



AIRBNB AMS DURING COVID-19



Laura Trapero



Lotte de Jong

Volendam

Family business: providers of pickled herring
Owner of several locations is Amsterdam



Objective : Establish a airbnb location

Problem: "She is worried about the impact of corona on airbnb locations"

Question we like to answer with this study

- where to establish a new airbnb location
- if it is a good moment now
- recommend a price and type of rental

Objectives

1. Find the best district to have a Airbnb accommodation:

We will define as a good district the ones with good connexions to the center, with a good average price compare to the total average price in the city and not a lot of criminality and some green spaces.

- Characterise the Airbnb distribution of accommodations, bookings and prices by district
- Explore if certain chosen attributes explain the number of bookings by district

2. Find the best type of rental:

- Exploratory analysis of the bookings by type of rental before and during corona time

3. Find out if the bookings, prices and locations have been shaped with the corona crisis

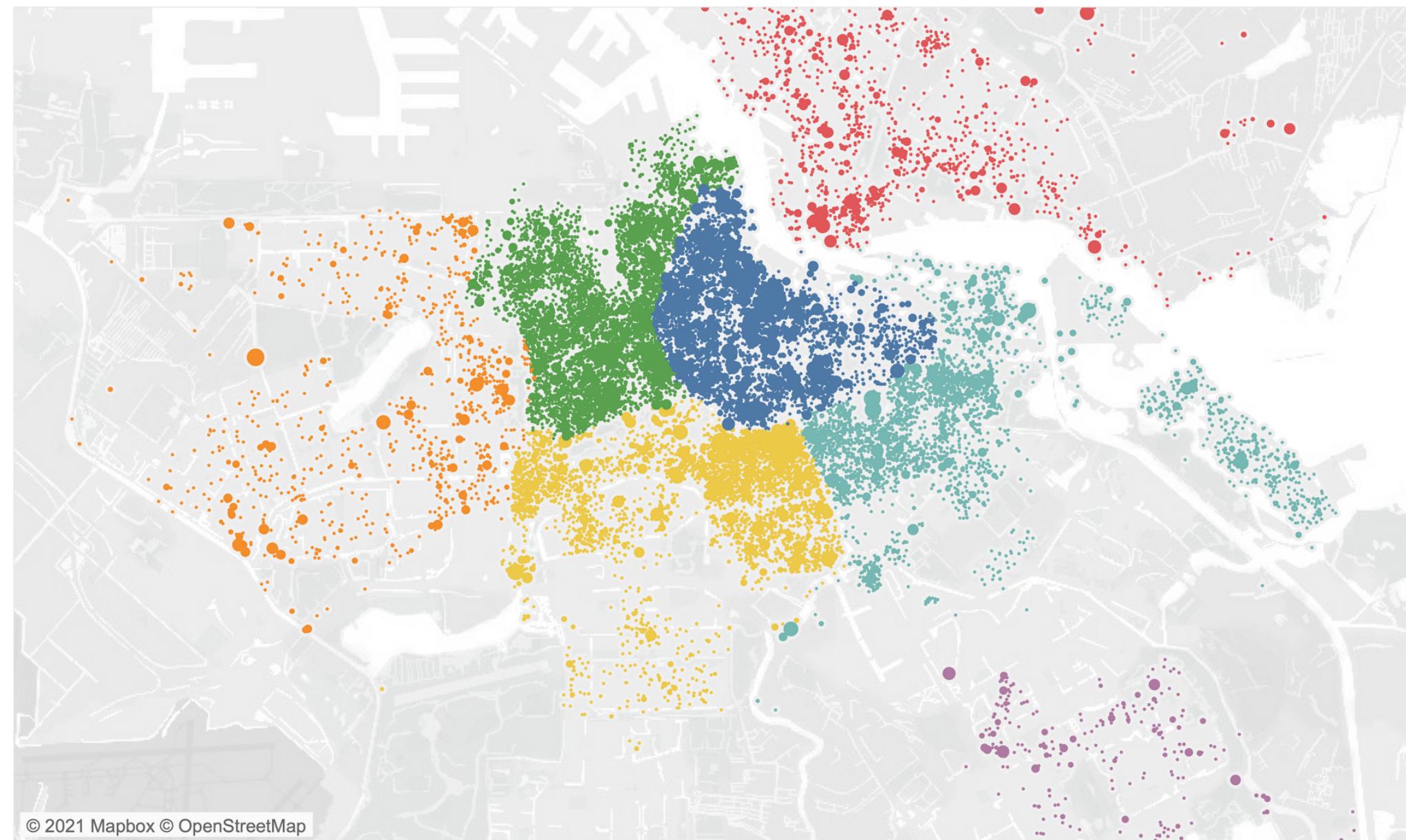
- Exploratory analysis of locations before and after corona
- Exploratory time-series analysis of the bookings
- Exploratory time-series analysis of the evolution of prices



