You Can't Sit with Us: How Locals and Tourists Compete for Urban Amenities

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Paris Town Hall (2019): “Are there too many tourists in Paris?”

There were reasons for concern. In 2019:

- France was the most visited country in the world
- Paris was the third most visited city in the world
- The number of foreign tourists to France had more than doubled over the previous 15 year
- During the year, 35.4 million tourists stayed in the city's hotels, which is approximately 16 times more than the population of the city.

Anti-Tourism Protests across Europe

And then...


THE EIFFEL TOWER IS CLOSED DUE TO THE
COVID-19 PANDEMIC !
WE ARE LOOKING FORWARD TO SEEING YOU

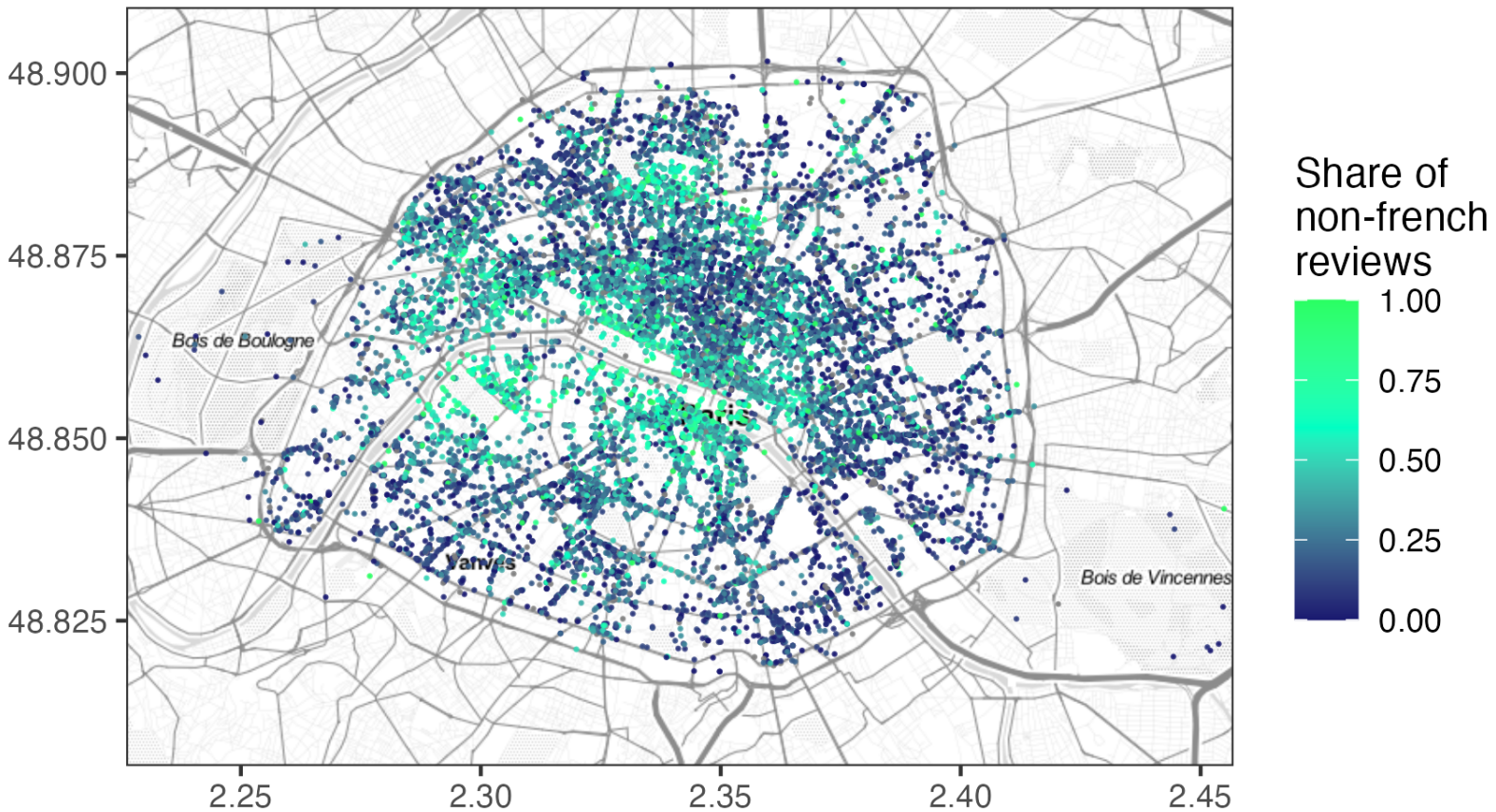
Research Question

How does tourism affect locals' satisfaction with amenities?
We focus on restaurants as a classic example of amenities to answer this question.

- We test three mechanisms:
  - Overcrowding
  - Supply-side change
  - Social frictions, such as xenophobia towards tourists

