Off-Street Parking Policy:
Towards a Robust Market-based Alternative

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by

Paul A. Barter

Assistant Professor, LKY School of Public Policy, National University of Singapore, 469C Bukit Timah Road, Oei Tiong Ham Building, Singapore 259772
Tel: +65-6516 3324, Email: paulbarter@nus.edu.sg

Abstract

This paper addresses and extends upon the recent upsurge of interest in market-oriented reform of car parking policy, which has been reinvigorated by the work of Donald Shoup. His market-oriented approach to parking policy is shown to be the more ambitious of two distinct challenges to the conventional supply-focused approach. The other is 'parking management'. However, off-street parking and its post-reform dynamics have been neglected so far in market-oriented policy proposals which centre on efficient on-street parking pricing and on deregulation of the amount of off-street parking. I argue that fostering well-functioning off-street parking markets is a key part of the vision but that achieving it is likely to require a more vigorous policy effort. This conclusion is based on a review of barriers to the emergence of, and likely problems within, off-street parking markets. A potential policy approach aimed at shifting parking supply onto a healthy market basis could be called 'market-fostering'. The prospect of such an approach and possible features of it are briefly discussed.

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Abstract

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1. Introduction: Where next for off-street parking under market-oriented reforms?

Highly regulated parking supply and mispricing is the norm around the world but these arrangements are profoundly inefficient (Roth, 1965; Shoup and Pickrell, 1980; Button, 2006). They also tend to entrench excessive vehicle ownership and use and are thus implicated in a wide range of urban transport problems (Shoup, 2005). Parking policy seems ripe for profound change and interest is increasing in the possibility of market-based parking. Yet, reform along such lines has hardly started.

Car parking policy horizons have been widening through a recent resurgence of interest in market-oriented options. Most prominent is the work of Donald Shoup, culminating in his 2005 book, *The High Cost of Free Parking*. Shoup deepens and extends previous critiques of mainstream parking policy and mounts a persuasive argument for market-based arrangements, arguing that 'prices can do the planning' (p.499). He advocates abolishing off-street parking supply requirements and setting up a market-clearing price setting approach for on-street parking. This echoes earlier calls for market-based parking policy (such as Roth, 1965). Such thinking seeks to overthrow conventional parking policy. However, the practice of imposing parking requirements has been remarkably resistant to the attacks upon it (Ferguson, 2004).

One problem may be that market-oriented parking policy thinking has provided inadequate assurance on what would happen to off-street parking after initial reforms take place. While it is clear that efficient pricing of *on-street* parking requires active policy intervention and will not appear spontaneously, the market-oriented parking reform literature has tended to assume that quantity deregulation (plus on-street reform) would be enough to shift *off-street* parking towards a market-basis and that such arrangements will work well. Such faith seems optimistic in light of some obvious potential barriers to market emergence and to market health in off-street parking.

This essay takes aim at these gaps and focuses on the prospects for well-functioning market-based arrangements, with an active and direct price mechanism, for off-street parking. It discusses the possibility that if we do set a goal of market-based parking, then we may also need 'market fostering' policies in order to overcome barriers, to speed up a transition, to deal with problems in such markets and to reassure potential reformist jurisdictions about outcomes. The focus here is not on the pros and cons of market-based parking but on asking how much effort would be needed to bring about such a vision.

The paper is organised as follows. Section 2 below reviews the main approaches to parking policy, and suggests a three-way categorisation. This addresses a gap in the literature and places market-oriented parking policy into a wider theoretical and policy context, arguing that it is one of two main alternatives to the conventional approach. Section 3 begins by introducing reasons to suspect that a vigorous policy effort would often be needed to foster market-based off-street parking. It then draws on a range of literature and examples to examine possible barriers to the emergence of market-based off-street parking with little bundling and an active price mechanism. It argues that deregulation and efficient on-street pricing can sweep away some of these but would probably not be enough to overcome others, except perhaps extremely slowly. Then it does the same for problems that are likely within any laissez-faire off-street parking markets that did emerge. Section 3 ends by sketching a 'market-fostering' approach to motor vehicle parking policy. Finally, a conclusion takes stock.

2. Approaches to parking policy

After first providing some wider context, this section categorises parking policy into two mainstream approaches and contrasts these with market-based proposals. This addresses a gap, since a clear overarching categorisation of parking policy approaches seems to be missing in the literature. The two major alternatives to the conventional approach will be shown to be strongly distinct, although they often seem to be conflated. Table 1 at the end of the section highlights the key contrasts among the three approaches.

2.1. Background: contrast between neo-classical expectations and actual practice

Markets have featured in a strong stream in academic public policy interest in parking, which has tended to proceed from considering an ideal first-best market situation to examining distortions to the market and their implications, using a neo-classical economics framework (Button 2006). Recently some have sought to understand and model markets in parking (Arnott 2006). However, such market-oriented academic interest in parking contrasts with most of the actual practice. Except in city centres, local governments seem to have rarely even considered the

possibility of market-based parking. Political economy considerations and an institutional perspective help explain this gulf (Button, 2006; Calthrop, 2005).

Thus, parking practice escaped the push for deregulation and privatisation since the 1970s, which had an impact on various other transport industries of (Gómez-Ibáñez and Meyer, 1993). Meanwhile, in the wider economy, disillusionment with some such reforms has resulted in a new pragmatic approach in which a more assertive public sector role can again be considered (Ramesh et al., 2008) but in which various outcomes emerge as accommodations among competing demands for: a) efficiency gains from competition; b) coordination and other benefits from technical planning; and c) the collective priority setting of deliberative processes (Warner, 2008).