1 .CHARACTERISATION OF CURRENT AIRBNB RENTALS IN AMSTERDAM PER DISTRICT

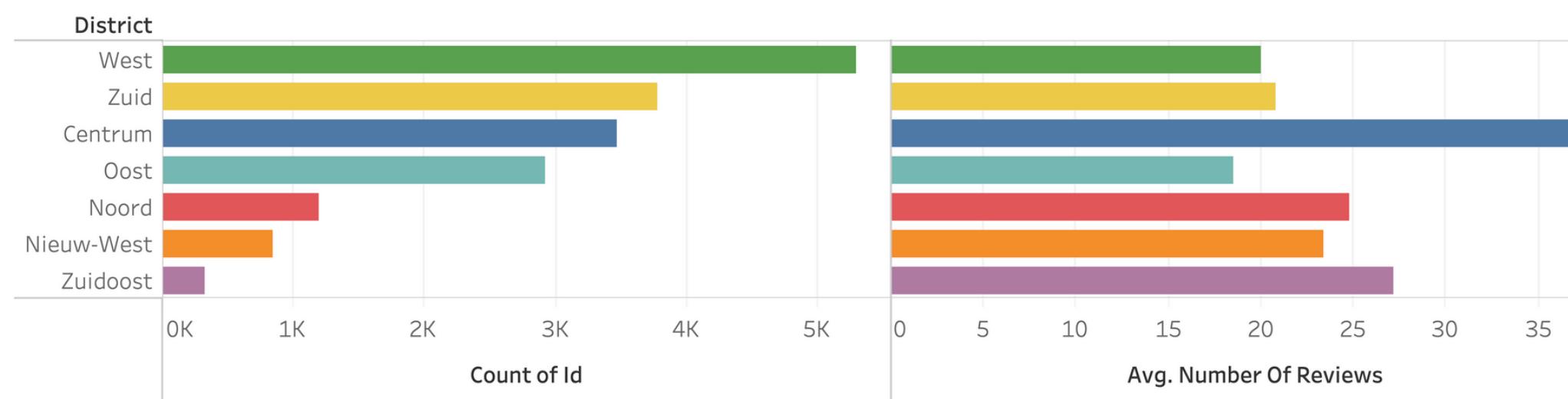
Locations and bookings per district

Total reviews x listing x district



Use average number of reviews as an indicator of average bookings

Average number of reviews x district



Assumption:

- more locations and bookings on centric and popular areas

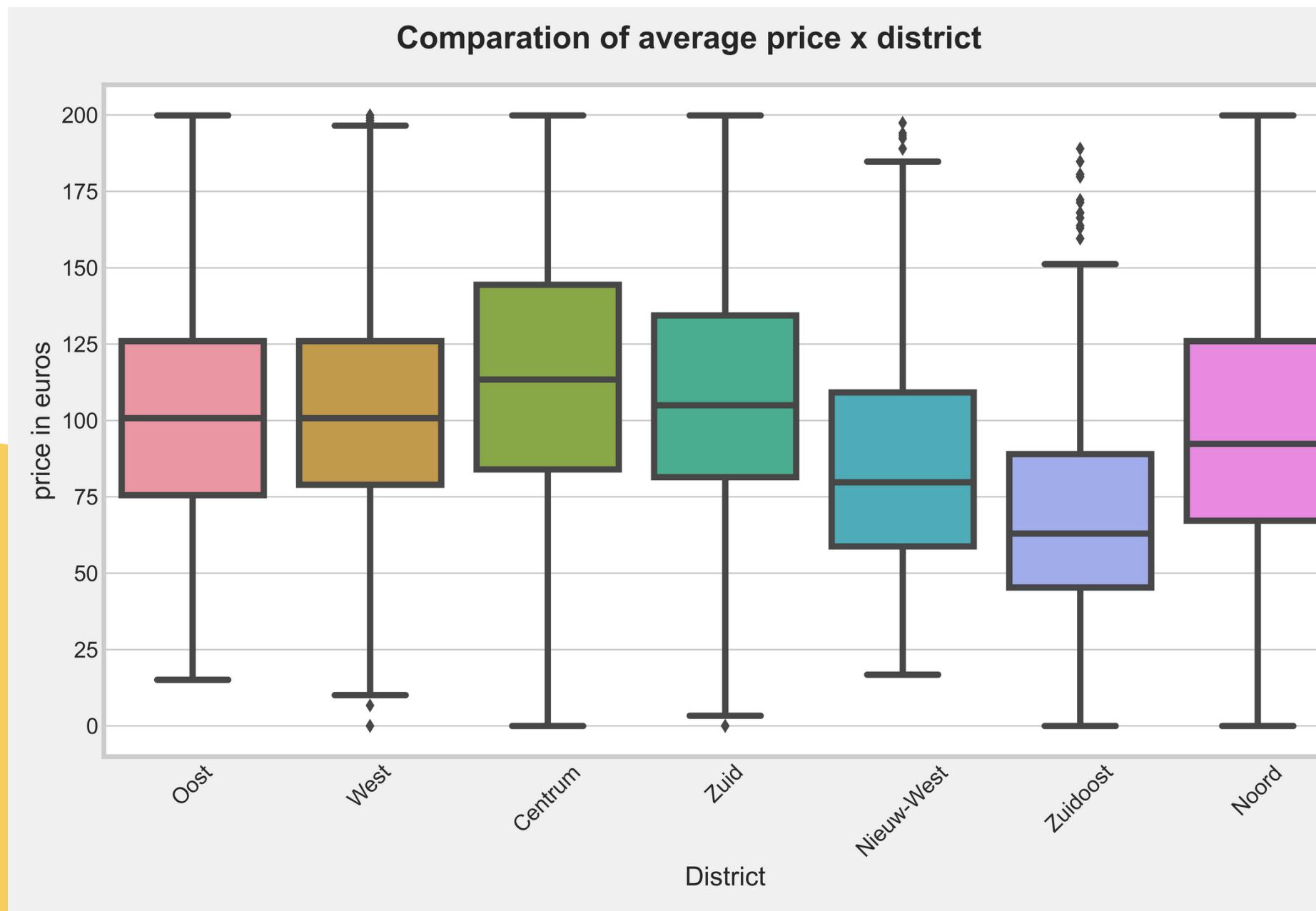
Number of locations:

West < Zuid < Centrum < Oost

Avg. number of reviews:

