Beyond the big touristic city: nature and distribution of Airbnb in regional destinations in Catalonia (Spain)

Recto running head : CURRENT ISSUES IN TOURISM

Verso running head : S. MORALES-PÉREZ ET AL.

Soledad Morales-Pérez, Lluís Garay-Tamajón, Xandra Troyano-Gontá

Department of Economics and Business, Universitat Oberta de Catalunya, Barcelona, Spain

CONTACT Soledad Morales-Pérez smoralespe@uoc.edu

History : received : 2019-09-30 accepted : 2020-06-02

ABSTRACT

Airbnb, as the world's best-known short-stay rentals' platform, is disrupting tourism everywhere, but studies into its growth and impact have been mostly limited to international urban destinations. To cover this gap, this study uses a database of 32,421 Airbnb listings obtained from its website to analyse, using a correlational and a linear regressions analysis, their distribution and nature across Catalonia's 946 municipalities (excluding Barcelona city) and measuring their embeddedness in the formal accommodation sector and in the regulated tourist system in the region. Results show that Airbnb has particularly grown in mature traditional destinations, presenting a predominantly commercial model and playing an additive role. This study also reveals Airbnb as a new actor in the regulated tourist system in Catalonia thanks to the use of a legal figure (HUT) to channel its development, which also gives the platform a great potential for expansion. This study can be useful for municipalities and regulatory agencies' decision-making in those destinations where Airbnb's presence could be particularly disruptive.

KEYWORDS

- Airbnb
- sharing economy
- Catalonia
- second homes
- peer-to-peer accommodation
- tourist dwellings

FUNDING

This work was supported by Ministerio de Ciencia, Innovación y Universidades [grant number CSO2017-84293-R].

Introduction

Airbnb is a peer-to-peer software platform aimed at the global tourism sector (Tussyadiah & Sigala, 2018). In common with similar platforms in other sectors, the image sold to the world is one of the leading exponents of the so-called sharing economy. It claims to bring together people with the time and willingness to act as hosts and travellers seeking authentic experiences and who want to live like a real local. However, the literature (Arias Sans & Quaglieri Domínguez, 2016) reveals that Airbnb's business model contains clear contradictions. Although it is possible to identify true peer-to-peer exchange experiences in the activities it promotes in many destinations (especially in Central and Eastern destinations and many Mediterranean cities, as shown by Adamiak, 2018), Airbnb acts as a sales channel for accommodation businesses within the classic business-to-consumer (B2C)

(Wegmann & Jiao, 2017) model, while the peer-to-peer (P2P) relationship may be affected by algorithms which prioritize the platform's own interests (Ravenelle, 2017).

With a few rare exceptions, few studies have investigated the platform's impact away from cities. The aim of this study, therefore, is to examine the nature and extent of Airbnb's presence in regional areas, in this case in Catalonia outside Barcelona. Catalonia is one of Spain's most densely populated and economically dynamic regions, with specific socio-cultural and geographical differentiating elements as well as political and normative particularities that make it abundantly interesting. Its capital, Barcelona, has been one of the world's most deeply scrutinized destinations (Arias Sans & Quaglieri, 2016; Gutiérrez et al., 2017) with regard to Airbnb's development and impact in an urban environment.

Beyond the interest in Barcelona, however, Catalonia is an ideal laboratory for studying the development and impact of Airbnb in recent years, as for decades it has been one of the main tourist destinations on the Mediterranean, with coastal resorts focusing on sun-and-sand products as well as inland destinations specializing in winter sports and rural and cultural tourism. As is to be expected, this region also has specific features that make it especially interesting for a study such as this one. These include a market where a wide range of accommodation types compete for custom, and where, as tourism levels and population densities vary widely between tourist regions, municipalities, and even neighbourhoods, factors such as the high number of second homes are highly significant for the dynamics of the tourism and property markets (Adamiak et al., 2019). Moreover, Catalonia has an autonomous government (Generalitat de Catalunya) with devolved powers of regulation, planning and promotion of tourist activity. Thus, the regional government is responsible for establishing the different legal figures that regulate the tourist offer as well as setting standard rates and establishing penalties. It is precisely in these regulatory and fiscal aspects that we find one of the main gaps in the research into the Airbnb phenomenon, in both urban and non-urban territories, where different municipal initiatives for dealing with the impacts of tourism and/or residential growth can either cooperate or clash with the initiatives and interpretations of regional (and national) governments, which usually have the last word in this regard (Morales, Wilson, & Garay, forthcoming).

