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Airbnb and the Relevance of Consumer Satisfaction in European Cities

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The rise of Airbnb revolutionised the hospitality industry, providing travellers with a unique and often more affordable alternative to traditional hotels. Founded in 2008, Airbnb quickly gained popularity worldwide, including in Europe. However, its introduction in Europe has brought about various challenges and opportunities, particularly from an economic standpoint.

In this case study, we analyse the determinants on consumer satisfaction in ten major European cities: Amsterdam, Athens, Barcelona, Berlin, Budapest, Lisbon, London, Paris, Rome, and Vienna. We examine data collected in February 2023, focusing on different aspects of Airbnb listings and their influence on guest satisfaction. Using a regression analysis, specifically the Ordinary Least Squares (OLS) model, we aim to provide insights into the factors affecting consumer satisfaction and how hosts can optimise their services to enhance guest experiences.

Understanding the factors that determine consumer satisfaction on Airbnb is essential, as consumers effectively act as gatekeepers within the platform's ecosystem. Airbnb's success centres on satisfying its users—both hosts and guests—since it provides the demand for accommodations and experiences. Identifying the drivers of consumer satisfaction is essential for maintaining a positive user experience, fostering loyalty, and differentiating Airbnb from competitors in the sharing economy landscape. Positive consumer experiences contribute to building trust and a favourable reputation for the platform, while negative experiences can damage trust and deter future bookings. Satisfied consumers are more likely to become repeat customers and loyal advocates, driving growth through word-of-

mouth referrals. Moreover, consumer satisfaction impacts regulatory compliance, public perception, and data-driven decision-making. Analysing consumer satisfaction data allows Airbnb to make informed decisions about product development, service enhancements, and resource allocation, thereby ensuring the platform's long-term viability and success in the marketplace.

Airbnb in Europe

When Airbnb was introduced in Europe, it faced several regulatory and social challenges. Concerns arose regarding its impact on local housing markets, neighbourhoods, and the traditional hotel industry. Critics argued that Airbnb contributed to rising rents, housing shortages, and the commercialisation of residential areas (see for example: Smart and Klein, Zerbas el al., 2018).

To address these concerns, European cities implemented various regulations and policies. Some cities imposed limits on the number of days hosts could rent their properties, introduced registration requirements, and enforced taxation on Airbnb rentals. Additionally, there were efforts to promote responsible hosting practices and mitigate negative externalities associated with short-term rentals.

Despite these challenges, Airbnb continued to grow in Europe, offering unique accommodations and experiences to travellers while generating income opportunities for hosts. However, understanding its economic impact and its influence on consumer

Data Analysis and Results

Using a dataset on Airbnb listings in ten European cities[1], we study the factors affecting consumer satisfaction. The dataset includes information for February 2023 for ten major European cities: Amsterdam, Athens, Barcelona, Berlin, Budapest, Lisbon, London, Paris, Rome, and Vienna. There are different key variables regarding the price determinants of different Airbnb listing in Europe such as price,

[1] Source: https://www.kaggle.com/datasets/thedevastator/airbnb-price-determinants-in-europe

capacity, property type, host status (superhost[2]), business facilities, cleanliness rating, distance from city centre and metro station, and guest satisfaction rating. The information for these variables is given for weekdays and weekends in February 2023.

Table 1 shows the total number of listings per city in the dataset, divided by weekends and weekdays. Note that the dataset don’t have information for all the listings by city compared for weekends and weekdays, it depends on the bookings that month.