Centrum < Zuidoost < Noord < Nieuw-West

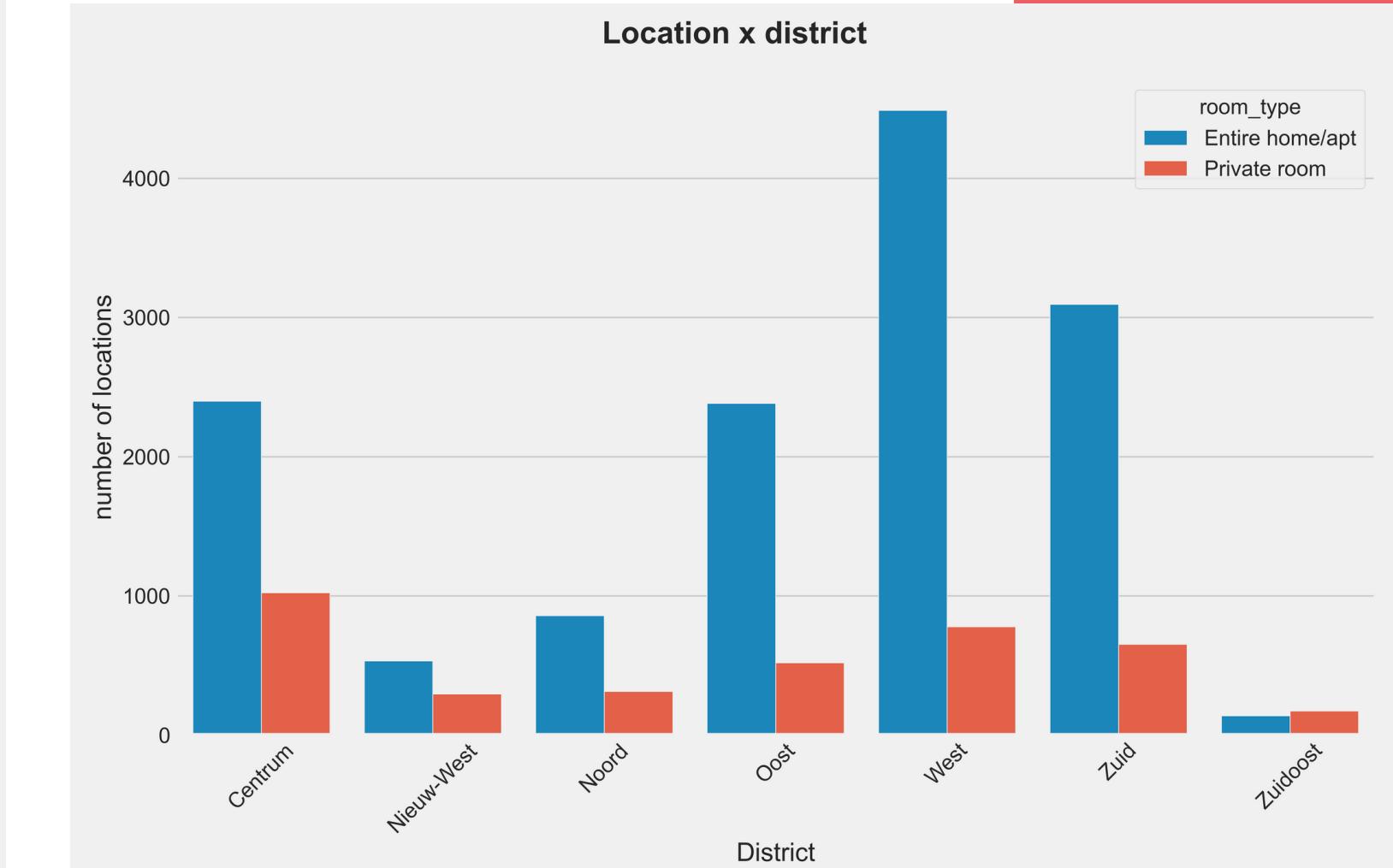
Prices and type of rental per district



Assumption: Higher price on centric/popular districts
and district with more locations

