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Recent trends in the peer-to-peer market for tourist accommodation

This paper reviews the trends in the peer-to-peer market for tourist accommodation, taking into account how the COVID-19 crisis disturbed (or did not disturb) those trends. We expose the market's evolution in terms of supply, demand, price, characteristics, amenities, and booking policies in 10 cities around the world. We conclude that entire homes and professional hosts still predominate the market. Flexible cancellation policy lost relative importance, while instant booking gained relative importance. One trend that has changed with the virus was market growth: before the virus, supply and demand grew—especially the latter; after the virus, both supply and demand declined.

Keywords: Airbnb, sharing economy, short-term rentals, peer-to-peer accommodation market, Coronavirus, COVID-19

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Introduction

The 10th anniversary of the founding of Airbnb saw the simultaneous publication of a series of surveys reviewing academic contributions to the topic of the peer-to-peer (p2p) market for tourist accommodation (Dann et al., 2019; Dolnicar, 2019; Guttentag, 2019; Prayag & Ozanne, 2018). A common aspect of these contributions is that, after systematizing previous findings, they help depict future lines of research. With this endeavor already undertaken, the interested reader can visit any of the references that are mentioned. The aim of this article is to identify recent trends, as well as any trends that continue to configure the functioning of the market. Given recent developments at the time of writing, it is important to verify whether these trends have been preserved or broken in the face of the coronavirus crisis.

The data are taken from a web-scraping site that provides information on Airbnb listings in various cities around the world: Insideairbnb(.com). It defines itself as "an independent, non-commercial set of tools and data that allows you to explore how Airbnb is really being used in cities around the world" (Insideairbnb, 2021). Researchers are increasingly using this practical resource, thus facilitating the comparability of results across studies through the use of a common data structure (Dann et al., 2019), and many prolific studies in this area have already used Insideairbnb as their primary data source to draw their main conclusions (Benítez-Aurioles, 2018; Gutiérrez et al., 2016; Kakar et al., 2016; Wang & Nicolau, 2017). On that basis, we compared data from 10 cities around the world in September across three separate years, 2016, 2019, and 2020. The cities were: Amsterdam, Berlin, Boston, Melbourne, New Orleans, New York, Paris, Quebec, San Francisco, and Vienna. Although data are not available for all variables in the 2020 dates, we included post-COVID-19 comparisons wherever possible, owing to the importance of this shock for tourism. Even though other platforms allow the pairing of individual hosts and guests for tourist accommodation, Airbnb's position as the

leader in the field is indisputable (Hajibaba & Dolnicar, 2017). Consequently, our analysis is especially pertinent, while our results should offer both practical and academic insights.

The remainder of this paper is organized as follows: In the next section, we present the recent evolution of the market in terms of supply, demand, and price. Next, we review the changes in the characteristics and amenities of the accommodation supplied and note the tendency toward the professionalization of hosts. We then devote a section to the trends in booking policies before finishing by laying out our conclusions.

Growth of supply, demand, and price

Globally, Airbnb has experienced exponential growth since being founded in 2008, to the point of exceeding 500 million guest arrivals in 2019 (Airbnb, 2019) and providing access to more than six million places to stay in more than 100,000 cities worldwide (Airbnb, 2021a). Table 1 represents the average annualized growth rate (AAGR) of listings, reviews per listing, and prices between the pre-COVID-19 period (2016-2019) and the post-COVID-19 period (2019-2020).

Clearly, from September 2016 to September 2019, annual growth was positive, except in San Francisco (negative), where, similar to other cities with weaker growth (New York, Paris), the difference can be explained by both higher market maturity and regulations. The growth figures for reviews per listing in Δ2016-2019 have less variance, ranging from 14.2% in Amsterdam to 29.7% in Quebec. For price, San Francisco is again the exception, being the only city where average prices decrease, although the rest of the price hikes are not too high, except for Paris (17.7%).

Table 1. Average annualized growth rate of variables in selected periods

City	Listings		Reviews/Listing		Prices	
	2016-19	2019-20	2016-19	2019-20	2016-19	2019-20
Amsterdam	10.8	-6.6	14.2	3.7	6.8	4.6
Berlin	12.6	-16.9	21.8	13.3	7.9	-6.1
Boston	16.8	-42.3	26.2	0.5	3.0	-14.3
Melbourne	26.0	-15.7	26.3	2.6	3.3	3.7
New Orleans	17.1	-10.4	24.9	10.3	4.7	-19.8
New York	6.8	-5.4	20.9	-6.5	1.2	-2.0
Paris	5.3	4.0	15.0	-0.4	17.7	-9.4
Quebec	11.7	-13.7	29.7	-4.8	8.6	3.7
San Francisco	-2.9	-11.1	28.1	0.0	-4.9	16.2
Vienna	17.7	-5.6	29.4	-1.1	8.0	-7.8