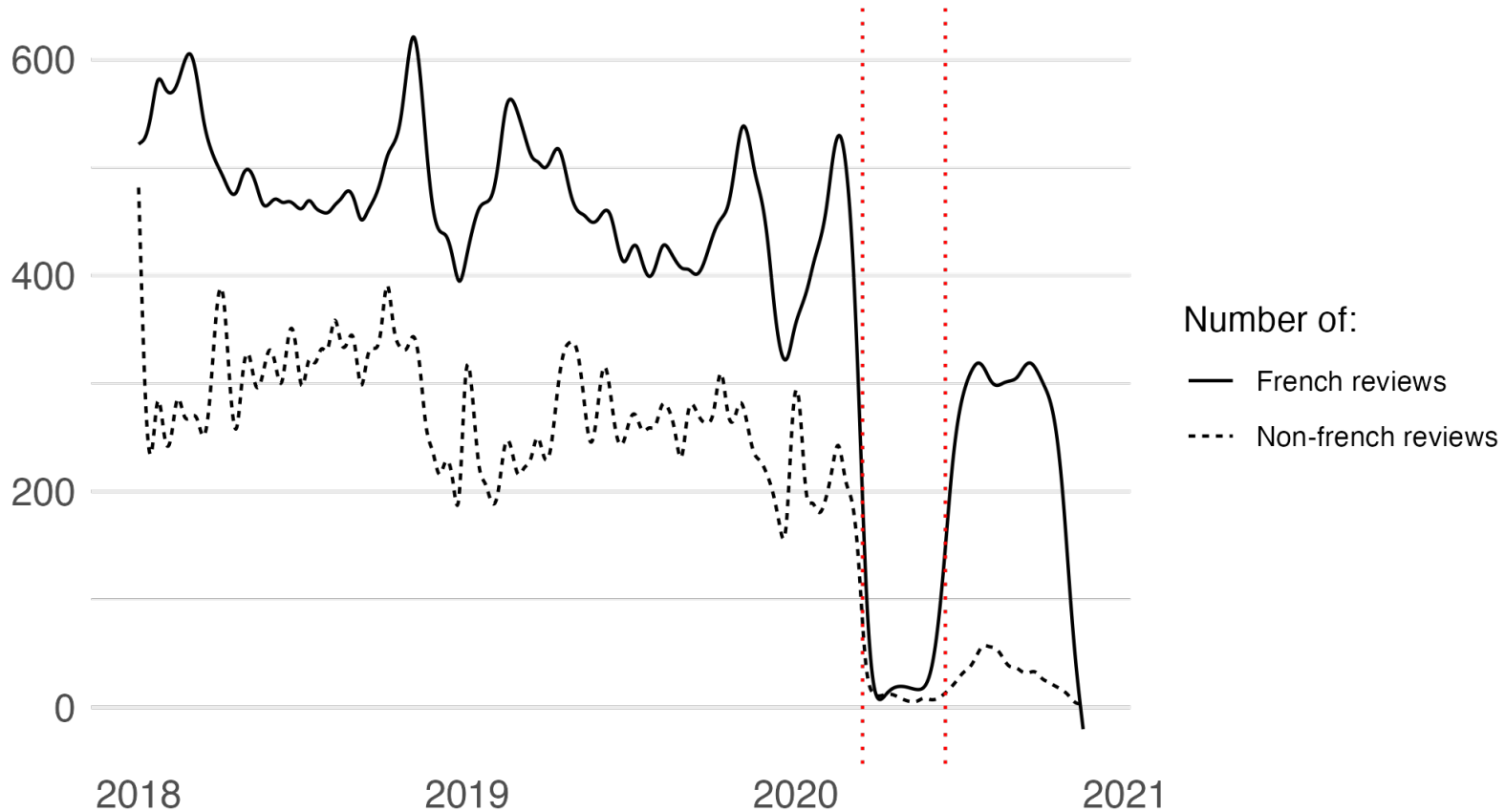
$\Longrightarrow$ We draw on two episodes of exogenous drop in tourism:
  - November 2015 Paris terrorist attacks
  - First wave of COVID-19 pandemic