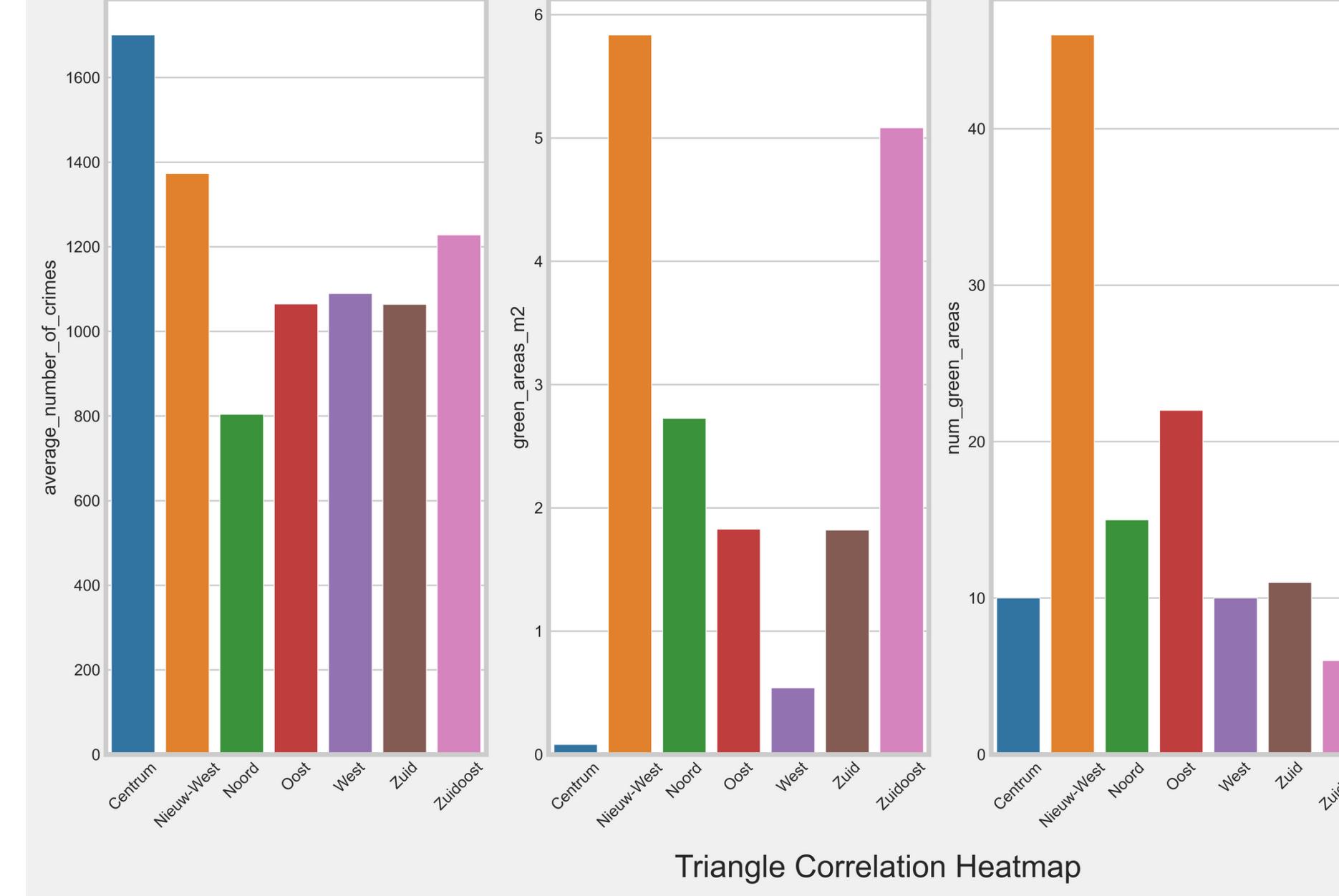
Median AMS price around 100 euros

Centrum < Zuid < West < Oost < Noord



Assumption: More entire apartments rentals than private rooms

All except for Zuidoost



Noord , Oost or Zuid would have a good proportion between crimes and green areas.

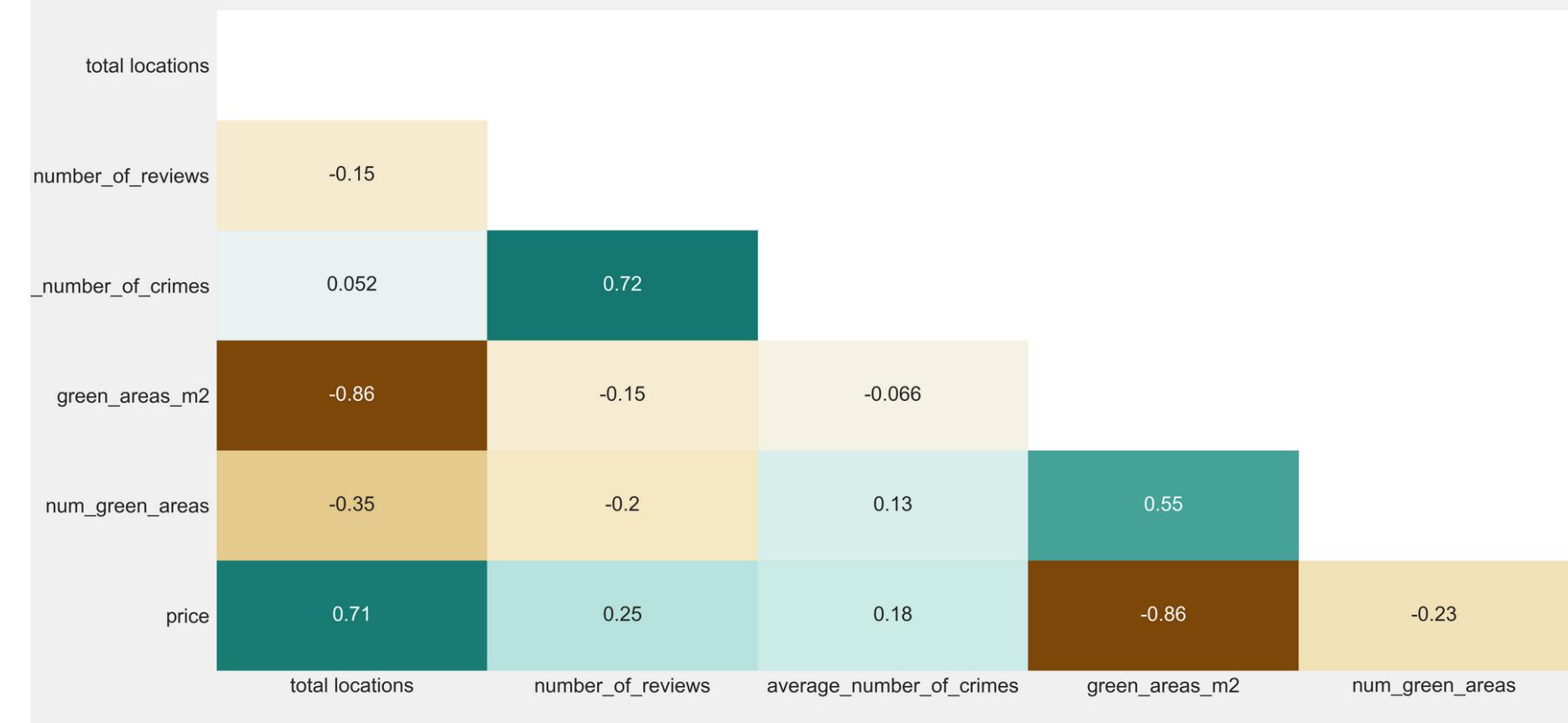
Which features are explaining the number of bookings per district?