Table 1: Total number of listings per city

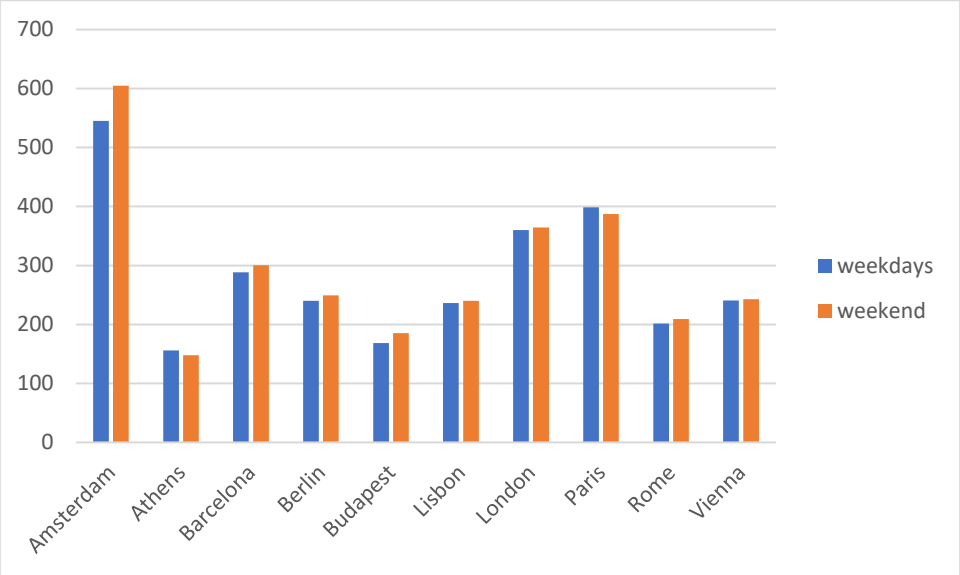
City	Time	Total number of listings
Amsterdam	weekdays	1102
Amsterdam	weekend	976
Athens	weekdays	2652
Athens	weekend	2626
Barcelona	weekdays	1554
Barcelona	weekend	1277
Berlin	weekdays	1283
Berlin	weekend	1199
Budapest	weekdays	2073
Budapest	weekend	1947
Lisbon	weekdays	2856
Lisbon	weekend	2905
London	weekdays	4613
London	weekend	5378
Paris	weekdays	3129
Paris	weekend	3557
Rome	weekdays	4491
Rome	weekend	4534
Vienna	weekdays	1737
Vienna	weekend	1798

Graph 1 shows the average total price paid per city for weekdays and weekends. Graph 2 shows the average consumer satisfaction rating per city for weekends and weekdays. We can observe that, on average, Amsterdam is the city with the most

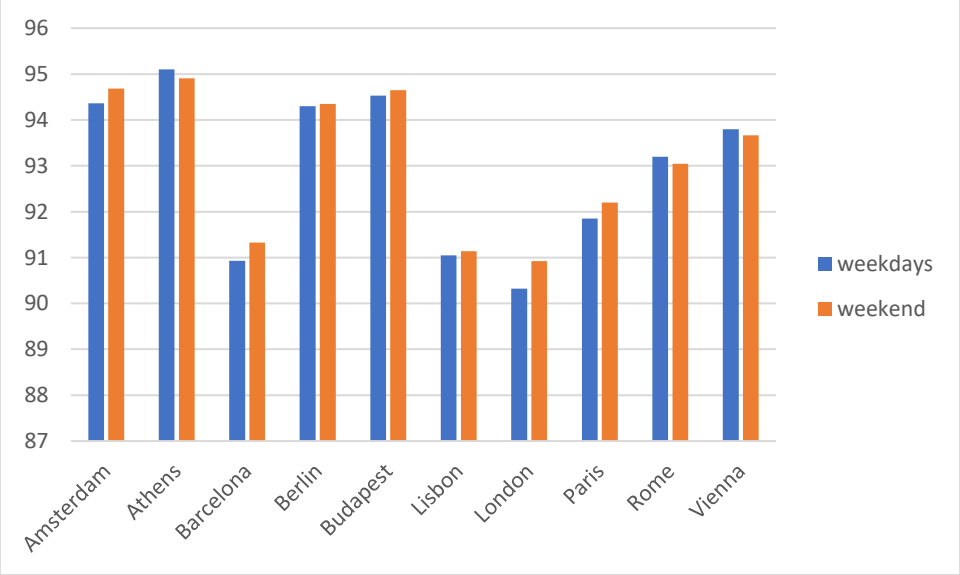
[2] In Airbnb, a "Superhost" is a designation awarded to hosts who consistently offer exceptional hospitality and receive high ratings from guests. To qualify, hosts must meet specific criteria regarding ratings, response times, booking frequency, and cancelation rates, set by Airbnb. Achieving Superhost status provides hosts with benefits such as increased visibility in search results, access to exclusive tools and support, and a badge displayed on their profile. Superhosts are highly regarded by guests for their proven commitment to delivering outstanding accommodations and experiences.

expensive listings; however, their average consumer satisfaction ratings are also relatively high compared to other cities. London and Paris are the second most expensive cities on average, but London has some of the lower consumer satisfaction ratings on average. Athens is the city with the lowest average price paid and the highest satisfaction ratings.