Based on these assumptions, and considering the specific features described above, this study focuses on a generally unexplored area, going outside the major cities to examine the nature and distribution of Airbnb in Catalonia's regional areas. The main questions we wish to address are:

1. How does Airbnb operate in regional areas? Are we talking about a true peer-to-peer sharing economy or a commercial platform? The former is understood as a model that uses technology to generate collective benefits, breaking the boundaries of ownership and exclusive use to facilitate access to the shared use of goods and resources, while the second reproduces the logic of the free market using technological platforms.

2. What are the distribution patterns of Airbnb listings in regional areas? Does its strategy merely complement the conventional accommodation market, or is it an additive development that allows new suppliers into the market?

3. What is the influence and embeddedness of Airbnb in the regulated tourist system and in the collection of tax revenues (tourist tax) in non-urban destinations in Catalonia? Is it becoming a new agent of a regulated tourist system or, on the contrary, is it following the same unregulated path followed by cities? In this respect, it will be necessary to consider the specific legal and political regional context, which may be interesting for other destinations with respect to the regulation of Airbnb activity.

A study of this nature is, therefore, needed to identify strategies to enable these regional areas to deal with the threats posed, without missing out on the opportunities that institutions such as the European Union believe will emerge from the sharing economy (García Montoro, 2016), and thereby, as far as possible, redress any harm caused or, in those areas where the presence of the sharing economy has not yet been felt, to roll it out properly.

Literature

Sustainable tourism accommodation platforms and the hope for a post-industrial tourism

Recent years have witnessed a new phase of exponential growth and diversification of the service sector based on the emergence of new business models that operate through digital platforms, mainly in the accommodation sub-sector. While for some authors this has been related to the emergence of the sharing economy (SE), promoting peer-to-peer trust and collaboration and improving the sector's sustainability, for others, what we are currently observing is merely a readjustment of certain traditional business models at an advanced stage of capitalism (Martin, 2016).

Setting out some background, it is generally agreed that Botsman and Rogers (2011) were responsible for shifting the focus of the analysis of markets towards the dynamics of the SE as enabled by the emergence of P2P platforms. These platforms use internet to directly connect providers and users, without the involvement of intermediaries, allowing them to profit from underused assets, while the sharing aspect established relationships of trust thanks to the ease with which the technology handles the administration. This collaborative approach was quickly adopted by a range of actors, envisioning the emergence of a wide variety of benefits (Koopman et al., 2014) that seemed to be driving tourism towards a new post-industrial era. First, by solving the redundancy manifested in the form of idling assets, capital and expertise, while benefiting local stakeholders with the opportunity to generate new income. Second, by improving trust and transparency through peer-to-peer feedback, thus favouring the emergence of 'authentic' encounters and the entry of new entrepreneurs and ideas. This would also enable the sector to meet the expectations of the new millennial generation of tourists, who demand a closer relationship with locals. Third, but not least, this model would not require large investments in new infrastructure (Botsman, 2014).

Regarding this 'optimistic' approach, Altinay and Taheri (2019) reported the predominance of the business characterization of short-term rental platforms (STRP) in the literature, whereby issues such as pricing strategies, platform reputation and consumer trust and satisfaction are prioritized. However, as these authors point out, the second key area in the literature concerns the impact of STAP on destinations and the tourism industry as a whole. We now know that the original optimistic vision was rapidly contested by the reality of the upsurge of so-called *platform capitalism*. This has also been reflected by experts such as Tom Slee (2017), who have decried the impacts of its explosive growth and consequences, including precarious employment, gentrification and economic inequality, a far cry from what was originally intended (Martin, 2016). Moreover, another factor was also missing in the original approach: the role of 'hosts'. Are they merely peers trying to supplement their incomes by welcoming tourists from the non-professional perspective of residents?