Assumptions: Bookings/ reviews of a district will be influenced by the criminality, green areas, number of locations and price.

- There are significative correlations within the independents variables, trade-offs (interactions are influencing).

- Unfortunately reviews is not being a good indicator for certain district for bookings (problematic areas, more reviews)

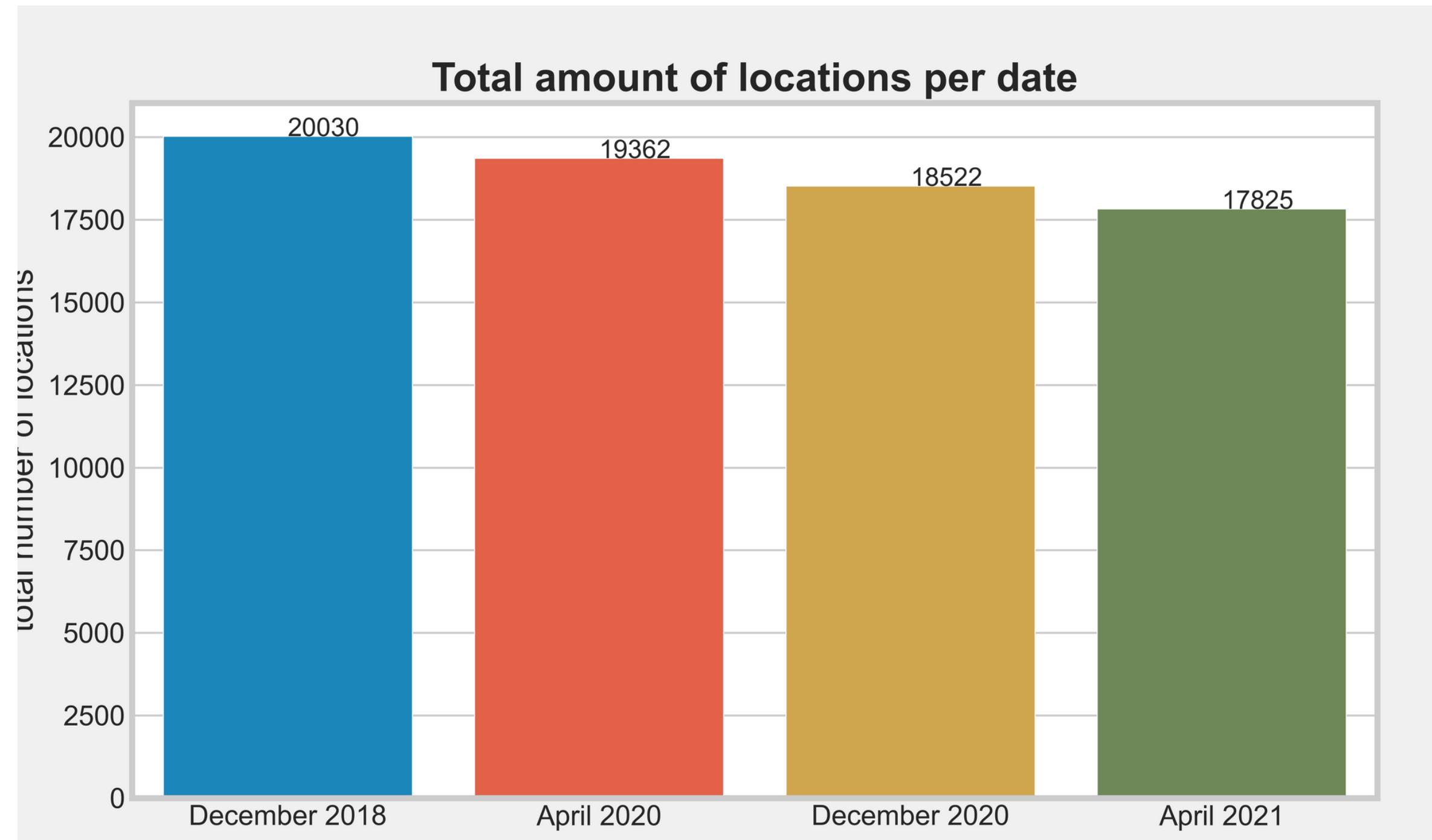
- Needs further analysis... Other features not included might be influencing as well and we will need to discard correlated independent variables





