Pricing Strategies of Porto’s Airbnb New Listings

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Abstract: Airbnb hosts’ pricing decisions are the choices hosts make when setting the daily rate for their listing of properties. Some Airbnb hosts have a long run approach, charging lower prices to attract more customers and achieve higher occupancy rates, while others have a short-run approach, charging higher prices to maximize the short-run opportunities from the market. The pricing strategy of Airbnb hosts is the key to their eventual success and plays an important role, since it influences their relationship with customers. Airbnb listings can be hard to price. Therefore, each Airbnb host faces an important decision when entering the market: What is the perfect daily rate to charge such that to achieve their goal? Major aspects, such as property location, type (private room, entire home, etc.) and amenities, target customers, other Airbnb competitors, thinking like a guest, the safety and beauty of the neighborhood, seasonality, etc., must be considered. Considering Airbnb’s exponential growth since it started in 2007, it is obvious that establishing a suitable pricing strategy is vital for any new host. The present paper uses information from the new listings in 2020 to investigate different hypotheses that explore the pricing strategies of Airbnb hosts for their new listings on the market. This study highlights, on one hand, the great need for Airbnb to encourage dynamic pricing among its new hosts and, on the other hand, the challenges faced by these hosts when they establish the price. An important characteristic of this article is the set of theoretical and methodological implications for the pricing strategy for the new Airbnb new hosts. Furthermore, this document reinforces the idea that the pricing strategy differs between cities and countries, emphasizing the strategy in the case of the new Airbnb new hosts.

Keywords: sharing economy, pricing strategy, new Airbnb host, accommodation, daily rate

1. Introduction

The hospitality industry has been hit hard by the COVID-19 pandemic, but even if there is tremendous uncertainty, travel is beginning to reinforce. Different survey research has identified a series of trends that will shape travel in the coming period. This expected regrowth is supported by tourism to destinations in emerging economies annually. Furthermore, an existence of the sharing economy has a particularly relevant impact and a major role in the tourism industry. This important role may lead to the increase, yearly, in the number of people involved as hosts.

Airbnb is one of the main platforms at the global level with a relevant impact on the tourism and hospitality industry. This platform was founded in 2008 San Francisco (two hosts accommodated in their homes three guests). Today, more than 4 million hosts welcome more than 1 billion guests almost in each country at the global level. Airbnb has several top competitors that have entered the industry over time, such as Trivago, 9Flats, Expedia Group, HomeAway, Booking.com, Booking Holdings (formerly Priceline), Fairbnb, and VRBO. Airbnb statistics reveal that the travel and tourism industry recover slightly from the previous two years generated by COVID-19 pandemic. Airbnb tries to implement a series of initiatives meant to support local / regional travel and economic growth (partnerships with destinations around the world; Go Near, an initiative to support local economies through local travel). These actions are the result of the fact that the travel industry takes small steps to recover from the impact of the COVID-19 pandemic.

Airbnb’s listings properties provide access to particular places to stay in more than 220 countries and more than 100,000 cities. Daily, Airbnb hosts offer rich experiences, unique accommodations, and activities that give guests the opportunity to achieve unique experiences while traveling the world. Airbnb hosts earn money by charging guests for short-term rental stays in their private homes or apartments booked through the Airbnb website. Since 2008, Airbnb hosts have earned more than 150 billion dollars, while the average income for one host is $9,600 annually (Airbnb.com, n.d.). The new hosts on Airbnb follow different types of pricing strategy to attract their guests and to maximize their profits. Since Airbnb includes a wide range of properties, the pricing strategies are also partially different, and there exists diverse factors that influence it: category of the property, amenities of the property, different fees available and discounts (cleaning fee, extra guest fee, weekly or monthly discounts, a security deposit).
At the European level, hosts apply cheaper prices than the average daily rate (from 8% to 17% cheaper). Additionally, consumers feel the value of services supplied through Airbnb platforms differently compared to traditional hotels. For example, consumers may value the sociability, trustworthiness and friendliness of Airbnb hosts and the experience they enjoy during their stay. Registering as a host on this platform is really challenging. At the global level, 22% of hosts declared that they decided to host after their Airbnb experience as guests. As gender, women represent 56% of hosts and are slightly more likely to register as new hosts on Airbnb (Airbnb Statistics 2022).

