



Communicating quality while evoking loss – How consumers assess extra charges in the Airbnb marketplace

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ABSTRACT

The rise of the sharing economy has allowed consumers to choose from hundreds of thousands of diverse accommodations. In this article, we explore the impact of price partitioning on demand. Our findings reveal that partitioning the price into different elements can have a positive impact on demand. We argue that when the price is partitioned into different fees, it draws attention to the rationale behind the fees – such as additional cleaning. While the presence of the fees acts as a signal, we draw upon prospect theory to argue that the amount of the fee is viewed as a loss and thus has a negative impact on demand. We test our arguments using data on Airbnb's across the whole United States and find that price partitioning positively impacts demand, but the costs themselves have a negative impact on demand.

1. Introduction

The rise of the sharing economy has enabled millions of diverse hosts to profit from the short-term rental of space within their homes or in other residential properties (Dogru, Mody, & Suess, 2019; Guttentag, Smith, Potwarka, & Havitz, 2017; Lee, Yang, & Koo, 2019; Zervas, Proserpio, & Byers, 2017). The hosts benefit from a central platform, such as Airbnb or VRBO, which provides the function of bringing together hosts and guests within a marketplace of shared accommodations (Zervas, Proserpio, & Byers, 2017). The platforms do not maintain accommodations themselves, but they define the rules by which buyers and sellers can participate (Yang, Pei-Sze, & Li, 2019). A consequence of the centralized structure, where one entity organizes the exchange function, is that signals of quality are centrally controlled (Zervas, Proserpio, & Byers, 2015). For example, Airbnb dictates the terms with which hosts are rated, including the attributes they can be rated on (Zervas, Proserpio, & Byers, 2015). This is noteworthy because of the quality differentials that exist in the accommodations sector. Accommodations differ based on their levels of service, location, and amenities, which is reflected in the prices that they charge (Becerra, Santalo, & Silva, 2013). Traditional hotels and motels will charge more for

greater amenities, or for greater levels of service; however, certain services and features, such as cleaning fees, or charges for extra guests, are bundled within the price, and are not evaluated separately by guests (Hung, Jui-Kou, & Wang, 2010). Alternatively, in the shared accommodation marketplace, the guest has the opportunity to assess these features and their associated costs separately.

The partitioning of costs by Airbnb hosts raises questions pertaining to how consumers evaluate these costs, and whether they signal quality about the listing. The current pandemic has placed an increased importance on features used to assess quality in the form of cleanliness and safety (Bove & Benoit, 2020). To reduce the spread of the deadly virus, hosts in the sharing economy have engaged in additional protocols related to cleaning and prevention of infection (Airbnb, 2020). The contention of this study is that when these features are highlighted through separate costs, they may garner greater attention from consumers, and give consumers the feeling that they have some control over the quality of the accommodations. If the need for cleanliness and safety is enhanced, a separate fee for such features can give assurances that the host will have the listing cleaned after each guest, and also ensure that subsequent guests will receive the property in a safe condition. Prior research has shown that a catastrophic event which threatens safety can

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prime consumers to desire greater control in their choices of accommodations and their environments, because greater control reduces ambiguity and enhances perceptions of safety (Wolff & Larsen, 2014). We argue that even when the pandemic subsides, it will have *primed* consumers to desire more control over the quality of their accommodations going forward. Sellers who are able to signal greater care for their properties would be well positioned in a post-pandemic marketplace. Interestingly, prior work on the Airbnb marketplace alluded to contrasting results on how consumers assess additional costs (Dogru & Pekin, 2017; Gunter & Onder, 2018). The presence of additional costs has been shown to be positively related to the price of the listings (Dogru, 2017), but the amount of the costs decreases demand (Gunter & Onder, 2018).

In this article, we argue that the presence of additional costs draws consumers' attention to these features and, in doing so, may act as a signal of quality. Quality signals available to consumers in the traditional accommodation marketplace—such as brands or star ratings—are not present in the sharing marketplace. Guests can read reviews and view the rating of each individual listing; however, prior work has shown that there is very little variation in the ratings (Zervas et al., 2015). Guests can view pictures of the accommodation, and this provides a certain level of quality assurance (Wang & Nicolau, 2017). However, by adding a separate charge for cleaning, a charge for extra guests, or a security deposit, the host signals to guests that the accommodation will be cleaned before the guest arrives, and that the host is imposing limits on the number of guests that previously stayed at the property, which, theoretically, may minimize the risk of infection. Hosts that do not separate fees raise questions as to whether the accommodations are professionally cleaned, and/or whether the host took care to limit the number of guests at any given time. The purpose of this article is to examine the impact that separate fees can have on demand in the Airbnb marketplace. We evaluate both the presence of the fee and the magnitude of the fee itself on demand for Airbnb listings. In so doing, the study not only resolves the debate pertaining to the contrasting effects of additional fees on valuation, but it also offers insights into the advantages and disadvantages of separating costs when other types of accommodation, including traditional hotels, do not. The study also contributes to the greater literature on the Service Dominant Logic by examining how price partitioning can create value for consumers who seek to alleviate uncertainty. The Service Dominant Logic contends that all transactions have a degree of intangibility and uncertainty during an exchange (Vargo & Lusch, 2004). The problem of uncertainty prior to purchase is a prevalent problem for consumers, whether they are booking accommodations or purchasing a product online. This article examines how price partitioning can alleviate this uncertainty.

The article is organized as follows. We first describe our research context, including the size of the peer-to-peer (P2P) accommodation marketplace. A discussion of signaling as well as price bundling follows, and testable hypotheses are formulated. The hypotheses are tested using a large database of Airbnb rentals across the whole United States. The presentation of the findings follows, along with a discussion of the implications for both theory and practice.

2. Literature review

2.1. Airbnb

There has been a proliferation of research on the sharing economy in recent years. Of the various sectors of the sharing economy, P2P accommodation and transportation have received the most attention (Hossain, 2020), with a large body of research focusing on the former (Belarmino & Koh, 2020). The exponential increase in research on the P2P accommodation marketplace has followed the exponential growth of its market share; platforms, such as Airbnb, HomeAway, and Flipkey, comprise 10% of total lodging bookings in the U.S., and 3.4% globally, generating approximately US\$101 billion. Of these, Airbnb is the

world's largest homesharing platform, with about 27% market share, and offering over 7 million accommodations in over 220 countries and regions (Mody, Lu, & Hanks, 2020).

Research on P2P accommodation encompassed a variety of areas, ranging from the customer experience (Mody, Suess, & Lehto, 2017), the economic drivers and effects of Airbnb on the hotel industry performance (Dogru et al., 2019; Dogru, Mody, Suess, Line, & Bonn, 2020), legal and regulatory issues (Wegmann & Jiao, 2017), and resident attitudes towards P2P accommodation (Suess, Woosnam, Mody, Dogru, & Turk, 2020), among others. One such area receiving considerable attention relates to the pricing and revenue management of P2P listings. For example, several studies examined the determinants of Airbnb pricing, typically using hedonic pricing approaches that assess how consumers value utility-based attributes, such as the size of the property, the number and nature of guest reviews, or the amenities offered, and their impacts on the prices charged by hosts (Chen & Xie, 2017; Gibbs, Guttentag, Gretzel, Morton, & Goodwill, 2018). Relatedly, researchers also examined whether and how hosts use dynamic pricing strategies and their impact on listing performance (Gibbs, Guttentag, Gretzel, Yao, & Morton, 2018; Kwok & Xie, 2019).