2 .ANALYSIS OF THE BOOKINGS AND LOCATIONS BEFORE AND DURING CORONA TIME

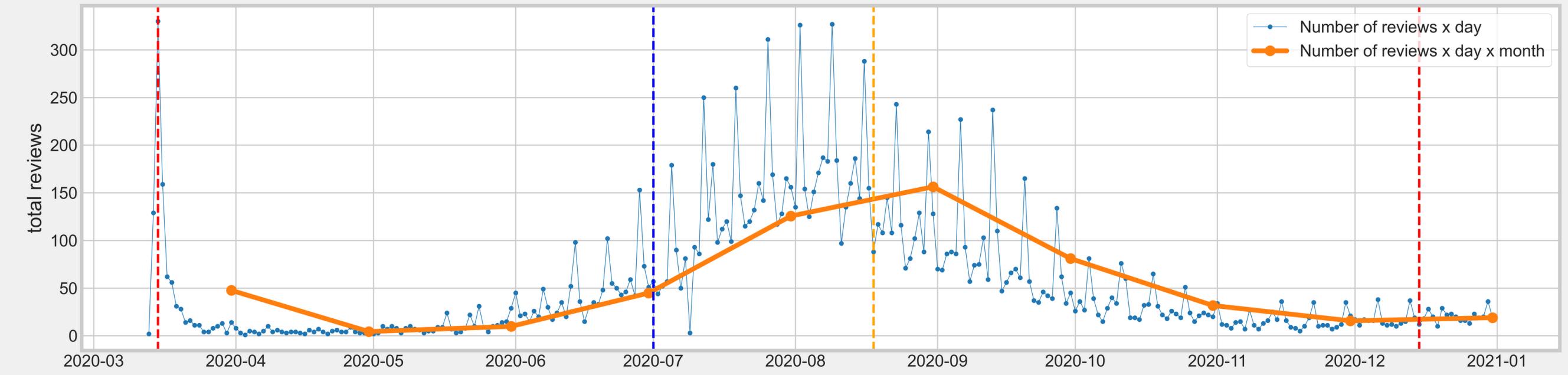
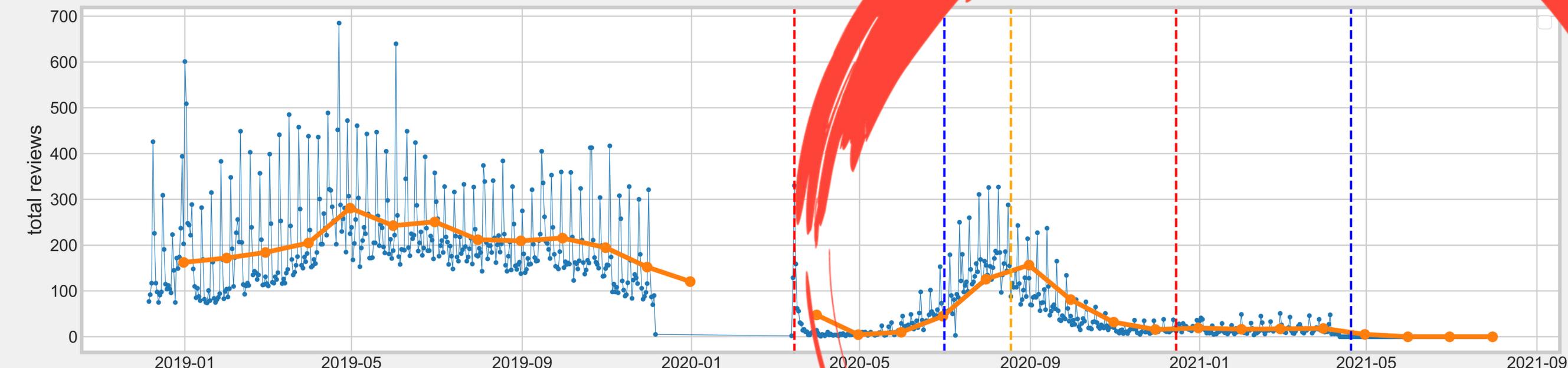
Number of locations



Assumption: Decrease on locations due to corona crisis

We can see this decrease on the data.

Number of reviews over the time



Assumption: Decrease of rentals when lockdowns are announce, recuperation with the moments of softening the measures

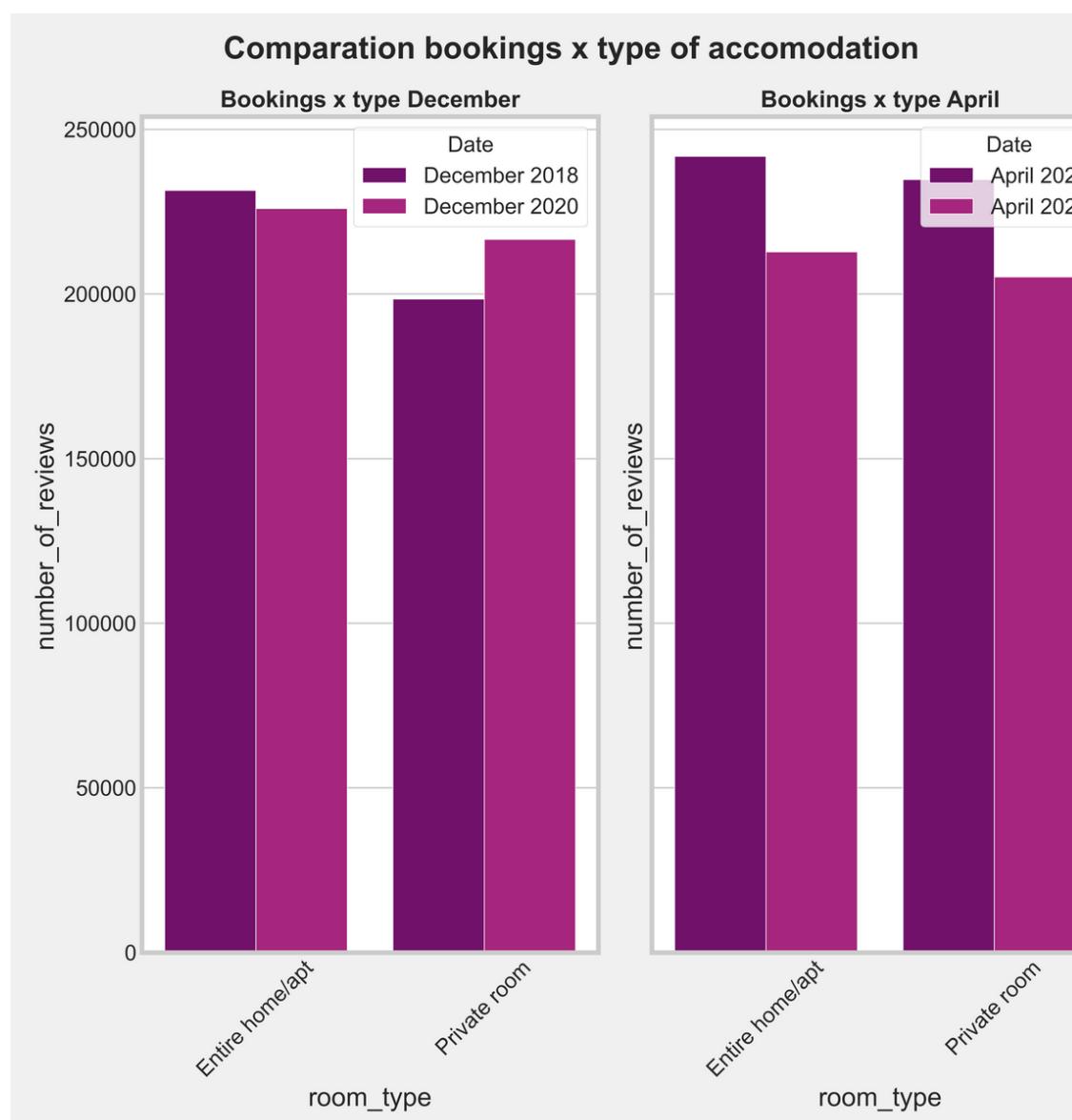
We can see this pattern on the data.