Map of Restaurants by Share of Non-French Reviews

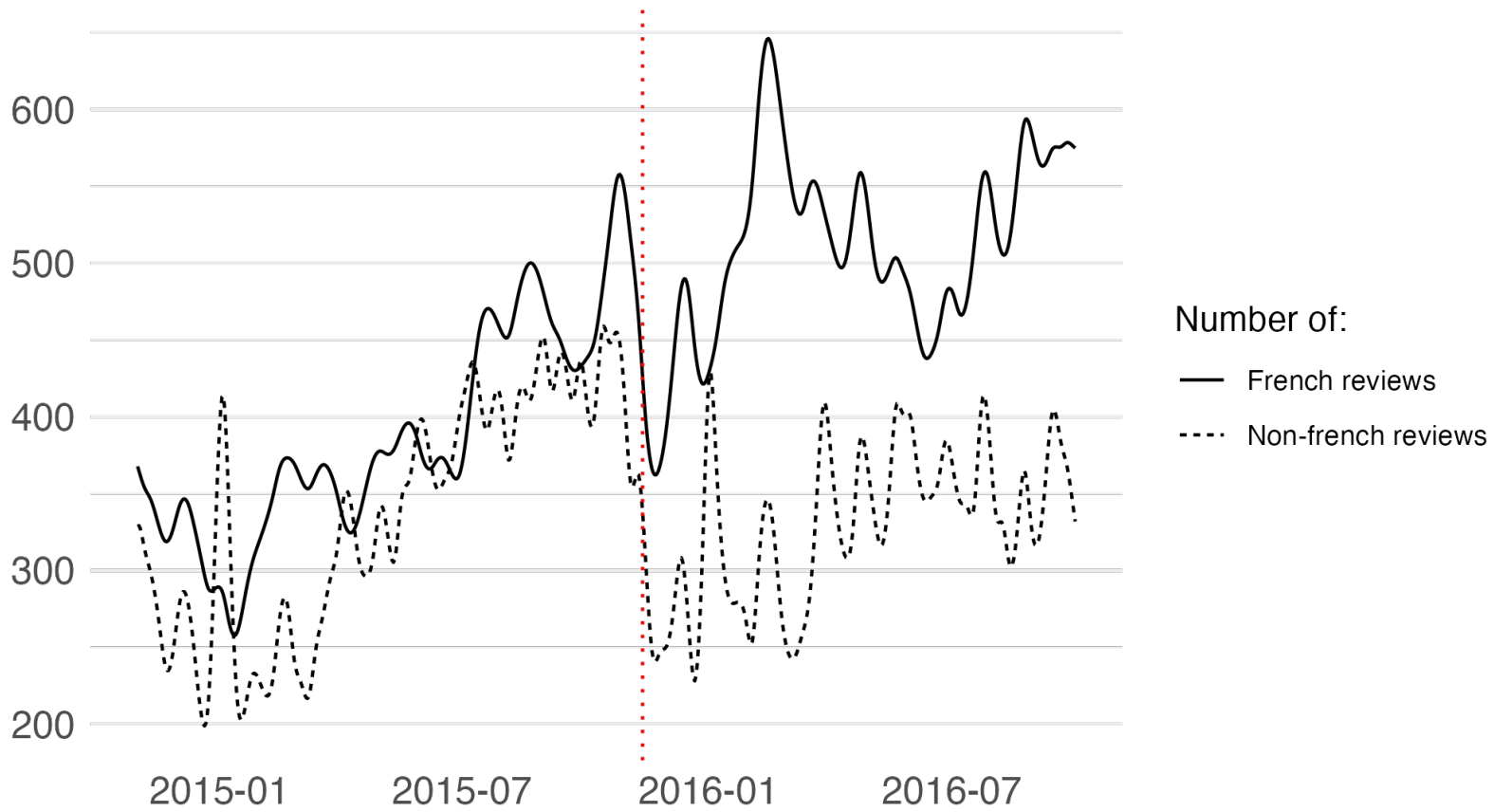


Grid map | Grid map: restaurants density

Daily Number of Restaurant Reviews in Paris (Pandemic Shock)



Daily Number of Restaurant Reviews in Paris (November 2015 Attacks Shock)

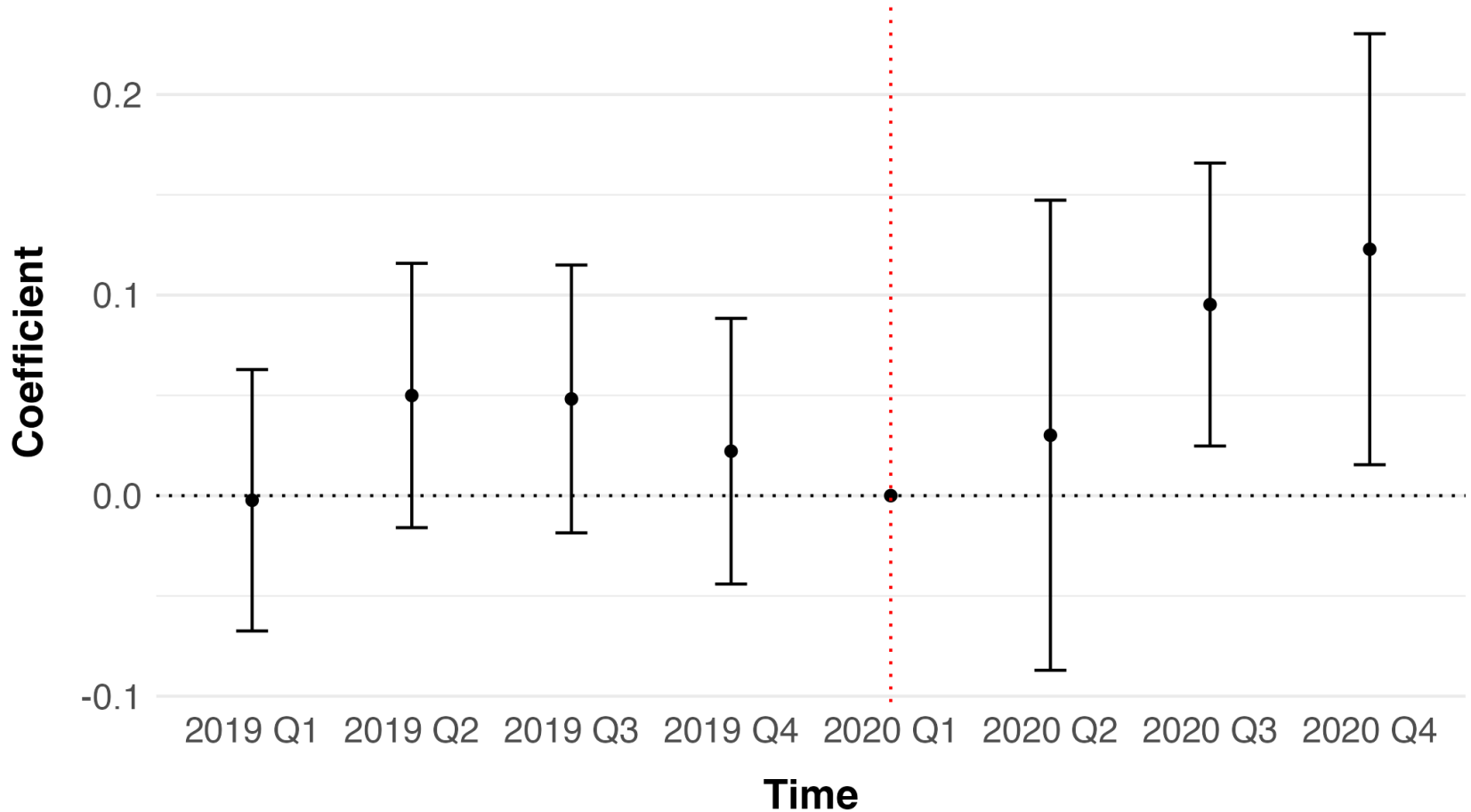


Empirical Strategy: Difference in Difference

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

- Y_{jt} is an outcome of restaurant j in month t
- Post-Shock$_t$ – a binary variable indicating whether month t belongs to the period after a shock (attack or pandemic)
- 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 neighborhood level