In examining these developments, researchers also observed that the P2P accommodation marketplace, particularly Airbnb, has become increasingly professionalized, and is dominated by multi-unit hosts, who are typically professional investors who offer more standardized products to guests, similar to a hotel experience in terms of amenities and services (Dogru, Zhang, et al., 2020). This professionalization has fueled an entire ecosystem of startups around the world offering cleaning services, property management, customer checking, and pricing advice to Airbnb service providers (Dreyfuss, 2018). However, while hosts are increasingly relying on this ecosystem of services to enhance the guest experience, and are incorporating the costs associated with these services into their pricing, the extent to which the fees associated with such “extra” services represents higher quality to the customer has not been comprehensively examined. This article addresses this gap by leveraging the conceptual underpinnings of price partitioning, quality signaling, and prospect theory. In particular, we explore extra charges that might signal to the guest that the host is committed to maintaining a clean and safe environment, an issue that is generally important to customers of P2P accommodations (Guttentag & Smith, 2017), and of particular importance to guests during the current pandemic, when they fear for their health when interacting with service providers (Bove & Benoit, 2020).

2.2. Price partitioning and signaling

The market for shared accommodations allowed hosts to partition the costs that guests evaluate when considering booking. P2P consumers are typically presented with an unbundled price: the price of the accommodation itself and, separately, other costs such as cleaning fees, fees for additional guests, or a security deposit. In the following section, we argue that the presence of these extra charges may act as a signal of cleanliness and safety, while an evaluation of the amount of the extra charges follows the price partitioning argument in that consumers view partitioned costs as separate losses.

Previous research on P2P accommodation examined a variety of attributes that are used to signal the quality of a listing, and, relatedly, affect its pricing—signals such as the Superhost badge (Xie & Mao, 2017), reviews/reputation (Teubner, Hawlitschek, & Dann, 2017), and personal photos (Ert, Fleischer, & Magen, 2016), among others. Of these various signals, cleanliness and safety emerged as important factors that customers use to evaluate service quality in P2P accommodations (Jun 2020), and an important indicator of a listing's price/value proposition (Kwok, Tang, & Yu, 2020). However, only one previous study examined whether and how extra charges in a P2P listing's unbundled price have implications for quality and customer decision making; Yao,

Qiu, Fan, and Liu (2019) found that while extra charges, such as those associated with cleaning fees, fees for extra guests, and a security deposit, generally kept the listing from being booked, the fees associated with extra cleaning could actually increase booking odds for listings without reviews, since this fee may serve as a proxy signal for cleanliness and quality in the absence of guest reviews. While Yao et al.'s (2019) study provides formative empirical evidence of the role of extra charges as a quality signal for P2P listings, it does not leverage the conceptual underpinnings of price partitioning and quality signaling to examine their impact on listing performance.

In this article, we argue that having customers evaluate extra charges—those associated with cleaning, extra guests, and a security deposit—separately, signals to the customer that the host values cleanliness and safety. With traditional accommodations, such as major hotel or motel chains, these features are often included in the final price of the accommodation, and consumers do not question their presence since the major chains have developed these expectations over time (Morgan, 2018). However, in the sharing economy, each host operates independent listings under the umbrella of a shared platform (such as Airbnb). Thus, cleanliness and safety can differ significantly across listings, and hosts are limited by the platform in terms of how they can signal these attributes. A host who adds a separate charge for cleaning may signal cleanliness, more so than a host who does not include a separate charge for the same service. Similarly, hosts who add charges for extra guests and/or a security deposit may signal that they care about the condition in which guests leave their property for subsequent guests, and, at a time of Covid-19, that they care about imposing limits on the number of guests to minimize the risk of infection. This is not to say that listings that do not indicate these extra charges do not utilize professional cleaning services, and/or care about the condition of their property, or the safety of their guests, but without explicitly indicated extra charges, there remains some ambiguity about whether these features are offered by the listing.

Regardless of what the consumer desires to purchase, the object of desire contains some ambiguity pertaining to quality (Vargo & Lusch, 2004). Partitioning prices may be a method by which consumers reduce the uncertainty and sellers signal quality. According to signaling theory, quality is established by imposing a cost on poor quality sellers, which they cannot afford, but which quality sellers can (Boulding & Kirmani, 1993; Spence, 1978). For example, warranties are offered by sellers of quality products, because few buyers will use the warranty, whereas sellers of poor-quality products will offer a limited warranty, or no warranty because of the higher number of consumers who would likely use it (Boulding & Kirmani, 1993). For shared accommodations, poor quality sellers would likely be hosts who do not prioritize cleanliness and safety, by not having their listings professionally cleaned, not limiting the number of people staying in the listing, or not requiring a security deposit. We reiterate that hosts who integrate these costs into a single price may indeed offer professional cleaning and additional restrictions, but the omission of partitioned fees creates ambiguity as to whether these features are included. In turn, for listings that do not prioritize cleanliness and safety, sellers would not want consumers to focus on these attributes, since they may be disappointed with the actual experience. Thus, through the partitioning of fees, we expect these cleaning and safety signals to have a positive impact on demand for listings. Stated formally:

H1a. The presence of a partitioned cleaning fee has a positive impact on occupancy rates.

H1b. The presence of a partitioned fee for extra guests has a positive impact on occupancy rates.

H1c. The presence of a partitioned fee for a security deposit has a positive impact on occupancy rates.

This argument proposed a positive relationship between the presence of partitioned fees and demand (as measured by occupancy rates). While the presence of these features can signal cleanliness and safety, the consumer must still evaluate the magnitude of the added costs, and this evaluation may have an asymmetrical effect beyond the simple presence or absence of these costs. Prior work found that the partitioning of costs creates a scenario, where the additional costs get greater attention, and are assessed separately from the core service (Bertini & Wathieu, 2008; Chakravarti, Krish, Pallab, & Srivastava, 2002). For accommodations, consumers first evaluate the cost of the core service, which is the price for the stay; but then they move to secondary features, such as amenities or surcharges (Guttentag et al., 2017). The literature on how consumers assess partitioned costs found contrasting results (Bertini & Wathieu, 2008). Costs that are partitioned can decrease the total perceived price, and hence increase consumer choice (Morwitz, Greenleaf, & Johnson, 1998). Morwitz et al. (1998) found that additional costs, which were nominal, or costs that consumers expected to incur (e.g. taxes) were either ignored or underestimated when summed. When respondents were presented with a price that was partitioned into a base price of \$69.95 plus \$12.95 for shipping and handling, or integrated into a price of \$82.90, they recalled that the partitioned price was perceived to be lower on average, even though the total prices were the same (Morwitz et al., 1998). Part of the rationalization for these findings was that the additional costs that arose from shipping and handling were an expected cost, and it was either disregarded or underestimated when summed with the core product (Morwitz et al., 1998).

