

Urban Amenities and Tourism: Evidence from Tripadvisor

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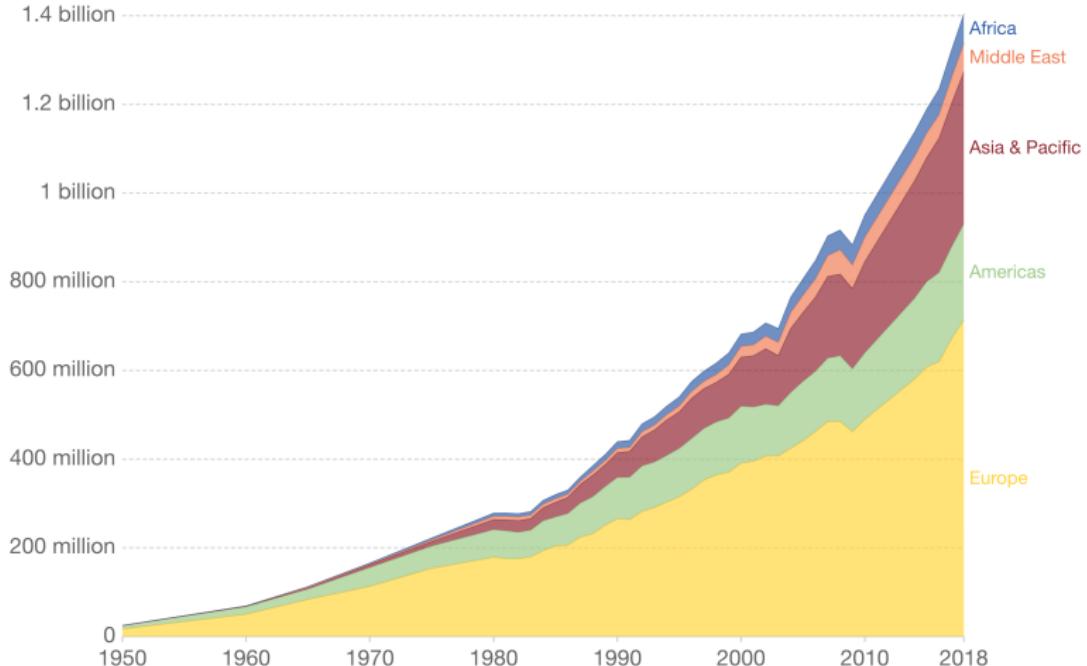
30 September, 2022



Tourism Arrivals Double Every 15-20 years

International Tourist Arrivals by World Region

Our World
in Data



Source: United Nations World Tourism Organization - World Tourism Barometer (2019)

OurWorldInData.org/tourism/ • CC BY

Motivation

- ▶ Rapid growth of tourism and urbanization
- ▶ Tourism congestion is highly localised
- ▶ Residents and tourists compete for the space and infrastructure
- ▶ Growing discontent: the term 'overtourism' was coined
- ▶ Spread of anti-tourism protests across Europe



Research Question

- ▶ **What is the impact of tourism on urban amenities and residents' quality of life?**
- ▶ We also test three mechanisms:
 - ▶ Congestion
 - ▶ Supply-side change
 - ▶ Xenophobia
- ➡ We draw on two episodes of exogenous drop in tourism:
 - ▶ November 2015 Paris terrorist attacks
 - ▶ First wave of COVID-19 pandemic

Related Literature

- ▶ Economics of tourism. The positive effects are more explored ([Faber and Gaubert, 2019](#); [Copeland, 1991](#); [Chao et al., 2006](#)). Literature on interaction between tourism and amenities ([Allen et al., 2020](#); [Almagro and Dominguez-lino \(2019\)](#); [Lanzara and Minerva, 2019](#); [Panzera et al., 2021](#); [Takahashi, 2019](#)); .
- ▶ Literature on the economic role of urban amenities ([Rosen, 1979](#), [Roback, 1982](#); [Glaeser et al., 2001](#); [Carlino and Saiz, 2019](#); [Couture and Handbury, 2020](#); [Lee, 2010](#)). Product variety in the city ([Waldfogel, 2008](#); [Mazzolari and Neumark, 2012](#); [Schiff, 2015](#)). Restaurants rankings ([Kuang, 2017](#)).
- ▶ COVID-19 and the city ([Gupta et al., 2021](#); [Althoff et al., 2020](#); [De Fraja et al., 2020](#); [Miyauchi et al., 2021](#); [Couture et al., 2021](#); [Gupta et al., 2020](#); [Coven et al., 2020](#)).