The emergence of a new (critical characterization of STAP

Different perspectives on the nature of STAP have been appearing in recent years, questioning the sharing and collaborative nature of STAP and characterizing them as ideologically close to the traditional industry, or even as a more advanced version of it. While authors such as Scholz and Schneider (2017) believe that some platforms truly do reflect the original cooperative idealism and sharing spirit of the original platforms, Dredge and Gyimóthy (2015) took a more critical approach, questioning their contribution to issues such as wealth and equity. These questions are also asked to a great extent by Guttentag (2015) with respect to Airbnb. Based on the theory of 'disruptive innovation', this author noted that the platform has not only been widely accepted by consumers and providers and has promoted trust, but has also acted as a powerful extractivist intermediary and taken advantage of a growth that evades already outdated tourism regulations.

Following these interpretations, O'Regan and Choe (2017) concluded that Airbnb is not genuinely replacing a costly and hierarchical traditional accommodation sector; rather, it is adding market-based problems that will be difficult to tackle, and transferring legal, fiscal and social responsibilities to hosts and customers. In fact, many studies of Airbnb in cities (Arias Sans & Quaglieri Domínguez, 2016; Cocola-Gant, 2018; Gil & Sequera, 2018; Wachsmuth & Weisler, 2018) show that the growth of the platform is largely based on high-availability multi-hosting and boosting the concurrence of professionalized commercial hosts, all of which has little to do with the collaborative spirit proclaimed by the platform in its narrative (Coldwell, 2016). Going further, authors such as Roelofsen and Minca (2018) denounce the 'neoliberalization' of domesticity promoted by STAP, whereby SE is transformed into a marketing operation serving mainly corporate interests, and hosts are driven to blur the boundaries of entrepreneurship with those of need and financial insecurity, and to mix the concepts of sharing and selling (Ravenelle, 2017). Finally, this corporate nature of a wide range of Airbnb providers (hosts and, especially, superhosts), has affected the accommodation sector itself, especially at the lower end of the market with which it competes (Zervas et al., 2017). Commercial providers of more modest 'traditional' accommodation are unable to offer alternative added value and could be being penalized by the platform's tax dumping.

The 'Airbnb effect' in cities and metropolitan areas

Previous literature shows that the development of P2P exchanges and the digital platforms that support them, in our context represented by STAP, has essentially been a dimension of urban contemporaneity (Artioli, 2018). Certain sectors (particularly mobility – as embodied by transport and accommodation) have undergone reorganization within cities, due to population density, spatial proximity and socio-economic specialization (Artioli, 2018). Above all, this reorganization has been played out via specific, uneven redistributive effects, increasingly constituting a matter of public debate that has brought incumbent enterprises, activists and workers into the mix.

In the tourism domain, this debate has recently been focused on the consequences of STAP, primarily through analysis of the so-called Airbnb effect (Guttentag, 2015), particularly because the skyrocketing growth of Airbnb has been driven by exploiting the contemporary motivations of millions of potential tourists seeking innovative and memorable experiences (O'Regan & Choe, 2017) closely linked to the culture of their destination, and this may be easier to provide in large cities than in other more culturally vacant destinations. In this debate, one issue to have attracted interest in the academic literature is Airbnb's growth strategy in cities and their metropolitan areas, which has been generally observed to be 'additive', i.e. with particularly strong growth in districts where traditional tourist accommodation was already well developed (Arias Sans & Quaglieri Domínguez, 2016; Gutiérrez et al., 2017), putting even more pressure on already saturated areas with significant related problems. In fact, the literature questions whether this distribution has really come about due to proximity to traditional tourist attractions (Dudás et al., 2017) or due to other factors such as socio-economic indicators (Dudás et al., 2017) or even an attractive lifestyle (neo-bohemia) (Ioannides et al., 2018) which represent a considerable asset to the platform.

