If You Can't Beat Them, Ban Them: Hotel Market Power and Short-Term Rental Regulations

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Power Begets Power?

Market power may influence regulation in ways that protect firms from competition

⇒ Market power can become self-reinforcing

Accommodation markets:

- Rising hotel concentration (e.g. Marriott-Starwood, 2016)
- Entry of short-term rental (STR) platforms (e.g., Airbnb)
- Increasing *local* regulation of STRs

Question: Does market concentration shape regulation, and how does that regulation reshape competition?

What the Paper Does

Step 1: Hotel consolidation $\Rightarrow$ STR regulation

- Use variation in local hotel concentration induced by the 2016 Marriott-Starwood merger
- Greater merger exposure increases the likelihood of STR regulation

Step 2: STR regulation $\Rightarrow$ market outcomes

- Airbnb capacity and revenue decline
- Hotel prices and revenue increase

Step 3: Illustrate the merger's effects through regulation

- Combine the merger's effect on adoption with regulation's effects on market outcomes

Data Sources

1. **Hotels**: Smith Travel Research, 2009–2024
   - Properties, brand affiliation, and monthly revenue, prices, and occupancy
2. **Short-term rentals**: AirDNA, 2014–2024
   - Listings, availability, prices and inferred bookings
3. **STR regulations**: manual research and GenAI-based collection
   - 1,018 cities with dated regulatory histories
4. **Local political activity**: Legistar municipal records
   - 10,028 STR-policy activities in 95 cities; stakeholder participation and positions

Why Might Hotel Consolidation Affect STR Regulation?

1. Greater gains from restricting competition Cowgill et al. (2024); Montag (2026)

- Competition among hotels can dissipate the gains from STR restrictions
- Larger gains may strengthen policymakers' incentives to protect hotels

2. Less free riding in advocacy Olson (1965); Moshary–Slattery (2024)

- Hotels benefit from restrictions even without contributing to advocacy
- Consolidation can reduce free riding and coordination costs

Why Would Common Brand Ownership Matter?

Pricing: coordination across independently owned hotels

- Parent companies provide shared revenue-management systems and pricing support
- Marriott managed rates for about 52% of its North American properties in 2018

Lobbying: organization across properties and brands

- Marriott coordinates advocacy through government-affairs staff and councils spanning brands and properties
- Industry associations build coalitions with housing, neighborhood, and labor groups to broaden support for STR restrictions

Does Consolidation Affect Regulations?

Marriott–Starwood merger: a national event with different local effects

- Completed in September 2016, creating the world's largest hotel company
- Larger concentration increases where both firms had greater pre-merger presence

Outcome: First STR regulatory adoption each semester, among cities not yet regulated

$$\text{Adoption}_{ct} = \beta\,\text{Exposure}_c \times \text{Post}_t + \alpha_c + \nu_{s(c)t} + \mathbf{x}'_{ct}\theta + \varepsilon_{ct}$$

- **Exposure**: merger-induced $\Delta\text{HHI} \geq 100$; post begins in 2016H2
- **Identification**: absent the merger, exposed and unexposed cities would have parallel adoption-hazard trends, conditional on controls

City and state-by-semester fixed effects; housing, demographic, and tourism controls; standard errors clustered by city

Marriott–Starwood Merger and STR Regulation

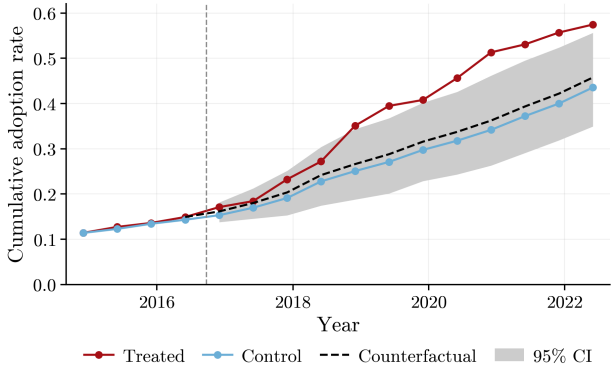
	Any regulation	Beyond licensing	Quantity restrictions	Platform obligations
Exposure × Post	0.0224^{***}	0.0222^{***}	0.0202^{***}	0.0068^{***}
	(0.0075)	(0.0060)	(0.0054)	(0.0024)
Baseline adoption probability	3.33%	1.91%	1.41%	0.15%
Cities	906	926	945	974