Graph 1: Average total price paid per city for weekdays and weekends.



Graph 2: Average consumer satisfaction rating per city for weekends and weekdays.



Using a regression analysis, we examined the relationship between these variables and consumer satisfaction ratings. More specifically, we analyse the following equation:

$$\text{Consumer Satisfaction}_i = \alpha_0 + \beta_1 * X_i + \beta_2 * \delta_i + \varepsilon_i \quad (1)$$

Where $\text{Consumer Satisfaction}_i$ refers to the consumer rating given for a specific listing in a specific city. X_i is a matrix of explanatory variables per listing and city, these include: total price paid; Capacity which is the number of people a property can accommodate; Business is a dummy which equals 1 if the listing offers business facilities and 0 otherwise; Cleanliness refers to the cleanliness rating from 0 to 10 given by the consumers; Property Type which is a set of dummy variables indicating whether the guests rented the entire apartment/house and the type of room they rented, if this room was shared or private; Superhost is a dummy variable which equals 1 of the property is identified as a superhost and 0 otherwise; and Distance to the city centre and Metro which is a measure in KM of the proximity to the city centre and Metro stations. δ_i is a set of dummy variables which control per city (city fixed effects) and whether the property was rented during a weekend or weekdays.

Table 1 shows the results for all cities controlling for city fixed effects, and Table 2 shows the results per city.

Table 1: OLS results for all cities

VARIABLES	All cities Rating
Price	0.000322***
	(8.58e-05)
Capacity	-0.0349
	(0.0301)
Business	-2.173***
	(0.0655)
Cleanliness	6.324***
	(0.0667)
Bedrooms	0.351***
	(0.0578)
Distance centre	-0.00772
	(0.0166)
Distance Metro	0.198***
	(0.0411)
Weekend	0.0522
	(0.0535)
Superhost	1.548***
	(0.0511)
Private room	-0.649*
	(0.371)
Entire home	-0.802**
	(0.368)
City fixed effects	YES
Constant	34.41***
	(0.734)
Observations	51,707
R-squared	0.539

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2: OLS results per city

VARIABLES	Amsterdam Rating	Athens Rating	Barcelona Rating	Berlin Rating	Budapest Rating	Lisbon Rating	London Rating	Paris Rating	Rome Rating	Vienna Rating
Price	0.000548**	0.000286**	0.000243	0.000136	-0.000847	0.00388**	0.000308***	0.000413**	0.00169***	0.000221
	(0.000236)	(0.000132)	(0.000276)	(0.000641)	(0.000516)	(0.00184)	(9.99e-05)	(0.000191)	(0.000569)	(0.000389)
Capacity	-0.133	0.383***	-0.104	-0.169	0.0318	0.109	0.0845	-0.0845	-0.124*	-0.515***
	(0.131)	(0.0766)	(0.195)	(0.108)	(0.0688)	(0.104)	(0.0940)	(0.0876)	(0.0674)	(0.107)
Business	-1.353***	-1.530***	-1.878***	-3.085***	-0.822***	-1.562***	-3.232***	-3.274***	-1.178***	-2.127***
	(0.392)	(0.179)	(0.261)	(0.364)	(0.182)	(0.171)	(0.183)	(0.235)	(0.139)	(0.215)
Cleanliness	4.845***	7.254***	5.942***	4.347***	5.161***	6.739***	7.074***	5.768***	6.377***	4.891***
	(0.388)	(0.249)	(0.235)	(0.247)	(0.301)	(0.183)	(0.120)	(0.175)	(0.188)	(0.197)
Bedrooms	0.477**	-0.303**	0.282	0.350*	0.0913	-0.162	0.583***	0.779***	0.138	0.745***
	(0.186)	(0.149)	(0.335)	(0.200)	(0.137)	(0.144)	(0.193)	(0.179)	(0.135)	(0.207)
Distance centre	-0.158**	-0.0713	-0.131	0.0231	-0.136**	0.0322	-0.0752**	0.0894	0.112***	0.0843
	(0.0752)	(0.0816)	(0.0894)	(0.0350)	(0.0693)	(0.0525)	(0.0379)	(0.0559)	(0.0404)	(0.0563)
Distance Metro	0.422***	0.397	0.844*	-0.0899	0.283**	-0.0521	0.218***	0.449	0.246***	0.0116
	(0.142)	(0.268)	(0.431)	(0.0890)	(0.135)	(0.0994)	(0.0787)	(0.668)	(0.0935)	(0.201)
Weekend	0.0312	-0.0846	0.108	0.142	0.0148	-0.0347	0.0928	0.153	-0.0918	-0.0598
	(0.211)	(0.150)	(0.218)	(0.215)	(0.143)	(0.168)	(0.149)	(0.159)	(0.113)	(0.182)
Superhost	1.434***	1.072***	2.336***	1.602***	1.379***	1.973***	1.202***	1.296***	2.029***	1.868***
	(0.213)	(0.145)	(0.216)	(0.186)	(0.155)	(0.183)	(0.140)	(0.165)	(0.115)	(0.169)
Private room	-1.191	-2.024	-1.475***	-0.417	-4.130***	1.596	1.003	-3.424***	2.012	-0.332
	(0.864)	(1.255)	(0.569)	(0.708)	(1.306)	(0.986)	(1.344)	(0.585)	(1.602)	(1.806)
Entire home	0.523	-2.321*	-2.490***	-0.396	-3.809***	0.933	-0.386	-2.803***	2.649*	-0.480
	(0.865)	(1.222)	(0.647)	(0.731)	(1.291)	(0.994)	(1.343)	(0.563)	(1.594)	(1.809)
Constant	48.05***	26.41***	37.48***	53.67***	49.30***	26.22***	25.54***	41.01***	29.18***	48.65***
	(3.593)	(2.540)	(2.237)	(2.460)	(3.253)	(1.907)	(1.855)	(1.754)	(2.382)	(2.459)
Observations	2,080	5,280	2,833	2,484	4,022	5,763	9,993	6,688	9,027	3,537
R-squared	0.479	0.576	0.566	0.393	0.511	0.533	0.597	0.466	0.526	0.438

