Factors influencing prices on accommodation sharing platforms: The effects of host’s experience and market demand

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Abstract

Purpose. Accommodation sharing is one of the major trends shaping the hospitality industry and Airbnb is the most prominent sharing platform driving this growth. Previous studies have shown that Airbnb accommodations are successful because they are perceived by tourists as outperforming budget hotels/motels’ service quality while being less expensive. Hence, perceived price convenience is one of the main strengths of Airbnb accommodations. Only a few studies have examined the determinants of these prices and they have provided a static view, thus overlooking the evolution of prices over time. The purpose of this study is to fill this gap by considering the impact of the changes in the level of a host’s accumulated experience and the effect of the variations in the level of market demand.

Methodology. Data from all Airbnb listings for accommodations available in the city of Verona on four booking dates in 2016 were collected and analysed through regression analysis.

Findings. The results highlight that price is significantly related to the level of a host’s accumulated experience and to the level of market demand on a specific booking date. The findings also provide support for the effects of several other determinants suggested by previous studies.

Practical implications. This study may assist hosts in setting the prices for their accommodations. Other stakeholders affected by the rise of accommodation sharing may benefit from the in-depth understanding of pricing dynamics on accommodation sharing platforms.

Originality/value. This is one of the few studies that have addressed factors influencing prices on accommodation sharing platforms and, to our knowledge, the first to consider the effects of variations in host’s experience and in market demand.

Keywords
Sharing economy; Airbnb; pricing; hospitality; online reviews; tourism
1. Introduction

Peer-to-peer (P2P) (Pizam, 2014) or consumer-to-consumer (C2C) (Täuscher and Laudien, 2017) accommodation sharing is one of the major trends that is shaping the tourism and hospitality industries (Guttentag, 2015; Guttentag and Smith, 2017). This phenomenon – which is also known as P2P property or accommodation rental – is not completely new as room rentals have existed for a long time. However, the main difference between P2P accommodation sharing and the traditional room rentals is “the involvement of a third party which is normally a website that brings the renters and the owners together” (Pizam, 2014, p. 118). Such websites take the form of digital platforms that are characterized by some distinctive features: they connect independent actors from the supply side and the demand side and these actors enter direct interactions with each other; they provide an institutional and regulatory frame for transactions; they do not substantially produce of trade goods or services themselves (Täuscher and Laudien, 2017).

These platforms facilitate P2P accommodation sharing by performing several activities such as “they screen both parties, have access to the owners’ inventories, manage rental bookings, collect payments and provide some form of insurance coverage for damages caused by the renters” (Pizam, 2014, p. 118). Among these platform, Airbnb is the most prominent one and its disruptive impact has driven the extremely rapid growth of the accommodation sharing phenomenon (Guttentag, 2015). As of June 2017, more than 3 million listings in 191 countries and in more than 65,000 cities were available through Airbnb (www.airbnb.com/about/about-us). The reach of the phenomenon is particularly remarkable in historic city centers where shared accommodations succeed over hotels which have difficulties in finding buildings and obtaining the needed permits (Gutiérrez et al., 2017).

Affordable price has been suggested as one of the most important factors explaining the popularity of shared accommodations (Guttentag and Smith, 2017). However available studies about the determinants of listings on P2P accommodation sharing platforms are very limited. In particular, previous research has focused on the effects of accommodation’s attributes (e.g., number of beds and amenities) (Wang and Nicolau, 2017) and host’s characteristics (e.g., host profile picture) (Ert et al., 2016). Nonetheless the effects of a host’s accumulated experience and of the variations in the level of market demand have not been considered.

In other terms, it is still not clear how accommodations’ prices vary depending on the experience accumulated over time by the host and on the total amount of demand on a specific date. Actually, previous studies were based on data collected only on a unique date (in one or more specific cities), thus making is impossible to evaluate the impacts of demand variations over time. The purpose of this paper is to fill this gap through the analysis of all Airbnb listings for accommodations available in the city of Verona (Italy) on four booking dates in 2016.