However, the more unique the additional cost, the more likely it will undergo additional scrutiny (Chakravarti et al., 2002). Under conditions when the partitioned fees receive additional scrutiny, the principles of mental accounting apply, and consumers would evaluate the value of core cost and the partitioned cost separately (Chakravarti et al., 2002). The core cost is viewed as a loss, while the partitioned cost is viewed as a separate additional loss, and, based on the tenets of prospect theory, the value of losses is concave with higher value assigned to losses closer to a reference point (Chakravarti et al., 2002; Thaler, 1985). The intensity of losses varies based on how close the loss is to a reference point (Wakker & Tversky, 1993). If a gambler were to play four games, and lose \$20 each time, the first loss of \$20 would be felt more than the loss of \$20 the fourth time, hence, the concave nature of the loss function, where losses are more intense (indicating a steeper curve) closer to the reference point than they are further away from the reference point (indicating a flatter curve as losses accumulate). What this means in the accommodations sector is that if consumers evaluate the losses separately, they move away from the reference point twice, and the two losses would be valued higher than if they were viewed as one integrated loss along a concave curve (Chakravarti et al., 2002; Thaler, 1985). Due to the uniqueness of the additional fees in the sharing economy, we argue that when consumers evaluate the magnitude of the monetary value of the separate costs, it would have a negative impact on the demand for the listing (as measured by occupancy rates). Thus, we hypothesize:

H2a. A higher partitioned cleaning fee has a negative impact on occupancy rates.

H2b. A higher partitioned fee for extra guests has a negative impact on occupancy rates.

H2c. A higher partitioned fee for a security deposit has a negative impact on occupancy rates.

At this stage, we have advanced isolated arguments about the impact of different price partitions on listing demand. Based on previous research, the most impactful factor on demand has been the price of the listing (Guttentag et al., 2017). This is not to say that consumers want the cheapest accommodation possible, but they perceive the offerings

in the sharing economy as better value for money than accommodations in the traditional sector. When listings have high prices in the sharing economy, consumers have higher expectations than they would for a listing with a lower price and a traditional hotel. In effect, price becomes the greatest signal of quality (Yao et al., 2019), and an additional fee for items associated with cleanliness and safety would likely be at odds with the higher expectations created by higher prices. The high price for a listing creates the perception that cleanliness and safety would be the norm; thus, a separate price for these would likely violate the expectation of cleanliness and safety being built into the offer of a higher-priced listing. The presence of these partitioned prices draws negative attention to the evaluation of the listing. Thus, when the presence of the listing price is considered along with the partitioning of extra charges for cleanliness and safety, we expect the opposite effects than those hypothesized in H1, and state the following:

H3a. As the listing price increases, its effect on occupancy rates is negatively moderated by the presence of partitioned cleaning fees.

H3b. The effect of the listing price on occupancy rates is negatively moderated by the presence of partitioned fees for extra guests.

H3c. The effect of the listing price on occupancy rates is negatively moderated by the presence of a partitioned fee for a security deposit.

If the presence of partitioned costs related to cleanliness and safety has a negative impact on the demand for a higher-priced listing, we would expect the reverse for the assessment of the magnitude of the partitioned costs. For Hypotheses 3a-3c we posited the impact of the simple presence of the partitioned fees. Now, we are advancing arguments pertaining to the amount of the partitioned price. Earlier, we discussed contrasting findings from the literature on price partitioning; some found additional costs to have a positive impact on value (Morwitz, Greenleaf, & Johnson, 2008). The rationale behind this finding is that consumers anchor the price that is most important to them (typically the price of the core product), and either disregard or discount additional costs (Morwitz, Greenleaf, & Johnson, 2008). They disregard the additional costs, because consumers are more likely to apply a heuristic when the price of the focal product or service is significantly more than the surcharge (Xia & Monroe, 2004). In a study of price presentations online, Xia and Monroe (2004) found that when the surcharge was a small amount relative to the base price of the product, the benefit of knowing the exact amount of the surcharge and total price was low. Thus, a listing with a base price of \$500 a night with a \$10 additional fee for cleaning, is more likely to be disregarded or minimized than a listing that has a base price of \$100 a night with a \$10 additional cleaning fee. The high base price of the former example minimizes the assessment of the additional \$10.

Thus, in the case of higher listing prices, there is a greater likelihood that the listing will be evaluated on its primary price, and the magnitude of extra charges will be disregarded or minimized. If a guest evaluates a low price for an accommodation (e.g., \$100 a night), but finds that the additional charge (e.g., cleaning fee of \$10) makes up a greater amount of the total price, we expect the additional price partition to have a negative impact on the overall evaluation. When the additional cost is small (\$10) proportional to the total cost (\$500), it is likely to be disregarded or minimized and does not negatively impact the overall evaluation of the listing. We propose contrasting hypotheses to H2 as follows:

H4a. The effect of the listing price on occupancy rates is positively moderated by the amount/magnitude of partitioned cleaning fees.

H4b. The effect of the listing price on occupancy rates is positively moderated by the amount/ magnitude of fees for extra guests.

H4c. The effect of the listing price on occupancy rates is positively moderated by the fee for a security deposit.

3. Methodology

3.1. Sample and data

The sample for this study consists of *all* Airbnb listings created in the United States between June 2008 and November 2018. To be included in the sample, the listing was required to be active as of November 2018. Airbnb listings were considered active if the property was booked at least once in the previous 12 months. That is, the property must have been booked at least once between December 2017 and November 2018 to be included in our sample. That is, the sample of this study consists of *all* Airbnb listings created in the United States between June 2008 and November 2018, which have been booked at least *once* between December 2017 and November 2018. Accordingly, the final sample comprised of 838,617 observations. The data was obtained from AirDNA, a company that collects Airbnb data and offers services to entrepreneurs, investors, and researchers (AirDNA, 2020).

In the study, the dependent variable is the occupancy rate for Airbnb listings, which is measured as the number of nights booked divided by number of nights available between December 2017 and November 2018. We used occupancy rate as the dependent variable to examine the effects of extra charges—including cleaning fees, extra guest fees, and a security deposit—on the demand for Airbnb listings. Accordingly, cleaning fees, extra guest fees, and security deposit are the independent variables. To capture the effects of price partitioning and signaling on the demand for Airbnb listings, we used both dummy variables and dollar amounts for these fees as the independent variables. While dummy variables capture the effect of signaling, the dollar amounts capture the effect of price partitioning on demand.

Following extant studies analyzing the demand determinants of Airbnb listings (Dogru & Pekin, 2017; Gunter & Onder, 2018; Wang & Nicolau, 2017), we included several variables to control for the effects of other property and host attributes on listing demand. In particular, we included the price of the Airbnb listing, the overall rating of the listing, the host's response time as measured in minutes, an instant book dummy variable, a Superhost dummy variable, the number of photos provided for the listing, a "business ready" dummy, and a cancellation policy variable which ranges between flexible and super strict. We also controlled for Airbnb listing type by using a dummy variable each for the entire home, a private room, and a shared room, which takes the value of one for the relevant dummy variable depending on the type of listing and zero otherwise. Table 1 presents the summary statistics for the study variables.