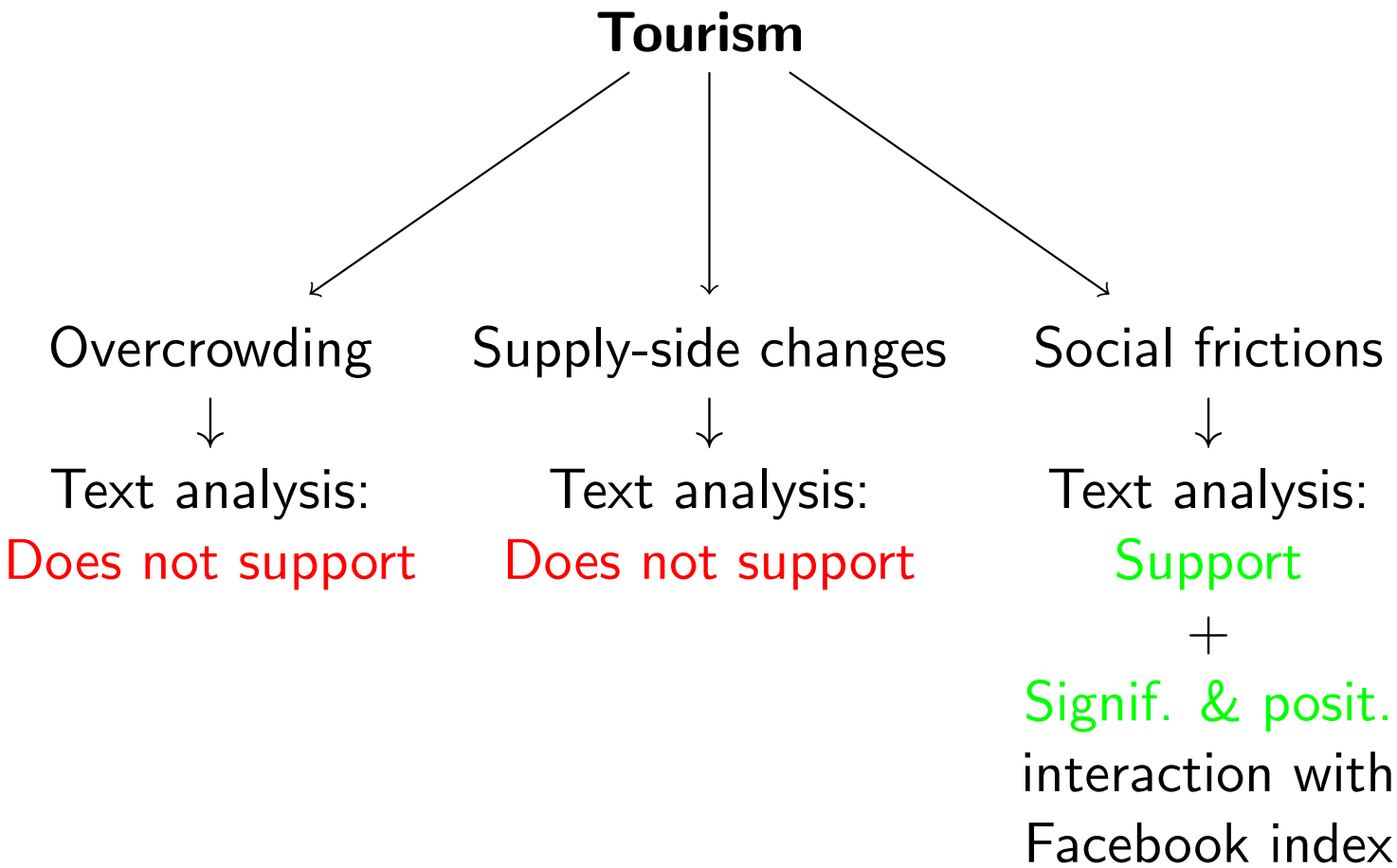
Event Study Plot: Touristic Restaurants Have Relative Improvement in Ratings After Pandemic, Restaurant-Level Specification



Tourism and Restaurant Ratings (Review-Level Analysis)

	Rating by Parisian			
	(1)	(2)	(3)	(4)
Variables				
Tourism Share × Post-Lockdown	0.0691***	0.0470*	0.0656**	0.0847**
	(0.0209)	(0.0240)	(0.0298)	(0.0389)
Fixed-effects				
Restaurant	Yes	Yes	Yes	Yes
Month	Yes	Yes		
User		Yes	Yes	
Month × Neighborhood			Yes	Yes
User × Post-Lockdown				Yes
Fit statistics				
Observations	120,314	120,314	120,314	120,314
R^2	0.28145	0.73488	0.74564	0.76153
Dependent variable mean	0.71999	0.71999	0.71999	0.71999

Potential Mechanisms



Textual Outcomes

	Tourists (1)	Low Food Quality (2)	Too Expensive (3)	Too Noisy (4)	Long Wait (5)
Panel A: restaurant-level					
Variables					
Tourism Share × Post-Lockdown	-0.0646***	-0.0032	0.0044	0.0093	-0.0132
	(0.0112)	(0.0190)	(0.0142)	(0.0109)	(0.0123)
Fixed-effects					
Restaurant	Yes	Yes	Yes	Yes	Yes
Month x Quarters	Yes	Yes	Yes	Yes	Yes
Fit statistics					
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					
Variables					
Tourism Share × Post-Lockdown	-0.0891***	-0.0032	-0.0334	0.0145	-0.0332
	(0.0222)	(0.0311)	(0.0278)	(0.0265)	(0.0223)
Fixed-effects					
User-Post-Lockdown	Yes	Yes	Yes	Yes	Yes
Restaurant	Yes	Yes	Yes	Yes	Yes
Month × Neighborhood	Yes	Yes	Yes	Yes	Yes
Fit statistics					
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

Textual Outcomes and Social Proximity

	Tourists (1)	Low Food Quality (2)	Too Expensive (3)	Too Noisy (4)	Long Wait (5)
Variables					
Tourism Share	-0.0491***	0.0197	0.0295	0.0043	-0.0162
× Post-Lockdown	(0.0177)	(0.0334)	(0.0241)	(0.0130)	(0.0153)
× High SCI					
Tourism Share	-0.0816***	-0.0221	0.0077	0.0171	-0.0135
× Post-Lockdown	(0.0160)	(0.0247)	(0.0183)	(0.0120)	(0.0135)
× Low SCI					
Fixed-effects					
Restaurant	Yes	Yes	Yes	Yes	Yes
Month × Quarter	Yes	Yes	Yes	Yes	Yes
Fit statistics					
Observations	62,079	62,079	62,079	62,079	62,079
R^2	0.24497	0.22017	0.18684	0.18442	0.18753
Dependent variable mean	0.02580	0.07424	0.04878	0.02452	0.02618