Source: Compiled from Insideairbnb (2021)

These results sharply contrast with the results of the post-COVID-19 period. From September 2019 to September 2020, total listing volume fell in all cities except Paris, meaning that supply actually exited the market. Review per listing grew less intensely, and even decreased in four cities, due to the effect of the deletion of listings (in those cases, the deleted listings had more reviews). Price fell in six of the ten cities considered, again showing the negative effect of this shock on tourism. Interestingly, the two cities where the price fell the most (New Orleans and Boston) were where reviews per listing grew the most during the health crisis, accurately reflecting the economic law of supply and demand.

One of the most interesting aspects of the p2p market is the concentration of demand in a few accommodations. This result is what is predicted by herding-type models (Banerjee, 1992). As the guests do not know a priori the true quality of the accommodation, they choose to imitate the behavior of those who have accessed the market previously, generating a cumulative effect that has the consequence of increasing demand for a small number of accommodations. In contrast, others barely receive any booking requests. This forces the relativization of the numbers regarding supply.

The analysis of demand has a problem since, unlike what happens with supply, which can be compiled from the listings posted on the Internet, there are no data available for demand. This obstacle can be circumvented by using the number of reviews as a proxy variable since only guests who have effectively occupied these rooms can leave reviews for them. Naturally, this is an imperfect approximation because there is evidence that bad experiences are underrepresented (Zervas et al., 2015) and that reviews do not contain information on the length of the stay in the accommodation. We did not focus on their associated rating since star scores seem to be highly positive overall, while negative experiences are conveyed through words in a more nuanced way (Bridges & Vásquez, 2018).

In short, in accordance with the above, it is observed that in recent years, the market has continued to expand, and, in this context, demand has grown at a higher rate than supply (until the COVID-19 crisis reversed this trend, and both demand and supply generally fell). As predicted by most elementary models, the logical consequence of this pattern is the growth in prices. Also, with the exception of San Francisco, all prices rose on average before the health crisis. In any case, besides the potential administrative interventions, the elasticities of supply and demand will determine, as in any other market and among other variables, the final effect of the different dynamics on prices.

Accommodation attributes: entire room and amenities

In 2012, four years after being founded, Airbnb (2012) declared that 57% of their accommodation was entire homes, 41% were private rooms, and 2% were shared rooms. Some years later, Ke (2017) conducted a large-scale study of Airbnb's supply around the world and noted that the percentage of independent houses between 2012 and 2015 grew more than 11 percentage points from 57% to 68.5%. Based on these figures, Ke suggested that Airbnb was becoming a rental market and had stopped being a platform for sharing a spare room in one's

home. According to the data collected in Table 2, there is no clear trend in recent years, at least in the cities under analysis. Although in most cases the supply of entire homes seems to dominate the market (above 40% in all cases, with the highest relative numbers in Paris and the lowest in Berlin), its share seems to have stagnated in recent years, perhaps due to administrative measures for controlling the threat of this market to the traditional industry and the local neighborhood environment. Post-COVID-19, we observed a slight increase in the entire home percentage in some cities (such as Berlin and Boston), perhaps due to a selection effect from more viable listings in the new conditions.

Regarding amenities, besides a general tendency for Wi-Fi provision, which in many cases is nearly 100%, we comment on three others that are not as omnipresent. First, we can see that the percentage of accommodation that includes breakfast shows mixed results across the ten cities in both the 2016-2019 and the 2019-2020 periods. Interestingly, Wang and Nicolau (2017) detected an inverse relationship between price and free breakfast, consistent with previous empirical evidence for the hotel industry in general (Lee & Jang, 2011). This could be explained as a strategy by hosts to compensate for the deficiencies of their accommodation by increasing its attractiveness by offering breakfast. However, studies hint at a direct relationship between price and breakfast provision, both for hotels (Yang et al., 2016) and Airbnb accommodation (Dogru & Pekin, 2017). These discordances in how hosts and guests view the "breakfast included" option may explain the lack of a common trend among our sample cities.