3.2. Empirical design

The ordinary least squares (OLS) regression technique was used to analyze the effects of cleaning fees, extra guest fees, and security deposit on Airbnb listing demand. We used the Stata 15 statistical software for the empirical analyses. The empirical models are specified as follows:

$$OCC_i = \beta_0 + \beta_1 PCF_i + \beta_2 PEPF_i + \beta_3 PSD_i + \sum_{k=1}^n \beta_k X_i + e \quad (1)$$

$$OCC_i = \beta_0 + \beta_1 PCF_i + \beta_2 PEPF_i + \beta_3 PSD_i + \beta_4 CFA_i + \beta_5 EPFA_i + \beta_6 SDA_i + \sum_{k=1}^n \beta_k X_i + e \quad (2)$$

$$OCC_i = \beta_0 + \beta_1 PCF_i + \beta_2 PEPF_i + \beta_3 PSD_i + \beta_4 CFA_i + \beta_5 EPFA_i + \beta_6 SDA_i + \beta_7 PCFxPrice_i + \beta_8 PEPFxPrice_i + \beta_9 PSDxPrice_i + \sum_{k=1}^n \beta_k X_i + e \quad (3)$$

Table 1
Summary statistics.

Study Variables	Mean	Median	Standard Deviation	Min	Max
Occupancy	0.54	0.55	0.26	0.032	1
Presence of Cleaning Fee	0.80	1	0.40	0	1
Presence of Extra Guest Fee	0.46	0	0.50	0	1
Presence of Security Deposit	0.47	0	0.50	0	1
Cleaning Fee Amount	72.53	50	83.86	0	3000
Extra Guest Fee Amount	11.97	0	22.86	0	500
Security Deposit Amount	186.38	0	397.84	0	5100
Price	194.12	133.81	220.42	0.75	12,410
Overall Rating	4.75	4.9	0.43	1	5
Entire Home	0.69	1	0.46	0	1
Private Room	0.30	0	0.46	0	1
Shared Room	0.02	0	0.13	0	1
Response Time	121.10	6.23	281.37	0	1440
Instant Book	0.45	0	0.50	0	1
Superhost	0.34	0	0.47	0	1
Number of Photos	19.11	16	13.13	0	594
Business Ready	0.01	0	0.08	0	1
Cancellation Policy	2.27	2	0.88	1	4

$$\begin{aligned}
OCC_i = & \beta_0 + \beta_1 PCF_i + \beta_2 PEPF_i + \beta_3 PSD_i + \beta_4 CFA_i \\
& + \beta_5 EPFA_i + \beta_6 SDA_i + \beta_7 PCFxPrice_i \\
& + \beta_8 PEPFxFPrice_i + \beta_9 PSDxFPrice_i \\
& + \beta_{10} CFAxFPrice_i + \beta_{11} EPFAxFPrice_i \\
& + \beta_{12} SDAxFPrice_i + \sum_{k=1}^n \beta_k X_i + e
\end{aligned} \quad (4)$$

where *OCC* is the occupancy rate of Airbnb listing *i*, *PCF* is the presence of cleaning fees, *PEPF* is the presence of extra guest fees, *PSD* is the presence of a security deposit, *CFA* is the cleaning fee amount, *EPFA* is the extra guest fee amount, *SDA* is the security deposit amount, *Price* is the average daily rate, and *X* represent a set of control variables of the Airbnb listings *i* that includes price, overall rating, entire home dummy, private room dummy, response time, instant book dummy, Superhost dummy, number of photos, business ready dummy, and cancellation policy. Finally, *e* is the error term, and β_0 , β_i , and β_k are the model parameters.

Model 1 examines the effects of the presence of cleaning fees, extra guest fees, and security deposit on occupancy rates. While the presence of these features can signal better service quality, the consumer is likely to evaluate the magnitude of these fees differently than their mere presence or absence. Therefore, Model 2 examines the effects of cleaning fee amount, extra guest fee amount and security deposit amount on occupancy rates. We further analyze the role of the price on the relationship between extra charges and occupancy rates, as specified in Model 3. We also analyzed the effect of price on the relationships between the amounts of cleaning fees, extra guest fees, and security deposit and occupancy rate in Model 4.

4. Findings

This section presents the findings from our empirical models analyzing the effects of cleaning fees, extra guest fees, and security deposit on Airbnb listing demand as measured by occupancy rates. We first examined the effects of the presence of these fees on occupancy rates to test H1. Table 2 presents these findings.

Model 1 (Table 2) shows that the presence of cleaning fees has a positive effect on occupancy rate ($\beta : 0.0244$, $p < 0.01$). Similarly, the presence of extra guest fees ($\beta : 0.0101$, $p < 0.01$), and the presence of a security deposit ($\beta : 0.0039$, $p < 0.01$) positively affect the occupancy rates of Airbnb listings. These results provide support for the hypotheses H1a, H1b, and H1c, which postulated based on the signaling theory that the

Table 2
The effects of cleaning fee, extra guest fee and security deposit.

Study Variables	Model (1)	Model (2)
Presence of Cleaning Fee	.0244* (.0007)	.0365* (.0008)
Presence of Extra Guest Fee	.0101* (.0006)	.0194* (.0007)
Presence of Security Deposit	.0039* (.0006)	.0022* (.0006)
Cleaning Fee Amount		-.0002* (.0000)
Extra Guest Fee Amount		-.0004* (.0000)
Security Deposit Amount		.00001* (.0000)
Price	-.0003* (.0000)	-.0002* (.0000)
Overall Rating	.0463* (.0006)	.0461* (.0006)
Entire Home	.1339* (.0021)	.1373* (.0021)
Private Room	.0687* (.0021)	.0677* (.0021)
Response Time	-.0001* (.0000)	-.0001* (.0000)
Instant Book	.0145* (.0006)	.0156* (.0006)
Superhost	.0593* (.0006)	.0576* (.0006)
Number of Photos	.0002* (.0000)	.0003* (.0000)
Business Ready	-.0045 (.0032)	-.0054* (.0032)
Cancellation Policy	-.0087* (.0003)	-.0062* (.0003)
Constant Term	.1780* (.0050)	.1730* (.0050)
F Test	1884.26*	1848.54*
R-squared	0.1240	0.1270
Adjusted R-squared	0.1239	0.1269
Number of observations	838,617	838,617

Notes: * denotes 1% statistical significance level. Standard errors are in parentheses. Occupancy rate is the dependent variable.

presence of partitioned fees will have a positive impact on demand. Accordingly, the presence of partitioned fees in Airbnb listings is perceived by customers to signal better service quality, when compared to listings that do not signal these features as partitioned fees.