The results will not only enrich available literature as explained above, but will also offer useful insights about pricing strategies for both hosts and hospitality managers. The remainder of the paper is structured as follows. First, we review previous studies on the role of price and on price determinants of accommodations listed on P2P platforms; drawing on available findings we also develop our research hypotheses. After that we describe the methods and the results of the empirical analysis. Discussions of the results, limitations of the analysis and conclusions complete the paper.
2. Price and price determinants of P2P accommodations

Available research suggests that P2P accommodation sharing is mostly used by tourists seeking affordable accommodations in popular tourist attractions (Pizam, 2014). This statement is supported by empirical studies which have been conducted on Airbnb and its users. Findings from these studies (Guttentag, 2015; Guttentag and Smith, 2017) highlight that the popularity of Airbnb accommodations is due to their effective mix of affordable prices, authenticity and uniqueness of the experience and household amenities. In particular, Airbnb accommodations are perceived as cheaper than any type of hotels, while offering higher service quality than budget hotels/motels (and, in some cases, than mid-range hotels as well) (Guttentag and Smith, 2017). Similarly, Tussyadiah and Pesonen (2016) identified the economic appeal (cost savings) and the social appeal (desire for community and sustainability) as the most important factors making tourists decide to use P2P accommodation sharing. Moreover, the economic appeal emerged as more influential than the social appeal. The same research (Tussyadiah and Pesonen, 2016) also showed that people were not interested in using P2P accommodation sharing when they perceived that it did not generate enough cost savings to be valuable. In addition, a study by Liang et al. (2017a) revealed that the perception that Airbnb accommodations are reasonably priced and offer value for money increases repurchase intentions (purchasing rooms via Airbnb again), in particular for customers with high price sensitivity.

In sum, P2P accommodation sharing is commonly perceived as offering high value at a reasonable cost (Tussyadiah, 2016), thus making price an important factor for its success. Actually, several industry reports highlight that, contrary to popular belief, Airbnb is not always cheaper than hotels or other options for temporary accommodation (CBRE, 2016). For example, in some cities the average rate paid for an Airbnb unit is constantly higher than the average hotel rate (CBRE, 2016). However, accommodations provided by Airbnb are usually perceived by tourists as cheaper than hotel rooms, thus making price a key factor for the success of Airbnb.

Despite the relevance of price for the success of accommodation sharing, knowledge on listings’ price determinants is still very limited. In fact, while a large amount of studies has investigated factors explaining prices in the hotel industry (e.g., Hung et al., 2010; Pawlicz et al., 2017; Zhang et al., 2011), only a few contributions have started exploring this issues in the accommodation sharing context.

Wang and Nicolau (2017) conducted a comprehensive analysis of price determinants of sharing economy based accommodation rentals, using data from Insideairbnb.com for 33 cities (on one specific date for each city) from all over the world. In their study, the authors evaluated the effect of five groups of variables related to: host attributes, site and property attributes, amenities and services, rental rules, number of online reviews and ratings. The findings revealed that most of the variables considered in the analysis had either positive or negative significant effects on the price of the accommodation. Despite the high value of these results, the study offered a static view of price determinants and did not consider that prices may change due to demand seasonality and due to the experience in managing prices accumulated over time by the host. In another research on price determinants, Ert et al. (2016) found that the level of visual-based trust arisen by a host’s photo was significantly related to the price of the accommodation.

Drawing on this stream of studies, hereafter we set our hypotheses related to three following groups of determinants of the price of a shared accommodation: accommodation’s attributes; host’s experience; market demand.
**Accommodation’s attributes**

Previous research has shown that the price of a listing is related to some accommodation’s attributes, such as the type and the size of the accommodation. As regards the type, Airbnb allows hosts to rent either entire homes/apartments or private/shared rooms. As highlighted by available studies (Ert et al., 2016) the type of accommodation has a significant effect on prices, as prices of entire homes/apartments are higher than those of rooms. For example, a study on Airbnb listings in Canada (Gibbs et al., 2017), showed that entire apartments are priced 44.2% higher than private rooms.