According to Quattrone et al. (2016), we should also be aware that there are differences depending on the distribution of Airbnb properties based on types of listing, i.e. entire homes (where the phenomenon is similar to more commercial models), or the renting of private or shared rooms (closer to the peer-to-peer phenomenon). The renting of entire homes seems to be correlated with the aforementioned 'additive' strategy in cities' most touristy districts, driven by professional and/or semi-professional hosts; while the more collaborative-oriented model, based on sharing the host's home, is secondary and acquires more weight in peripheral neighbourhoods (Lladós-Masllorens & Meseguer-Artola, 2020), where the platform is probably genuinely fulfilling its original function of complementing hosts' incomes. This has also been shown by Deboosere et al. (2019) in the case of New York City, revealing how the increasing professionalization of STAP is driving more revenue to a narrower segment of homeowners of centric properties.

The findings of Deboosere et al. (2019) further suggest that these commercial host profiles earn a significant premium by converting well-located long-term housing in accessible residential neighbourhoods into de facto Airbnb hotels. This new 'rent gap' has also been analysed in a considerable number of studies (del Romero Renau, 2018; Lladós-Masllorens & Meseguer-Artola, 2020; Nieuwland & van Melik, 2018; Wachsmuth & Weisler, 2018; Yrigoy, 2016), emphasising the extent to which the growth of STAP has influenced the latest cycle of housing price increases, and concluding that long-term housing affordability is exacerbated by the appearance of such effects (Lee, 2016).

The consequences of this growth strategy and the resulting appearance of this rent gap have been analysed regarding the emergence of new socio-spatial inequalities and spatially through the increase in residents' displacements. Here, some commentators point to Airbnb as a generator of *touristification* processes (del Romero Renau, 2018; Freytag & Bauder, 2018; Gil & Sequera, 2018) that go beyond the earlier *gentrification* phenomenon and lead to a loss of social networks, traditional traders, public infrastructures and diminished quality of life (Wegmann & Jiao, 2017). Listing these 'effects', Cocola-Gant (2018) pointed to STAP activity as the 'new gentrification battlefront'. The appearance of resistance movements (Gil & Sequera, 2018) reclaiming residents' 'right to the city' and pressuring city councils to regulate the exponential growth of this sector is therefore understandable (Ferreri & Sanyal, 2018; Nieuwland & van Melik, 2018; Wegmann & Jiao, 2017).

Airbnb beyond the urban context: new potentialities for the holiday rental market

Very few studies have, however, been carried out into this phenomenon outside cities, with some notable exceptions. Adamiak et al. (2019) conducted a key study in this area, analysing Airbnb listings throughout Spain to identify what determines their distribution. The authors found that outside the major cities, the platform also has a strong presence in the country's traditional coastal tourist destinations, where it seems to be acting as a broker for the rental of second homes, operating alongside the traditional holiday rentals' market, and reaching a more international demand.

Traditional sun-and-sea destinations and, in particular, touristified island territories have been prioritized by the few studies to have analysed the Airbnb effect outside the major global destinations. Eugenio-Martin et al. (2019) noted that, while hotels and Airbnb accommodation tend to be in the same neighbourhoods in cities (following the 'additive' trend referred to above), this is not the case for sun-and-sea and rural destinations. Furthermore, Airbnb properties are generally located close to tourist attractions in cities and in rural areas, but this is not the case with seaside destinations. Meanwhile, Yrigoy (2017) indicated that most of the previous commercial tourist supply (tourist apartments and holiday rentals) is still channelled by Airbnb, but the problem could be translated to the commercialization of second homes that until now were not used as part of the tourist supply, in cities as well as in the nearby rural environment, transferring the rent gap problematic to new areas, and highlighting the difficulties involved in the inspection and penalization of infractions in relation to this supply.

Still lacking is an in-depth analysis of the growth of Airbnb outside the urban areas, in regions where different types of tourist destinations and products coexist (as in Catalonia): whether the platform is simply acting as a traditional holiday rental marketing channel, whether it has promoted regulation of the commercialization of second homes during some seasons, and whether it is also affecting the marketing of first homes. Knowledge of the nature and distribution of the platform in the territory will enable us to cover this research gap.