2.2. Conventional supply-focused parking policy

For many decades, a conventional approach to parking policy has applied engineering rules embodied in planning requirements to try to ensure 'enough' parking. Despite the obvious rivalry and excludability of parking, conventional policy tends to treat on-street parking as a commons. Any 'excessive' parking demand generated by nearby real estate is treated as a free rider problem, known as 'spill over'. It is therefore assumed that, unless required to, developers would rationally provide too little on-site parking.

The solution is seen as requiring every building site to provide sufficient parking space for its own demand. This further reinforces the idea that spillover parking is a problematic externality. To set these parking requirements, the traffic engineering and planning professions prepare tables of recommended parking levels for each kind of land use. In setting such guidelines it is often assumed that this parking will be free to users (Shoup, 1999). A result is that parking is very often free for motorists and paid for by building owners out of other sources of revenue. In other words, there is widespread 'bundling' of parking with other services, housing or employment.

The conventional approach has long come under a great deal of criticism (Buchanan, 1956; Roth, 1965; Shoup and Pickrell, 1980; Willson, 1995; Litman, 2006; Shoup, 1995 and 1999). The main critique, reiterated and deepened by Shoup (2005), focuses on the failure to price on-street parking efficiently and attempts to boost supply by requiring plentiful off-street parking. These practices are held responsible for the costly oversupply of parking that typifies suburban landscapes, for the failure to alleviate searching for parking in denser urban environments and for undermining these older areas economically.

Nevertheless, conventional parking policy is seen by some as a success, at least when applied to areas built under car-oriented investment patterns and regulations. Ferguson (2004) for example, points out that 'zoning for parking' is simple to apply and popular with local governments. The practice has been resilient despite decades

of attacks. It is rarely even questioned in suburban contexts. Moreover, although bundling has often been criticised as unfair and inefficient, it is a rational response where prices would be too low to be efficiently levied (Gómez-Ibáñez, 1997). With parking in low-density areas seemingly unproblematic, reviewers of Shoup (2005) have debated the relevance of his reforms for suburban landscapes (Levinson, 2005; Gordon, 2006).

By contrast, Shoup (2005) has documented enormous economic distortions and costs arising from parking requirements and the flawed ways that they are set. Excessive parking requirements eliminate the possibility of a price signal by boosting parking supply to the point that demand is almost always met at zero price. They distort travel choices, promote low-density development, increase the cost of housing, harm low-income households, and blight the built landscape. This has relevance not only to the United States but everywhere there are parking requirements and/or underpriced on-street parking.

There is more agreement on the need for reform with respect to older, denser areas developed before mass motorisation, which fare badly when parking requirements are rigidly applied. The lack of on-site parking in such areas is seen as a problem in the conventional approach. Unfortunately, enforcement of parking requirements to such areas, when triggered by a change of use or construction, can lead to blight by rendering uneconomic many creative reuses of old buildings that lack on-site parking (Shoup 2005, pp. 97-98). In some countries efforts to require parking by regulation seem futile. For example, in South Asia's large cities, built space is so much more valuable for other uses than for the required (but underpriced) parking, that using the space for other uses is reportedly widespread and a source of corruption in local government (Bhagwandas, 2007; Ganguly, 2006). Meanwhile, on-street parking in dense areas usually remains free or so cheap that it is often saturated for much of the time. Common responses, such as time limits for on street parking, are less effective than pricing at reducing 'cruising for parking' as motorists hunt for spaces (Calthrop and Proost, 2006).

2.3. Parking management

One answer to the unsuitability of the conventional approach in dense and congested locations has been more sophisticated policies that look beyond supply-side efforts and seek to balance multiple goals in managing parking. This has been called 'parking management' by Litman (2006). The approach can be seen as an effort to balance conflicting objectives such as revenue, the urban regeneration of certain districts, and travel demand management (TDM) (Marsden, 2006; McShane and Meyer, 1982). The TDM objective has been applied in many city centres, such as London's, since the late 1960s. Parking management assumptions and the prospect of using parking policy for demand management are common themes in much, if not most, recent parking policy literature (Marsden, 2006; Calthrop et al., 2000; Verhoef et al., 1995).

Parking management policies are most often applied to traffic sensitive locations or where a parking problem is perceived but where extra supply is not possible or is undesirable (Litman, 2006). Parking management can be considered an adaptation of conventional policy to better suit areas developed before automobile-based standards. Places with plentiful parking may see little reason to adopt the approach but Litman urges its application at least a little further beyond its city-centre heartland (see also Forinash et al., 2002).

It recognises that numerical shortage is only one source of parking problems (Litman, 2006). Parking management seeks to ensure that even a limited number of spaces can be enough by increasing efficiency in parking space use and by reducing or managing demand, possibly through pricing. Parking management also breaks somewhat with the usual obsession with handling parking on-site. For example, many inner-urban municipalities allow in-lieu payments instead of on-site parking with the money going towards shared municipal parking (Shoup, 2005).