While the presence of these features can signal better service quality, the consumer is likely to evaluate the magnitude of these fees differently than their mere presence or absence. That is, according to the postulations of prospect theory, the cost of these services or features are perceived to be a loss by consumers, leading to the negative relationships hypothesized in H2. The results from Model 2 (Table 2) show that cleaning fee amount and extra guest fee amount have negative impacts on occupancy rates. However, the coefficient of the security deposit amount in Model 2 (Table 2) is positive, which suggests that Airbnb guests do not perceive the security deposit amount to be an additional or separate cost. Interestingly, the positive effects of the presence of these types of fees persist in this second model, where the effects of their presence and their amounts are simultaneously analyzed. While the magnitude of the negative effects of the amounts of cleaning fees, extra guest fees, and security deposit on occupancy rates are smaller compared to the positive effects of the presence of these fees, the amount-related effects are statistically significant at the 1% level. These findings provide support for H2a and H2b, which postulated, based on prospect theory, that consumers negatively perceive the amount of the fees that signal cleanliness and safety, and that this evaluation is separate from that of their presence or absence. Although the coefficient for the security deposit amount was not negative as postulated in H2c, it was smaller in magnitude compared to the coefficient of the presence of

security deposit, which provides partial support to the postulations that the presence of a security deposit has higher magnitude compared to that of security deposit amount. This outcome is likely due to the fact that most bookings can be cancelled 24 h in advance and can be fully collected. Also, when the guests proceed with their stays, the security deposit amount is fully applied towards booking charges, and hence there is no excess cost associated with the security deposit. Accordingly, Airbnb guests perceive security deposit amount differently that cleaning fee amount and extra guest fee amount.

We further analyzed the role of the price on the relationship between extra charges and occupancy rates, as hypothesized in H3. Table 3 presents the results of this testing.

Model 3 (Table 3) shows that the positive effects of the presence of cleaning fees, extra guest fees, and the security deposit, and the negative effects of the amounts of these fees on occupancy rate persist in this

Table 3

The effects of cleaning fee, extra guest fee and security deposit: The role of price.

Study Variables	Model (3)	Model (4)
Presence of Cleaning Fee	.0445* (.0009)	.0569* (.0009)
Presence of Extra Guest Fee	.0225* (.0008)	.0257* (.0009)
Presence of Security Deposit	-.0190* (.0008)	-.0082* (.0009)
Cleaning Fee Amount	-.0002* (.0000)	-.0003* (.0000)
Extra Guest Fee Amount	-.0004* (.0000)	-.0006* (.0000)
Security Deposit Amount	.000002** (.0000)	-.000004* (.0000)
Presence of Cleaning Fee x Price	-.0001* (.0000)	-.0001* (.0000)
Presence of Extra Guest Fee x Price	-.00002* (.0000)	-.0001* (.0000)
Presence of Security Deposit x Price	.0001* (.0000)	.0001* (.0000)
Cleaning Fee Amount x Price		.0000003* (.0000)
Extra Guest Fee Amount x Price		.0000007* (.0000)
Security Deposit Amount x Price		.00000001* (.0000)
Price	-.0002* (.0000)	-.0002* (.0000)
Overall Rating	.0460* (.0006)	.0469* (.0006)
Entire Home	.1424* (.0022)	.1543* (.0021)
Private Room	.0703* (.0021)	.0722* (.0021)
Response Time	-.0001* (.0000)	-.0001* (.0000)
Instant Book	.0161* (.0006)	.0155* (.0006)
Superhost	.0571* (.0006)	.0555* (.0006)
Number of Photos	.0003* (.0000)	.0005* (.0000)
Business Ready	-.0062*** (.0032)	-.0054*** (.0032)
Cancellation Policy	-.0051* (.0003)	-.0029* (.0003)
Constant Term	.1711* (.0050)	.1567* (.0050)
F Test	1802.48*	1839.84*
R-squared	0.1292	0.1364
Adjusted R-squared	0.1292	0.1363
Number of observations	838,617	838,617

Notes: ***, **, and * denotes 10%, 5%, and 1% statistical significance levels, respectively. Standard errors are in parentheses. Occupancy rate is the dependent variable.

model. The effect of listing price on the relationship between the presence of cleaning fees and extra guest fees, as well as occupancy rate is negative and statistically significant at the 1% level, supporting H3a and H3b. These two findings confirm our postulations that with higher-priced Airbnb listings, the presence of partitioned fees has negative effects on occupancy rates, because consumers perceive these features to be the norm, and the posting of a separate fee for the features appears to violate consumers' expectations. The exception to this postulation was the effect of price on the relationship between the presence of the security deposit and occupancy rate, which was positive and statistically significant at the 1% level, thus not supporting H3c. This may be because Model 3 provides a more nuanced view of the impact of the security deposit. Model 1 examined only the direct effect of the security deposit presence on occupancy rates. In Model 3 we examined both the impact that a security deposit can have on occupancy rates, but also the impact of security deposit combined with price on occupancy rates. The results reveal that the presence of a security deposit was dependent upon the price of the accommodation. For higher priced accommodations, the impact of a security deposit was positive, but if it were lower priced accommodations the impact would remain negative. For consumers who seek low priced accommodations, the security deposit is another cost that they must incur up-front, even if it is returned. However, for higher priced accommodations, the consumer may be less concerned about the fee because they can afford a cost that will be returned to them, if they leave the property without causing any damage.

We also analyzed the effect of price on the relationships between the amounts of cleaning fees, extra guest fees, and the security deposit on occupancy rates. Model 4 (Table 3) presents these findings. The results show that the effect of price on the relationships between these fees and occupancy rate are positive and statistically significant at the 1% level, supporting H4a, H4b, and H4c. These findings provide support for the postulation that for higher-priced Airbnb listings, consumers disregard or discount additional costs for cleaning and safety features.

The results from our analyses based on the entire sample of the Airbnb listings provided support for the postulations of price partitioning, signaling theory, and prospect theory. However, Airbnb listings vary based on property type (e.g., entire home, private room, and shared room), and other unique features that either the property or the host possesses. In general, guests who stay in a private room are more price-sensitive, but they value privacy; and thus they avoid shared room Airbnb listings, which are offered at lower price points than private room Airbnb listings. Accordingly, these guests might be more sensitive to losses as indicated by prospect theory. While guests who stay in shared room Airbnb listings can also be sensitive to extra fees, the prices of the shared room Airbnb listings are the lowest in the Airbnb platform; and hence the presence of a security deposit does seem to be perceived as a loss by Airbnb guests who stay in shared room Airbnb listings. Table 4 presents the results from the analyses based on Airbnb property type.

The findings show that the presence of partitioned fees has positive and statistically significant effects, albeit to varying degrees, on occupancy rates. However, the effects of the amounts of the different partitioned fees on occupancy rates appear to vary across Airbnb property types. While the effect of the cleaning fee amount on occupancy rates is negative and statistically significant for entire-home Airbnb properties—which is in line with the postulations of signaling theory—this effect is positive and significant for private room and shared room properties. Entire homes may be expected to have cleaning services as the norm, and an additional cost for this expectedly standard service may be perceived to be an additional loss that consumers do not wish to bear. However, private room and shared room Airbnb properties are typically offered at a lower price, and may be perceived as excess space rented out by “unprofessional” hosts. Accordingly, guests may not expect cleaning services to be a standard feature for these properties, and the additional costs for cleaning services might be a positive signal for a

Table 4

The effects of cleaning fee, extra guest fee and security deposit: Airbnb property type.