Methods

We obtained data on geo-referenced Airbnb listings via data scraping with Python in November 2018. We created a database from the resulting 48,899 Airbnb listings in Catalonia, although data associated with the city of Barcelona were then excluded, given our interest in analysing the effect of Airbnb outside of large urban areas. When this paper was being written, Airbnb offered 16,477 listings in Barcelona (71 entire homes/apartments, 28 private rooms and 1 shared rooms), a volume with the potential to distort the figures for the situation we wish to examine. Thus, our database contained data on 32,421 Airbnb listings, including entire homes/apartments (accounted for 86.5 of the listings), private rooms (13.2), and shared rooms (0.3).

The database also included metadata: host ID and name, room type (entire homes/private rooms/shared rooms; number of bedrooms and bedspaces, number of bathrooms), listing activity (reviews, overall satisfaction, price per night, date last modified) and location (x/y coordinates). It also derived a so-called multihost_count, which expresses the number of listings maintained by a given host, based on the host identification (host_id) field. From location coordinates stored in each record, we produced a point layer map in a geodatabase using ArcGIS software, with the location and features of each listing. As a point of comparison with Airbnb distribution, geo-referenced data from the hotel platform Booking.com were also captured using the same technique for the same period and mapped using ArcGIS. As a result, we were able to conduct an exploratory spatial data analysis to visualize the spatial concentration of both accommodation platforms. In addition, in order to gain an in-depth understanding of the value Airbnb and the sharing economy add to destinations and their relationship with tourism activity and housing supply, we undertook a correlation analysis between different tourism-related and urban metrics and Airbnb listings, as shown in Table 1.

Table 1. Description of the variables used in correlation analysis.

Metric	Source	Description
Entire	Airbnb website	Number of Airbnb entire homes/apartments per municipality
Entire_be	Airbnb website	Number of Airbnb entire home/apartment bedspaces per municipality
Camping_be	Tourist Census of the Regional Government	Campsite bedspaces per municipality
Hotel_be	Tourist Census of the Regional Government	Hotel bedspaces per municipality
Rural_be	Tourist Census of the Regional Government	Rural tourism bedspaces per municipality
HUT_be	Tourist Census of the Regional Government	HUT bedspaces per municipality; HUT bedspaces are calculated applying the Generalitat de Catalunya's ratio (5.5 places per dwelling) to the number of registered dwellings per municipality
TotalAc_be	Census of the National Government	Total accommodation bedspaces per municipality
Booking	Booking.com	Number of hotels and apartments in Booking.com (November 2018)
Primary	Census of the National Government	Total first homes, per municipality. INE housing census, 2011
Secondary	Census of the National Government	Total second homes, per municipality. INE housing census, 2011

Source: Own data.

Given its importance for this analysis, we have also included statistics about the evolution (from 2008 to 2018) of HUT (Housing Used for Tourism/Habitatges d'ús Turístic) units in Catalonia. This is the legal figure established by the Catalan regional government, the Generalitat de Catalunya, to control dwellings repeatedly offered in exchange for financial compensation, whether directly or indirectly, by their owners to third parties, for a seasonal stay equal to or less than 31 days. The dwelling must be legalized by the corresponding city council and is then designated as Housing Used for Tourism, defined as an exercise or economic activity of housing other than residential. The evolution of tourist tax collection, from its approval in 2012 to 2018, was also considered. These statistics from the annual tourist survey of the Generalitat de Catalunya were added to the number of dwellings in municipalities, taken from the last population and housing census (2011) of the Spanish Statistical Office (INE).