Table 2. Percentages of accommodation with each attribute

	Entire homes					Breakfast					Family-friendly			Smoking allowed		
City	2016	2019	2020	AAGR 2016 -2019	AAGR 2019 -2020	2016	2019	2020	AAGR 2016 -2019	AAGR 2019 -2020	2016	2019	AAGR 2016 -2019	2016	2019	AAGR 2016 -2019
Amsterdam	81.0	78.4	77.8	-1.1	-0.8	7.0	6.4	6.2	-3.2	-2.3	55.3	38.9	-11.1	9.6	6.3	-13.0
Berlin	49.9	49.7	54.1	-0.1	8.8	4.4	5.4	5.4	7.0	0.7	46.3	29.4	-14.0	20.6	18.9	-2.8
Boston	59.3	60.9	64.2	0.9	5.3	8.8	9.1	6.8	1.0	-25.0	52.7	33.1	-14.4	2.6	2.2	-5.9
Melbourne	55.3	61.5	61.5	3.6	0.0	18.8	16.8	15.3	-3.7	-8.9	54.6	32.9	-15.6	12.0	11.1	-2.5
New Orleans	73.1	83.8	84.4	4.7	0.7	10.3	10.4	9.2	0.4	-11.1	61.5	40.2	-13.2	4.7	2.9	-15.0
New York	51.4	51.5	50.0	0.1	-2.9	6.1	7.5	7.9	7.0	5.1	42.8	26.5	-14.7	5.9	4.9	-5.9
Paris	85.7	86.2	86.4	0.2	0.3	10.2	13.0	13.1	8.5	0.6	52.6	32.6	-14.8	23.8	14.8	-14.6
Quebec	55.1	75.7	72.9	11.2	-3.7	9.8	5.1	7.4	-19.5	45.9	58.1	26.6	-16.8	5.0	1.5	-33.9
San Francisco	57.2	59.0	60.7	1.0	3.0	7.7	10.4	9.5	10.5	-9.3	45.9	34.0	-9.5	2.8	1.2	-23.5
Vienna	64.6	71.9	72.4	3.6	0.7	5.7	5.0	4.6	-4.4	-7.8	21.6	35.2	17.6	15.5	11.0	-10.7

AAGR: Average annualized growth rate. Source: Compiled from Insideairbnb (2021)

On another note, it has been indicated that higher-quality accommodation attracts greater numbers of family travelers than low-price accommodation does (Lin, 2020). In this sense, having a kitchen, washer, dryer, or more space compared to a hotel can increase Airbnb's appeal to families. Nevertheless, save for an increase in Vienna (which had the lowest figure of this kind to start with), there has been a recent fall in the number of "family-friendly" Airbnb accommodation for the period where data on this feature are available (2016-2019). Generally, less than half of the accommodation had this feature at the end of the analyzed period. On that basis, we can conjecture that the quality of accommodation supply has declined, or, at least, hosts make less effort to cater to families who travel.

Finally, we observe a decline in the "smoking allowed" option in all cities except Quebec and the period available (2016-2020). On this topic, Kennedy et al. (2018), taking Canada as a reference, verified that, in some markets, the smoking-permitted accommodation of Airbnb could be significantly less expensive than smoke-free options. There is a possibility that hosts use this option to stimulate demand for lower-quality accommodation; however, we observe a tendency toward the opposite, perhaps because of a population that is becoming increasingly health-conscious.

Hosts: growth, professionalization, and superhosts

In parallel to the growth in the number of listings (as reflected in Table 1), host numbers also increased between 2016 and 2019 (Table 3): the number of hosts grew in all but one of the sample cities (San Francisco, with a fall of 14.1%, likely due to legislative regulations, since it was also the only city where listing volume decreased in that period). The opposite occurred in the 2019-2020 period: the number of hosts fell in all but one of the sample cities (Paris). Again, this is a consequence of the decreased profitability of being an Airbnb host in the new scenario caused by the virus.

A remarkable aspect of the p2p market is the concurrence of private hosts with professional hosts that act as intermediaries between hosts and guests. Airbnb itself considers that the figure of the co-host can perform practically all of the tasks that, in principle, would correspond to the host of the house (Airbnb, 2021b). The expansion of the market at a global level has fostered the emergence of companies that supply services to hosts, such as the integral management of their property (Sigala & Dolnicar, 2017). It has become conventional in the literature to refer to hosts who supply more than one accommodation as *professionals*. There is evidence that these professional hosts use more efficient pricing strategies and understand the basic techniques of revenue management (Li et al., 2019; Xie & Kwok, 2017). According to the data in Table 3, between 2016 and 2019, there is a major trend toward greater professionalization of supply, to the extent that in most cities, the percentage of listings in the hands of professionals has grown. The results are more mixed after the pandemic: between 2019 and 2020, the percentage of professional hosts fell in six of the ten cities, perhaps as these professionals retired part, but not all, of their supply, in order to reoptimize under the new conditions. Still, these drops were moderate, and professional hosts still owned a substantial portion of the market. This is a piece of the data that needs to be part of the debate on the pertinence of regulating Airbnb's activity if it ever becomes relevant again.