Merger exposure raises adoption by **2.24 pp per semester—a 67% increase**

Robustness

- Alternative exposure thresholds, pre-period windows, and propensity-score weighting
- Allowing heterogeneous adoption trends by demographic and political characteristics
- Using exposure to all national hotel mergers during the sample period

Robustness: Nonparametric Hazard



- Estimates the counterfactual adoption path nonparametrically, using pre-merger hazard differences (Deaner & Ku, 2024)
- Post-merger cumulative regulatory adoption exceeds the counterfactual

Alignment of Political and Market Boundaries

Regulation is local; travelers can substitute across city boundaries

- Restrictions in one city may shift demand toward STRs in neighboring cities

Why alignment matters

- Greater alignment limits substitution toward unregulated STRs outside the city
- This may increase hotels' gains from restrictions and incentives to seek regulation

Measuring alignment: How much of the city's hotel markets lies within its borders?

- Hotel markets: areas grouping close substitutes, defined by Smith Travel Research
- If a city's hotels all belong to one market, alignment is its share of that market's hotels
- For cities spanning multiple markets, use a weighted average of within-city shares

Geographic Alignment and STR Regulation

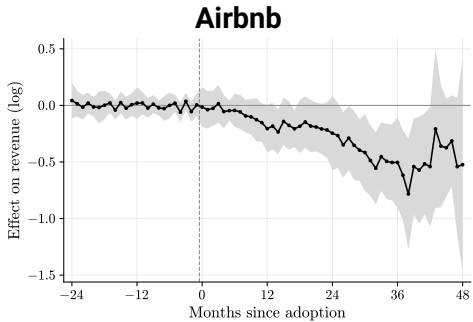
	Any regulation	Beyond licensing	Quantity restrictions	Platform obligations
Exposure × Post	0.0124	$\mathbf{0.0156}^{**}$	$\mathbf{0.0164}^{***}$	0.0033
	(0.0076)	(0.0062)	(0.0057)	(0.0022)
Exposure × Post × Alignment	$\mathbf{0.0199}^{***}$	0.0064	0.0025	$\mathbf{0.0089}^{***}$
	(0.0072)	(0.0057)	(0.0045)	(0.0030)
Cities	833	852	869	893

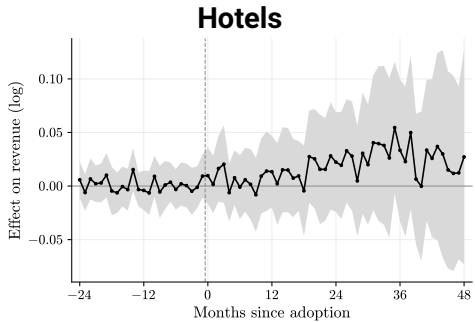
- One SD more alignment adds 1.99 pp to the merger effect on any regulation per semester—about 60% of the 3.33% baseline adoption probability
- Positive alignment interaction persists when adoption trends and merger responses can differ by city population and hotel inventory

Alignment standardized; includes Alignment × Post and baseline controls/FE

Market Outcomes Following First STR Regulation

Treatment: First adoption by a city within the hotel market; pre-COVID sample





Airbnb revenue falls following adoption; hotel revenue rises (imprecisely estimated)

Callaway–Sant'Anna (2021); log revenue; six-month anticipation; 95% simultaneous bands

Regulatory Coverage and Market Outcomes

Effects of increasing the share of rooms/listings in regulated cities from 0 to 100%