In this paper, using structural equation modelling, the main attributes that new hosts use when establishing the pricing strategies for Airbnb listings in Porto are revealed. This city is ideal for investigating various hypotheses that explore the pricing strategies of Airbnb new hosts compared to old Airbnb hosts on the market, for several reasons. First, Porto has experienced rapid tourism growth, being one of the most visited destination cities in Europe, and Airbnb penetration in Porto is high – from 2732 listings in 2015 to approximately 6,350 listings at the end of 2021 (AirDNA, 2021). Second, Airbnb accounts for most of the short-term rental activity in the city, far ahead of its competitors. In 2018, there were 4411 local lodgings (AL) located in the Union of Parishes of the Historic Center of Oporto, while in 2021 the number of AL registrations increased to 8338 (Turismo_de_Portugal, n.d.).

Being the second largest city in Portugal, Porto represents also the Union of Parishes of Cedofeita, Vitória, Sé, Santo Ildefonso, São Nicolau and Miragaia. Since Porto is an interesting case for our study, we will analyze the data of Airbnb new listings in 2020 for it.

The paper focuses on the investigation of the different hypotheses which explore the pricing strategies of Airbnb new hosts on the market, in Porto. The present document supports the belief that the pricing strategy differs between cities, countries, and regions, highlighting the pricing strategy in the case of the new Airbnb new hosts. The variables categories taken into consideration highlight the performance of the listing’s characteristics, host involvement, the listing’s location, performance, and rental policies. The model was applied for 2020 for the new properties listed on the platform.

The remainder of this paper is organized as follows. Section 2 reviews various studies related to the main objective of the paper; Section 3 describes the research methodology that has been applied, Section 4 presents and discusses the research results, and finally, the last section of the article concludes this research.

2. Literature review

Airbnb represents one of the main platforms on the sharing economy marketplace based on its value and market share (Dogru, 2017). Sharing economy is based on the idea that individuals share their underutilized resources with other individuals or peers in the market (Botsman and Rogers, 2011). The main benefit of using underutilized resources is given by the fact that additional value can be created for individuals, such as extra sources of income (Koopman et al., 2015). This encourages more and more people who own extra rooms / space / apartments to enter the market, run a room-sharing business, and become an entrepreneur (host). In addition, it stimulates the growth of peer-to-peer short-term residential rentals in the marketplace (Guttentag, 2015; Karlsson et al., 2017).

Over the last decade, more and more people have rented extra space on room-sharing platforms motivated by this additional source of income. Therefore, they must pay a lot of attention to apply the right price for the listing(s) they manage. Managers in the hotel industry do not face a real problem when establishing the price, since they have available technical tools for revenue management and different industry benchmarking reports, but Airbnb hosts do not have sufficient revenue management training and support of pricing resources (Gibbs et al., 2018b). Airbnb hosts are confused when trying to set the price to maximize a listing’s revenue performance (Hill, 2015), so different tools can help them setting the right listing price, although they take the final decisions of how much hosts want to charge a listing against others in the same neighborhood.

Pricing is one of the most analytical factors influencing the long-term success of the accommodation industry (Hung, et al., 2010). Different studies were conducted on Airbnb host pricing strategies or how price is determined on an Airbnb listing (Chattopadhyaya et al., 2019; Gibbs et al., 2018a and 2018b; Magno et al., 2018; Oskam et al., 2018; Wang and Nicolau, 2017).
There are different studies that examined the factors influencing the host’s pricing strategy, such as host photos, host badge, property characteristics, ratings, amenities, reviews, etc. Hosts with a “Superhost” badge, which is a status given to hosts with good standing and excellent service standards, post their properties with higher prices, especially when they receive more reviews and higher ratings (Liang, Schuckert, Law, & Chen 2017). Many studies revealed that factors associated with property and site characteristics, rental rules, amenities, customer reviews, and services influence the prices of sharing economy-based accommodations (Wang & Nicolau, 2017, Li, et al., 2016. Specially, Airbnb listings properties that supply amenities, like free parking, wireless Internet and real beds perceive higher prices compared to those that lack these amenities.

The topic of pricing strategies for new hosts has not yet been widely discussed in the room-sharing literature, but we support the idea that it is necessary to conduct a city-level analysis to precisely determine the price determinants more accurately both for the new and for the experienced hosts.

The paper is focused on validating the following research hypothesis:

1. The characteristics of the listings will have the strongest impact on the new listings price, regardless of the pandemic situation.
2. Since people tend to use less public transportation during the pandemic, the higher the distance to the city center, the lower will be the price charged by the owners of the new listings.
3. An improvement in the new listings’ performance will determine the hosts to charge a higher price.
4. Rental policies directly impact the price of new listings.

3. Methodology and data

3.1 Description of variables

The literature on pricing in the sharing economy identifies several categories of factors. Our analysis includes some of these variables, with a focus on the listings’ characteristics, location, performance, rental policies, and host involvement.