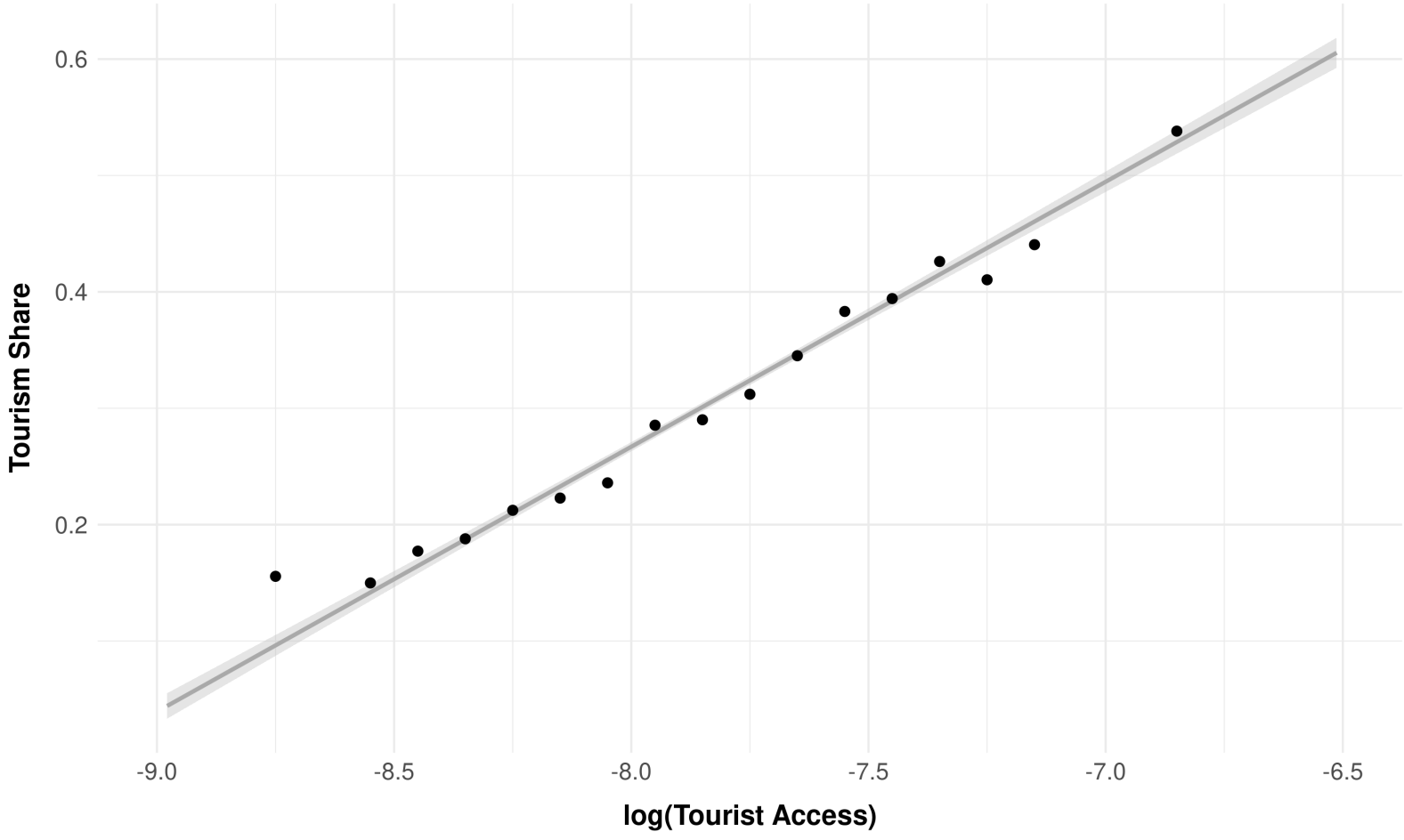
Conclusion

- 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 social frictions – and find support for the social frictions

Data

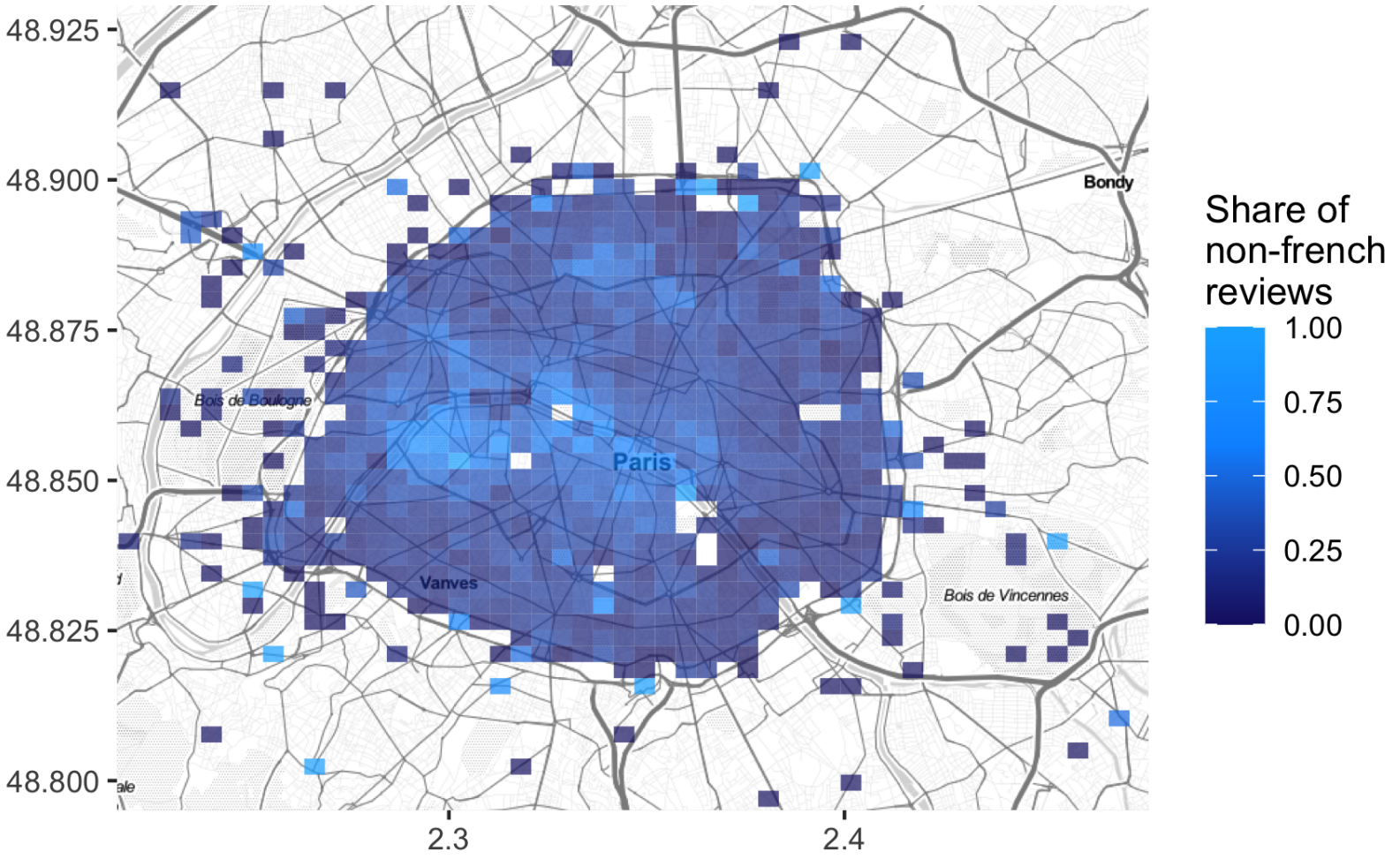
- **Tripadvisor:** We collect data on restaurants reviews. We construct unique and highly detailed panel that reflects city's restaurant consumption across space and time. The final sample consists of around *15,000* restaurants and *2 million* reviews.
- **'Dans ma rue' - Mairie de Paris:** application 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