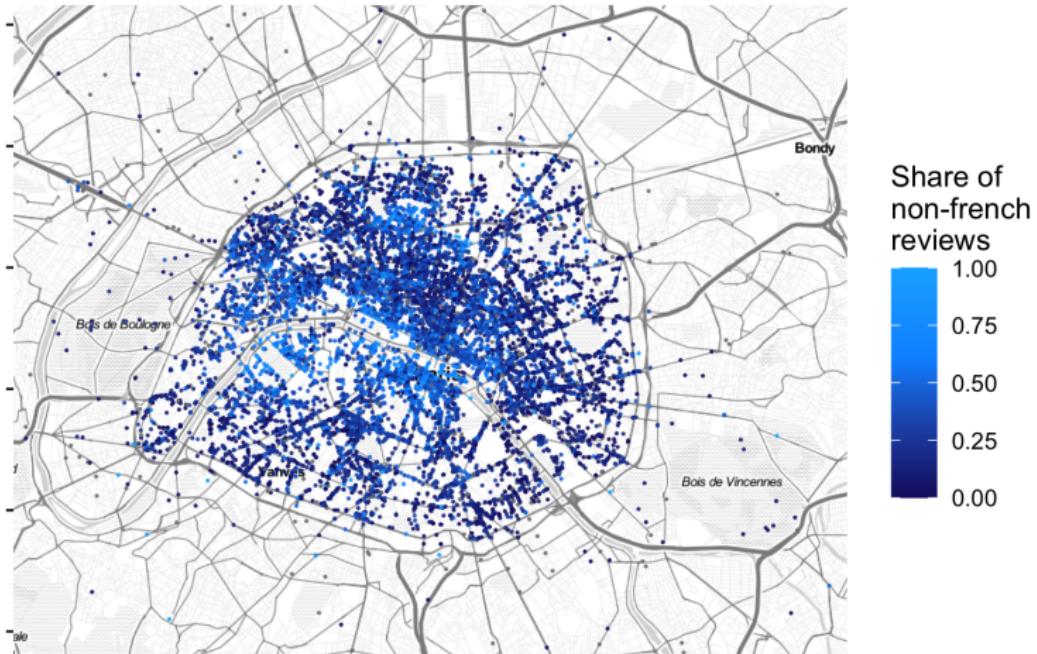
Data

- ▶ **Tripadvisor:** We collect data on restaurants reviews. We construct unique and highly detailed panel that reflects city's restaurant consumption across space and time. The final sample consists of around *17,000* restaurants and *2 million* reviews.
- ▶ **'Dans ma rue' - Mairie de Paris:** application that allows users to write and geolocate complaints in Paris, e.g.
 - ▶ Abandoned bulky objects, Waste & dirt, Damaged road, Inconvenient parking, Graffiti, Overflowing litter bin, Rats
- ▶ **Facebook Social Connectedness Index**
 - ▶ Measures the density of network connections between users from different countries
- ▶ **Population and jobs** data from Insee