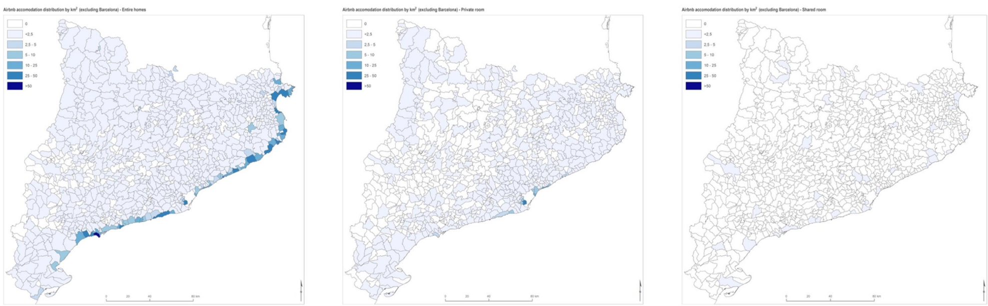
In order to identify the influence of Airbnb on tourist tax income in sun-and-sand destinations and offer a more in-depth explanation of its embeddedness in the regulated tourist system, a linear regression model was created, with tourist tax collection as the dependent variable, and hotel and Airbnb entire home/apartment bedspaces as independent variables. The correlation values between HUT and Airbnb entire homes/apartments allowed us to calculate the variance inflation factors (VIF), and we extracted HUT bedspaces for their multicollinearity with Airbnb entire home/apartment bedspaces.

Results

Distribution and nature of Airbnb listings

At the time of writing, there were 32,350 properties listed on Airbnb in the 946 Catalan municipalities in the study. Of these, one third were located in just nine coastal municipalities and in Hospitalet de Llobregat (which borders on Barcelona) 50 of municipalities had no listings, and 53 had fewer than 10. As shown in Figure 1, Airbnb listings in Catalonia are concentrated in tourist coastal areas, with few or no listings in the rest of the region or in the provincial capitals, despite their urban nature. The number of listings is particularly high on the Costa Brava, 42 of the total (also one of the highest concentrations in Spain) (Adamiak et al., 2019), followed by the Costa Daurada (20) and the Costa de Barcelona (15.5) areas. Val d'Aran county, known for its nature reserves and ski resorts, is the only non-coastal area with a high number of listings; no other rural or inland areas feature highly on the Airbnb map. In fact, areas of this nature covered by the three tourism brands 'Terres de Lleida', 'Aran' and 'Paisatges de Barcelona', account for just 4 of total listings.

Figure 1. Heat maps of Airbnb accommodation distribution per km^2 and by type of listing. Source: Own data.



Nevertheless, this distribution varies according to the type of accommodation. Entire home listings are concentrated mainly in coastal tourist resorts, forming 90% of the total, similar to the figure for all listings. Private room, however, is located mainly in municipalities close to Barcelona, such as Hospitalet de Llobregat, or in areas with residential links to Barcelona, as well as nearby coastal towns, such as Sitges and Castelldefels, known for their tourist and maritime attractions. Provincial capitals such as Girona and Tarragona – major university centres – also feature. We can see, therefore, that both private and shared rooms feature highly and form part of what we can call the urban Airbnb model, while entire homes predominate in coastal tourist areas, with a mass tourism model that also focuses on second homes. In rural areas it is still practically non-existent. The first data drawn from a simple spatial analysis, therefore, suggest that Airbnb's distribution is mainly based on entire home listings, geographically weighted towards the coast and concentrated in areas that already see high levels of tourism. This snapshot calls into question one the main arguments in defence of the Airbnb business model: that it acts to relieve pressure on areas of mass tourism and distributes the benefits of tourism more equally.

