



Do parking standards matter? Evaluating the London parking reform with a matched-pair approach



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ABSTRACT

Minimum parking standards, which require developers to build a certain amount of off-street parking spaces, are increasingly criticized for leading to excess parking supply and automobile travel in recent years. However, due to the difficulty in identifying the policy effect, few empirical studies have directly and accurately estimated the effects of parking standards on parking supply. The present study examines a parking reform in London, UK, where minimum parking standards for residential developments were replaced with maximum standards in the early 2000s. Using planning application records, we match neighboring pre-reform and post-reform developments to estimate the effect of the parking standard switch and further identify the “binding” and “capping” effects of minimum and maximum parking standards. It is found that the parking reform in London has led to a reduction of approximately 0.76 parking spaces per unit in residential development applications, or 49% of the pre-reform level. Minimum parking standards seem to have a larger impact than maximum ones on parking supply that fell more upon inner city developments, while maximum parking standards have more influenced suburban neighborhoods. Market forces have played a major role in the decline of parking supply. The findings provide strong evidence for the market distortion effect of minimum parking standards.

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1. Introduction

There have long been discussions on how urban form factors, such as sprawl and job-housing balance, can contribute to car usage and dependence (Handy et al., 2005; Ewing and Cervero, 2010). It is less recognized, however, that automobile-oriented built environments are often not designed by pro-car planners, but rather dictated by technical, seemingly neutral, planning guidelines and standards (Guo and Schloeter, 2013). Parking standard, an important but often overlooked planning regulation upon urban developments, is one of these “invisible” automobile policies.

The *parking standards* discussed in this paper refer to the clauses in planning codes that regulate the provision of off-street parking spaces. Traditionally, these clauses require a minimum amount of parking spaces provided along with new developments to accommodate subsequent parking needs. Therefore, the term *parking standards* is often used interchangeably with *minimum parking standards*, *parking requirements*, or *minimum parking requirements*.

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Regarded as a necessary amenity for decades, the off-street parking supply created by minimum parking requirements has become controversial in recent years. Opponents argue that these requirements are often arbitrary and excessive, and that they distort both real estate and car markets, leading to higher car ownership and housing costs (Shoup, 2005). The debate has led to a series of reforms of parking standards: In Europe, many countries have started to use *parking maximums*, which limit the amount of parking developers can provide, together with or in place of parking minimums, including but not limited to Belgium, France, Germany, Italy, Switzerland, the Netherlands, and the United Kingdom. In the United States, major cities such as New York City, San Francisco, and Portland have also applied maximum parking standards and/or relaxed minimums ones in downtown areas. Nevertheless, in most of these cases maximum parking standards are only applied to city centers and non-residential uses, and minimum standards remain the norm for residential parking in both European and U.S. cities, as well as in developing countries that are facing increasing levels of car ownership, such as China, India, and Philippines (Barter, 2011).

Despite the general agreement that parking requirements could lead to market distortion, few have empirically studied the consequences of parking standards, or the effects of initiatives that relax or eliminate minimum parking standards. The lack of empirical evidence is likely due to the difficulty in identifying the effect of parking standards on parking supply. Apart from parking standards, parking supply is also influenced by parking needs, site circumstances and housing market dynamics. Since not all these factors are easily measurable and controllable, cross-city comparisons are often subject to omitted variable problems and unlikely to generate accurate estimates of the effects of parking standards. In cities that have partially relaxed parking requirements, the impact of minimum parking standards could be confounded with self-selection effects: Developments with lower parking needs may concentrate in the exempt areas, leading to superfluous or overestimated “policy effects”.

The aim of this study is to fill the research gap and to expand the knowledge on how parking requirements affect parking supply, which could further affect housing affordability and car-owning decisions. It examines a policy change in London in the early 2000s, when all minimum parking standards were replaced with maximum ones in the entire Greater London. The London parking reform offers an opportunity to circumvent the above-mentioned identification problem and directly estimate the effect of parking standards on parking supply. In evaluating the parking reform in London, this study intends to answer the following questions: Has the shift from minimum to maximum parking standards reduced parking supply, as the decision makers and advocates expected? How do minimum and maximum parking standards, respectively, affect parking supply in residential developments? Did the citywide reform cause similar effects in all areas of London? How did local planning policies and market conditions shape the reform at the borough level?

Using a matched-pair approach to compare neighboring pre-reform and post-reform development applications, the study finds that the parking reform has lowered parking provision in residential developments, on average, by 0.76 spaces per dwelling unit, or a 49% reduction. Moreover, the removal of minimum parking requirements might have played a stronger role than the establishment of parking maximums. Minimum parking standards had larger and more universal binding effects across the city, while the maximum ones have mostly curbed parking supply in suburban areas. The results shed light on the rarely studied residential parking market and provide valuable evidence for future designers and students of parking management policies.

The paper is structured as follows: Section 2 reviews the literature, focusing on the three approaches to parking regulation and relevant empirical studies. Section 3 describes the London parking reform in detail. Section 4 introduces the datasets used in this study. Section 5 explains the estimation methods. Section 6 presents the empirical results, and Section 7 discusses the conclusions and policy implications.

2. Literature review

An important theme in transportation research is how to address the negative externalities of automobiles. Various policy remedies have been discussed and explored around the globe, most of which can be classified into two broad categories: land use strategies and pricing strategies. The former seeks to reduce the demand for car travel by increasing density and diversity, as well as producing environments that induce alternative travel modes, while the latter try to correct the externalities by making drivers bear the real costs of driving. Empirical studies have shown that both land use and prices influence travel behavior, though no one single policy is likely to solve the problem in its entirety (Ewing and Cervero, 2010; De Grange et al., 2012; Givoni, 2012; Guo et al., 2011).

Despite the close linkage between parking and driving, it is not until recently that the role of parking policies in automobile regulation becomes widely noticed. In his iconoclastic book “The high cost of free parking”, Shoup (2005) discusses how excessive minimum parking standards, together with free curb parking, have reinforced the automobile dependence, congestion, and urban sprawl in the United States. Bad parking policies distort both land use and prices: the oversupply of parking spaces contributes to generate urban environments that are unfriendly to pedestrians, cyclists, and transit passengers; underpriced non-residential parking induces car usage; moreover, minimum residential parking standards bundle the costs of parking with housing prices, thus lowering the marginal cost of owning a car and leading to inefficiently high car ownership levels.

As Barter (2010) puts it, the ubiquitous use of minimum parking requirements represents a “conventional approach” to parking policy that intends to control the spillover of parking needs to common parking spaces (e.g., curb parking).

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