The characteristics includes the main facilities/accessories that the listing has. The effect of different endowments on price was tested, like the availability of air conditioning, heating, washer, dryer, parking, cable TV, coffee maker, iron, hairdryer, dishwasher, microwave, fire extinguisher, carbon monoxide detector, smoke detector and first aid kit. The role of property type (apartment or other types) and listing type (private room, shared room, and entire property), the number of bedrooms and bathrooms, and the allowance of pets.

Two variables were used to characterize the location of the listing: the distance from the location to the city center (to Praca do Municipio, calculated in kilometers) and the neighborhood where the location is located (categorical variable).

To evaluate the performance of the listing, the following variables were used: occupancy rate, number of bookings, number of reviews, number of days the listing was booked and review scores (overall, communication, precision, cleanliness, check-in, location, and value).

The rental policies latent variable includes the Airbnb policies that an owner has the possibility to adjust to customize its offer: cancellation policy (strict – moderate – flexible), charging a cleaning fee, the minimum length of stay (nights) and the instant book enabled policy. An interesting aspect is represented by the fact that the owners do not charge a security deposit for listings opened during 2020.

The host involvement is a variable the authors introduced in a previous study regarding the pricing strategies in the case of Airbnb platform and describes the host’s efforts/involvement to make its listing more attractive (Toader, et al.; 2021). Having the status of Airbnb Superhost, responding fast to guests inquires, uploading more photos on the listing description, and adjusting the price according to demand fluctuations it is considered to describe a higher level of involvement.
3.2 Data collection and processing

To perform the study, yearly and monthly data of Airbnb listings from Porto, joining the platform in 2020, were obtained from AIRDNA (airdna.co). 1138 listings were selected from 1637 new listings, the following criteria being used in the selection process.

- The listings should have the average daily rate higher than zero – 301 listings were eliminated.
- The listings should not be operated by traditional tourism units - 135 listings were eliminated.
- Listings should have at least one booking in 2020 – 63 listings were eliminated.

Many of the listings are small apartments (17.9% are studios, while 58.7% have one bedroom), rented entirely to guests, without asking for a security deposit. More than 70% of the listings are in the Cedofeita neighborhood. An important characteristic is represented by the fact that more than 80% of the new listings were opened by experienced hosts (they have other listings), while 22.8% of owners are Airbnb Superhosts.

Source: authors’ calculation

Figure 1: Characteristics of the listings opened in 2020

A multigroup analysis was performed to assess the impact of different characteristics on the pricing strategy. The analysis was focused on different variables that may influence the behavior of owners in setting prices, with the following variables obtaining significant results:

- Size of the new listing – small listings (0 or 1 bedrooms) versus the rest of the listings.
- Location of the listing - listings located in the Cedofeita neighborhood versus the rest of the neighborhoods.
- Experience of owners – having other listings on the Airbnb platform.
- Pets allowed – the possibility to host the guests’ pets.

3.3 The model validation

The first step in model validation was represented by the analysis of statistical significance in the case of indicators’ effects on latent variables. By implementing a bootstrapping procedure, all P values are below 0.05 (see Table 1), emphasizing that all the effects are statistically significant.
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Table 1: Outer weights

<table>
<thead>
<tr>
<th>Effects</th>
<th>Original Sample</th>
<th>P Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC -&gt; Listing's characteristics</td>
<td>0.172</td>
<td>0.000</td>
</tr>
<tr>
<td>Bathrooms -&gt; Listing's characteristics</td>
<td>0.495</td>
<td>0.000</td>
</tr>
<tr>
<td>Cancellation_Policy -&gt; Renting policies</td>
<td>0.118</td>
<td>0.011</td>
</tr>
<tr>
<td>Cleaning_Fee_USD -&gt; Renting policies</td>
<td>0.995</td>
<td>0.000</td>
</tr>
<tr>
<td>Listing Type -&gt; Listing's characteristics</td>
<td>-0.219</td>
<td>0.000</td>
</tr>
<tr>
<td>Max_Guests -&gt; Listing's characteristics</td>
<td>0.530</td>
<td>0.000</td>
</tr>
<tr>
<td>Overall_Rating -&gt; Listing's performance</td>
<td>-0.392</td>
<td>0.000</td>
</tr>
<tr>
<td>Parking -&gt; Listing's characteristics</td>
<td>0.115</td>
<td>0.001</td>
</tr>
<tr>
<td>Photos -&gt; Host involvement</td>
<td>0.468</td>
<td>0.000</td>
</tr>
<tr>
<td>Response_Time -&gt; Host involvement</td>
<td>0.304</td>
<td>0.001</td>
</tr>
<tr>
<td>Reviews -&gt; Listing's performance</td>
<td>0.943</td>
<td>0.000</td>
</tr>
<tr>
<td>Superhost -&gt; Host involvement</td>
<td>0.154</td>
<td>0.035</td>
</tr>
<tr>
<td>VAR(ADR) -&gt; Host involvement</td>
<td>0.846</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Source: authors’ calculation using SMART PLS

Since multicollinearity must be avoided, especially in the case of formative models, the collinearity diagnostic was performed next. Table 2 emphasizes that all variance inflation factors (VIFs) are below 3.3 (Kock, 2015), the reason why there is no problem with multicollinearity in the model.