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The results show that higher prices were associated with slightly higher satisfaction ratings across most cities; this result may seem surprising at first, and it would be interesting to analyse it further; a possible explanation is that consumers may associate high prices with high quality. However, higher prices were not statistically significant for Barcelona, Berlin, and Budapest. The maximum number of people a property can accommodate was just statistically significant for Athens and Vienna, and it had mixed effects on satisfaction ratings, depending on the city. Listings offering business facilities tended to have lower satisfaction ratings in most cities, suggesting potential trade-offs between business amenities and overall guest experience. Higher cleanliness ratings significantly and strongly correlated with higher guest satisfaction across all cities. The effects of Entire home listings and private rooms compared to shared rooms were not statistically significant for all cities, and the results are mixed; surprisingly for some cities, it looks like there is a negative correlation with consumer satisfaction if they were rented the whole property, further research could be done in this area to understand better consumer preferences. Being identified as a superhost positively influenced guest satisfaction ratings in most cities. Finally, proximity to the city centre and metro stations had mixed effects on satisfaction ratings, with some cities showing significant positive or negative associations, although in general, it seems that consumers prefer reasonable access to public transport.

Implications and Conclusions

This analysis provides some insights for Airbnb hosts and policymakers in European cities. Hosts can optimise their listings by focusing on cleanliness, obtaining superhost status, and offering competitive prices. Additionally, they should consider the preferences of their target guests and the unique characteristics of each city.

Policymakers should continue to monitor Airbnb's impact on local housing markets and neighbourhoods while balancing the interests of hosts, guests, and residents. Regulations should aim to promote responsible hosting practices, ensure fair competition with traditional accommodation providers, and maintain the integrity of residential communities.

Overall, Airbnb has reshaped the hospitality landscape in Europe, offering travellers diverse accommodation options and economic opportunities for hosts. By understanding the factors driving guest satisfaction, hosts can enhance their services, ultimately contributing to a positive experience for Airbnb users and the communities they visit.

The evolution of Airbnb in Europe has presented both challenges and opportunities from an economic perspective. Through data analysis and regression modelling, we have gained insights into the factors influencing guest satisfaction in ten major European cities. By leveraging this knowledge, hosts can optimize their listings to meet guest expectations, while policymakers can craft effective regulations to ensure the sustainable growth of Airbnb in European markets.

References

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