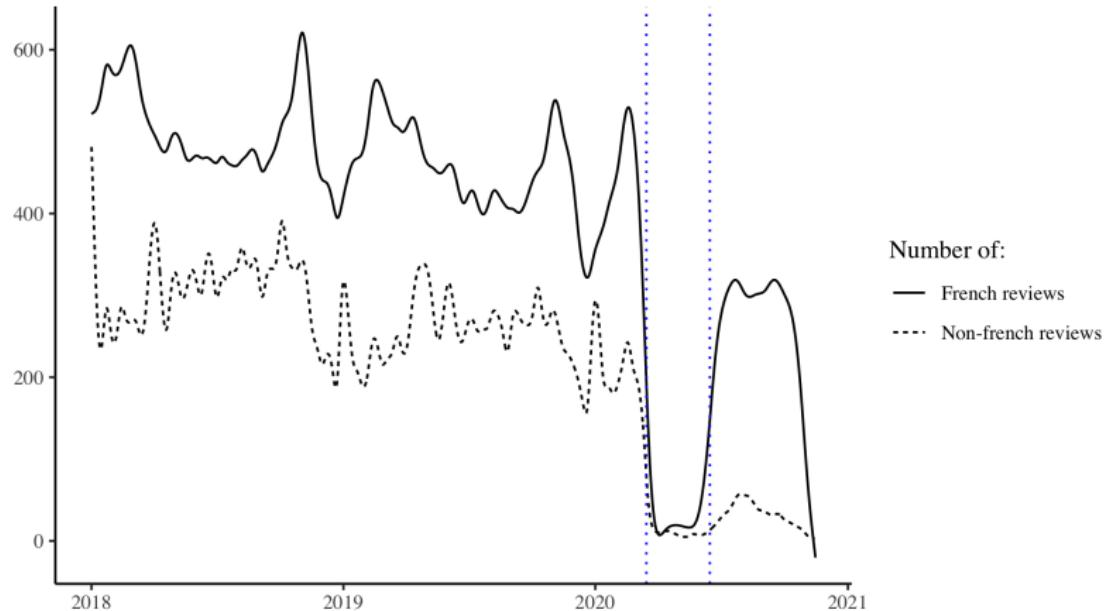
Two proxies of tourism:

- ▶ Share of reviews written by users with 'location' not in Paris
 - ▶ 'Location' is defined for 64 % of users.
 - ▶ 12 % of them has 'Paris' as a location.
 - ▶ Proxy for both international and domestic tourism
- ▶ Share of reviews not written in French
 - ▶ 28 languages
 - ▶ Proxy international tourism
- ▶ Two measures are highly correlated ($R^2 = 0.77$)

Map of Restaurants by Share of Non-French Reviews



Daily Number of Restaurant Reviews in Paris



Whole period

Empirical Strategy: Difference in Difference

$$Y_{jt} = \beta \times \text{Post-Lockdown}_t \times \text{Tourism}_j + \gamma_j + \delta_t + \theta_{tn} + \epsilon_{jt} \quad (1)$$

- ▶ Y_{jt} is an outcome of restaurant j in month t
- ▶ Post-Lockdown_t – a binary variable indicating whether month t belongs to the period from *June to October, 2020*
- ▶ Tourism_j – to what extent restaurant j is frequented by tourists
- ▶ γ_j – restaurant fixed effects
- ▶ δ_t – month fixed effects
- ▶ θ_{tn} – month \times neighborhood fixed effects
- ▶ We cluster standard errors at the restaurant level

