Negative signals on Peer-to-Peer platforms: The impact of cancellations on host performance across different property types

Negative signals on Peer-to-Peer platforms: The impact of host cancellations on occupancy rate across different property types

Abstract

Scholars investigated the factors enhancing Airbnb hosts' performance; however, less research focused on negative signals, such as host cancellation messages. Cancellations are a signal that conspicuously reveals the number of times a host has canceled a pre-existing reservation. Drawing upon signaling theory and product involvement, we argue that cancellation signals have a negative impact on host occupancy, but this impact is moderated by the level of involvement associated with the accommodation type (i.e., private room, shared room, entire apartment). The study used a dataset of 31,778 reviews of 6,384 Airbnb listings. The results show that accommodation type moderates the relationship, that is, the impact of cancellations is stronger for higher involvement accommodations (entire apartment) *versus* low involvement ones (shared rooms). This study advances the literature on negative signals and helps P2P managers understand the impact of cancellations on their revenues.

Keywords: Airbnb host; signaling theory; negative signal; cancellation rate; accommodation type; occupancy rate.

Introduction

Peer-To-Peer (P2P) short-term accommodation rental platforms like Airbnb provide various signals to reduce consumer risks and facilitate the assessment of the reputation and reliability of hosts (Mauri et al., 2018; Abrate & Viglia, 2019). These signals are used to communicate the quality, professionalism, and reliability of hosts (e.g., Ert et al., 2016; Dogru et al., 2020). Rating score, the super host badge, profile photos, the volume of reviews, multi-listings, response rate, responsiveness, years of experience, and identity verification are signals that impact host performance (e.g., Ert et al., 2016; Xie and Mao, 2017; Wu et al., 2017; Tussyadiah and Park, 2018; Mauri et al., 2018; Abrate and Viglia, 2019; Dogru et al., 2020; Xie, Heo, and Mao, 2021).

However, less research has focused on negative signals generated by the host and that communicate the level of unreliability of a host, namely the automated cancellation message generated by Airbnb each time a host cancels a pre-existing reservation. Cancellations represent a negative (conspicuous) signal showing the number of times a host cancelled a reservation. This negative signal is supposedly used by guests to assess the hosts' reliability and may impact booking decisions.

Drawing upon signaling theory (Spence, 1978), negativity bias (Herr, Kardes, & Kim, 1991), and product involvement (Quester & Lim, 2003), we assess the impact of cancellation rate on host performance considering the moderation of involvement of the product being booked (Quester & Lim, 2003). The study advances these theories and shows their application in the P2P context, helping Airbnb hosts to evaluate the impact of cancellation on their occupancy rate.

Signaling Theory and Host Cancellations

Signaling theory indicates the use of various signals to conspicuously communicate the quality of products or services that would be otherwise difficult to evaluate by consumers due to the presence of information asymmetries (Spence, 1978). Service quality signals are used to reduce the information asymmetry present between service providers and customers interested in the purchase of services (Kirmani & Rao, 2000).

We divide signals into *user-generated signals*, such as review valence and rating score, or *host-generated signals*, such as the listing description, the price, and the number of cancellations. The former signals generally convey positive meanings, and they have received attention from tourism scholars (e.g., Liang et al., 2017). However, negative signals in P2P contexts have received scant research attention. In this context, negative signals could be negative reviews and rating scores left by guests; however, scholars revealed that Airbnb customers are less likely to leave negative reviews about peer-to-peer hosts because the home experience shapes consumers' relationships (Osman, D'Acunto, & Johns, 2019) and creates empathy (Pera et al., 2019). Negative signals can also be generated by the host. For instance, the cancellation rate is a signal that depends on the number of times a host has unilaterally canceled a reservation. The cancellation rate is a negative signal automatically generated by Airbnb when the host cancels a booking, and it is visible in the review profile of the host. The cancellation can signal the level of unreliability of an Airbnb host. The cancellation rate can be considered a form of host-generated negative eWOM.

The impact of negative signals on Airbnb host performance has received limited research attention. Drawing upon negativity bias theory (Herr et al., 1991), we argue that a negative signal like cancellation rate has a strong impact on consumer behavior due to the negativity bias, that is, the consumers' tendency to evaluate negative information as more salient, diagnostic, useful than positive information (Wu, 2013). The impact can be particularly important in the context of Airbnb, which is characterized by high levels of risk compared to traditional accommodations (Wu, Ma, & Xie, 2017).

