

The influence of the Primavera Sound festival on Airbnb prices

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Hypotheses

In this paper we are researching two hypotheses, concerning Airbnb prices during the festival Primavera Sound in Barcelona. The two research questions we are looking into are:

“Does the presence of a Summer Music Festival influence the prices of Airbnb listings in the respective city?”

“Is it possible to create a model that helps Airbnb hosts to define the pricings of their listings?”

To answer these hypotheses, two datasets for Airbnb listings are used and analyzed. From the data sets, the prices from during and before/after the festival are compared for the listings that are within 5 kilometers of the festival. The research objective is to discover if the prices for the Airbnb listings during the festival are different from normal, and if a model can be created that predicts these price differences.

Research analysis and results

For the analysis of this research the means for the prices of the listings within 5 kilometers of the festival, are calculated and compared for during the festival and before/after. Moreover, four different linear regression are performed to get a deeper understanding of the differences between these periods.

First of all, the summary statistics for the price during Primavera Sound and during a normal period are presented below (Table 1). From the table can be concluded that the prices for during the festival are on average higher than the prices when the festival is not happening. This is further proven by the linear regression in table 2. The table shows that when the festival is not currently happening, the price of the listing is lowered by approximately 13.23.

Table 1: Summary statistics of the price during the festival and and normally

Variable	Mean	Median	Min	Max	Q1	Q3
mean_price_during	155.9957	155.9957	155.9957	155.9957	155.9957	155.9957
mean_price_off	142.7700	142.7700	142.7700	142.7700	142.7700	142.7700

Table 2: The influence of the festival Primavera Sound on the price of Airbnb listings

	Coefficients	Std..Error	t.value	Pr...t..
(Intercept)	155.9957	1.1405	136.7735	0
datasetoff_festival	-13.2257	1.2677	-10.4326	0

Furthermore, Table 3 and 4 show that the minimum amounts of nights that you need to rent the listing, has an extremely different effect on the price of the listing during the festival. Before and after Primavera

Sound, the price of the listings gets lower when the minimum amounts of nights is higher, while during the festival this is the opposite.

Table 3: The influence of the minimum of nights on the price during the festival

	Coefficients	Std..Error	t.value	Pr. . . t..
(Intercept)	-26.4640	2.2905	-11.5540	0
minimum_nights	13.0914	0.0640	204.6435	0

Table 4: The influence of the minimum of nights on the price before and after the festival

	Coefficients	Std..Error	t.value	Pr. . . t..
(Intercept)	149.2693	0.2377	627.8927	0
minimum_nights	-0.3629	0.0055	-66.2319	0

Lastly, a linear regression is shown with the influence of the number of reviews, the minimum nights, the room type and the neighborhood group on the price of the listings during the festival (Table 5). This linear regression gives a model that can be used by Airbnb hosts to define the pricing of their listings during Primavera Sound. The base model of the linear regression is an entire home/apt and a listing in the neighborhood group Ciutat Vella. From the regression can be concluded that price is positively influenced by minimum nights and number of reviews. There is also a significant difference in price revealed between the different neighborhoods and room types. The least expensive is a private room in Sant Andreu, and the most expensive is a hotel room in Horta-Guinardó.

Table 5: Influence of number of reviews, minimum nights, room type and neighborhood group on price during the festival

	Coefficients	Std..Error	t.value	Pr. . . t..
(Intercept)	-168.7472	4.4214	-38.1662	0.0000
number_of_reviews	0.3487	0.0177	19.6819	0.0000
minimum_nights	13.7402	0.0650	211.5102	0.0000
room_typeHotel room	173.6938	16.6468	10.4341	0.0000
room_typePrivate room	-60.9174	4.9045	-12.4206	0.0000
room_typeShared room	30.8899	20.4900	1.5076	0.1317
neighbourhood_groupEixample	199.0648	5.0951	39.0698	0.0000
neighbourhood_groupGràcia	117.2842	9.0510	12.9581	0.0000
neighbourhood_groupHorta-Guinardó	318.3882	13.2223	24.0796	0.0000
neighbourhood_groupNou Barris	31.1814	21.8954	1.4241	0.1544
neighbourhood_groupSant Andreu	-59.3040	16.3777	-3.6210	0.0003
neighbourhood_groupSant Martí	120.7584	6.3994	18.8702	0.0000

Conclusion

The results from the analyses show that there is indeed a significant price difference for Airbnb listings during the festival and normally, which answers the first hypothesis. Furthermore, it was also possible to create a model with which the prices of listings can be predicted during the festival. The price can be predicted based on the location, type of listings, minimum nights and the number of reviews.