The Housing Supply and Price Effects of Reducing Parking Requirements in U.S. Cities

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Research Question

How does reduction in parking requirements impact residential construction and house prices?

Overview

- There are roughly two billion parking spaces in the United States, nearly seven parking spots for each car, compared to 3.2 to 4.4 parking spaces per vehicle in Canada. This oversupply is largely a consequence of minimum parking requirements (MPRs), which were intended to support increasing car usage and now contribute significantly to housing costs.
- Recently, there has been a noteworthy shift in land use policies towards large-scale parking reforms. Despite widespread support, there is limited evidence on how parking reforms affect the housing supply, and hence the affordability of housing.
- Using national data on parking policies and building permits, I find that parking reforms increase housing supply and lower housing costs.

What are Minimum Parking Requirements (MPRs)?

- MPRs are zoning laws that require new buildings to include a fixed number of parking spaces
- MPRs were introduced and became popular in the mid-20th century to address the increasing car usage.
- They aim to reduce the demand for on-street parking and the associated negative externalities, such as parking overflow and traffic congestion (Shoup (1999); Nichols (2019)). However, their tendency to promote urban sprawl and hinder development opportunities has led to a waning popularity in recent times.
- Since 2010, 80 cities passed laws that relax parking requirements. Of these, 70 eliminate parking minimums either citywide or in city center/business districts and 56 apply to all land uses (which includes commercial or residential uses). Among the cities that eased parking requirements for new buildings are New York City (2016), Chicago (2013), San Francisco (2018), Seattle (2012), and Portland (2021).

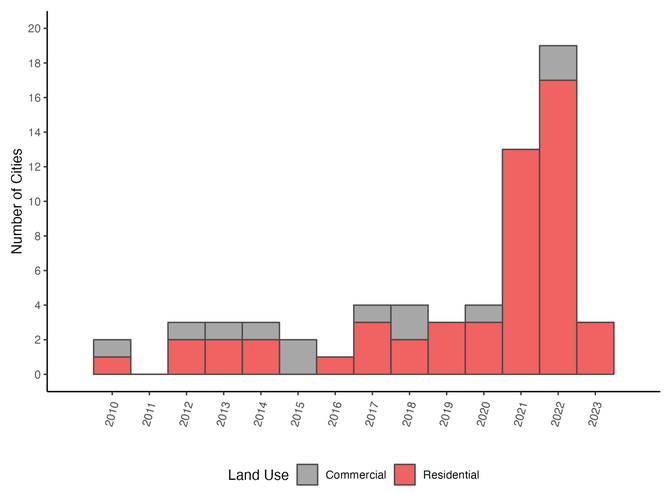

Figure 1. Number of cities that relaxed parking requirements between 2010 and first quarter of 2023. Red bars represent the number of cities that reduced parking requirements only for residential or both residential and commercial construction. The gray bars indicate the number of cities that eased parking requirements solely for commercial construction, which are used in the falsification exercise. *Data source: Parking Reform Network*

Data

- Census Place-level building permit data from **Census Building Permit Survey**
- House price data from **Zillow (ZHVI)**
- Parking policy data from **Parking Reform Network**

Estimation Equation

- Sun and Abraham (2021) TWFE estimator

$$y_{ict} = \delta_i + \gamma_{ct} + \sum_{\tau=-8, \tau\neq-1}^{8} \beta_\tau D_{it}^{\tau} + \nu_{ict} \quad (1)$$

$ln\, y_{it} =$ housing outcome in census place i, CBSA c, quarter-year t
$\delta_i =$ city FE
$\gamma_{ct} =$ CBSA quarter-year FE
$D_{it}^{\tau} =$ 1 when $t - t^* = \tau$ (where t^* is the year of the event)

- The four outcomes of interest include the natural log transformations of the number of buildings and the number of housing units, and house prices.