In this study, we also assume that the impact of cancellation signals on host performance depends on product involvement. The level of involvement with a product purchase depends on the hedonic value and perceived importance of the product, but also on the level of psychological, time, financial, social, and physical risks (e.g., Quester & Lim, 2003). Airbnb accommodation types have varying levels of involvement. Entire apartments are riskier because they are more expensive (economic risk). They are also more complex because of the higher number of features to consider and assess compared to a shared or private room in an apartment. Guests of shared rooms or apartments often consider the accommodation a foothold, and they only assess basic services before booking them. Furthermore, booking an entire apartment also indicates the higher importance of the trip due to the potential involvement of other people staying at the accommodation (social risk). Hence, we formulate the following hypothesis:

H1: Cancellation rate has a strong impact on host occupancy; however, this impact is moderated by the type of accommodation, that is, cancellation rate will have a stronger impact for higher involvement accommodation (entire-apartment) compared to lower involvement ones (shared-private rooms).

Methodology

Research setting and measures

London is our research setting since it is among the Top 10 tourism destinations. Our sample is based on 31,778 reviews of 6,384 Airbnb listings in London in 2019 from AirDNA.

The dependent variable in our models is the occupancy rate of each listing monthly. The occupancy rate (provided by AirDNA) was computed as follows: Occupancy rate=Total Booked Days/(Total Booked Days+Total Available Days). Various control variables were added to the model (see Table 1) (e.g., Xie and Mao, 2017; Abrate and Viglia, 2019). The list of dummy variables refers to the month and property type. The independent variable, the cancellation rate, was measured as the percentage of cancelled reservations (Table 1).

Table 1. Variables and operationalization

Variable	Operationalization
Dependent variable	
Occupancy Rate*	Total Booked Days/(Total Booked Days+Total Available Days)
Independent variables	
Cancellation Rate**	Percentage of cancelled reservations
Moderator variables	
Property Type	List of dummy variables of the property type (Apartment, private room, shared room)
Control variables	
Host Reputation**	Dummy variable equal to 1 if the host is a superhost, 0 otherwise
Host Responsiveness**	Log percentage of new inquiries and reservation requests a host responded to within 24 hours
Host Experience**	Log of the total number of reviews received by the host
Number of Photos**	Log of the number of photos
Flexible cancellation policy**	Dummy variable equal to 1 if the cancellation policy is flexible, 0 otherwise
Neighborhood type	List of dummy variables of the neighborhoods
Month	List of dummy variables of the month

Note: *: data have a monthly base; **: data have a yearly base.

Results

The descriptive statistics are reported in Table 2 below. They show that occupancy rate is equal to 70.1% while the cancellation rate is higher for entire apartments compared to shared or private rooms. As suggested by Sainaghi (2020), we included in the models control variables related to host attributes as host reputation, host responsiveness, host experience, number of photos posted and the flexible cancellation policy, as well as those related to location of the listing as the neighborhood where the listing is located.

Table 2. Descriptive Statistics

Variable	Mean	Standard deviation	Minimum	Maximum
Dependent variable				
Occupancy rate	0.701	0.287	0	1
Independent variables				
Cancellation rate (all the sample)	0.042	0.194	0	1
Cancellation rate (entire apartments)	0.053	0.216	0	1
Cancellation rate (shared or private rooms)	0.025	0.149	0	1
Moderator variable				
Listing type (entire apartment)	0.722	0.459	0	1
Control variables				
Host Reputation	0.420	0.493	0	1
Host responsiveness	96.738	10.788	0	100

Host experience	1.615	1.080	1	17
Number of photos	19.988	13.320	1	200
Flexible cancellation policy	0.129	0.335	0	1
Neighborhood type	20.237	9.281	1	33
Month	6.787	3.234	1	12

We computed the variance inflation factors (VIFs) to exclude any potential multicollinearity problems. Since the variables have VIFs well below the suggested threshold of 10 (Kleinbaum, Lawrence, Muller, & Nizam, 1998), multicollinearity is not a problem.

We then run four longitudinal econometric regression models monthly to test the effects of cancellation rate on occupancy rate, including all property types and the three subsamples separately (entire apartment, shared room, and private room) (Table 3). In Model 1, the effect of cancellation rate on occupancy rate is negative and significant. Models 2, 3 and 4 include, respectively, the three listing types of entire apartments, shared rooms, and private rooms. The significant effect of cancellation rate on occupancy rate in Model 2 and the non-significant effect in Model 3 and Model 4 support the hypothesis that the cancellation rate has a stronger and more significant impact for higher involvement accommodations (entire apartment) compared to lower involvement ones (shared rooms and private rooms).