Tourist Access vs Tourism Proxy



$$\text{Tourist Access}_i = \sum_j \frac{\text{Visitors}_j}{\text{Distance}_{ij}}$$

Grid Map of Restaurants by Share of Non-French Reviews



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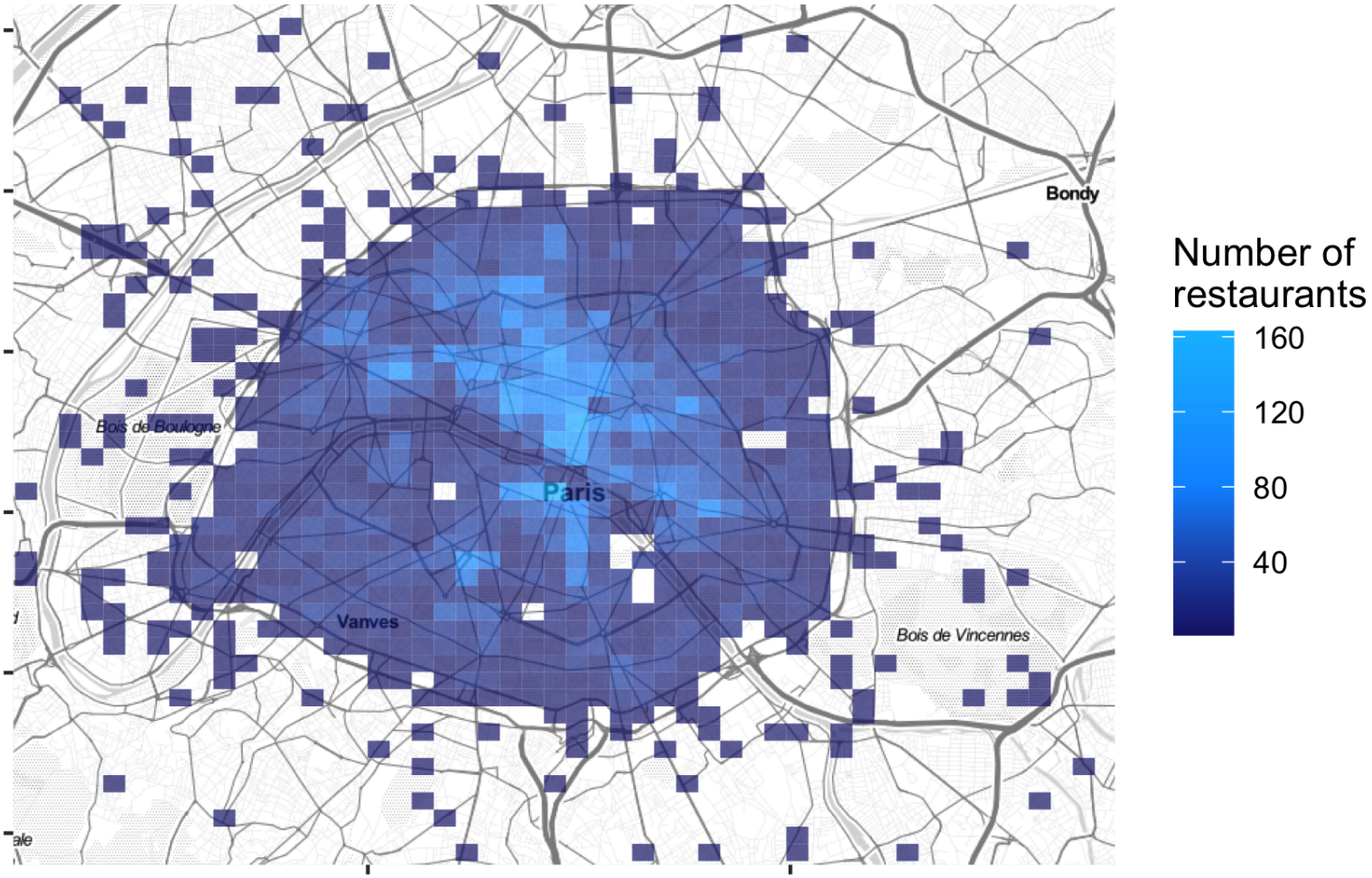
Grid Map of Restaurants Density