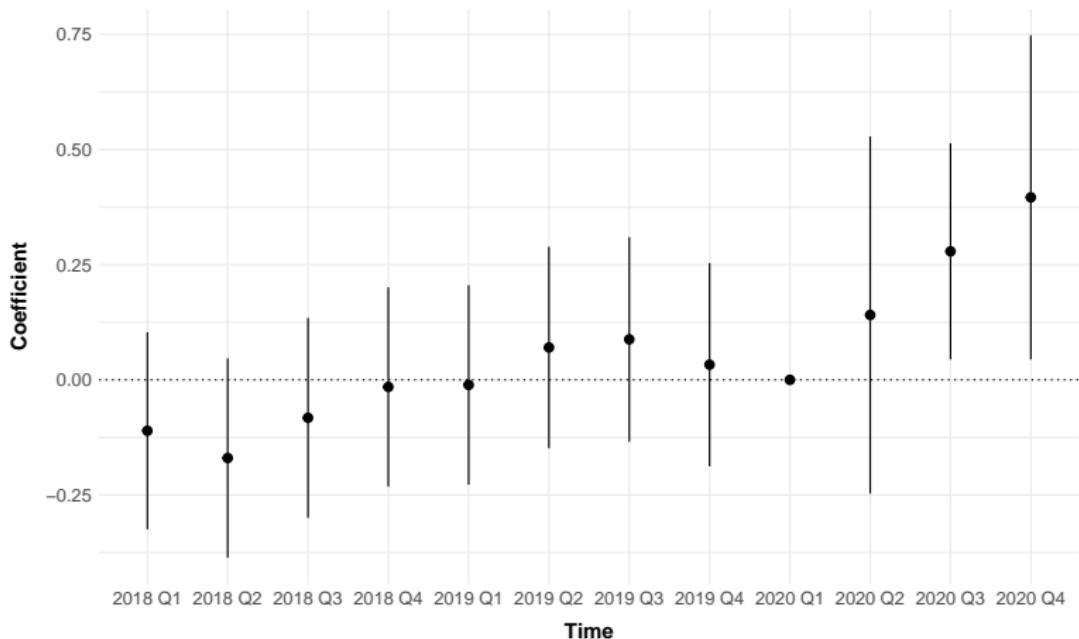
Tourism and Restaurant Ratings

Dependent Variable:	Avg. Rating by Parisian			
Model:	(1)	(2)	(3)	(4)
<i>Variables</i>				
Post-Lockdown	0.4237*** (0.1040)	0.3914*** (0.1133)		
x Share Non-Parisian				
Post-Lockdown			0.1499*** (0.0445)	0.1329*** (0.0480)
x Top 25% Most Touristic				
<i>Fixed-Effects</i>				
Restaurant	Yes	Yes	Yes	Yes
Month	Yes	No	Yes	No
Month x Neighborhood	No	Yes	No	Yes
<i>Fit statistics</i>				
Observations	65,248	65,248	65,248	65,248
R ²	0.34349	0.37169	0.34343	0.37164
Within R ²	0.00033	0.00022	0.00023	0.00015

One-way (Restaurant) standard-errors in parentheses.

Signif Codes: ***: 0.01, **: 0.05, *: 0.1

Pre-Trends



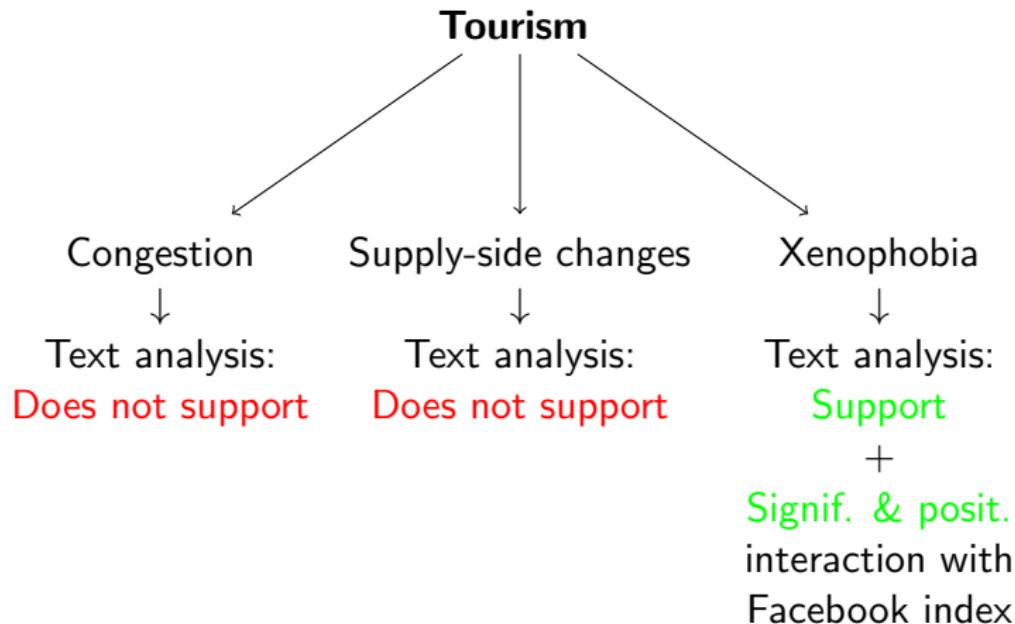
Tourism and Restaurant Ratings (User x Post FE)

	Rating			
	(1)	(2)	(3)	(4)
<i>Variables</i>				
Tourism Share × Post-Lockdown	0.2781*** (0.0830)	0.1866* (0.0969)	0.2587** (0.1205)	0.3393** (0.1558)
<i>Fixed-effects</i>				
Restaurant	Yes	Yes	Yes	Yes
Month	Yes	Yes		
User		Yes	Yes	
Month × Neighborhood			Yes	Yes
User × Post-Lockdown				Yes
<i>Fit statistics</i>				
Observations	120,314	120,314	120,314	120,314
R ²	0.28145	0.73488	0.74564	0.76153
Dependent variable mean	3.8803	3.8803	3.8803	3.8803