We can not conclude that the bookings are recovering with the number of reviews as indicators...

A scenic view of a canal in Amsterdam, likely the Prinsengracht, during sunset. The water reflects the warm orange and yellow hues of the sky. Traditional Dutch houses with multiple gables are visible along the left bank. Several boats, including houseboats and smaller boats, are moored along the canals. The overall atmosphere is peaceful and captures the beauty of the city's architecture and waterways.

3 .ANALYSIS OF THE BOOKINGS BY TYPE OF RENTAL BEFORE AND DURING CORONA TIME

Type of accommodation



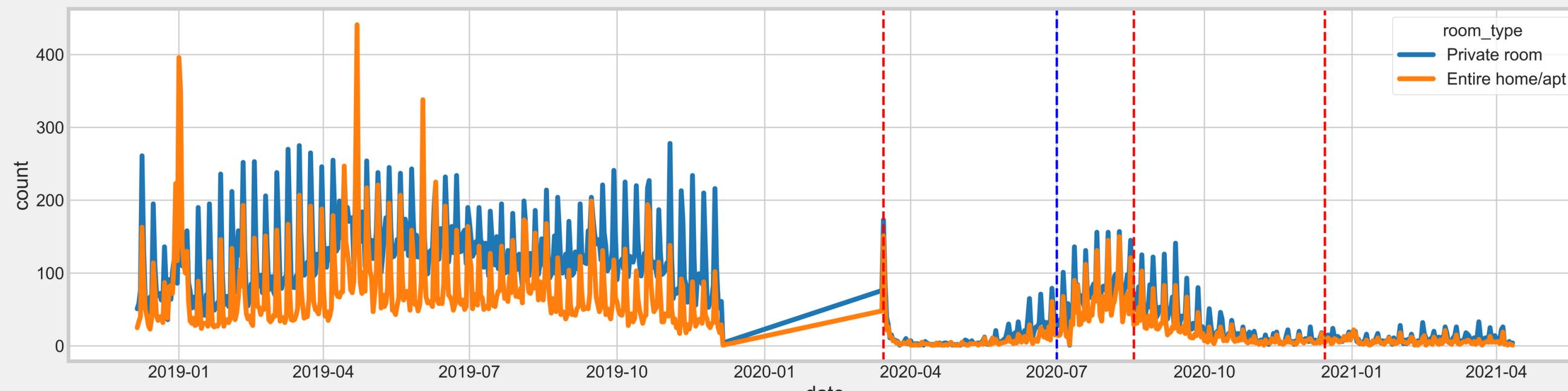
Assumptions:

- Decrease on average on private accommodations bookings compare to entire apartments .
- We expect higher booking on entire rentals
- Both type of accommodations reduce in a similar amount (except for December on private rooms)

Lockdown-release of measure pattern

User in private rooms more likely to leave reviews. We can not know if there are more entire houses booked.