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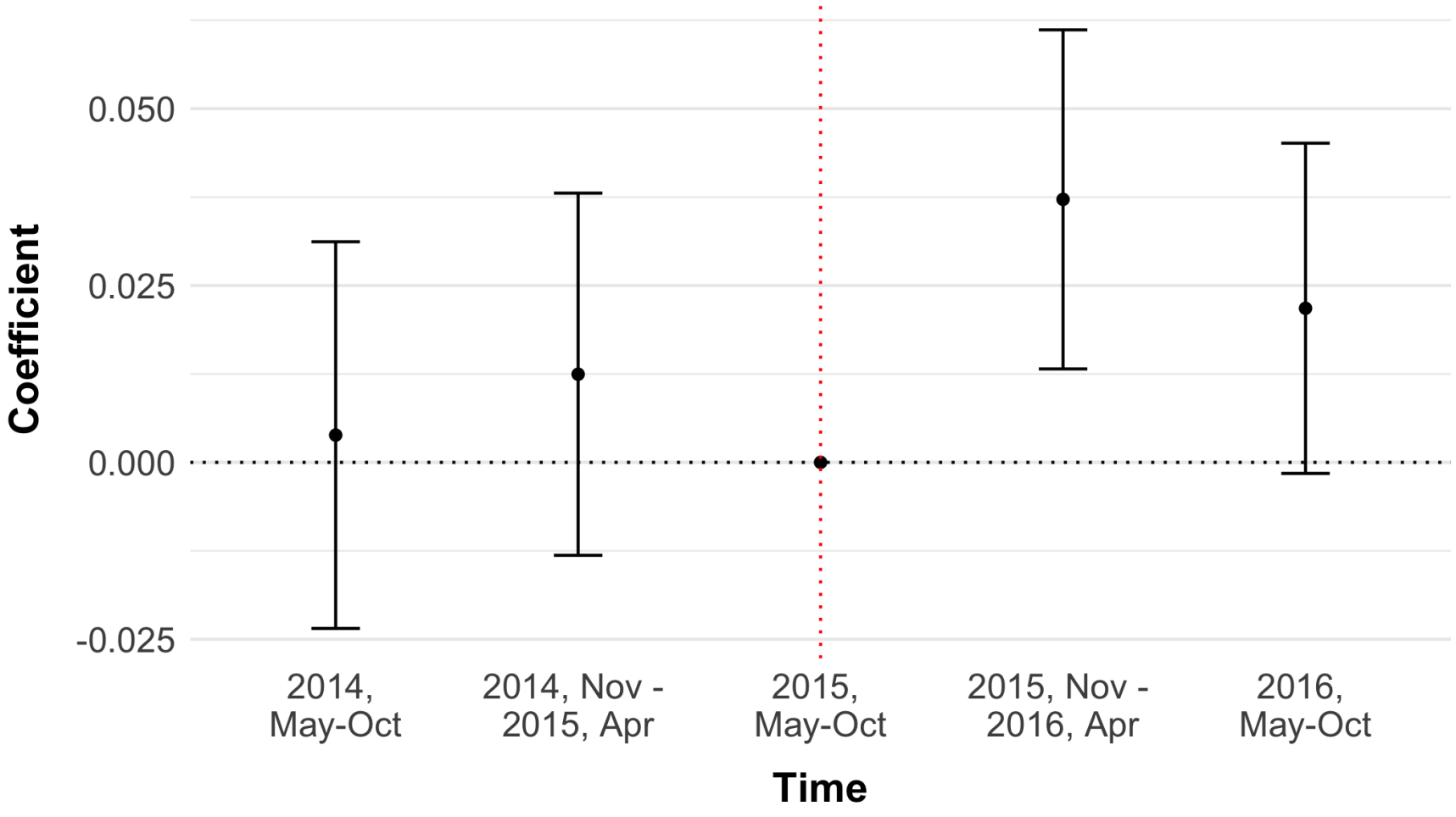

Tourism Decreases Resident's Satisfaction with Urban Amenities (Pandemic Shock)

Natural experiments:	**Before and After First Pandemic Lockdown** *(Post = Post-Lockdown)*	
Dependent variables:	Avg. Rating by Parisians	
	(1)	(2)
Share of Non-French Reviews prior to observation period (by Restaurant) × Post	0.0752***	0.0811***
	(0.0197)	(0.0238)
Fixed-effects		
Restaurant	Yes	Yes
Month	Yes	
Month × Neighborhood		Yes
Fit statistics		
Observations	75,876	75,876
R^2	0.35637	0.38035
Dependent variable mean	0.71498	0.71498
Dependent variable SD	0.3094	0.3094

Tourism Decreases Resident's Satisfaction with Urban Amenities (November 2015 Attacks Shock)

Natural experiments:	**Before and After Terrorist Attack – November 2015** *(Post = Post-Terrorist Attack)*			
Dependent variables:	Avg. Rating by Parisians		Avg. Rating by Non-Parisians	
	(3)	(4)	(5)	(6)
Share of Non-French Reviews prior to observation period (by Restaurant) × Post	0.0384***	0.0335***	0.0078	0.0069
	(0.0094)	(0.0107)	(0.0090)	(0.0101)
Fixed-effects				
Restaurant	Yes	Yes	Yes	Yes
Month	Yes		Yes	
Month × Neighborhood		Yes		Yes
Fit statistics				
Observations	41,611	41,611	60,309	60,309
R^2	0.36487	0.38716	0.33306	0.34983
Dependent variable mean	0.68987	0.68987	0.73798	0.73798
Dependent variable SD	0.2808	0.2808	0.2255	0.2255