Study Variables	(1) Entire Home	(2) Private Room	(3) Shared Room
Presence of Cleaning Fee	.0720* (.0013)	.0616* (.0017)	.0276* (.0069)
Presence of Extra Guest Fee	.0289* (.0011)	.0164* (.0017)	.0026* (.0083)
Presence of Security Deposit	.00005* (.0011)	-.0134* (.0019)	.0035* (.0084)
Cleaning Fee Amount	-.0003* (.0000)	.0001* (.0000)	.0002* (.0001)
Extra Guest Fee Amount	-.0004* (.0000)	-.0010* (.0000)	-.0013* (.0002)
Security Deposit Amount	-.000003** (.0000)	-.00002* (.0000)	-.000008 (.0000)
Presence of Cleaning Fee x Price	-.0002* (.0000)	-.0005* (.0000)	-.0003** (.0001)
Presence of Extra Guest Fee x Price	-.00006* (.0000)	-.0001* (.0000)	-.00059* (.0001)
Presence of Security Deposit x Price	.0001* (.0000)	.00004** (.0000)	.0001 (.0001)
Cleaning Fee Amount x Price	.0000003* (.0000)	.000001* (.0000)	.000001 (.0000)
Extra Guest Fee Amount x Price	.0000005* (.0000)	.000003* (.0000)	.00001* (.0000)
Security Deposit Amount x Price	.00000001* (.0000)	.000000* (.0000)	.0000 (.0000)
Price	-.0002* (.0000)	-.0005* (.0000)	-.0007* (.0001)
Overall Rating	.0482* (.0008)	.0449* (.0012)	.0487* (.0033)
Entire Home	-.0001* (.0000)	-.0001* (.0000)	-.0001* (.0000)
Private Room	.0053* (.0007)	.0375* (.0011)	.0573* (.0046)
Response Time	.0517* (.0007)	.0629* (.0011)	.0417* (.0058)
Instant Book	.0005* (.0000)	.0006* (.0001)	.0002 (.0002)
Superhost	-.0057*** (.0031)	(omitted)	(omitted)
Number of Photos	-.0092* (.0004)	.0139* (.0006)	.0064* (.0025)
Business Ready	.3104* (.0054)	.2045* (.0098)	.1150** (.0538)
Cancellation Policy	.0720* (.0013)	.0616* (.0017)	.0276* (.0069)
Constant Term	.0289* (.0011)	.0164* (.0017)	.0026* (.0083)
F Test	1409.65*	573.57*	32.8*
R-squared	0.1462	0.1373	0.1457
Adjusted R-squared	0.1461	0.1370	0.1413
Number of observations	576,445	248,836	13,336

Notes: ***, **, and * denotes 10%, 5%, and 1% statistical significance levels, respectively. Standard errors are in parentheses. Occupancy rate is the dependent variable.

higher-quality listing that justifies the premium. In general, the entire home listings are the most expensive option, and the shared room listings are the least expensive options. Private room listings are in the middle from a pricing perspective. While shared rooms are available on Airbnb, the majority of the bookings are made for entire homes and private rooms. Price sensitive guests are likely to book private rooms instead of entire homes. When consumers are less price sensitive, then the security deposit does not impact them as much, hence the positive impact of security deposit (Table 4, Model 1). Also, in a shared room, issues of cleanliness and safety are the highest, hence security deposit is positive for this group (Table 4, Model 3), which supports the argument that this group of guests are more price sensitive. For a private room, guests are less willing to pay more, or they would have opted for the entire home. They also want more privacy than the shared room. The neg-

ative impact of security deposit for private rooms might be an indication of a perception issue with the guests in this group. That is, for private rooms guests the security deposit might be perceived to be an added cost, while the other fees (cleaning fee & extra-guest fee) are perceived to be signaling quality. This outcome might also be an indication of an inverted U-shaped relationship between price and security deposit.

Furthermore, while the majority of Airbnb listings cater to leisure travelers, some hosts target business travelers, and thus provide features such as an office desk, a fax machine, and/or a printer (Mody et al., 2017). Also, unlike hotel accommodations, where guests can make instant reservations online without requiring further approval, guests making reservations on Airbnb may require an approval from Airbnb hosts when the listing is not instantly bookable. Additionally, Airbnb hosts with high ratings (>4.8), and who maintain other standards (number of stays, and cancellation and response rates) earn a Superhost badge, which is displayed on their Airbnb listing page. These features may influence the way in which extra charges are perceived by guests. Thus, we conducted additional analyses to examine the effects of the presence of partitioned fees and the amounts of these fees on occupancy rates based on Airbnb property type, whether the listing is business ready, instantly bookable, and has Superhost status. Table 5 presents the results for the effects of partitioned fees on Airbnb listings that are classified as business ready versus those that are not.

The findings show that the effects of the presence and amount of partitioned fees on occupancy rates do not vary based on business ready status, with one exception. The security deposit amount has a negative effect on occupancy rates only for Airbnb properties that are not business ready. This finding suggests that guests traveling for business do not appear to perceive the added cost of a security deposit negatively, while leisure guests do. Business travelers are typically paid for by their companies, while leisure travelers may be more sensitive to the opportunity cost of an added and high security deposit, which can range from \$100 to \$5000. We must point out that the majority of Airbnb listings do not have a business ready status—only 0.68% (5754 of 838,617 properties) in our sample did. Also, when we examined the role of price on the relationship between the security deposit amount and occupancy rates, we found that with increased prices, the effect of the security deposit amount on occupancy rates becomes positive. That is, the security deposit amount is positively perceived by both business and leisure travelers as the price of Airbnb listings increases.

Table 6 illustrates the findings for the effects of the presence and amounts of partitioned fees on occupancy rates based on the availability of instant booking.

The findings show that with the two exceptions of the effects of the presence of the security deposit on occupancy rates, and the role of price on the relationship between the security deposit amount and occupancy rates, the effects of the presence and amounts of partitioned fees on occupancy rates do not vary with the instant booking status of Airbnb properties. The presence of a security deposit does not have a statistically significant effect on occupancy rates in Airbnb properties that can be instantly booked, suggesting that guests do not evaluate the presence of the security deposit separately in instantly bookable properties. The insignificant effect of price on the relationship between the security deposit amount and occupancy rates further validates this outcome; with increased prices, the effects of the security deposit amount on occupancy rate becomes statistically insignificant in instantly bookable properties.

Finally, Table 7 presents the findings for the effects of the presence and amount of partitioned fees on occupancy rates based on a listing's Superhost status.

The findings show that the effects of the presence and amounts of partitioned fees do not vary based on Superhost status, suggesting that the level of host commitment to providing extraordinary service does not impact customer perceptions of extra charges.

Table 5

The Effects of Cleaning Fee, Extra Guest Fee and Security Deposit: Business Ready vs. Not Business Ready.