Parking management has been called a ‘paradigm shift’ (Litman, 2006, p.3) but this may be overblown. It includes embracing ‘a variety of parking management tools to make zoning for parking more flexible and responsive to local policy needs’ but retains parking requirements themselves (Ferguson, 2004, p.188 citing Box, 1993 and Smith, 1999). Parking management retains an onus of responsibility on the local government to ensure adequate parking, even if this responsibility is now to be met in a more sophisticated way. Its planning-based nature leads to vulnerabilities as does its complexity compared with the simplistic conventional approach. Pricing under parking management can also be politically problematic and perceived as ‘taxation’. Furthermore, any deviation from standard parking requirements tends to be subjected to a high burden of proof. The embedded institutional strength of the conventional approach has thus been an obstacle to the wider expansion of parking management.

Thus, in the parking management approach, parking is still planned and regulated, albeit with a different set of objectives. Nevertheless, the aim of providing the ‘right’ amount of parking introduces more economically sophisticated thinking. Litman is an economist and his book highlights that economic theory would see ‘optimal’ parking supply as the ‘amount consumers would purchase in an efficient market (if they are charged the full cost of providing parking facilities and have a reasonable range of options from which to choose)’ (Litman, 2006, p.10). Despite this, parking management overwhelmingly uses regulatory and planning-based policy tools not markets.

2.4. Market-based parking

As mentioned earlier, parking practice has been surprisingly deaf to the wider trend towards market-based arrangements (Button, 2006). There have been several calls for

market-oriented parking over the last century. As long ago as the 1920s, Miller McClintock pushed to ban on-street parking and argued that being forced to rely on the priced, commercial off-street parking would provide a useful market test of the utility of motorists' trips (McClintock, 1925, cited by Shoup, 2005, p. 492-493). This was followed by Vickrey's (1954) work on on-street parking, Roth's (1965) polemical booklet on the subject and Shoup's persistent efforts since the 1970s.

By the way, there is some irony here. Shoup's critique of conventional parking policy is significant for being part of a wider challenge to the assumption that automobile-dependent suburban landscapes are primarily a market phenomenon (see for example, Lewyn, 2007). In particular, this parallels Levine's (2005) work attacking the view that low-density suburbia, and even the zoning that preserves it, are primarily market outcomes.

2.4.1. On-street 'market creation'

The theme that solving the on-street parking 'commons problem' should enable a more laissez-faire deregulatory approach to off-street parking has been common to market-based thinking on parking since McClintock's efforts. However, rather than ban on-street parking, Roth (1965) and Shoup (2005) follow Vickrey's lead in seeking optimal on-street pricing as the solution to 'cruising for parking' and to defuse spillover as an issue. Both call for performance-based pricing, with prices varying in time and space and set to always deliver approximately 15% vacancy rates and hence zero search time. Such a pricing scheme should yield a 'triple dividend': reduced search time; revenue to reduce the deadweight loss of other forms of taxation; and reduced congestion (Arnott, 2006). With trials underway in several American cities, there are signs that Shoup's tireless advocacy for this reform may finally be starting to gain acceptance.

Clearly, there is no 'natural' market for on-street parking and efficient pricing does not emerge spontaneously. Policy effort is needed to achieve performance-based pricing for on-street parking. Parking protection rackets sometimes do emerge but these are neither efficient nor in the public interest generally (more on these later). Performance-based pricing is also politically challenging so Shoup (2005) suggests an institutional innovation, parking benefit districts, to provide for local public spending of the revenue and to have the right set of incentives to price. Two reviewers of Shoup (2005) suggest outright privatisation of on-street spaces or competitive bidding for street-by-street concessions to manage and price on-street parking (Klein, 2006; Seibert, 2008).

Efficient on-street parking pricing could be seen as just another parking management tool and the cities that are now trying it may see it that way. However, in the market-based parking literature it is seen as a prerequisite for off-street parking reform. The effects are not direct, since off-street paid parking clearly sometimes does emerge in

CBDs despite on-street parking being underpriced, so long as demand greatly exceeds the on-street supply. But underpriced on-street parking probably does delay private investment in off-street parking by undercutting the potential market and depriving it of price information. The effects of underpriced on-street parking also prompt municipalities to act to increase off-street parking. The fear of 'spillover' makes reversing any existing off-street parking requirements politically difficult in the absence of efficient on-street pricing (Shoup, 2005).

2.4.2. Off-street supply deregulation

Deregulation of the quantity of supply, not market creation, has marked the approach of the market-based parking literature to off-street parking. In the 1920s, McClintock felt that private enterprise would handle parking adequately if on-street parking were banned. Roth (1965) attacks parking requirements and is disparaging of parking caps as a TDM tool. Shoup (2005) calls for an end to parking requirements.

Although deregulation of the quantity of off-street parking supply is clearly the dominant theme of this stream of literature, some small caveats do appear. For example, Shoup (2005) is willing to contemplate parking maximums for certain purposes. With a co-author he also disavows the word 'deregulation' in calling on planners to pay more attention to regulating the quality of parking over quantity (Mukhija and Shoup, 2006). Surprisingly, Roth (1965) stops just short of complete supply deregulation, despite writing in a Hobart Paper for pioneering neoliberal think-tank, the Institute of Economic Affairs. Instead, he suggests local authorities require developers 'to design their buildings in such a way that certain sections of them could be used for parking, but also for other purposes such as storage' (p. 41).