Table 3. Host trends

City	Number of hosts		% of listings offered by professional hosts					% of superhosts				
	AAGR 2016 -2019	AAGR 2019 -2020	2016	2019	2020	AAGR 2016-2019	AAGR 2019-2020	2016	2019	2020	AAGR 2016-2019	AAGR 2019-2020
Amsterdam	12.5	-6.4	27.1	24.8	23.3	-3.0	-6.0	8.5	15.4	15.1	21.8	-1.6
Berlin	11.2	-19.5	24.7	30.5	31.4	7.4	3.0	4.8	15.5	18.7	48.0	20.2
Boston	6.6	-52.9	54.9	68.4	75.3	7.6	10.1	11.4	23.7	35.3	27.8	49.2
Melbourne	19.9	-15.3	40.6	51.7	49.7	8.4	-3.8	11.5	23.7	25.2	27.1	6.3
New Orleans	9.7	-12.8	52.1	63.1	62.6	6.6	-0.7	22.8	45.3	53.4	25.7	17.8
New York	3.8	-5.3	31.0	39.1	47.8	8.0	22.4	6.4	19.3	39.9	44.6	106.7
Paris	4.6	1.9	26.1	27.3	27.6	1.5	1.3	4.4	12.0	13.6	39.6	13.4
Quebec	4.1	-15.3	35.5	52.8	50.5	14.1	-4.3	6.1	29.2	30.4	68.7	4.1
San Francisco	-14.1	-10.3	38.0	63.5	60.6	18.7	-4.7	14.5	43.1	45.7	43.8	6.0
Vienna	13.9	-8.3	43.3	50.7	49.9	5.4	-1.7	9.7	28.1	28.8	42.5	2.5

AAGR: Average annualized growth rate. Source: Compiled from Insideairbnb (2021)

Finally, in Table 3, we can observe a generalized trend toward an increase in *superhosts*. Airbnb grants this distinction to hosts that meet a series of minimum performance standards in the management of their accommodation (Airbnb, 2021c), among which obtaining excellent ratings seems to be the most determining criterion (Gunter, 2018). The share of superhosts grew between 2016 and 2019, denoting a general improvement in the management of accommodation, and may in part be related to the professionalization of hosts mentioned in the above paragraph. However, except in Amsterdam, the equivalent growth from 2019 to 2020 may be due to different reasons, namely, the selection effect: superhosts may be more likely to stay in the market when faced with a negative demand shock.

Booking policies: flexible cancellation and instant booking

Airbnb offers a range of possible booking policies for hosts to set, enabling them to use economic logic in the management of their accommodation as a function of their preferences (Benítez-Aurioles, 2018). For example, regarding cancellation policy, Airbnb offers different options (Airbnb, 2021d). Among them, the *flexible cancellation policy* basically entitles the guest to a full refund if the cancellation is made at least 24 hours in advance of their expected arrival. There is evidence of an inverse relationship between this type of policy and price, which might be explained as part of a host's strategy for stimulating demand by combining low prices with more favorable booking policies for guests (Benítez-Aurioles, 2018). Thus, it has been claimed that guests perceive listings with a stricter cancellation policy as having higher quality and a more reliable host (Zalmanson et al., 2018). This last claim may help explain the trend observed in all cities in Table 4 of a generalized decrease in the percentage of flexible cancellation listings between 2016 and 2019.

Table 4. Booking policy. Percentage of listings

	Flexible cancellation			Instant booking				
	2016	2019	AAGR 2016-19	2016	2019	2020	AAGR 2016-19	AAGR 2019-20
Amsterdam	25.5	24.3	-1.7	11.8	26.3	26.4	30.5	0.4
Berlin	44.7	39.4	-4.1	11.1	34.7	35.5	46.0	2.3
Boston	27.9	23.7	-5.2	16.6	23.7	48.9	12.7	106.0
Melbourne	38.8	33.3	-4.9	21.6	49.2	44.0	31.6	-10.6
N.Orleans	23.1	13.8	-15.8	20.9	65.0	57.4	46.0	-11.7
New York	33.8	31.2	-2.7	12.8	37.4	47.4	43.1	26.6
Paris	37.7	34.8	-2.7	17.0	36.3	35.4	28.7	-2.4
Quebec	41.0	31.2	-8.7	24.9	61.7	56.0	35.3	-9.3
S.Francisco	32.2	21.2	-13.0	15.2	40.0	41.2	38.0	3.0
Vienna	38.5	32.4	-5.6	21.6	53.0	53.5	34.9	0.9