Airbnbization of Catalonia

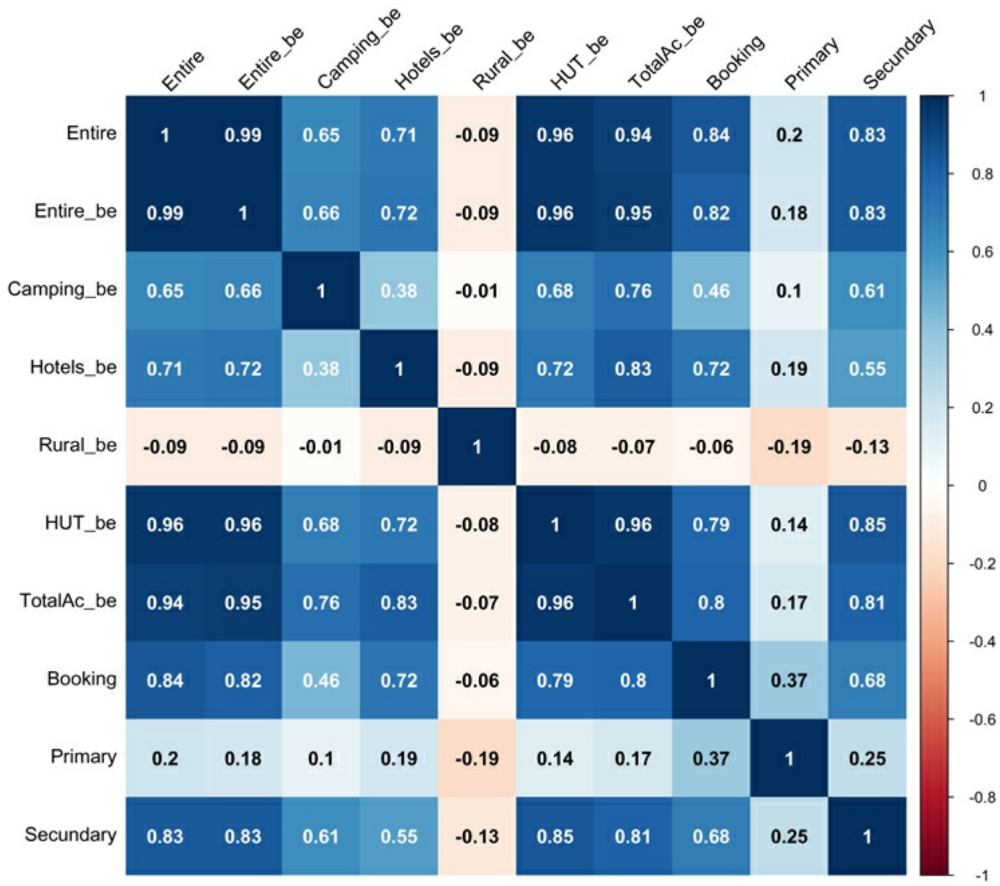
Analysis of multi-hosting (provided by hosts with more than one listing on the platform) can help us to acquire in-depth knowledge of the economic nature and formal economic orientation of the Airbnb supply, a supposedly sharing-based business model, as well as its influence in the transformation of traditional commercial and tourist relations into a more collaborative model. In general, multi-hosting pertains to the activity of *professional hosts* offering multiple listings of different tourist accommodations on the platform. Table 2 shows that 65 of Airbnb listings are multi-hosted, indicating that only around 35 of Airbnb listings in Catalonia correspond directly to the 'pure' peer-to-peer or sharing economy model. What is more, 152 hosts (0.65 of the total) control 20 of the properties listed on Airbnb, and the 11 of hosts control 50 of the properties. Thus, the market for Airbnb accommodation in Catalonia is currently controlled by very few actors, most of whom are professional hosts. The presence of these professional hosts is also more intense in municipalities with the highest concentration of Airbnb listings, which are the ones bearing the highest levels of tourism pressure. On the other hand, hosts with only one property and those that have between two and five follow the pattern of concentration found in coastal areas and the Pyrenees, but with a significant degree of regional capillarity (understood this capillarity as the ability to distribute uniformly across the different units of the territory). At the category including 6–20 listings and above, this regional capillarity decreases, and listings are really concentrated in traditional tourist areas. The local destination with most Airbnb listings, Costa Brava (on the north coast of the region), also has the highest number of hosts advertising more than 20 properties, followed by the other major coastal destination, Costa Daurada (on the south coast).

Table 2. Structure of Airbnb listings by host and listing type (2018).