2.4.3. A vision of thoroughly market-based parking

Market-based parking advocates appear to be confident that their suggested reforms will lead towards market-based parking with an active price mechanism. Shoup, for example, is explicit about this in a chapter entitled, *Let Prices Do the Planning*:

> 'Since [on-street] prices will vary to maintain a few curb vacancies, spillover will no longer be a problem. Individual property owners and merchants can then choose how much on-site parking to provide based on business considerations, not zoning. Some may choose to provide their own off-street spaces, while others may offer to validate parking in nearby garages. Regardless of the strategy, all firms will be able to decide for themselves whether parking is worth its costs. Parking will increasingly become unbundled from other transactions, and professional operators will manage more of the parking supply.' (Shoup, 2005, p. 496).

The excerpt above begins with a faith that ending parking requirements will be for the best, whatever the private choices that result. However, it follows up with the belief that these private choices will eventually result in most parking being provided in well-functioning local parking markets with mutually responsive supply, demand and

prices. Whether or not they are critical of abolishing parking requirements, reviewers of Shoup seem not to question if this would be sufficient (West, 2006; Lewyn and Cralle, 2005; Koushki, 2006; Klein, 2006; Seibert, 2008; Levinson, 2005; Gordon, 2006).

Roth (1965) also sees a similar core of reforms as moving parking towards a situation in which most parking is open to the public, priced on a market-basis and provided as a commercial enterprise, with parking existing only if justified by its own revenue stream compared with alternative uses of the same space.

The market-based parking ideas above are for entire metropolitan regions, not merely urban cores, but note that these visions are similar to the market-based parking already found in many central business districts (CBDs). These have enough scarcity to support profitable parking enterprises. A high proportion of CBD parking spaces are open to the general public or 'shared'. Mixed land-use makes this efficient. Parking spaces serve the vicinity rather than particular developments. Very little city-centre parking is bundled. Few buildings have enough on-site parking to handle their 'own' demand. The concept of spillover has no meaning here since on-site handling of parking demand is not expected. Most off-street parking in CBDs is a commercial real-estate based service, not part of the infrastructure of a specific building.

Table 1. The three approaches to parking policy

	Conventional	**Parking Management**	**Market-based Parking**
Perspective on parking problem	Scarcity is a problem, both within a vicinity or on any site, because it causes spillover and conflict.	Problem if parking conditions mismatch with wider policy goals. Trade-offs among conflicting objectives are difficult.	Underpriced on-street parking causes search externality and inhibits off-street market. Supply-side policy causes more problems than it solves.
View of spillover	Seen as a free-rider problem. To be avoided by ensuring each site handles its own parking.	A source of conflict, so minimise by management or defuse by planning for shared parking.	Pricing defuses spillover problem. It is welcome as a trigger for market pricing to emerge.
How quantity of parking should be determined	Require developers to supply enough to meet all expected demand on-site (often at a price of zero).	Plan and manage, using diverse policy tools, for parking quantity, location and usage patterns to match wider policy goals.	Facilitate efficient on-street pricing. Remove obstacles to private choices determining supply in local markets.
Perspective on shared parking (open to public)	Unusual since each site expected to provide for own parking.	A useful tool but needs careful management to avoid conflict.	Expected to be the norm. Restricted-access parking as exception not norm.

3. The possible need for market-fostering

Will Shoup's 'core package' of market-oriented reforms, namely quantity deregulation and efficient on-street pricing, really be enough to create the conditions for healthy market processes to emerge? There are at least some prima facie reasons to want more reassurance.

Firstly, institutional and physical legacies seem likely to hinder implementation of such reforms in the first place. We have seen that the mainstream approaches and the thinking that supports them are strongly entrenched, especially in suburban contexts. Second, a sceptical public may need an assurance that policy will still be able to address matters of public value such as due process, justice, fairness or the serving of basic needs. Third, experience with deregulation has shown a need to demand relatively high standards for the functioning of the ensuing market, such as open entry and exit, good information, a tolerable lack of market power and other market failures, such as externalities, and supply that is responsive to price signals without too much delay or rigidity. Although economists have pointed to potential problems in off-street parking markets (Button, 2006; Arnott, 2006), this issue does not feature in Shoup's or Roth's writings, nor in reviews of Shoup's proposals.

These observations raise the question of how large is the gap between a well-functioning parking market and the outcomes to be expected from the core package of reforms? If the gap is large and difficult to overcome it would be a blow to the whole market-oriented parking agenda. If the gap is small then perhaps deregulation of off-street quantity and efficient on-street pricing would be enough to achieve a healthy market outcome. If the truth is somewhere between these two extremes, at least in some contexts, then a broader 'market fostering' effort could be considered, in order to ensure that parking markets emerge and that they are tolerably healthy and robust.

The first two sub-sections below will seek further insight on whether there is any need for such market fostering effort. A third sub-section briefly outlines possible elements of such an approach. It is suggested that it may offer hope for a more attractive, thorough, timely, efficient and less risky shift of vehicle parking onto an efficient and welfare-enhancing market basis. However, the feasibility of market fostering in many contexts will remain an open question. Initial encouragement to pursue the idea further is drawn from the fact that tolerably well-functioning parking markets already exist in many city centres.

Note that I assume here that society would indeed be better off if parking could be placed onto a thoroughly market-basis, with well-functioning markets, in which both suppliers and end users of parking see and respond to a direct parking price signal. Debate over this assumption is outside the scope of this paper. I also assume that somehow the climate of political opinion becomes able to accept market-oriented parking reforms of the kind suggested by Shoup. Of course, that is a very big

assumption, especially for suburban areas where the existing approach is in such stark contrast with market-based approaches. The lack of such a climate is obviously still a key barrier to any such reform in many places. There are a few words on this 'elephant in the room' at the end of the paper.