Study Variables	(1) Business Ready	(2) Not Business Ready
Presence of Cleaning Fee	.0522** (.0221)	.0569* (.0009)
Presence of Extra Guest Fee	.0198 (.0135)	.0257* (.0009)
Presence of Security Deposit	-.0325** (.0133)	-.0081* (.0009)
Cleaning Fee Amount	-.0003* (.0001)	-.0003* (.0000)
Extra Guest Fee Amount	-.0002 (.0003)	-.0006* (.0000)
Security Deposit Amount	.00001 (.0000)	-.000004* (.0000)
Presence of Cleaning Fee x Price	-.0002** (.0001)	-.0001* (.0000)
Presence of Extra Guest Fee x Price	-.00003 (.0000)	-.0001* (.0000)
Presence of Security Deposit x Price	.0001** (.0001)	.0001* (.0000)
Cleaning Fee Amount x Price	.0000009* (.0000)	.0000003* (.0000)
Extra Guest Fee Amount x Price	.0000004 (.0000)	.0000007* (.0000)
Security Deposit Amount x Price	.00000001 (.0000)	.00000001* (.0000)
Price	-.0004* (.0001)	-.0002* (.0000)
Overall Rating	.1218* (.0212)	.0468* (.0006)
Entire Home	(omitted)	.1543* (.0021)
Private Room	(omitted)	.0722* (.0021)
Response Time	-.00003** (.0000)	-.0001* (.0000)
Instant Book	.0395* (.0072)	.0153* (.0006)
Superhost	.0328* (.0074)	.0556* (.0006)
Number of Photos	.0002 (.0003)	.0005* (.0000)
Cancellation Policy	-.0043 (.0052)	-.0028* (.0003)
Constant Term	-.0808 (.1324)	.1574* (.0050)
<i>F Test</i>	8.8*	1860.37*
<i>R-squared</i>	0.0965	0.1369
<i>Adjusted R-squared</i>	0.0856	0.1368
<i>Number of observations</i>	5754	832,863

Notes: ***, **, and * denotes 10%, 5%, and 1% statistical significance levels, respectively. Standard errors are in parentheses. Occupancy rate is the dependent variable.

5. Discussion and conclusion

Millions of sellers of varying quality exist within the sharing economy, particularly in the P2P marketplace. Communicating quality through cleanliness and safety was always important, and it will likely continue to take on an increased importance in a pandemic-impacted world. When sellers of anything develop prices, they have the ability to reduce uncertainty pertaining to quality (Vargo & Lusch, 2008). The Service Dominant Logic contends that with any sale there is an intangibility that contributes to this ambiguity (Vargo & Lusch, 2004). For an online retailer it may be product quality; in our study, it is the cleanliness of the accommodations. For accommodations, sellers have the ability to communicate quality through the composition of the prices of their listings. When they partition fees associated with cleanliness and safety, they compel consumers to evaluate these elements separately. Typically, extra charges are evaluated as a loss, and, in line with the

Table 6

The Effects of Cleaning Fee, Extra Guest Fee and Security Deposit: Instant Book vs. Not Instant Book.

Study Variables	(1) Instant Book	(2) Not Instant Book
Presence of Cleaning Fee	.0683* (.0014)	.0495* (.0013)
Presence of Extra Guest Fee	.0302* (.0013)	.0194* (.0012)
Presence of Security Deposit	-.0016 (.0013)	-.0133* (.0012)
Cleaning Fee Amount	-.0005* (.0000)	.0000* (.0000)
Extra Guest Fee Amount	-.0006* (.0000)	-.0006* (.0000)
Security Deposit Amount	-.000004** (.0000)	-.000011* (.0000)
Presence of Cleaning Fee x Price	-.0002* (.0000)	-.0002* (.0000)
Presence of Extra Guest Fee x Price	-.00004* (.0000)	-.0001* (.0000)
Presence of Security Deposit x Price	.0001* (.0000)	.0001* (.0000)
Cleaning Fee Amount x Price	.000001* (.0000)	.0000002* (.0000)
Extra Guest Fee Amount x Price	.000001* (.0000)	.0000008* (.0000)
Security Deposit Amount x Price	.0000 (.0000)	.00000003* (.0000)
Price	-.0003* (.0000)	-.0002* (.0000)
Overall Rating	.0378* (.0008)	.0556* (.0009)
Entire Home	.1340* (.0029)	.1802* (.0031)
Private Room	.0634* (.0029)	.0896* (.0031)
Response Time	-.0001* (.0000)	-.0001* (.0000)
Superhost	.0669* (.0008)	.0445* (.0008)
Number of Photos	.0007* (.0000)	.0004* (.0000)
Business Ready	.0072 (.0046)	-.0166* (.0043)
Cancellation Policy	-.0018* (.0005)	.0010** (.0005)
Constant Term	.2287* (.0066)	.0971* (.0075)
<i>F Test</i>	995.52*	955.80*
<i>R-squared</i>	0.1572	0.1287
<i>Adjusted R-squared</i>	0.1570	0.1285
<i>Number of observations</i>	379,011	459,606

Notes: ***, **, and * denotes 10%, 5%, and 1% statistical significance levels, respectively. Standard errors are in parentheses. Occupancy rate is the dependent variable.

tenets of prospect theory, they are assessed negatively as indicated by their negative impact on demand. However, for accommodations where quality may be ambiguous—typically those that are lower-priced and/or those that involve the sharing of space, i.e., private rooms or shared rooms—these partitioned fees can signal higher quality, thus outweighing the otherwise negative evaluation of partitioned prices. Losses, while viewed negatively, can also serve the function of signaling quality. This not unlike the fundamental tenet of pricing where the greater the price, the more quality it conveys. However, what is novel is that the monetary amount of the loss is viewed negatively, but the presence of the additional cost can be viewed positively. Our findings have important implications for pricing theory, and the practice of pricing and revenue management by hosts and P2P platforms.

Table 7

The Effects of Cleaning Fee, Extra Guest Fee and Security Deposit: Superhost vs. Not Superhost.

Study Variables	(1) Superhost	(2) Not Superhost
Presence of Cleaning Fee	.0602* (.0015)	.0520* (.0012)
Presence of Extra Guest Fee	.0208* (.0013)	.0274* (.0011)
Presence of Security Deposit	-.0119* (.0013)	-.0060* (.0011)
Cleaning Fee Amount	-.0003* (.0000)	-.0003* (.0000)
Extra Guest Fee Amount	-.0005* (.0000)	-.0006* (.0000)
Security Deposit Amount	-.000002** (.0000)	-.000004* (.0000)
Presence of Cleaning Fee x Price	-.0001* (.0000)	-.0001* (.0000)
Presence of Extra Guest Fee x Price	-.00004* (.0000)	-.0001* (.0000)
Presence of Security Deposit x Price	.0001* (.0000)	.0001* (.0000)
Cleaning Fee Amount x Price	.000000* (.0000)	.0000003* (.0000)
Extra Guest Fee Amount x Price	.000001* (.0000)	.0000007* (.0000)
Security Deposit Amount x Price	.000000* (.0000)	.00000001* (.0000)
Price	-.0004* (.0000)	-.0002* (.0000)
Overall Rating	.0647* (.0024)	.0452* (.0007)
Entire Home	.1745* (.0044)	.1497* (.0025)
Private Room	.0989* (.0044)	.0626* (.0025)
Response Time	-.0001* (.0000)	-.0001* (.0000)
Superhost	.0265* (.0008)	.0088* (.0007)
Number of Photos	.0005* (.0000)	.0005* (.0000)
Business Ready	-.0129*** (.0047)	.0008 (.0041)
Cancellation Policy	-.0020* (.0006)	-.0022* (.0004)
Constant Term	.1146* (.0137)	.1682* (.0059)
F Test	570.08*	1017.41*
R-squared	0.1245	0.1154
Adjusted R-squared	0.1243	0.1152
Number of observations	284,611	554,006

Notes: ***, **, and * denotes 10%, 5%, and 1% statistical significance levels, respectively. Standard errors are in parentheses. Occupancy rate is the dependent variable.