Other Results

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

"Dans Ma Rue" Complaints

	# Complaints			
	(1)	(2)	(3)	(4)
Variables				
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)
Fixed-effects				
Restaurant	Yes	Yes	Yes	Yes
Month	Yes		Yes	
Month × Quarter		Yes		Yes
Fit statistics				
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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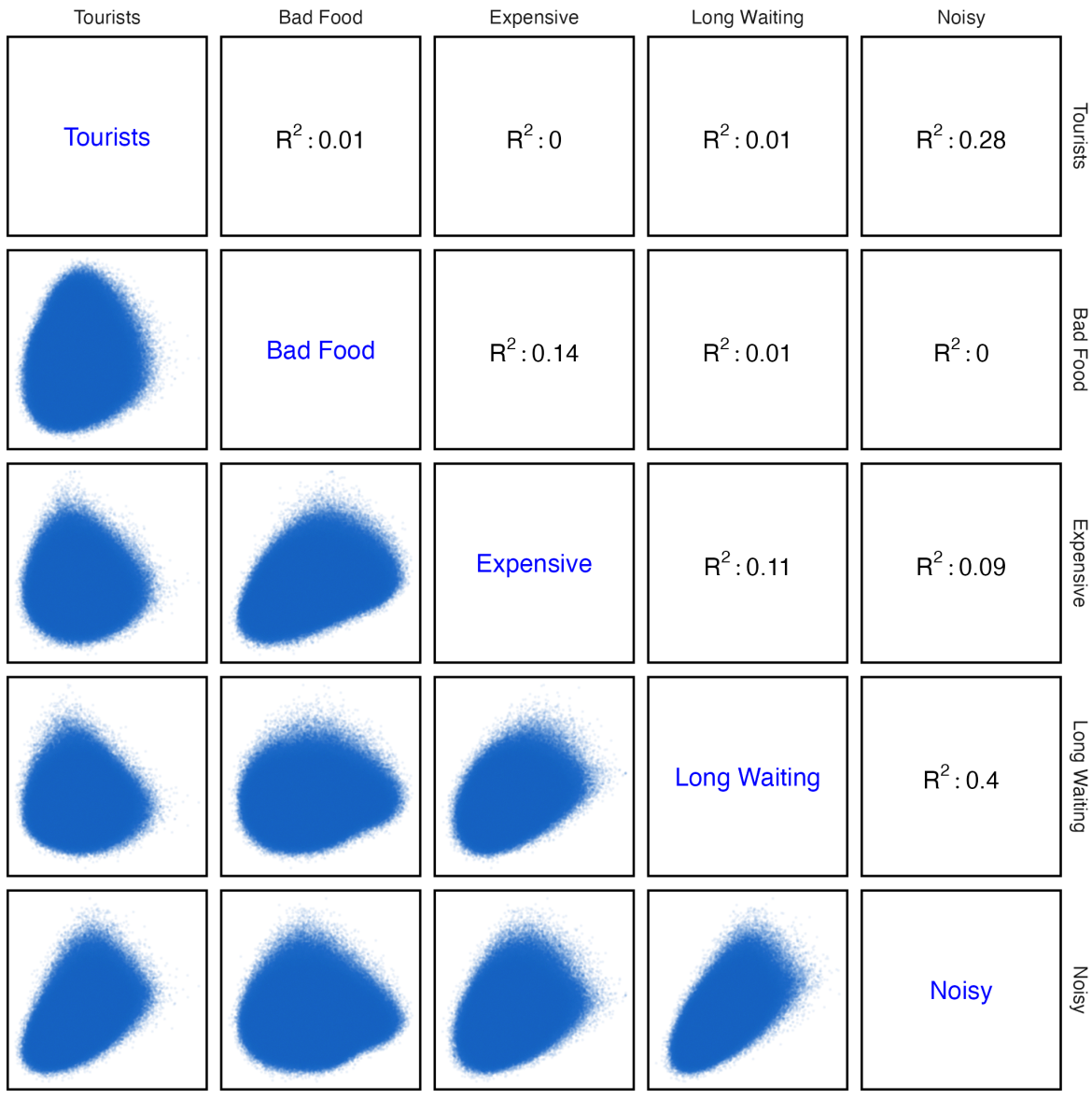
Word Embedding Cosine Distances: Correlation Matrix



Social Connectedness Index

- We want to test whether the origin of tourists has an impact on locals' perception of them
- To proxy for cultural and social proximity between foreign countries and France we rely on the Social Connectedness Index (SCI) published by Facebook
- It is based on the number of Facebook friendships between users located in a pair of countries. More precisely, it is computed as:

$$\text{Social Connectedness}_{ij} = \frac{\text{FB Friends}_{ij}}{\text{FB Users}_i \times \text{FB Users}_j},$$

Social Proximity

	Avg. Rating by Parisian			
	(1)	(2)	(3)	(4)
Variables				
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)
Fixed-effects				
Restaurant	Yes	Yes	Yes	Yes
Month x Neighborhood	Yes	Yes	Yes	Yes
Fit statistics				
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

Spillovers

Dependent Variable:	Avg. Rating by Parisian			
Model:	(1)	(2)	(3)	(4)
Variables				
Tourism Share × Post-Lockdown	0.3053***	0.2790***	0.3095***	0.2775***
	(0.0836)	(0.1007)	(0.1020)	(0.1036)
Touristic Area (< 100m) × Post-Lockdown		-0.1396		0.0018
		(0.1512)		(0.1551)
Touristic Area (100m-300m) × Post-Lockdown		0.4084*		0.4558*
		(0.2432)		(0.2657)
Touristic Area (300m-500m) × Post-Lockdown		0.0834		0.1179
		(0.2977)		(0.3427)
Touristic Area (500m-1000m) × Post-Lockdown		-0.3662		0.0816
		(0.2911)		(0.4458)
Fixed-effects				
Restaurant	Yes	Yes	Yes	Yes
Month	Yes	Yes		
Month × Quarter			Yes	Yes
Fit statistics				
Observations	63,410	63,410	63,410	63,410
R^2	0.34439	0.34445	0.37327	0.37333
Dependent variable mean	3.8157	3.8157	3.8157	3.8157