3.1. Barriers to market formation and price signal emergence

This section explores possible barriers to prices doing the planning, with a focus on those that may remain even after basic market-oriented reforms of removing off-street parking requirements and imposing efficient on-street pricing. Relevant questions include how formidable is each barrier and in what contexts it is likely to be critical.

Scarcity is obviously a prerequisite for market-based pricing. A number of barriers are most pertinent in locations that do have parking scarcity (or nascent scarcity). Some are relevant everywhere. Several important barriers are most important for places with an oversupply of parking where bundling and free parking are prevalent. They suggest that washing out the oversupply of parking in suburban centres is likely to be a slow process without additional policy effort. Such gradualism might be a political plus and would reduce adjustment costs (Shoup, 2005) but for other reasons, such as climate change policy, we may become impatient.

3.1.1. Spillover and parking market 'failure to launch'

In the absence of parking requirements, we expect some developers to take the opportunity to provide less parking than before (Engel-Yan et al., 2007; Shoup, 2005). Spillover from new 'parking-lite' developments is a key mechanism for pricing to appear. Such infill should create scarcity which triggers on-street pricing and then off-street unbundling, pricing and shared parking (Shoup, 2005, p.97). Spillover is thus not seen as a problem in market-based parking thinking but as essential for pricing to emerge. However, this infill-based mechanism is likely to be slow in slow-growing urban regions with little development pressure. Other factors below may also inhibit infill by new 'parking lite' developments.

This mechanism requires some shared parking and that it be priced in a demand-responsive way if it becomes saturated. On-street parking with performance-based pricing is an example but note that privately-owned parking which is open to the public could also play the same role if the response to saturation is also market-clearing pricing. Nevertheless, this underlines the importance of the on-street pricing part of the market-based reforms advocated by Shoup and others in helping to kick start market-based parking (see section 2.4.1). This is relevant both in suburban contexts and in dense urban contexts.

A problem with this mechanism may appear if there is no nearby on-street parking at all and if all off-street parking is restricted to customers-only or employees-only. This

may happen in some isolated suburban centres where spillover would have nowhere to go or would inevitably cause conflict. In such cases, developers would probably be deterred from having ambitious parking reductions in infill developments.

These observations draw attention to the possible value of encouraging private parking to be open to the public. Access-restrictions are a prerequisite to the bundling of parking and attacking them may be more efficient than attacking bundling directly. Owners of publicly accessible parking will usually find pricing to be the rational response to saturation. Ensuring some privately-owned parking remains open to the general public would not force pricing onto places where pricing would be inefficient but it could ease a transition to pricing as soon as scarcity does appear. This should help pricing to emerge in many situations, not just the unusual case without on-street parking above. One caveat is that there may sometimes be legitimate reasons to restrict access to a parking facility, such as security issues.

3.1.2. Cooperation traps or parking arms races

Another barrier to parking scarcity emerging in suburban landscapes, which is mentioned by Shoup (2005), is a cooperation problem, or 'parking arms race'. Even in the absence of parking requirements, competitive considerations may prompt certain developments, especially certain kinds of retail centre, to continue to provide generous bundled (free) parking. Such enterprises rationally try to attract motorists (as customers or as skilled employees) from a wider catchment. Transport economists have concluded that this amounts to a futile zero-sum game (Shoup, 2005, pp. 167-168). Shoup argues that this cooperation trap may justify government action. For example, parking maximums (limiting parking, not requiring it) could be imposed or employers might be required to offer parking cash-outs.

However, the existing parking of incumbents may still slow the process of change. During any transition away from oversupply towards priced parking, existing businesses with plentiful parking may have an unfair competitive advantage which could again deter aggressive parking reductions in new developments. At some point, we can expect scarcity to emerge but it might take a long time. A possible answer may be incentives for incumbents with excessive parking to divest parts of their parking facilities, if zoning can be made to accommodate this.

Even more difficult is a spatial competition issue among local governments across an urban region. Municipalities acting alone on parking often fear undermining the competitiveness of local businesses and thus their own tax base. The only (partial) exceptions are metropolitan-wide governments and some transit-rich municipalities, such as those in urban cores. Addressing this would require regional coordination efforts or initiatives by higher levels of government.

3.1.3. Undercut by government actions

Several barriers to market emergence arise from public sector actions (or the expectation of them) that deter or crowd out private commercial parking activity. A key one already discussed is the failure to price on-street parking efficiently but there are several others. Together these are a key explanation of the absence or unresponsiveness of parking markets, especially in places with some parking scarcity where the absence of parking pricing is otherwise surprising.

Some cities actually control the price of private parking garages. Jakarta seems to be an example (Asrianti, 2008). Some localities in the USA ban the pricing of parking altogether, in effect decreeing a price of zero (Shoup, 1995). Such policies undermine parking markets but should not survive basic market-oriented reforms.

A more common example is supply of parking by municipalities themselves, especially when priced below market price. Together with underpriced on-street parking, this must deter much private-sector investment in off-street parking (Bawolek, 2004). This was apparent in the UK in the 1960s (Roth, 1965, p.35). It is being repeated today across developing Asia.