Table 3. Longitudinal regression models

	Dependent variable		
Independent variables	***Occupancy rate***		
Model	*M1*	*M2*	*M3*
Property Type	*All*	*Entire apartment*	*Shared room*
Direct effects			
Cancellation Rate	-0.038*	-0.051**	-0.023
	(0.020)	(0.023)	(0.033)
Control variables			
Host Reputation	0.026***	0.023*	0.016
	(0.008)	(0.010)	(0.016)
Host Responsiveness	0.038***	0.033*	0.066*
	(0.014)	(0.015)	(0.034)
Host Experience	0.033***	0.041***	0.022*
	(0.005)	(0.007)	(0.008)
Number of photos	0.011	-0.005	0.046***
	(0.007)	(0.008)	(0.011)
Flexible cancellation policy	-0.034*	-0.038*	-0.026
	(0.014)	(0.017)	(0.020)
Constant	0.445**	0.264	0.609*
	(0.146)	(0.188)	(0.244)
R-squared overall	15.72%	16.81%	12.18%
VIF	1.54	1.79	1.39
Observations			
Number of listings	3,075	2,221	1,088
Percentage of listings	100.00%	72.23%	27.77%

*Note: *** p<0.01, ** p<0.05, * p<0.1; Robust standard errors in parentheses; control variables that refer to the dummy variables of the months, type of neighborhood and the property type dummies (in Model 1) are omitted.*

Discussion and Theoretical Contribution

This study advances the literature on home sharing by investigating a negative host signal, the booking *cancellation signal*. Negative signals generated by hosts have received scant research attention, whereas previous studies on positive signals (e.g., superhost, rating score, profile picture, multi-listing) have proved their effect on host performance metrics (e.g., Xie and Mao, 2017). This study has integrated arguments from the negativity bias theory (Herr et al., 1991; Wu, 2003; Filieri, Raguseo, and Vitari, 2019) and signaling theory (Spence, 1978; Kirmani and Rao, 2000) and applied them to the P2P context, by advancing the literature on conspicuous negative signals.

This study is the first that assesses the negative impact of cancellation rate on host occupancy, advancing the literature on the effects of negative signals on peer-to-peer platforms in the home-sharing context. We can conclude that a host that cancels an existing reservation is perceived as less reliable compared to others who do not cancel any reservation. Hence, guests are less likely to book an Airbnb accommodation from a host that has cancelled pre-existing reservations.

Furthermore, this study also shows that the impact of cancellation rate is not uniform across accommodation types, that is, cancellation rate impact is significant for high involvement products, entire apartments in our study. This result contributes to the literature that suggests that the impact of negativity bias depends on some conditions that can moderate its impact, such as the type of product (Filieri et al., 2019; Mudambi and Schuff, 2010). The study also links to the literature on the role of product type in the P2P context. Consistently, scholars have shown that travelers are less likely to reserve some types of Airbnb accommodation (i.e., shared accommodation) for fear of social contact during the Covid-19 pandemic (Dogru et al., 2020; Bresciani et al., 2021). Other scholars revealed that different Airbnb properties (entire homes, private rooms, or shared rooms) impact lodging organizations differently (Dogru et al., 2020). Hence, this study stresses the relevance of accommodation type in evaluating the effects of the determinants of host performance.

This result also contributes to the literature on product involvement (Quester & Lim, 2003). Higher cancellation rates are particularly detrimental for high-involvement accommodation types (entire apartments) compared to low-involvement ones (shared rooms).

Managerial implications

This study highlights that hosts of entire apartments should pay particular attention to cancellation signals because they strongly impact the occupancy rate. Cancellation signals increase the risk and decrease the confidence in the service provider, reducing the intention to book. Our recommendation to Airbnb hosts of entire homes is to try to reduce to a minimum the possibility of canceling an existing reservation. For instance, hosts could eventually ask for help from neighbors or consider adopting code-based keyless entry door locks.

Limitations and future research

Future research could include various destinations in other countries other than the UK. Scholars could assess if and how much cancellation rates moderate the impact of generally positive user-generated signals in Airbnb, such as review valence and the rating score. Future research could also consider other negative host-generated signals such as negatively valenced reviews or negative ratings, the unprofessional description of listings, or the absence of visual information about key features of a property (i.e., bedroom).

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