In addition, prices are positively related to the size of the accommodation, as hosts charge higher prices for larger accommodations (Ert et al., 2016). For example, Gibbs et al. (2017) registered that each (individual person) increase in capacity resulted into a 12.8% price increase. Therefore, we state that:

H1: The price for an entire apartment is higher than the price for a private room.

H2: The price of the accommodation is positively related to the size of the accommodation.

The number and the valence (positive or negative) of the reviews received on Airbnb by an accommodation is an important attribute characterizing each accommodation and potentially influencing a customer’s choice and willingness to pay a certain price (Gibbs et al., 2017). The role of reviews on accommodation sharing platforms is particularly relevant as security is perceived as an issue of major importance by Airbnb users (Guttentag and Smith, 2017). In fact, lack of trust (including concerns for privacy, security and service quality) is often reported as the main barrier preventing travelers from using peer-to-peer accommodations (Tussyadiah and Pesonen, 2016). One way through which this issue is addressed by Airbnb is the online reviews system. Reviews can be used as means to signal reliability and quality, thus allowing hosts to set higher prices. On this point Liang et al. (2017a) found that the level of perceived risk had a negative effect on perceived value, i.e. on the perception that Airbnb accommodations were reasonable priced and offered good value for money. Online reviews may reduce such risk.

Contrary to these expectations (and to what happens in the hotel industry) previous research consistently reported that review valence had no effect on prices of Airbnb listings (Ert et al., 2016; Gibbs et al., 2017). To explain this finding, previous studies argued that reviews have lost their informative value due to extremely high ratings, as more than 90% (up to 97% in some cities) of Airbnb hosts receive scores between 4.5 and 5 stars (out of 5) (Ert et al., 2016). Therefore, drawing on these previous results, we did not consider review valence in our study.

As regards the volume of the reviews the results have been mixed as in some cases no significant (Ert et al., 2016) or only partly significant (Gibbs et al., 2017) effects on prices were found; in other cases, the effect was significant and negative (Wang and Nicolau, 2017). Researchers (Liang et al., 2017b) have suggested that accommodations with higher prices receive less bookings and, in turn, fewer reviews. However, this explanation may be questioned because studies from the hospitality industry did not find the same effect and reported that review valence and volume had a positive, combined effect on prices (Nieto-García et al., 2017). Therefore, while we still hypothesize a negative effect of review volume on prices, we suggest a different explanation. Recent studies have shown that review manipulation through solicitation is a widespread phenomenon (Gössling et al., 2016; Magno et al., 2017). Users may perceive that not only the extremely positive valence but also the high number of reviews is the results of hosts’ active solicitation to their guests to write reviews. Therefore, when the number of reviews is unusually high guests may not trust the reviews and may be willing to pay lower prices. This statement seems to be supported by Airbnb’s continuous efforts to encourage more honest reviews (Guttentag and Smith, 2017).
H3. The price of the accommodation is negatively related to the number of reviews received by the accommodation.

Host’s experience

Previous research suggests that hosts usually have low levels of experience in marketing and guest management (Liang et al., 2017b). However, researchers distinguished between professional hosts, i.e. hosts with two or more listings simultaneously available on Airbnb, and non-professional hosts. Gibbs et al. (2017) argued that professional hosts are more experienced in the management of their Airbnb listings and are able to charge higher prices. This hypothesis is also supported by their empirical analysis. A positive relationship between a host’s listings number and prices was found also by Wang and Nicolau (2017). Following these findings, we hypothesize that:

H4. The price of the accommodation is higher for a professional host’s accommodation than for a non-professional host’s accommodation.

However, previous research on the determinants of Airbnb listings’ prices has not considered the effect of hosts’ experiential learning. Accommodation sharing is a relatively new phenomenon and researchers have noted that guests learn over time so that their preferences are correlated with the total times they used Airbnb (Guttentag and Smith, 2017). In this paper, we suggest that hosts learn as well and that over time they gain the experience needed to improve their marketing and pricing decisions. In sum, hosts that have joined Airbnb earlier have on average accumulated more experience than those who have joined Airbnb later. Therefore, we suggest that:

H5. The price of the accommodation is positively related to a host’s experience with Airbnb.