Surprisingly, Shoup (2005) does not target local government off-street parking supply as a key issue to be tackled directly. He may assume that any jurisdiction that adopts the core package of market-oriented parking reforms would refrain from other policies to undermine nascent parking markets. Unfortunately, this may be overly optimistic. Conventional parking policy assumptions are likely to be entrenched in a variety of policies and regulations, not just the obvious ones. Moreover, different levels of government may disagree over approaches to parking.

3.1.4. Crowded out by informal markets

Informal markets can deter the formation of formal sector markets and parking may be an example in some places. Informal fee collection for parking is common for on-street parking in various developing cities but is unlikely to be efficient or socially beneficial. Such extortion activity is usually small in scale but in some cases the entities involved, or their protectors, become powerful enough to corrupt policing and local government, and to sabotage efforts at formal, government-sanctioned parking pricing. Jakarta and Karachi provide recent reports (Jakarta Post, 2007; Azmat, 2008). Preventing such a situation, by avoiding having a pricing vacuum, is probably easier than curing it once entrenched. More research is needed on this problem and how to address it.

3.2. Problems within parking markets

Now I turn to the likely health of the parking markets if they can be made to emerge. Just as the core package of market-oriented reforms may not be enough to create

parking markets, it may also be insufficient for confidence in the quality of their functioning and outcomes.

3.2.1. Tolerably well-functioning CBD parking markets?

We saw earlier that many city centres have parking markets and mentioned characteristics that lend them to market-based parking. But do CBD parking markets work well generally? There are reasons to believe that CBD parking markets may be subject to some market imperfections. City centre off-street parking is mostly in parking garages, which have scale economies and a minimum viable size (Arnott 2006). Parking garage investments are therefore lumpy to some degree and necessarily spread unevenly in space. This lumpiness may not be extreme but may be significant since parking markets are inherently highly local. Buildings devoted to parking can also be difficult to convert to and from most other uses (see later).

These characteristics lead us to expect a degree of localised market power but this is countered by other issues that help allay concern. For example, for unsubsidised decreasing-cost enterprises, prices must exceed marginal cost prices or lead to bankruptcy. Accepting some degree of market power can alleviate this problem by allowing pricing that can support a viable garage industry (Button, 2006). Moreover, Arnott (2006) notes that prices somewhat above marginal cost may be welfare enhancing if they compensate for the absence of congestion pricing or complement the presence of existing mass transit investments with economies of scale to exploit. In any case, the presence of rich substitutes also constrains market power in CBDs.

Information asymmetries are also an issue in parking markets (Button, 2006) but are addressed through parking information and guidance systems which are becoming much more sophisticated and common (Litman, 2006). Parking markets appear to have high pricing transparency (Gross, 2005).

The physical character of city centres is also helpful. Characteristics such as a high density of destinations, small blocks, among others, make for high pedestrian permeability. Every place in the area is generally within an easy walk of several parking enterprises. The market areas of CBD garages apparently overlap, allowing competition to limit their pricing power.

Large CBDs are often said in local debates to have parking that is ‘too expensive’. This is not surprising when priced city-centre parking is usually the exception to a wider norm of free parking. Furthermore, constrained supply and high prices are often planned outcomes of TDM policy. In and of itself, the market nature of CBD parking does not seem to be blamed. More research is needed but today’s large city-centre parking markets appear to be tolerably competitive and efficient without any obvious market-fostering effort. Nevertheless, the issues discussed above need to be considered with respect to prospective parking markets elsewhere.

3.2.2. Market power in new parking markets

Will newly emerging parking markets be more prone to market power problems than CBD parking markets? The poverty of substitutes to driving may be one concern, which would place more attention on market power within the market for parking itself. Lumpiness may be another concern. If parking enterprises are necessarily large and spread out beyond walking distance then local monopolies may prevail. Fortunately, less lumpiness is to be expected outside city centres, since cheaper land will prompt less factor substitution and allow smaller, less capital-intensive parking investments to be distributed more evenly in space.

That is just as well because comfortable walking distance may be shorter outside city centres, which could tend to limit competition. Many suburban areas lack the pedestrian amenity and permeability of older centres due to physical features such as large lots, non-permeable perimeters, large blocks, building set-backs, the barrier effects of large roads, and poor pedestrian infrastructure. Pedestrian improvements should help of course.

3.2.3. Difficulties with conversion to and from parking

Difficulty in converting real estate space between parking and other uses contributes to sunk costs and lumpiness. The more easily parking space can be converted back and forth, the less worried we would need to be about market power, stranded asset problems, or local fears of being locked into ‘too much’ or ‘too little’ parking. Concern about this rigidity led Roth (1965) to suggest councils require developer to only provide space that can potentially be used for parking, rather than require parking itself (as mentioned earlier). A sympathetic reviewer of Shoup (2005) similarly suggests requiring local banks of space that can easily be converted between parking and other uses (Ben-Joseph, 2005).

On the other hand, it is not difficult to find examples of buildings that were formerly parking structures. Open lot parking can be easily used temporarily for various purposes. Parking space in single-family homes is routinely used for other purposes, such as home workshops, recreation and storage, and Shoup (2005) sees unbundling as enabling this also in multi-family housing.