Other Results

- ▶ Posit. and signif. for **the streets anomalies** Dans ma rue
- ▶ Posit. and signif. for **2015 terrorist attacks** Bataclan
- ▶ Robust to:
 - ▶ Different measures of tourism
 - ▶ Different aggregation periods

Potential Mechanisms



Text Analysis

- ▶ We use dictionary-based approach
- ▶ We read a large sample of reviews left by Parisians and selected keywords for five topics:
 - ▶ Talk about tourists or tourism
 - ▶ Low food quality (*supply-side*)
 - ▶ Too expensive (*supply-side*)
 - ▶ Too noisy (*congestion*)
 - ▶ Wait for too long (*congestion*)
- ▶ We think of improving this classification algorithm using word embedding

Textual Outcomes

	Tourists (1)	Low Food Quality (2)	Too Expensive (3)	Too Noisy (4)	Long Wait (5)
Panel A: restaurant-level					
<i>Variables</i>					
Tourism Share × Post-Lockdown	-0.0646*** (0.0112)	-0.0032 (0.0190)	0.0044 (0.0142)	0.0093 (0.0109)	-0.0132 (0.0123)
<i>Fixed-effects</i>					
Restaurant	Yes	Yes	Yes	Yes	Yes
Month × Quarters	Yes	Yes	Yes	Yes	Yes
<i>Fit statistics</i>					
Observations	75,997	75,997	75,997	75,997	75,997
R ²	0.24881	0.23065	0.19966	0.18782	0.19802
Dependent variable mean	0.02306	0.07168	0.04727	0.02365	0.02561
Panel B: review-level					
<i>Variables</i>					
Tourism Share × Post-Lockdown	-0.0891*** (0.0222)	-0.0032 (0.0311)	-0.0334 (0.0278)	0.0145 (0.0265)	-0.0332 (0.0223)
<i>Fixed-effects</i>					
User-Post-Lockdown	Yes	Yes	Yes	Yes	Yes
Restaurant	Yes	Yes	Yes	Yes	Yes
Month × Neighborhood	Yes	Yes	Yes	Yes	Yes
<i>Fit statistics</i>					
Observations	111,756	111,756	111,756	111,756	111,756
R ²	0.56827	0.60988	0.53738	0.47727	0.53808
Dependent variable mean	0.02274	0.07506	0.05095	0.02816	0.02702