Market demand

Research on the drivers of shared accommodations’ prices has focus on accommodation’s attributes and on host’s characteristics, but has not considered environmental factors such as demand seasonality. Actually, available research on shared accommodations’ prices is based on data collected only on one date for each city. However, we suggest that prices are influenced by market demand, so that they will be higher in peak season. Hence, we suggest that:

H6. The price of the accommodation is positively related to the level of market demand on a specific date.

3. Methods

Data from all Airbnb listings for accommodations available in the city of Verona on four booking dates in 2016 were collected. The four booking dates were selected to cover periods characterized by different levels of demand for accommodations. Tourism in Verona is characterized by seasonality, with the highest number of presences registered in July and August (more than 450,000 presences per month) and the lowest number of presences reported in January and February (less than 200,000 presences per month) (http://statistica.regione.veneto.it/banche_dati_economia_turismo.jsp). In addition, the number of presences on specific days is influenced by events hosted in Verona and in particular, by the Opera Festival which takes place from June to August every year. Drawing
on these premises the following dates were selected for the data collection: Tuesday 12th July 2016 (on that day ‘La Traviata’ was performed in the Opera Festival); Wednesday 21st September 2016; Monday 24th October 2016; Monday 26th December 2016. Data about each of the bookable accommodations listed on Airbnb on each of the four dates were manually collected. The final sample was composed by 1,056 listings (in detail: 340 on 12th July; 225 on 21st September; 248 on 24th October; 243 on 26th December). The variables included in the data collection are described in table 1.

As regards dependent variable, i.e. price, consistently with previous research on price determinants in hospitality (e.g., Abrate and Viglia, 2014; de Oliveira Santos, 2016), it was logarithmically transformed to make the interpretation of the results of the ordinary least squares (OLS) regression (i.e. of the impacts of the independent variables) more straightforward. In particular, to ascertain the effect of a dummy variable on a logarithmically transformed dependent variable (i.e. the percentage variation of price in this research), it is sufficient to transform the regression coefficient by \((e^\beta - 1)\), with \(\beta\) representing the coefficient and \(e\) representing the base of the natural logarithm (Gibbs et al., 2017).

While for most of the variables the description shown in table 1 is immediately clear, the operationalization of the variable ‘market demand’ requires some clarifications. On this point, it should be noted that the capacity (i.e., the number of beds) made available through P2P property rentals is not fixed as for hotels, because hosts can make their accommodations bookable only for a limited number of days per year (Guttentag, 2015). Previous analysis (CBRE, 2016) has shown that the number of bookable accommodations varies to a large extent because of the seasonality of leisure demand in the market. Therefore, when demand peaks, the number of Airbnb listings peaks as well, and vice versa (CBRE, 2016). Drawing on these findings, in our study the total number of beds in bookable accommodations on a specific data was used as a proxy for the level of market demand.

Table 1. Variables description

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Mean/Proportion</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td>Price per night (log transformed)</td>
<td>96.85 (log transf. 4.43)</td>
<td>61.53 (log transf. 0.49)</td>
</tr>
<tr>
<td>Entire home/Apartment</td>
<td>Entire home/apartment (dummy) (vs. Private/shared room)</td>
<td>0.42</td>
<td>0.49</td>
</tr>
<tr>
<td>Size</td>
<td>Number of beds</td>
<td>3.28</td>
<td>2.06</td>
</tr>
<tr>
<td>Reviews</td>
<td>Number of reviews for the accommodation</td>
<td>27.16</td>
<td>44.81</td>
</tr>
<tr>
<td>Professional</td>
<td>Professional host (host with two or more listings simultaneously) (vs. non-professional host)</td>
<td>0.73</td>
<td>0.44</td>
</tr>
<tr>
<td>Experience</td>
<td>Number of months since the host joined Airbnb</td>
<td>25.12</td>
<td>18.94</td>
</tr>
<tr>
<td>Market demand</td>
<td>Total number of beds in bookable shared accommodations available on a specific date</td>
<td>891.17</td>
<td>157.34</td>
</tr>
</tbody>
</table>

* Only 2 of the 1,056 accommodations were shared rooms; therefore, private rooms and shared rooms were considered together in the analysis.

