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Why are flexible booking policies priced negatively?

Beatriz Benítez-Aurioles

University College, London, UK

HIGHLIGHTS

- Prices negatively correlated with flexible cancellation policies or instant book availability.
- Bias arises from correlation between unobservable factors and a rational strategy.
- A solid algebraic framework is provided as well as empirical checks.
- Convergence in management between conventional and peer-to-peer markets.

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ABSTRACT

This work suggests a new direction to look at when explaining seemingly counterintuitive findings. Using data from 497,509 Airbnb listings in 44 cities of the world, we confirm a negative relationship in the peer-to-peer tourist accommodation market between flexible cancellation policies and nightly price, as well as between the possibility of instant booking and price. This phenomenon had been hypothesized to be caused by emotional factors that would go in the opposite direction to the monetary incentives. However, the economic analysis presented in this paper reinforces the idea that the functioning of these types of markets and, in particular, the vectors that determine supply are not very different from those that govern traditional markets.

1. Introduction

Despite growing activity in peer-to-peer renting research amongst economists in the field of industrial organization, the literature on peer-to-peer short-term accommodations is still scarce, perhaps due to the late emergence of this market. These so called peer-to-peer markets differ from traditional markets in that they do not necessitate of a firm. Instead, the individual has the means of production and the rights over the finished product, which may be sold directly to another individual. Because peer-to-peer sellers tend to be small in terms of capital, their means of advertising differ from those of the large hotel chains: although nowadays both types of accommodations are as readily searchable on online websites, those that are owned by "peers" can potentially be much more numerous and difficult to tell apart. Besides, they lack the reputational prestige of large firms. Thus, peer-to-peer accommodations tend to be listed in websites such as Airbnb, where owners must fill several fields of information so that ads are presented in a comparable and easy-to-search manner.

Each host has the capability to establish not only the price but, at least to a large extent, the terms and conditions under which they supply lodging. In the area of booking and cancellation policies, there are instances in which booking is automatically confirmed and can be cancelled without additional charge. The aim of this paper is to analyze how the enablement of flexible cancellation (FC) and of instant book (IB) may affect price, volume and profits. Although one would expect consumers to find more attractive, *ceteris paribus*, the accommodations that provides instant booking or total refund upon cancellation, data seems to contradict it: prices are negatively related to these characteristics. Are these flexible booking policies, then, really priced negatively -or is it an issue of estimation bias? This is a question that, to our knowledge, has not been specifically analyzed in the literature, and the econometric angle has been underemphasized. Rigorous analysis is required, which we intent to contribute in the sections that proceed.

The paper is organized as follows. First, we survey the relevant research literature. Afterwards, we describe the data. After that, we provide evidence on the effects of booking policies on prices in the peer-to-peer market for tourist accommodation. On that basis, we

E-mail address: beatriz.benitez-aurioles.17@ucl.ac.uk.

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present two models that apply economic logic to understand the behavior of hosts and consumers, first regarding the choice of instant book, and then, for the choice of cancellation policy. Finally, we conclude.

2. Related literature

Peer-to-peer market research has to this day often focused on legal, social and psychological aspects rather than on economics (Brochado, Troilo, & Shah, 2017; Guttentag, 2015; Ikkala & Lampinen, 2015; Karlsson, Kemperman, & Dolnicar, 2017; Möhlmann, 2015; Tussyadiah & Pesonen, 2016). Among the strictly economic contributions, some refer to valuing the impact of the emergence of platforms like Airbnb in the hotel industry or in the tourism industry in general (Fang, Ye, & Law, 2016; Zervas, Proserpio, & Byers, 2017). Nonetheless, in this section we refer to studies on price determinants for accommodations supplied in the peer-to-peer market, and, besides that, those that analyze the effects of the chosen cancellation policy and instant booking.

2.1. Price determinants

For a hotel, its staff may be diverse and its property diluted. But for peers, the ownership and management of a property are usually attributed to a single figure, that of the host. The very peer-to-peer nature of the product may be the reason why, unlike for hotel chains, host characteristics have a crucial role in peer-to-peer exchanges. Those may be found out *ex ante* through hosts' public profile, which may display their name, a photograph and, sometimes, an additional text entry that may be filled with a brief self-description. Something similar exists for guests' accounts. This information can be potentially used by agents to discriminate. For instance, some studies argue that racial discrimination prevails in the market as certain ethnic groups (particularly Black, Asian and Hispanic) seem to be accepting remunerations for renting accommodations that would be higher if they were Caucasian, all else equal (Edelman, Luca, & Svirsky, 2017; Franco, Kakar, Voelz, & Wu, 2016; Gilheany, Wang, & Xi, 2015) and that guests with African-American sounding names had lower chances of being accepted than those with white sounding ones (Edelman & Luca, 2014). Moreover, the emotions and sentiments (e.g. trust, kindness) conveyed through the host's profile photograph also reportedly have an impact on the probability of booking their accommodation (Fagerstrøm, Pawar, Sigurdsson, Foxall, & Yani-de-Soriano, 2017; Karlsson & Dolnicar, 2016).