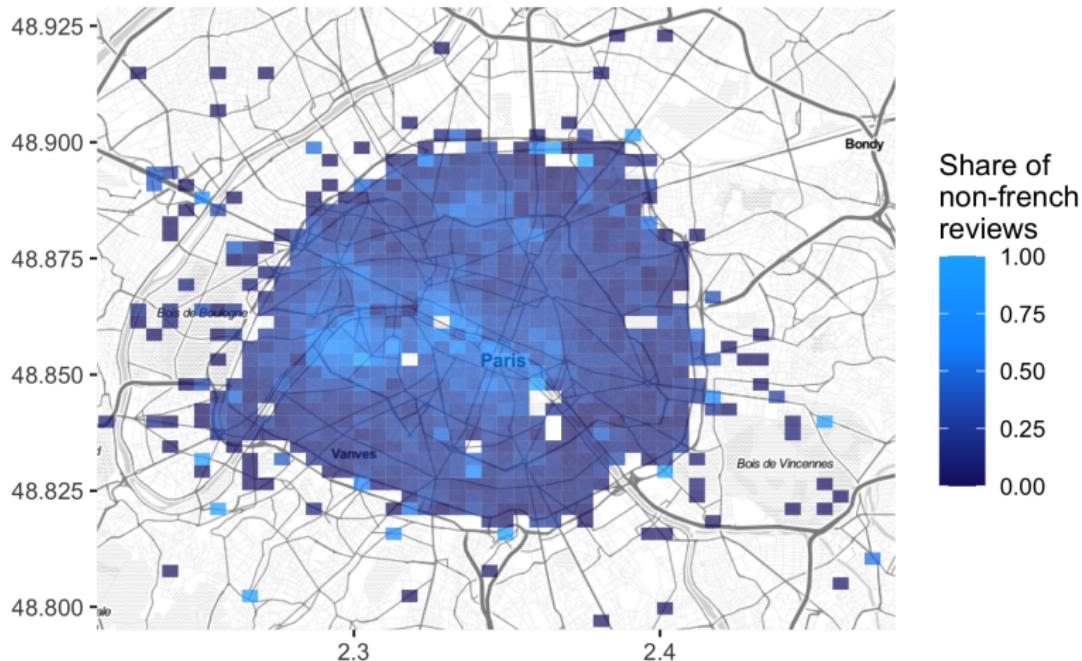
Social Proximity

	(1)	(2)	(3)	Avg. Rating by Parisian (4)
<i>Variables</i>				
Tourism Share × Post-Lockdown	0.3073 ** (0.1206)			
Tourism Share × Post-Lockdown × High SCI		0.1623 (0.1506)		
Tourism Share × Post-Lockdown × Low SCI			0.3379 *** (0.1209)	
Top 25% Most Touristic × Post-Lockdown				0.0865 (0.0571)
Top 25% Most Touristic × Post-Lockdown × High SCI				0.0384 (0.0674)
Top 25% Most Touristic × Post-Lockdown × Low SCI				0.1209 * (0.0637)
<i>Fixed-effects</i>				
Restaurant	Yes	Yes	Yes	Yes
Month × Neighborhood	Yes	Yes	Yes	Yes
<i>Fit statistics</i>				
Observations	62,050	62,050	62,050	62,050
R ²	0.36701	0.36705	0.36696	0.36698
Dependent variable mean	3.8055	3.8055	3.8055	3.8055

Conclusion

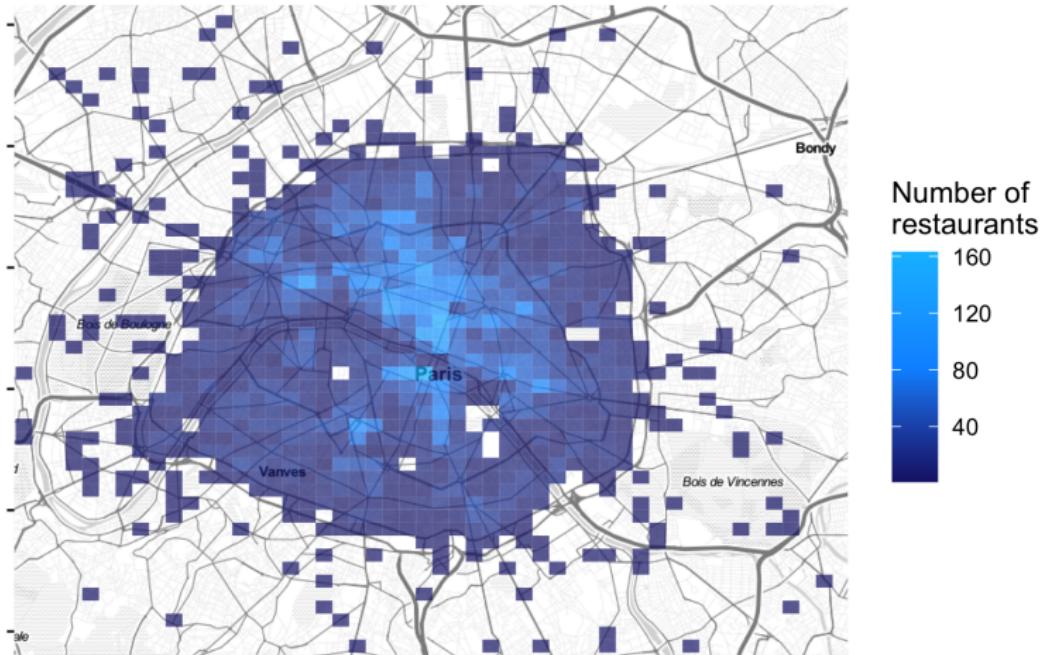
- ▶ We document that during the pandemic a drop in tourism caused an increase in Parisians' satisfaction with restaurants and other amenities
- ▶ We document a similar effect for another shock in tourism caused by 2015 Paris attacks
- ▶ We consider three mechanisms — overcrowding, supply-side changes and aversion towards tourists — and find support for the aversion mechanism
 - ▶ During the pandemic the word 'tourist' became less frequent in reviews, while words relating to food quality, price and overcrowding stay on the same level
 - ▶ The improvement in ratings was stronger in restaurants popular among tourists from countries with a weaker social connection to France measured with Facebook connectedness index