Regulation, not physical issues, is probably a more important barrier to conversion. Restrictions on the removal of parking are part of most parking requirement ordinances. Without such regulatory barriers developers would have more incentive to build more parking and other structures with potential conversion in mind (Roth, 1965). In theory, abolishing parking requirements should fix this but, again it may need to be made explicit. Cities struggling with parking saturation will find this suggestion challenging. For example, the large Indian cities, with underpriced parking

but acute saturation, wage a battle against the illegal misuse of parking space (see for example, Ramu, 2007). The Mayor of Calcutta has railed, 'illegal conversion of garage space is an unpardonable crime in a city like Calcutta ...' (Ganguly, 2005). A market-based perspective would see under-pricing (and policies that undermine market pricing) as the source of this problem and would predict that a well-functioning local market would find the 'right' amount of parking at the right price, in which parking would command market rents for the space it occupies. But it would take much reassurance about parking markets for such cities to relax about this issue.

Local planning conflict may also become a barrier to conversions, even in the absence of parking requirements. This could run both ways. Objections to parking removals and to bad-neighbour parking proposals are of course already commonplace. Such conflict will need to be addressed if local parking markets are to avoid gridlock in parking investment or removal. This points to a familiar role for planners, since such conflict is familiar in real estate markets generally. Zoning would also need adjustment in many places to become compatible with market-based parking, such as being able to accommodate stand-alone parking investments, the divestment of parts of parking lots, and infill development to replace some parking.

3.2.4. Externalities and parking quality

Parking supply imposes negative externalities, including hydrological impacts from impervious surfaces, heat island effects, noise and visual blight. Laissez-faire will be inadequate to handle these and their related planning-conflicts, although some could be addressed with economic policy instruments to internalise the external costs (Button, 2006).

However, planning conflict based on highly-localised concerns over the quality of parking will remain, requiring a planning response. A reviewer of Shoup (2005) lamented the lack of attention to parking design and quality (Ben-Joseph, 2005). As if in answer, Mukhija and Shoup (2006) agree that, even if markets should be able to provide about the right amount of parking, there are inadequate economic incentives for quality. They reaffirm Shoup's call to abolish quantity requirements but instead outline ways for planners to improve parking quality, namely: limit parking space numbers; improve its location; and require better design of lots, parking structures and residential garages.

3.2.5. Persistent bundling and its causes

Even after parking markets emerge, the bundling of parking may remain persistent. Decisions to bundle would be freely-made private decisions, not forced by excessive parking requirements but if bundling covers a large proportion of the parking stock it would hinder the efficiency of the market. Neither suppliers nor users of such bundled parking are responsive to the direct parking price signals. Attacking bundling directly

is unlikely to be efficient but some of its underlying causes should be examined. Why might bundling not disappear spontaneously even after parking requirements cease to force bundling? Note that the issues discussed here also apply to parking that is priced lower than the market price and restricted to clients-only.

The parking arms race issue that was discussed earlier may be one factor. Isolated attempts to bundle become costly to enforce and difficult to justify once there is priced parking nearby. Nevertheless, competitive considerations may prompt some enterprises to continue to bundle parking, especially if their layout or location makes excluding outsiders easy and if the bundled facility has plenty of capacity for all those eligible. Other reasons to expect some persistent bundling include a climate of opinion that is hostile to pricing. Moreover, parking unbundling is especially difficult wherever it means the removal of a privilege, as with employer-provided parking. Parking 'cash outs' are a way of easing the transition, a reform which is otherwise full of obstacles (Shoup, 1995; Rye and Ison, 2005).

Transaction costs and fixed costs of charging for parking are important barriers to the emergence of pricing. The barriers are greatest to charging for short-term parking pricing in places where the market price will initially be low, and for the owners of small numbers of spaces. It is not a problem for residential parking, since infrequent transactions make the cost of unbundling very low (Shoup, 2005). Fortunately, it is getting cheaper to establish and run parking fee collection systems and the range of choices is growing rapidly, often via sub-contracting to specialist companies. An expansion of parking markets after market-oriented reforms would further drive down these costs. Nevertheless, some remain sceptical that pricing will be worth the transaction costs in many contexts (Levinson, 2005). There may be a role for governments to help ease transaction costs by encouraging coordination and inter-operability of payment systems (Litman, 2006).

3.2.6. Parking endorsements and other parking 'perks'

Even in locations with expensive market-based parking that is completely unbundled and even supplied by a third party, it is common for businesses to still offer to pay for or provide an allowance for the parking of qualifying clients, such as certain employees, customers who make a purchase above some threshold, or valued business clients. This does not really undermine market-based supply overall. It is perhaps regrettable that the end-user is shielded from price signals, but the intermediate customer (the business offering the perk) does see market prices. These parking perks would also be voluntary in such a contexts, rather than being forced by excessive parking requirements. They are also explicit and accounted for rather than hidden. Market fostering would not need to discourage such perks. However other rationales, such as TDM, might prompt governments to act, perhaps to encourage mode-neutral travel allowances instead.

3.2.7. Parking industry lobbying and the guarding of policy freedom

Would an enlarged commercial parking industry be a powerful lobby? If so, would it be problematic? Many green transport advocates are wary of parking industry interests, who have been known to oppose travel demand management policies, for example New York City's proposed congestion charge in 2008. However, in some cases demand management and the parking industry's interests might also align, especially where the status quo ante was oversupply. There is a legitimate case for providing some credible commitment to the parking industry that it will not be arbitrarily undermined. But at the same time, legitimate freedom for the political process to deliberate on and pursue wider transport policies would need to be guarded. Business lobbying is familiar in many policy-making arenas and is usually not a reason to avoid or abandon markets.