Another aspect, that is exclusive of the peer-to-peer platform of Airbnb, is the publicly visible, virtual, distinctive "Superhost badge" that is awarded to hosts who (i) register at least 10 bookings per year; (ii) answer promptly to guests' messages; (iii) maintain a response rate of no less than 90%; (iv) obtain no less than 80% of maximum star ratings; and (v) respect the confirmed bookings, canceling only in special occasions. Nevertheless, empirical evidence on the badge's effect on occupancy rates is limited. One exception is Liang, Schuckert, Law, and Chen (2017), who reports, based on Hong Kong data from 2015, that the negative association of price and review volume can be positively moderated by the Superhost badge, and that the host's effort to obtain the Superhost qualification may be rewarded by the ability to set higher prices, through an increased willingness to pay of guests for Superhosts' accommodations.

Although we emphasize the peer-to-peer aspect of this market (through the differential host-guest relationship) and its usual mechanisms (demand, price), the truth is that some hosts act closer to business intermediaries than we would expect. Li, Moreno, and Zang (2016), who refer as "professionals" to hosts offering more than one property, found out that they tended to fix prices more efficiently than nonprofessionals, as the former would adjust them in response to demand spikes from which they could profit.

Other published studies based on hedonic pricing attempt to quantify the influence of other attributes (room characteristics, location, amenities and services, rental rules, and online review rating) (Benítez-Aurioles, 2017a; Gibbs, Guttentag, Gretzel, Morton, & Goodwill, 2017; Wang & Nicolau, 2017), and generally agree on that price is positively related to more autonomous types of accommodation (i.e. entire homes being more priced with respect to private rooms, which in turn are more priced than shared rooms) and to the number of useful rooms (bedrooms and bathrooms), as well as to that of beds or accommodate capacity.

However, we have not been able to find a substantial treatment of the effect on prices and visits of hosts' booking mechanics of choice. Those are mainly (i) whether bookings can be made without host intervention, and (ii) the choice of cancellation policy. The first is determined in Airbnb by whether hosts choose to enable the so-called "instant book" feature in their listings, which is publicly marked by an orange ray-like symbol next to the listed price and indicates that the room can be immediately booked without previous approval from the host. The second booking mechanism is cancellation policy.

2.2. Cancellation policies

Deciding a cancellation policy implies choosing the terms and conditions under which a booking can be rescinded, and the form and amount, if any, of penalization to the clients who cancel a booking or do not show up at the agreed date. Such penalizations are not uncommon in the travel industry (Chen, 2016) and are known to have a non-negligible role in revenue management of airlines and hotel chains. The majority of academic contributions deal with models of the effect of booking cancellations on firms' income, with the aim of contributing rigor to the demand-managing process (Talluri, Ryzin, Karaesmen, & Vulcano, 2008). Emphasis has been placed on the airlines context. Studies for the lodging industry are scarcer, although they have sparked an ongoing debate over the possibility of accurately predicting hotel demand based on estimating bookings that may be cancelled (Antonio, Almeida, & Nunes, 2017; Morales & Wang, 2010).

In principle, hotels that set increasing sanctions for cancellation as it gets closer to the planned arrival date aim to minimize revenue losses. For instance, it has become a widespread practice to require bookings to be backed by credit card, so that, if the client does not show up, they are at least charged an overnight. On the basis of a survey conducted in 20 hotels between 2002 and 2003, DeKay, Yates, and Toh (2004) verified that the percentage of no-shows fell as much as 5%; meanwhile, in the rental car industry, where reservations are not backed by credit card, no-shows could reach up to 70%; and, in the cruise industry, where full payment upfront is needed, the percentage was below 1%.

Conversely, the choice of cancellation policy may have a non-trivial impact on consumer decisions, especially on those who are aware that they face uncertainty. In this regard, Schwartz (2000) proposed a model with search costs that addresses three different consumer strategies: book, book & search, search and book alternative. Results confirm that willingness-to-pay is greater as the date of the stay is closer. Chen, Schwartz, and Vargas (2011) investigated on the effects of cancellation policy on consumer's booking and search decision. Their experiment shows that the effect of cancellation deadlines on booking decisions was significant, but that of the magnitude of the sanction was not. That is, the "lenient" (24 h) cancellation policy did not seem to affect clients differently than allowing them to cancel whenever at no cost. Also