Source: our elaboration

4. Results

The results of the OLS regression are shown in table 2. The estimations highlight that all independent variables have statistically significant effects on the price of the accommodation. Overall the model explains 27.4% of the variance and multicollinearity was not an issue, as all Variance Inflation Factors (VIF) are well below the cutoff level of 5.
Table 2. Results of the OLS regression

<table>
<thead>
<tr>
<th>Hypothesis number</th>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>VIF</th>
<th>Impact on price of accommodation (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Costant</td>
<td>3.8879**</td>
<td>.083</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H1</td>
<td>Entire home/apartment</td>
<td>.3355**</td>
<td>.029</td>
<td>1.236</td>
<td>+39.86%</td>
</tr>
<tr>
<td>H2</td>
<td>Size</td>
<td>.0511**</td>
<td>.007</td>
<td>1.247</td>
<td>+5.11%</td>
</tr>
<tr>
<td>H3</td>
<td>Reviews</td>
<td>-.0026**</td>
<td>.000</td>
<td>1.119</td>
<td>-0.26%</td>
</tr>
<tr>
<td>H4</td>
<td>Professional</td>
<td>.0567*</td>
<td>.031</td>
<td>1.109</td>
<td>+5.83%</td>
</tr>
<tr>
<td>H5</td>
<td>Experience</td>
<td>.0021**</td>
<td>.001</td>
<td>1.182</td>
<td>+0.21%</td>
</tr>
<tr>
<td>H6</td>
<td>Market demand</td>
<td>.0002**</td>
<td>.000</td>
<td>1.037</td>
<td>+0.02%</td>
</tr>
</tbody>
</table>

**p<0.01; *p<0.10.
F=67.150, p<0.01; R²=0.274.
Source: our elaboration

The findings highlight that the price of entire homes/apartments is on average 39.86% higher than the price for private/shared rooms (H1 is supported). Moreover, the price of the accommodation is positively related to its size. In detail, the addition of a new bed increases the price of the accommodation by 5.11% (H2 is supported). The hypothesized (H3) negative effect of the number of reviews is supported by data, which suggest that each additional review has a negative impact of -0.26% on price. As regards host’s experience, the estimations confirm that professional hosts’ accommodations command prices which are 5.83% higher than the prices of non-professional hosts’ accommodations (H4 is supported). In addition, the effect of a host’s accumulated experience (H5) is supported, as well. Data reveal that each month of a host’s experience with Airbnb has a positive effect of 0.21% on prices. Therefore, every year of experience leads to price increases of about 2.5%. Finally, the analysis shows that prices are positively correlated to the amount of market demand (H6 is supported). The increase of one bed in the total number of bookable P2P property rentals on one date is correlated to an average increase of prices of 0.02% in that date.

5. Discussion

The results of this study enrich available theoretical and managerial knowledge about the price determinants of P2P property rentals in several ways. First, our analysis confirms the positive effects of type (entire apartment/home vs. shared/private rooms) and size of accommodation (Ert et al., 2016; Gibbs et al., 2017). In addition, our findings show that the number of reviews received on Airbnb by an accommodation is negatively correlated to its price. This result is consistent with the evidences provided by Gibbs et al. (2017) who suggest that the lower the price, the higher the number of bookings and, in turn, the higher the number of reviews. Even if this explanation is clearly logic, it should be noted that a negative relationship between price and number of reviews had not been found in studies conducted among hotels (Nieto-García et al., 2017). Therefore, we claim that the motivations for our finding about the negative effect of reviews’ number on price may be partly different. Users tend to be skeptical about online reviews posted on Airbnb because they are almost all extremely positive. Ert et al. (2016) for example found that the mean review scores of Airbnb listings are approximately 20% higher than the mean review scores of hotels listed on Booking.com. Drawing on these findings, we suggest that an unusually high number of reviews for an accommodation might lead users to think that the host is applying some sort of review manipulation strategies (Gössling et al., 2016). For example, a host may solicit guests to write reviews by providing incentives or gifts. Guests’ awareness about these manipulation
strategies is high as about a half of tourists have been directly solicited to write a review (Magno et al., 2017). Therefore, when the number of reviews for an Airbnb accommodation is high, guests may be suspicious and their willingness to pay may decrease so that hosts will set lower prices. As a consequence, hosts should not aim to maximize the number and the valence of the reviews. In fact, it would be better to receive a lower number of sincere, trustable reviews. Airbnb itself is aware of this issue and is trying to encourage more honest reviews (Guttentag and Smith, 2017).