3.3. Fostering parking markets to make prices do the planning

I have identified and reviewed various barriers to having prices do the planning for parking, as well as worries about how well the resulting markets would work. Some were dismissed, but a number were shown to be worthy of concern. It seems clear that in many contexts Shoup's core market-reform package would not be enough to overcome all of these problems, especially not within a reasonable period of time.

More research and experience will be needed to show how formidable the obstacles are and there may be certain contexts where market-based parking cannot be brought about in a cost-effective manner. For now, I take the qualitative discussions above to imply a strong possibility that a feasible policy effort could facilitate the emergence of parking supplied on a market-basis in various contexts.

If a jurisdiction were to pursue such a possibility, what kind of policy approach would be needed? Let us call such an approach, 'market-fostering'. It would set a vision for thoroughly market-based parking wherever possible, with high standards for the workings of those markets. A market fostering parking policy would seek to encourage conditions that would allow the supply and usage of every parking space to be informed by market signals. Shoup has demonstrated that parking requirements and underpriced on-street parking are two of the biggest obstacles to market-based pricing. So any market fostering approach would obviously need to begin with the core package of market-oriented reforms that he and others suggest, or something very similar. However, the arguments in this essay suggest that market fostering would then need to go further and work at overcoming the various additional barriers and problems highlighted here. At the least, it would need to be ready in case such a policy effort is needed.

How radical is this vision of market fostering? It is less laissez-faire in spirit than the suggestions of Roth and Shoup, since it shows more willingness to structure markets,

recognising that well-functioning market processes often need a helping hand to emerge and to flourish. Paradoxically perhaps, it involves a firmer resolve to ensure that it will indeed be parking prices that do the parking planning. If barriers to efficient markets and pricing remain then market-fostering would countenance a more vigorous push away from bundled, free parking towards unbundling and pricing. It would therefore usually involve a more vigorous shove to the status quo than Shoup's package would provide.

What specific policies might be involved in parking market-fostering? A detailed answer is beyond my scope here but Sections 3.1 and 3.2 suggest that some or all of the following might feature within an ambitious market-fostering parking approach to parking policy:

- A credible policy commitment not to undermine parking markets would be needed and may have to address entrenched institutional arrangements.
- Policy efforts may be needed to accelerate the washing out of parking oversupply where it exists. Efforts to ease the way for 'parking lite' infill in suburban centres of activity are an example.
- Incentives for incumbents with excessive parking to divest control of part of their parking facilities might also help.
- Every vicinity with potential for market-based parking needs a stock of shared parking (open to the public) that will be efficiently-priced if saturated.
- Encouraging private parking to be open to the public may offer efficient ways to discourage bundling without inefficiently requiring parking to be priced.
- Incentives (or requirements) for parking-cash out programs would encourage faster unbundling and workplace parking pricing.
- Cooperation problems based on spatial competition need to be addressed by a metropolitan level government or higher, either directly or by facilitating regional cooperation among local governments.
- Steps to ease the convertibility between parking and other uses of space would reduce supply rigidities and the risk of market failures.
- Enhancing the pedestrian environment should reduce the chances of undue market power in parking markets.
- Competition policy should apply to parking markets.
- State coordination may be able to facilitate the easing of transaction costs and fixed costs in parking pricing.
- Local planning for parking should focus on fostering markets and market health, including effort on parking quality, location and design, but not the quantity of parking.

More important than any of these specific policy ideas, which obviously remain to be investigated, is the value of having clarity about the overarching vision for parking. This could be provided by market fostering and its aim of facilitating well-functioning parking markets with an efficiently-working price mechanism. Such clarity should also make it easier to adapt the approach to local circumstances. Market fostering should make it clearer than in Shoup's agenda that other legitimate policy priorities related to parking would often remain possible, so long as such goals and the tools involved are compatible with the market's health and existence. Finally, these additional reassurances offered by market fostering may perhaps help improve the climate of opinion and reduce the formidable political obstacles to market-oriented parking reforms that were mentioned early in the paper.

4. Conclusion

In this paper I have taken up previous market-oriented agendas on parking and argued that for such ideas to deliver their full potential may require a more ambitious policy effort aimed at fostering well-functioning local parking markets. I have labelled this proposed effort 'market fostering'. The heart of the paper was a discussion of reasons for asserting the need for market fostering. These included various barriers to the emergence of parking markets and problems for their healthy functioning. These obstacles and problems are over and above those that would be addressed by the core proposals of Shoup or Roth.

Another contribution was to put market-oriented parking policy into perspective by contrasting it with two more mainstream approaches to parking policy. This led to a three-way categorisation of parking policy approaches into 'conventional', 'parking management', and 'market-based' categories, as summarized in Table 1. The market-fostering approach suggested here could be thought of as a variation or refinement of the broad market-based category. Like the other market-oriented proposals, its objective is to better enable markets to reveal and provide the 'right' amount of parking (notwithstanding distortions elsewhere in the wider transport and urban development systems).

Whether or not market fostering is desirable and feasible remains an open question. Further research is obviously needed to provide a more detailed explanation and evaluation. Nevertheless, the idea offers an extension and generalisation of the thrust of Shoup's ideas in a way that should help to open new market-based policy reform horizons, in more contexts, for more rapid reform, with more confidence of success.

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