Outcome	Change (%)	Level change
Airbnb revenue	-29.4^{***} (4.9)	$-\$1.20^{***}$ million/month (0.25)
Airbnb capacity	-18.4^{***} (3.7)	$-10{,}070^{***}$ available nights/month (2,296)
Hotel average daily rate	3.4^{***} (1.1)	$\$4.55^{***}$/night (1.49)
Hotel revenue	6.5^{***} (2.2)	$\$1.96^{***}$ million/month (0.64)

Greater regulatory coverage $\Rightarrow$ lower Airbnb activity and higher hotel prices and revenue

Log-outcome TWFE; level changes averaged across market-months; dollars in 2019 prices

Quantifying the Merger's Regulatory Channel

Combining merger–regulation and regulation–outcome estimates:

Illustrative effects after four years in an initially unregulated, single-city market

Airbnb capacity	Hotel prices	Hotel revenue
-2.51%	$+0.44\%$	$+0.83\%$

Implication: Consolidation can reinforce market power through regulation

- Merger assessment could also consider effects on regulation facing competitors

When Firms Merge, Do the Rules Change Too?

Hotel consolidation is followed by more STR regulation—and greater regulatory coverage favors hotels

Through what political channels?

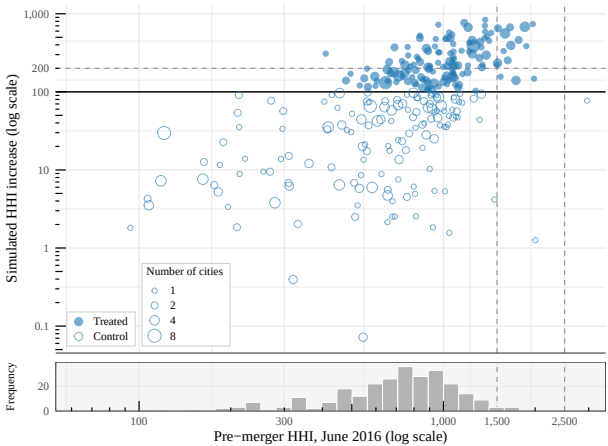
- Larger regulatory responses where city and market boundaries align
- *Additional evidence*: Documented local advocacy shifts toward hotel-aligned positions in merger-exposed cities
- How consolidation changes the rulemaking process remains open

What about welfare?

- We do not assess overall welfare effects
- How do housing and neighborhood benefits compare with costs to travelers and accommodation providers?

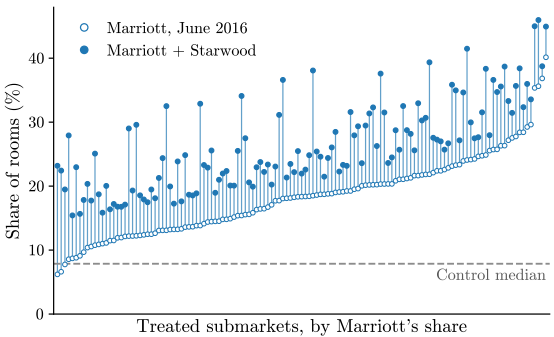
Appendix

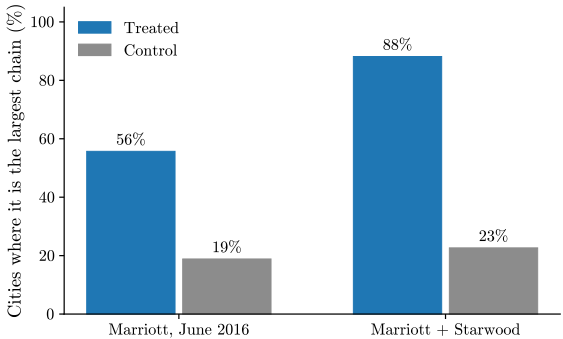
Local Concentration Changes from the Merger



June 2016 room inventory held fixed; filled markers indicate $\Delta\text{HHI} \geq 100$; marker size reflects cities per market
Top: markets with positive ΔHHI; bottom: markets with no change; dashed lines show 2010 Guidelines thresholds