The findings of this study also shed new light on the relationships between host’s experience and accommodation prices. As regards the professional vs. non-professional nature of the host, our results confirm available knowledge (Gibbs et al., 2017): professional hosts are able to command higher prices than non-professional hosts. On this point, it should be noted that professional hosts manage two or more accommodations simultaneously. Therefore, they are able to enhance their expertise quicker than non-professional hosts. In addition, our research provides evidence that accommodations’ prices are related to the number of months since the host joined Airbnb. We claim that this effect is related to the level of hosts’ experience in marketing and price management which is quite low at the beginning (Guttentag and Smith, 2017) but increases over time. In sum, more experienced hosts are able to set higher prices.

This result provides new insights also to the current debate about the disruptive nature of Airbnb (Guttentag, 2015; Guttentag and Smith, 2017). According to the Innovator’s Dilemma theory (Christensen and Raynor, 2003), a disruptive innovation is a product or service which takes root initially in simple and cheap applications at the bottom of a market and then relentlessly moves up the market, threatening incumbents. Our findings provide evidence that Airbnb is a disruptive innovation as prices grow over time together with hosts’ experience. Therefore, Airbnb is relentlessly moving up the market. In fact, it is now challenging not only budget hotels but also some mid-range hotels (Guttentag and Smith, 2017).

Finally, our research shows that the prices of accommodations are influenced by the level of market demand. Again, this result is a signal that hosts are gaining some competences in adjusting their prices dynamically.

Overall, the findings from this study emphasize the importance for hosts to gain at least basic competences in marketing and hospitality management, because such competences allow them to improve their pricing decisions and increase their gains. On the other side, it is important for managers of budget and mid-range hotels to promptly set strategies to address the growth of P2P property rentals, by focusing on attributes such as trust and safety. In fact, as the Innovator’s Dilemma theory highlights, when incumbents realize that disruptive innovations are succeeding, it is too late to face them. Therefore, it is fundamental to adopt proactive strategies. Finally, it should be noted that, despite its prominent role, price is not the only driver of guests’ preference toward either hotels or shared accommodations. For example, as previous studies have demonstrated (Liang et al., 2017a), guests’ perceptions of lack of safety may decrease the perceived price convenience of a shared accommodations. Therefore, both hosts and hospitality managers should avoid focusing only on price to attract guests.

6. Conclusions and limitations

This research provided new evidence about the determinants of price of P2P shared accommodations. In particular, it provided a dynamic view of pricing by showing that prices change over time depending on the market competences accumulated by hosts and on the level of market demand.
Several limitations should nonetheless be considered when interpreting the results. First, data were collected only on four dates. Even if the dates were chosen to cover periods characterized by different levels of demand, future studies should be based on data collected on more days to gain a more in-depth knowledge on the variation of prices over time. Second, consistently with previous research on this issue, the analysis is based on data publicly available on Airbnb. It would be useful in the future to directly approach hosts through surveys to collect primary data about their type of education, previous experience in the hospitality sector, etc. These data would allow to perform more precise estimations of the effect of experience on price. Finally, data were collected only in one city, i.e. Verona. Future research should cover other cities (for example, cities with different patterns of tourism seasonality) to corroborate and extend our findings.

References


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