Source: Compiled from Insideairbnb (2021)

Conversely, the instant booking option—the default in the conventional accommodation industry— allows guests to book instantly without having to wait for the host's confirmation. Hosts that do not activate this option can learn about the characteristics of potential guests before accepting their booking requests. This can open the way for discriminatory practices, as shown by some studies (Edelman & Luca, 2014; Gilheany et al., 2015; Kakar et al., 2016; Edelman et al., 2017). Airbnb was even accused of reintroducing discrimination into the hotel and housing business and dismantling generations of civil rights in the name of progress (Ravenelle, 2016). The company reinforced its anti-discriminatory policy with measures that include an express commitment to equalitarian treatment regardless of race, religion, nation of origin, disability, sex, gender identity, sexual orientation, and age (Murphy, 2016).

Moreover, Airbnb insists on promoting its instant booking option, arguing that hosts may benefit from it: on top of being more convenient, it generates more traveler interest in the accommodation, improves the listing's search ranking, and makes it easier to obtain the superhost badge (Airbnb,

2021e). Additionally, instant booking can help listings earn their first reviews, thereby avoiding the vicious cycle of not seeing any demand due to not having had any demand in the past (Benítez-Aurioles, 2020). In line with this, we see that in Table 4, all cities experienced a marked increase in the percentage of instant-booking users during the 2016-2019 period, which suggests a possible convergence in this respect between the p2p and traditional tourist accommodation markets. The health crisis has had mixed effects depending on the city (the number for Boston is to be taken with caution because this city has only around 1,000 listings) so that nothing can be expressed in terms of trends in the 2019-2020 period.

Conclusions

Our results suggest that the p2p market for tourist accommodation has continued to expand in recent years, following a pattern in which demand grows more than supply. This raises doubts about the efficacy of certain measures implemented in some cities to control the market through supply restrictions: not taking into account the more intensive use of accommodation could render restrictions ineffective if the goal is to limit the arrival of tourists. The coronavirus has halted this trend, inverting the growth of both supply and demand (especially the latter), without a clear direction on price; however, it certainly leaves regulatory concerns on a secondary plane. Table 5 summarizes the trends detected before and after the health crisis.

Concerning the accommodation type, entire homes are predominant both before and after the pandemic, and they saw slight continued growth in the majority of cities. As for amenities, the percentage of accommodation with breakfast did not follow a uniform trend, while family-friendly and smoking-allowed accommodation decreased in normal times (2016-2019).

Table 5. Comparison of Airbnb trends before and after the coronavirus crisis

Variable	Before Coronavirus	After Coronavirus
Number of listings	Increase	Decrease
Reviews/listing	Increase	No trend
Prices	Increase	No trend
Entire	Weak increase	Weak increase
Breakfast	No trend	No trend
Family-friendly	Decrease	No data
Smoking allowed	Decrease	No data
Number of hosts	Increase	Decrease
Professionals	Increase	No trend
Superhosts	Increase	Increase

Source: Compiled from Insideairbnb (2021)

There are sufficient data to support the conclusion that there has been a tendency toward the professionalization of hosts, although during the COVID-19 crisis, these growth figures have been altered by the selection effect of hosts and listings leaving the market in the vast majority of cities; in some cases, those who have self-selected to stay in the market were mostly professionals, but this was not always the case. Still, in no city is the market share of professionals less than 20%. Hence, in the p2p market for tourist accommodation, there is a sizeable share of supply that uses more efficient pricing strategies and better understands revenue management techniques. With that in mind, other trends can be understood: on the one hand, there is the relative loss of importance of accommodation with a flexible cancellation policy, which guests seem to associate with low quality of supply; on the other hand, there is growth in the percentage of listings with instant booking enabled, which avoids the possibility of discrimination and convergence in terms of policies to the conventional industry.

One notable limitation of our research, which is also present in most of the literature related to Airbnb—mainly due to scarcer or unavailable information in data repositories, but also

dependent on where researchers are based— is the lack of inclusion of cities outside the European or North American continents, which could provide different outcomes than found here. This means that there is scope for future studies to investigate these underrepresented locations. Studies, such as ours, could be further complemented through surveys or interviews with Airbnb users or owners to inquire about their self-assessed forecasts for future booking or hosting patterns, which would add personal expectations to any documented trends.

Some of the trends that have been detected seem to have sufficient solidity to help us understand what might be the definite configuration of this market. Still, logically, we should be aware of the market's sensibility to technological innovation, to the regulatory responses of different public administrations, and to other shocks, which increase the probability that, in the future, new trends that had not been detected before will be observed. The coronavirus has been one of these.

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