

The Effect of Short-Term Rentals on Local Consumption Amenities: Evidence from Madrid

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Motivation

- Short-term rentals contribute to substitute residents for tourists whose **consumption patterns** differ from each other.
- Airbnb-induced tourism leads to urban transformation enhancing **tourist-oriented establishments** such as restaurants, bars, cafes and clubs.
- Unlike the traditional accommodation industry, short-term rentals spread across the city, therefore **redistributing the economic impact** of tourism outside downtown areas.



Figure 1. : On the left, the change in the number of short-term rentals during the period 2019-2014 whereas on the right, the change in food and beverage establishments for the same period.

Empirical Strategy

We estimate the effect of short-term rentals arrival on the number of consumption amenities at the census tract level during the period 2014-2019 in Madrid.

$$\text{Consumption amenities}_{i,t} = \beta \text{Airbnb rooms}_{i,t} + \rho X_{i,t} + \delta_t + \gamma_i + \epsilon_{i,t}$$

- Bartik-like IV:** We instrument the number of Airbnb rooms in census tract i in year t with the interaction between the share of rental houses in 2011 in each census tract and Google Trends for the word Airbnb.

$$\text{Shift-Share}_{i,t} = \text{Rental houses}_{i,2011} \times \text{Airbnb Google Searches}_t$$



Figure 2. Bivariate map of the distribution of rental houses in 2011 and the change in the number of Airbnb rooms during the period 2014-2019. City center census tract not displayed to show instrument relevance beyond downtown areas.

Results

We find evidence that short-term rentals foster consumption amenities although half of the increase is explained by displacement existing stores.

	OLS				IV		
	(1)	(2)	(3)	(4)	(5)	(6) ^a	(7) ^b
Airbnb rooms	0.197*** (0.009)	0.022*** (0.004)	0.021*** (0.004)	0.054*** (0.009)	0.071*** (0.014)	0.039*** (0.008)	0.032*** (0.009)
Covariates	x	x	x	x	x	x	x
Census tract fixed effects		x	x	x	x	x	x
Year fixed effects		x	x	x	x	x	x
Distance × year			x		x	x	x
Adjusted R-squared	0.450	0.986	0.987				
F Stat, Excluded instrument				48.466	68.246	68.246	68.246

- Alternative specification:** we replicate our IV using log-level specification, a CF-IV, alternative measures of Airbnb activity like the number of listings and reviews and adding the Airbnb rooms from neighbors census tract to control for spatial spillovers.
- Alternative sample:** we replicate our empirical strategy for Barcelona, removing all census tract in Madrid with new hotel openings or being located in the city center and near the airport, and using different aggregation units such as neighborhoods or transport zones.

Mechanism

We complement our initial results accessing the effect of Airbnb on **employment, consumption amenities individually** and **other activities**.

	Employment	Heterogeneous effects				Gentrification activities
	Food and Beverage Restaurants (1)	Restaurants (2)	Bars (3)	Cafes (4)	Clubs (5)	Cultural and creative industries (6)
Airbnb rooms	0.7976** (0.356)	0.036*** (0.008)	0.023*** (0.006)	0.011** (0.006)	-0.001 (0.002)	0.007 (0.006)
Covariates	x	x	x	x	x	x
Census tract fixed effects	x	x	x	x	x	x
Year fixed effects	x	x	x	x	x	x
Distance × year	x	x	x	x	x	x

Conclusions

- Test the local impact of **Airbnb** on **consumption amenities** using small administrative units (census tract) as unit of observation.
- Positive effect in **employment** and **number of establishments** after ruling out displacement effect.
- Higher effects in **off-the-beaten touristic areas**.

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Full paper