Main Results

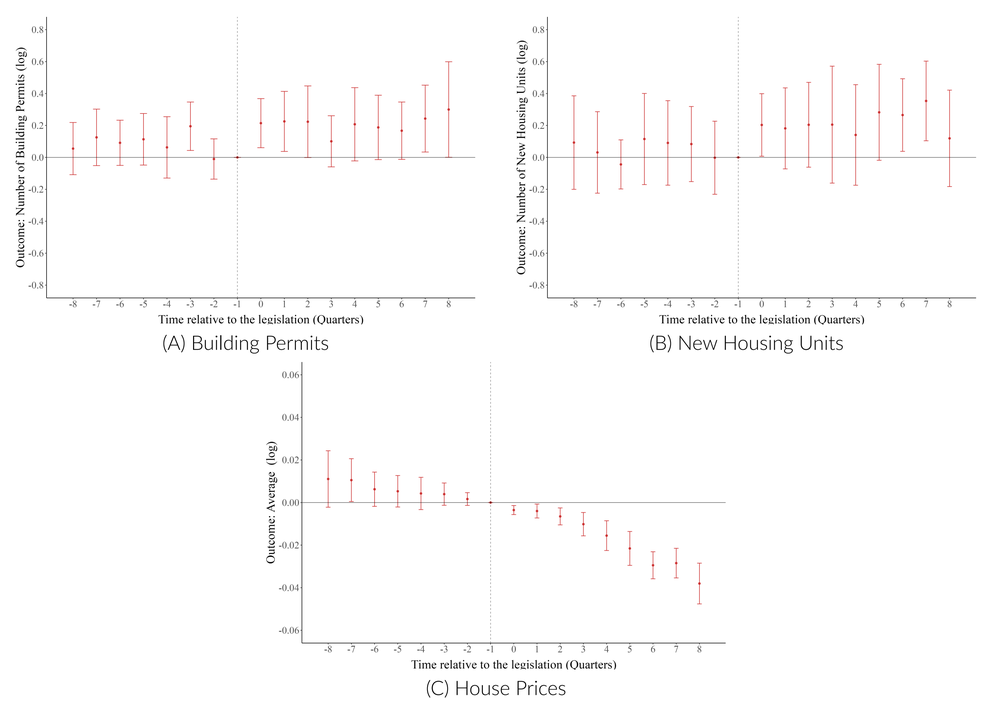

Figure 2. Main Outcomes. The estimated β_τ event study coefficients from a regression of the form given in equation (1). The event is defined as the adoption of reductions in parking requirements that apply to residential areas. τ_{-1}, the coefficient of the year prior to the adoption of parking reform, is normalized to zero. All regressions include $city$ and $cbsa \times quarter \times year$ fixed effects. The vertical lines reflect the 95% confidence intervals. Standard errors are clustered at city level.

Falsification Test

- Main analysis uses the cities where MPR reductions applies to residential construction. In this section, I run a falsification test where I only assign treatment to the cities that passed MPRs for commercial construction.

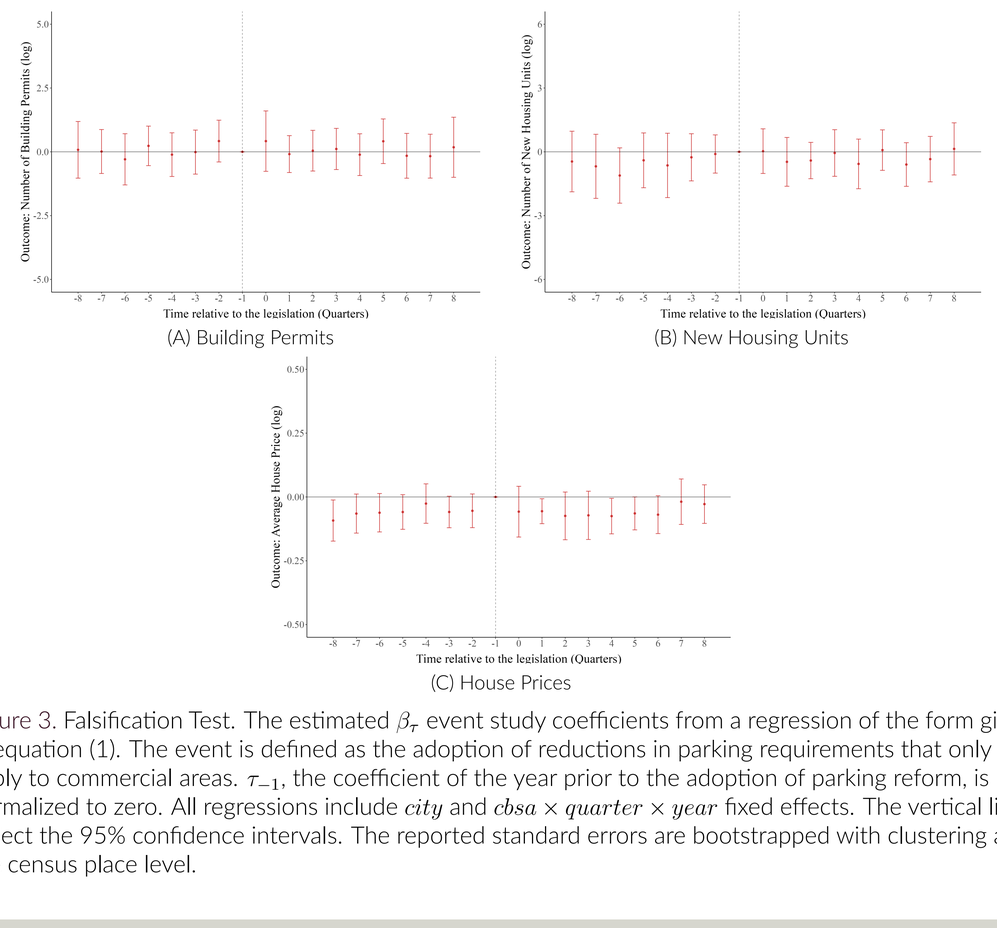

Figure 3. Falsification Test. The estimated β_τ event study coefficients from a regression of the form given in equation (1). The event is defined as the adoption of reductions in parking requirements that only apply to commercial areas. τ_{-1}, the coefficient of the year prior to the adoption of parking reform, is normalized to zero. All regressions include $city$ and $cbsa \times quarter \times year$ fixed effects. The vertical lines reflect the 95% confidence intervals. The reported standard errors are bootstrapped with clustering at the census place level.

Key Takeaways

- Reduction or elimination of MPRs lead to a substantial and immediate surge in housing supply and decline in house prices in the first 2 years after implementation.
- Falsification test shows that the results are not driven by pre-existing differences in cities that adopt parking reforms.

References

Nichols, C. M. (2019). Are parking minimums a thing of the past? *Institute of Transportation Engineers. ITE Journal*, 89(2):46–49.

Shoup, D. C. (1999). The trouble with minimum parking requirements. *Transportation research part A: policy and practice*, 33(7-8):549–574.

Sun, L. and Abraham, S. (2021). Estimating dynamic treatment effects in event studies with heterogeneous treatment effects. *Journal of Econometrics*, 225(2):175–199.