Table 2: Outer VIF values

<table>
<thead>
<tr>
<th>Variable</th>
<th>VIF</th>
<th>Variable</th>
<th>VIF</th>
<th>Variable</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC</td>
<td>1.075</td>
<td>Listing Type</td>
<td>1.243</td>
<td>Response_Time</td>
<td>1.063</td>
</tr>
<tr>
<td>ADR_USD</td>
<td>1.000</td>
<td>Max_Guests</td>
<td>1.869</td>
<td>Reviews</td>
<td>1.003</td>
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<tr>
<td>Bathrooms</td>
<td>1.779</td>
<td>Overall_Rating</td>
<td>1.003</td>
<td>Superhost</td>
<td>1.024</td>
</tr>
<tr>
<td>Cancellation_Policy</td>
<td>1.000</td>
<td>Parking</td>
<td>1.043</td>
<td>VAR(ADR)</td>
<td>1.001</td>
</tr>
<tr>
<td>Cleaning_Fee_USD</td>
<td>1.000</td>
<td>Photos</td>
<td>1.049</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: authors’ calculation using SMART PLS

To identify if there are significant differences between hosts in terms of the factors that influence their price decision, a multigroup analysis was performed. The proposed model was applied to the categories of owners described in the data collection and processing section, to identify significant differences between the path coefficients.

Table 3: Inner VIF values

<table>
<thead>
<tr>
<th>Variables</th>
<th>Host involvement</th>
<th>Listing's characteristics</th>
<th>Listing's performance</th>
<th>Price</th>
<th>Renting policies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Host involvement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.170</td>
</tr>
<tr>
<td>Listing's characteristics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.370</td>
</tr>
<tr>
<td>Listing's performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.008</td>
</tr>
<tr>
<td>Price</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Renting policies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.000</td>
</tr>
</tbody>
</table>

Source: authors’ calculation using SMART PLS

4. Results and discussion

The model used to explain the behavior in setting the prices for the listings they opened during the COVID-19 pandemics (year 2020) was applied in the case of the city of Porto, Portugal.
According to the model, the listings’ characteristics variable has the most significant effect on price. For each additional standard deviation unit, the price will increase by 0.434 standard deviation units (when all other independent constructs constant). The hosts will charge a higher price as the size of the listing will be higher (a higher value for the maximum number of guests that can be accommodated and more bathrooms).

Analyzing the differences between hosts having other listings and those who have only one listing (opened during the pandemic, in 2020 – the new entrants in the market), an interesting conclusion arises: a statistically significant difference of 0.441 (p-value = 0.001) was identified between the path coefficients in the case of hosts owing other listings and the new hosts. For new hosts, the rental policies are more important when they establish the price. They are charging more for the higher flexibility provided to their customers. During the pandemics, the uncertainty of the situation and the travel restrictions led many travelers to search for greater flexibility in terms of bookings cancellation. Thus, some of the new hosts, being aware of this need, accepted to provide a flexible cancelation policy, but they increased the price to cover the risks.

Another category of hosts that do not valuing the most the listing characteristics when establishing the price is represented by hosts who allow travelers to bring with them their pets (a statistically significant difference of -0.363, p-value = 0.027, was identified between the path coefficients in the case of hosts that allow pets and the one who do not allow pets in their apartments). This category of hosts focuses on rental policies, usually charging a higher cleaning fee.

In conclusion, the first research hypothesis is only partially validated. For all hosts, the price charged is directly related to the characteristics of the listing, but there are some categories of hosts who do not value the most this aspect.

The COVID-19 pandemic changed the travel pattern of both residents and tourists, with the public transport network perceived as being riskier than other means of transportation in terms of COVID-19 infection (Bucsky, P., 2020). Many people preferring non-motorized means of travel, it is expected that the hosts would charge higher prices for the listings located closer to the main tourism attractions in the city, usually these being in the city center. However, the second research hypothesis was not validated in the available case of the listings on the platform starting with 2020. There is no statistically significant relationship between any item on the location.
of the listing and the average daily rate. Although multigroup analysis emphasize a statistically significant difference of 0.334 (p-value = 0.050) between the path coefficients in the case of listings located in the Cedofeida neighborhood compared to other neighborhoods in the city. It seems that this neighborhood generates additional benefits for the hosts, and being aware of this aspect, the hosts owning a listing in this region will charge a higher price than in other neighborhoods, no matter what the listings characteristics are.