Marriott's Local Position Before and After the Merger





- Marriott's combined room share rises substantially in treated markets
- Largest chain in 88% of treated cities, versus 56% before the merger

Constructing the STR Regulation Data

Collection and coding

- Manual collection for 323 cities, independently reviewed by a second RA
- GenAI with web search expands coverage to 1,058 cities, prioritizing official sources
- Record enactments and amendments, dates, provisions, and source links

Share of cities by end of 2023

Any STR regulation	55%
Beyond registration	40%
Quantity restrictions	32%
Platform obligations	7%

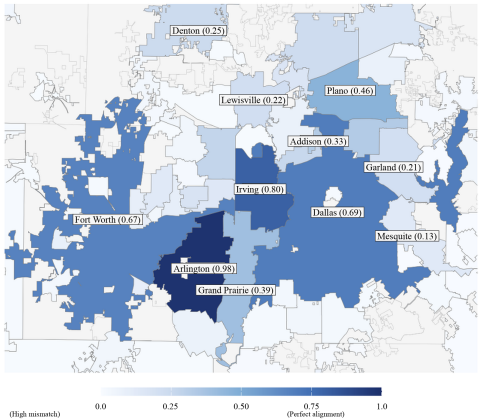
Shares use the 1,058-city collection roster; categories overlap
Dated analysis panel: 1,018 cities after excluding 40 with missing adoption dates or data links

Geographic Alignment: Measurement

For each overlapping market, measure its within-city hotel share

$$\text{Alignment}_c = \sum_j \underbrace{\frac{n_{cj}}{N_c}}_{\text{weight}} \underbrace{\frac{n_{cj}}{M_j}}_{\text{within-city share}}$$

- n_{cj}: hotels in city c and market j
- N_c: total hotels in city c
- M_j: total hotels in market j



Hotel property counts from the 2017 census; Dallas spans six submarkets and has alignment of 0.69

Documented Advocacy Shifts Toward Hotel-Aligned Positions

- Local legislative records from Legistar: letters, testimony, petitions, and other activities
- Classify activities as hotel- or STR-aligned using participants' affiliations & positions
- For each city c, semester t, and advocacy side $s \in \{\text{hotel-aligned}, \text{STR-aligned}\}$:

$$\mathbb{E}[\text{Num. Activities}_{sct}] = \exp\Big[\alpha_{cs} + \lambda_{ts} + \delta\,\text{Exposure}_c\text{Post}_t + \beta\,\mathbf{1}\{s = \text{hotel-aligned}\}\text{Exposure}_c\text{Post}_t\Big]$$

- Merger exposure raises the hotel-to-STR activity ratio by 233% ($e^{\beta} - 1$)

$\hat{\beta} = 1.203$ (SE 0.530); 33 cities; city-by-side and semester-by-side FE; city-clustered SEs

Direct Hotel Participation and Coalition-Based Advocacy

Louisville, 2015–2016

- Herb Warren, owner of Old Louisville Inns, proposed a specific enforcement program

Chapel Hill, 2018–2021

- Joint petition, June 2019: combined concerns about hotel competition and unequal regulatory obligations with housing affordability and neighborhood cohesion

Counting only participants explicitly identified with hotels can miss some industry-supported advocacy

Calculating the Regulatory Channel

Step 1: Adoption probabilities

Semester hazards: $h_0 = 3.33\%$ without exposure; $h_1 = 5.58\%$ with exposure

$$p_m(t) = 1 - (1 - h_m)^t, \qquad m \in \{0, 1\}$$

Step 2: Market outcomes

Full-coverage effect: $\theta_Y = \exp(\beta_Y) - 1$

$$\text{Indirect effect}_t^Y = 100\,\frac{[p_1(t) - p_0(t)]\theta_Y}{1 + p_0(t)\theta_Y}$$

- Initially unregulated, single-city market; $t = 8$ for four years
- Constant adoption hazards and regulation effects

Effects at the stated horizon, not cumulative effects