7	22
Minneapolis	2.50	\$1.75	11	2	10	27
New York	5.00	\$2.75	18	8	8	19
Philadelphia	2.00	\$2.25	22	18	4	8
Phoenix	1.50	\$2.00	12	7	6	13
Pittsburgh	3.00	\$2.50	14	6	7	17
Portland	1.60	\$1.25	17	9	8	11
Raleigh	1.00	\$1.00	17	4	7	23
San Francisco	5.50	\$2.00	35	27	3	7
San Diego	1.25	\$2.50	23	6	6	23
San Jose	2.00	\$2.00	29	18	5	14
Seattle	4.00	\$2.00	27	20	5	8
Washington, DC	2.00	\$1.25	36	26	3	6
Average	2.38	\$1.93	18	9	7	18

Sources: Parking and transit data gathered by author; earnings and poverty data from American Community Survey (2009–2011).

to low-income residents to help them pay. Better still, governments could provide low-income people with a more general transportation allowance that could be used for parking, gas, transit, bicycles or even walking shoes. A cash allowance would give the poor more choices and treat all modes equally. Such an allowance would not punish low-income people who drive, but would reward those who chose other modes, since they would have more cash remaining at the end of each month.

## CONCLUSION

Local governments around the world commit what [Shoup \(2005\)](#) calls a “sin of omission”: they fail to accurately price street spaces. The consequences that flow from this decision – and it is a decision – are negative and substantial. I have sought, in this chapter, to highlight not only the extent of underpricing and the severity of its consequences, but also its logical incoherence. It is neither uncommon nor unjust for cities to charge accurate prices for their resources. Pricing parking at its market value does not require cities to become private sector mercenaries, nor ignore the needs of their most vulnerable residents, nor become “anti-car.” Cities that charge the right price for parking are no more anti-car than Starbucks is anti-coffee. To the contrary, cities that price street parking accurately can deliver a high-quality service to drivers, finance other services for residents, and offer protection from the market for low-income residents who need it. There are legitimate debates to be had about the extent of markets in public life. But those difficult and necessary discussions do not include parking spaces. Parking spaces are valuable land, and cities should not give their valuable land away.

## NOTES

1. New York City does not meter its residential streets. Bozeman does not meter any streets.

2. For instance, a perfunctory online search can yield newspaper articles about curb parking shortages in New York City (population 8 million), Amherst, NY (population 122,000) and Ithaca, NY (population 30,000) (see [Santora, 2012](#); [Tan, 2013](#); [Lechtenberg, 2000](#)).

3. Water companies often use two-part pricing to simultaneously cover fixed costs and allocate use. I don’t mean to imply in this discussion that water companies and other utilities are models of efficiency; only that compared to street parking, these utilities are much more comprehensively priced.

4. [Hardin \(1968\)](#) first noted the counterproductive nature of meter holidays. [Fischel \(2005\)](#) argues that such holidays are actually efficient, although he bases that conclusion on rather strong assumptions.

5. Some cities have neighborhoods where only residents with permits can park on the street. While these spaces are not metered, they are not always free. However, the price is often negligible. An overnight parking permit in Beverly Hills, California costs \$111 a year, or 30 cents a day. Resident permits in Boston are free.

6. The return is approximate because cruising is not costless; it consumes time and fuel. Thus, drivers with lower values of time are more likely to cruise longer.

7. See Pierce and Shoup (2013) for estimates of the incidence of cruising.
8. Commuting data are not synonymous with travel data, that is, some people with vehicles may take transit to work. Commute data are, however, the most readily available travel data at the city level.

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