Grid Map of Restaurants by Share of Non-French Reviews



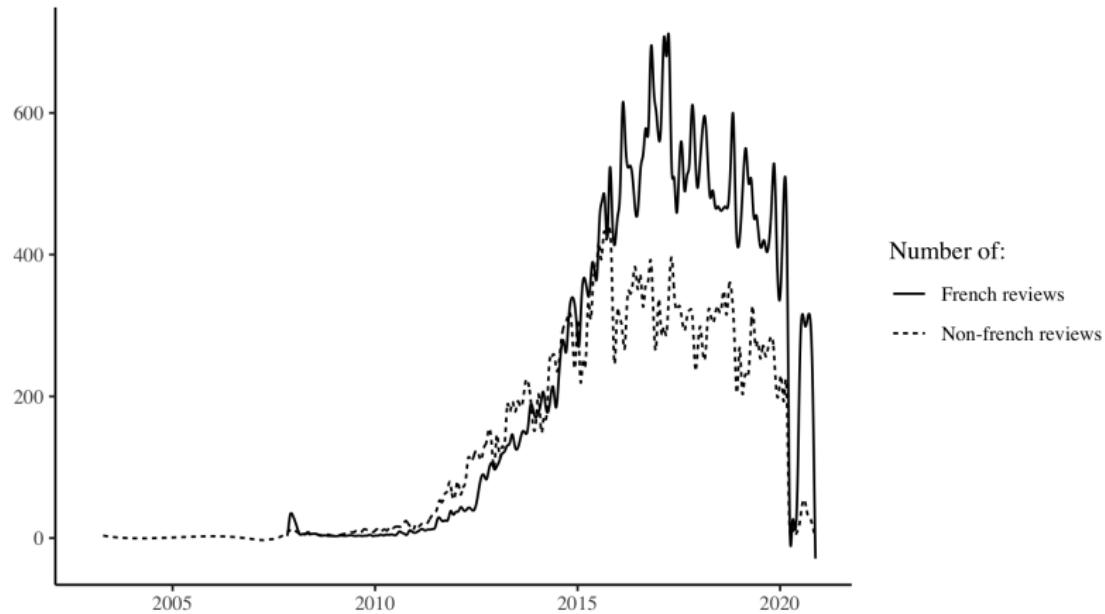
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Grid Map of Restaurants Density



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Historical Trend of Numbers of Reviews in Paris



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“Dans Ma Rue” Complaints

	# Complaints			
	(1)	(2)	(3)	(4)
<i>Variables</i>				
Share Tourism	-0.6570***	-0.2581*		
× Post-Lockdown	(0.2272)	(0.1364)		
Top 25% Most Touristic			-0.3527***	-0.1504**
× Post-Lockdown			(0.1213)	(0.0726)
<i>Fixed-effects</i>				
Restaurant	Yes	Yes	Yes	Yes
Month	Yes		Yes	
Month × Quarter		Yes		Yes
<i>Fit statistics</i>				
Observations	366,930	305,332	366,930	305,332
R ²	0.48157	0.68477	0.48024	0.68481
Dependent variable mean	0.40114	0.48207	0.40114	0.48207

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Paris Terrorist Attack 2015

	Rating by Parisians (1)	Rating by Parisians (2)	Rating by Non-Parisians (3)	Rating by Non-Parisians (4)
<i>Variables</i>				
Tourism Share × Post-Attack	0.0992** (0.0445)	0.1096** (0.0508)	0.0216 (0.0264)	0.0248 (0.0314)
<i>Fixed-effects</i>				
Restaurant	Yes	Yes	Yes	Yes
Month	Yes		Yes	
Month × Quarter		Yes		Yes
<i>Fit statistics</i>				
Observations	44,572	44,572	64,387	64,387
R ²	0.35707	0.37938	0.31664	0.33293
Within R ²	0.00015	0.00015	1.36×10^{-5}	1.36×10^{-5}

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