The conclusion of studying the relationship between listing performance and price is that the third research hypothesis is not validated. There are two reasons that can generate this situation. First, as other studies emphasized, to increase visibility on the platform and to attract more customers (this will result in more and better reviews), hosts charge for the new listings (Toader, Negrusa, Bode, Rus; 2021). Secondly, during the COVID-19 pandemic, the demand decreased significantly, the competition between listings being stronger than ever. In such a situation, most of the new listings (which do not have a significant notoriety on the platform), prefer to use the pricing strategies gaining short-term notoriety.

In addition to travel restrictions, uncertainty, and decreased demand, the COVID-19 pandemic generated additional costs for hosts to provide their customers safe and healthy hosting conditions. In this direction, two Airbnb policies are statistically significant: the cancellation policy and the cleaning fee policy. Both impact directly the final price; the fourth research hypothesis is being validated. Moreover, in the case of the new listings in 2020, the rental policies latent variable has a stronger impact on price than the listing performance or the host involvement latent variables - for each additional standard deviation unit, the price will increase by 0.333 standard deviation units (when keeping all other independent constructs constant).

As noted previously, during COVID-19 pandemics, guests are searching from flexibility in terms of cancellation of bookings. The hosts are aware of this; most of them (85.7% having at least moderate cancellation policy, while 52.4% have flexible cancellation policy) provide this facility to their customers, but at the cost of a higher daily price.

The multigroup analysis emphasized that hosts who entered on the platform in 2020 (they do not have other listings) value the most the rental policies when they establish the price; a statistically significant difference of 0.516 (p-value = 0.003) was identified between the path coefficients in the case of new hosts and the one due other listing. The hosts having other listings, knowing the differences between their listings, value fewer rental policies and focus on the differences between the listings when they establish the price.

5. Conclusions

The COVID-19 pandemics significantly influenced the travel and tourism industry, both in terms of supply and demand. Despite travel restrictions and healthy risks, some tourists continue to travel (even if they did it more often at the national level), while some units continue to open (since they planned this before the pandemics). Furthermore, there were some people who decided to join for the first time the Airbnb platform or decided to develop their activity by listing new locations. This article focuses on identifying the factors that influenced host price decisions for the new listings they opened in Porto in 2020.

The characteristics continue to represent the main criteria used by hosts to establish the price, as emphasized in the literature. However, the new hosts in the platform (they have only one listing opened in 2020), due to situation generated by the pandemics, focus the most on the rental policies, a higher flexibility of cancelation policy and the cleaning fee, determining them to charge a higher price.

Even if the literature emphasizes the effects of listing location on the price charged, no effect identified for the listing location on price. Moreover, a better listing performance determines a decrease in price as hosts are searching for building notoriety in the first months of operation.

5.1 Theoretical implications

There are two pricing strategies implemented by hosts in the case of new listings – value based, and customer based. The value-based strategy is employed mostly by the hosts owing more than one listing in the platform, they are adapting the price to the characteristics of the listing. On the other hand, to differentiate their listing, some hosts focus on customers’ needs, providing higher flexibility in the case of cancelation and allowing pets policies. The market penetration pricing strategies is used mostly by the owners of the new listings. Due to the
strong competition existent especially in the urban destinations, many hosts have this approach in the short and medium run, until their listings gain notoriety.

5.2 Practical implications

To achieve better performance, hosts may focus on a reduced number of characteristics/aspects that influence the price and improve, at the same time, the guest experience. First, they should take into consideration the number of bathrooms, which is an important criterion, especially for groups. A higher number of bathrooms allows hosts to charge extra people fee, and thus to increase their revenues. The availability of air conditioning and parking represents other characteristics for which guests are willing to pay more. Thus, especially for the hosts renting small listings (maximum one bedroom), located in other neighborhoods than Cedofeida, the availability of these facilities will generate additional revenues. These two facilities represent a strength also for the hosts who entered for the first time on the platform. Second, even if the host involvement variable does not have a strong impact on the average daily rate, uploading a higher number of photos and responding quickly to the guests’ inquiries has a positive influence on the willingness to pay higher prices. The hosts having many locations (most of them being listed on the platform before 2020) are already aware of the benefits generated by uploading many photos, an aspect that is recommended to be implemented also by the new hosts.

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