Just for the days where we find a review





**4 .ANALYSIS OF THE EVOLUTION OF PRICES
BEFORE AND DURING CORONA TIME**

Price evolution



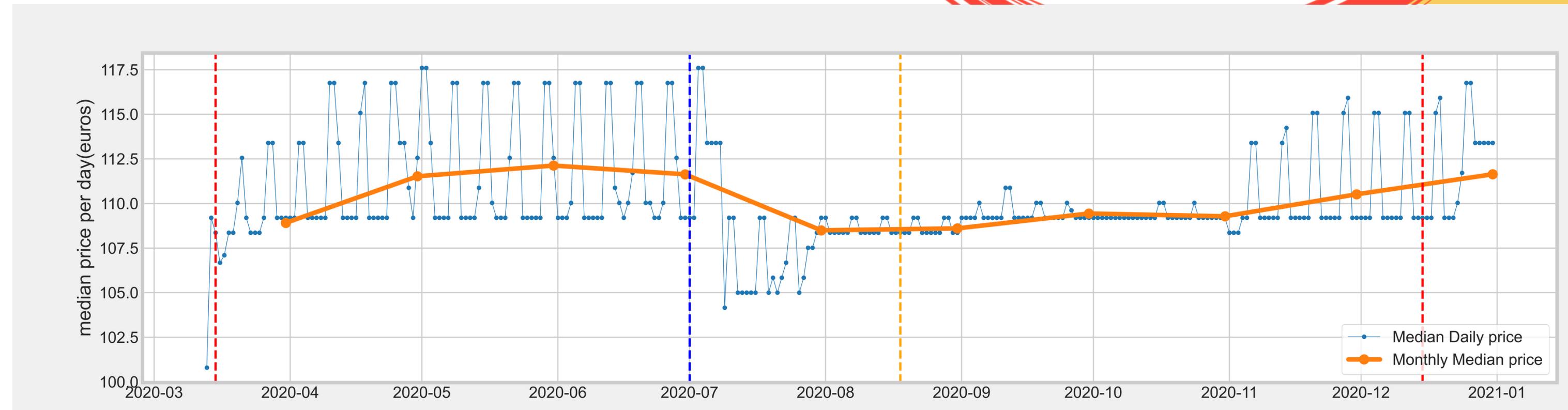
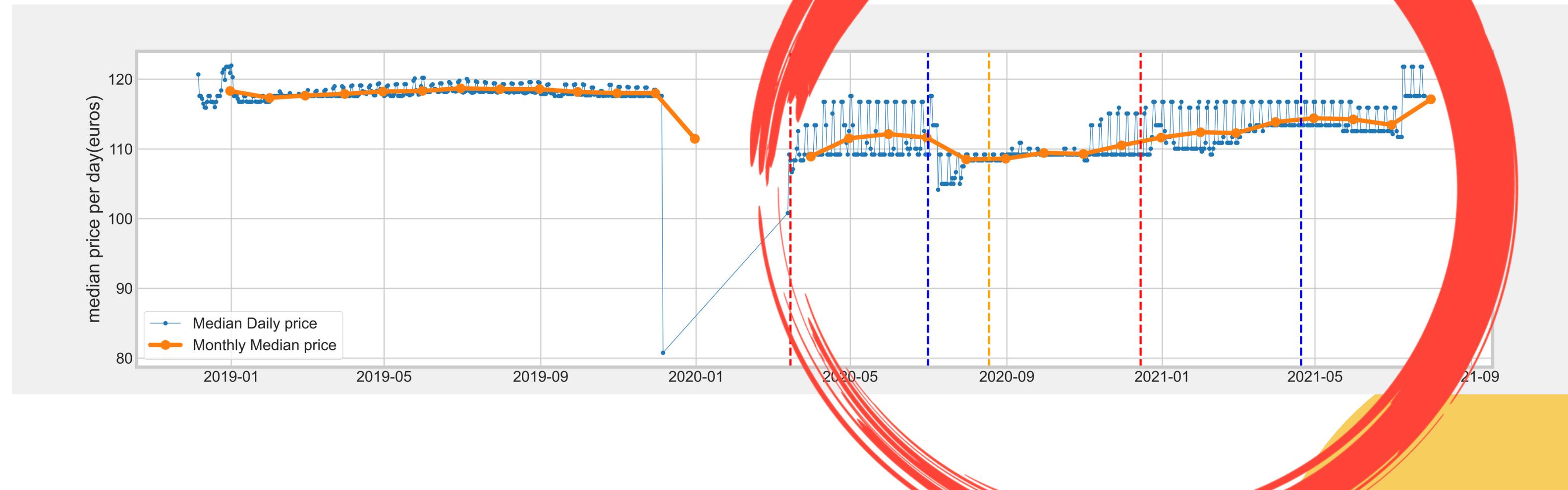
Assumption: Prices will fluctuate according to the lockdowns and release of the measures.

We can see this pattern on the data.

Decrease of the average price after corona

More variability on the prices

Perhaps it is a good moment, even if we go to a softer lockdown soon...



Conclusions

- Centrum,Zuid,West,Oost,Noord – Best districts
 - There are more locations on centric (inside the ring), popular, trendy districts.
 - The prices are also on average higher on those.
 - Except for Centrum, the other districts have a good proportion between green areas and criminality.
- The number of reviews might not be a good indicator of the number of bookings or for preferences on bookings by type of accommodation.
- The descriptors chosen (locations, prices, green areas, criminality) might not be good to predict the number of bookings by district considering reviews as the response variable.
- We can see a clear influence of the corona crisis on the price and the number of reviews of the the moments where the national lockdowns were fixed, and measure were released. Prices seem to be slowly recovering but still under the pre corona
 - Decrease of the daily average price
 - More fluctuation on the average prices for the weekend (to compensate the decrease on the average prices after corona)

A scenic view of a canal in Amsterdam at sunset. The sky is filled with warm, orange and yellow clouds. On the left, a row of traditional Dutch houses with red roofs and white-framed windows line the canal. Several boats are moored along the banks, including a prominent white boat with a blue stripe and a smaller boat with a blue and white flag. The water reflects the warm colors of the sunset.

RECOMMENDATIONS FOR LOTTE



Recomendation

Rental of an entire apartment (suggestion) in Noord, Oost or Zuid

- good proportion between crimes/green areas
- house pricing cheaper than in Centrum
- good average price



The airbnb prices and rentals seem to be recovering

room_type	median_price
0 Entire home/apt	130.2
1 Private room	92.4

day_of_week	room_type	min			max		50%	
		98.28	249.90	132.72	57.12	194.88	92.40	
Friday	Entire home/apt	61.32	230.58	126.00	63.00	158.76	92.19	
	Private room	74.76	201.18	134.40	63.00	133.56	92.61	

room_type	median_price
0 Entire home/apt	128.52
1 Private room	84.00

day_of_week	room_type	min			max		50%	
		57.96	210.00	132.30	50.40	146.16	84.00	
Monday	Entire home/apt	65.10	284.76	136.50	33.60	141.12	84.00	
	Private room	44.94	155.40	83.58	28.96	127.05		
Tuesday	Entire home/apt	73.08	193.20	126.00	56.28	137.76	84.00	
	Private room	44.94	155.40	83.58	28.96	127.05		

*based on prices during corona time

Future Improvements

1. Complete this exploratory analysis with statistical test to give more evidence on our findings.
2. Deeper analysis on how the different districts have been affected by the crisis.
3. Increase the granularity: from district to neighbourhoods.
4. Further analysis on the type of reviews, to use it as an indicator of popularity (as we would expect more bookings in popular districts).
5. Predict the bookings considering apartment and district features together.
6. Predict the average price according to the tendencies during corona
6. Get the data for the temporal gap



Thank you!