5.1. Theoretical and practical implications

This article contributes to a theoretically-founded understanding of how consumers reduce ambiguity, and assess quality in the P2P accommodation marketplace. There is no relationship in marketing more robust than the price-quality relationship; higher prices are often equated with higher quality (Rao & Monroe, 1989), while lower prices result in greater quality ambiguity. While consumers typically look for additional signals to ascertain quality, such as brand identification (Dawar & Parker, 1994), or refund policy (Kirmani & Rao, 2000), in the case of the P2P marketplace, these signals are standardized across sellers. Sellers on accommodation platforms, such as Airbnb, cannot create individual brand identification, and must abide by a standard refund policy. Thus, opportunities to signal quality are otherwise limited to the attributes of the listing and/or the host. In this regard, our research found that the use of price partitioning creates a situation where customers

evaluate other features of the accommodation through the partitioned costs, thereby reducing ambiguity as it relates to quality. Thus, in the case of the sharing economy, and P2P accommodations in particular, price itself is insufficient to communicate quality; rather the partitioning of price does more to communicate quality and improve listing performance. This “counterintuitive” finding pertaining to extra charges is consistent with and extends Yao et al.’s (2019) study. Our research, which is the first to comprehensively examine the effects of this typically-ignored, but critically important, pricing component, extends signaling and pricing theory in the context of P2P accommodations (Gibbs, Guttentag, Gretzel, Yao, & Morton, 2018; Xie & Mao, 2017). Beyond the hospitality/tourism sector, the greater implication of our results on the pricing literature is that price partitioning can signal quality. Prior work on price partitioning focused on how consumers evaluate the core cost relative to additions (Chakraborty et al., 2002; Xia & Monroe, 2004). It has also shown how partitioning can impact choice (Morwitz et al., 1998). However, research has not shown how price partitioning can signal quality. It hoped that our results demonstrate the price partitioning and quality signaling relationship. When prices are partitioned, they can draw greater attention to the elements that are partitioned, and by doing so they can signal quality.

From a practical perspective, our findings demonstrate that sellers, especially those who cannot communicate quality with higher prices and/or more space (entire homes versus private/shared rooms), can use price partitioning to increase demand. If two hosts have similar accommodations for rent, but one is priced at \$100 a night and the other is offered at \$90 a night with an additional cleaning fee of \$10, then the latter accommodation with the partitioned price should have higher demand. With cleanliness and safety taking on increased importance due to the pandemic, we argue that consumers have and will continue to place a premium on cleanliness (Bove & Benoit, 2020). On the other hand, hosts with higher-priced listings may be better served by bundling the extra charges into the core price of the listing, so as not to create expectation-disconfirmation among guests, who might expect cleanliness and safety to be the norm for more expensive offerings. These insights provide P2P platforms and hosts with a theoretically-based understanding of how to compete effectively with hotel brands, many of which are partnering with cleaning product manufacturers (e.g., Hilton’s partnership with Lysol) to reduce customers’ perceptions of the physical risk of Covid-19 infections. In addition to partitioning prices, P2P hosts may be well-served to emphasize the steps they are taking to ensure cleanliness and safety—just like the hotel brands are doing through multiple communication channels—in their listing titles and/or descriptions, and in their communications with potential guests who contact them prior to booking. Additionally, hosts can use the visually-powerful medium of photos to increasingly communicate these valued cleaning and safety features to potential guests. Combined with Airbnb’s “Enhanced Clean” badge that identifies “host commitment to a rigorous cleaning protocol developed with leading health and hospitality experts,” these steps can help hosts enhance listing demand during the pandemic and beyond.

5.2. Limitations and recommendations for future research

As with any research, this study has limitations, which also offer opportunities for future research. First, while we conducted a comprehensive examination of the effects of extra charges on listing demand, and controlled for several important listing and host attributes, our methodological approach cannot claim to explain the mechanism of customers’ decision-making processes that contribute to improved listing performance. Future research can use choice-based modeling approaches, such as conjoint analysis, to examine how customers evaluate extra charges in combination with other important decision-making criteria when choosing a particular listing. Second, while we used a comprehensive dataset of all Airbnb-listings for our specified timeframe, there

may be differences between customers and listings from and in different geographic regions that must be examined in future research. Third, while we demonstrated that higher amounts of extra partitioned charges have negative effects on listing performance, and that this relationship is moderated by the core price of the listing, future research can determine the inflection point for relatively lower-priced listings—the amount of the various extra charges (as a % of listing price) beyond which demand starts to drop off for different listing price points, i.e., the point after which extra charges do not offer customers value in terms of quality signals. For example, a cleaning fee of \$10 for an Airbnb listing with a price of \$50 a night may be negatively perceived, as the cleaning fee is equivalent to 20% of the listing price. However, a \$10 cleaning fee may be less significant for an Airbnb listing with a price of \$100 a night, where the cleaning fee would be equivalent to 10% of the listing price, still allowing hosts to generate higher revenue through increased demand. Such a determination has implications for the platform's revenues as well, which are typically calculated as a percentage of the booking subtotal (listing price plus extra charges, typically cleaning fees and extra guest fees). Also, throughout our analysis we assumed that there is a linear relationship between price and fees (i.e., cleaning fees, extra guests fees, and security deposit). Future research is necessary to investigate whether a non-linear relationship exists between price and fees. Finally, while customers are used to evaluating partitioned prices for P2P accommodation, how these extra charges impact their decision when choosing between P2P accommodation and hotels, and whether and the extent to which they are willing to pay extra charges for enhanced cleanliness and safety for hotel stays presents an important avenue for future research. Relatedly, hotels sometimes charge extra “resort fees” that bundle in the cost of cleaning and other services and amenities; a comparison of the extra charges on P2P platform with those for hotel bookings will enable researchers to further extend pricing theory in the context of accommodations.

Credit author statement

Tarik Dogru: Conceptualization, Methodology, Draft Preparation. Kashef Majid: Conceptualization, Theory. Draft Preparation. Michel Laroche: Reviewing and Editing, Supervision. Makarand Mody: Reviewing and Editing. Courtney Suess: Data Collection.

Impact statement

The sharing economy has allowed hundreds of thousands of hosts around the world to earn revenue from excess capacity in their homes. However, the market resides on the ability of hosts to offer quality accommodations, and to communicate that quality. If the host is not able to communicate quality, risk wary consumers will seek price discounts that may decrease the incentive for hosts to participate in the sharing economy. Everything that a quality host can do to signal their quality, and separate themselves from lower quality offerings in the shared marketplace reduces quality ambiguity and can enhance demand. One potential signal to separate listings is price partitioning. Hosts who charge extra fees for cleaning, extra people, or request a security deposit signal that these are in place to protect the quality of the listing. By drawing attention to these elements of quality, the host signals quality to potential guests.

Uncited references

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Declaration of competing interest

None.

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