Listing type	Hosted by hosts with 1 listing	Hosted by hosts with 2–5 listings	Hosted by hosts with 6–20 listings	Hosted by hosts with more than 20 listings	Total
Entire home/apartment	9747	5894	3515	8892	28,048
Percentage	*34.8%*	*21.0%*	*12.5%*	*31.7%*	*100.0%*
Private room	1676	2030	495	73	4274
Percentage	*39.2%*	*47.5%*	*11.6%*	*1.7%*	*100.0%*
Shared room	29	34	33	3	99
Percentage	*29.3%*	*34.3%*	*33.3%*	*3.0%*	*100.0%*
Total	11,452	7958	4043	8968	32,421
Percentage	*35.4%*	*24.5%*	*12.5%*	*27.6%*	*100.0%*

Given the highly specific nature of Airbnb's spatial–temporal dynamics, it is appropriate to further explore the platform's contribution to tourism development outside urban spaces and the nature of its embeddedness in the formal accommodation sector. As seen in Figure 2, Airbnb listings tend to be concentrated in the same coastline municipalities as the traditional tourist accommodation supply (0.94, p = 0.00), also coinciding with the accommodation commercialized by Booking.com (0.84, p = 0.00) and near the places where traditional hotel accommodation is located (0.72, p = 0.00). But central to this spatial distribution is the almost perfect correlation between Airbnb entire homes/apartments and HUT units (0.96, p = 0.00) and the significant correlation with second homes (0.83, p = 0.00). Thus, the Airbnbization of Catalonia is rooted in the existence of a formal offer of HUT units, most of which are second homes.

Figure 2. Pearson cross-correlation matrix of the metrics in Table 1. Source: Own data.

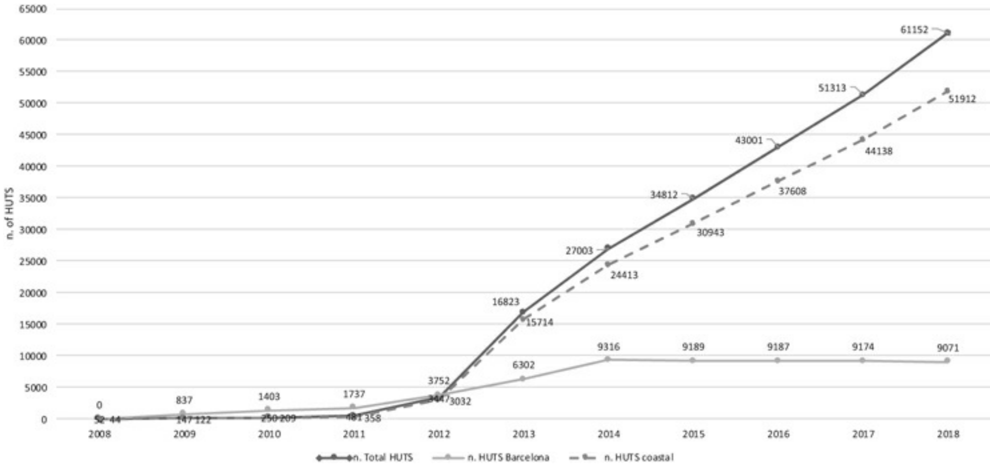


To achieve a clearer understanding and illustration of these results, we conducted an additional qualitative study of the profile of the 10 hosts at the top of the listings in terms of the number of accommodations. The ‘top ten’ hosts operating through Airbnb in Catalonia publish the accommodation as if they were single hosts, while the real legal entities behind the individuals are rental management companies who have their own websites outside Airbnb, on which they publish the HUT licence codes of the accommodations they manage. As well as Airbnb, they also operate on other platforms such as Booking and HomeAway, as correlation analysis has demonstrated. The results emphasize that Airbnb is principally driven by commercial agents and is closer to the parameters of platform capitalism.

Airbnb embeddedness in the regulated tourist system in Catalonia

An examination of the abovementioned strong relation between HUT units and Airbnb’s entire home/apartment listings requires a thorough consideration of the influence and embeddedness of Airbnb in the regulated tourist system in non-urban destinations in Catalonia. As shown in Figure 3, the number of HUT units in Catalonia has experienced an uneven evolution, with a dramatic increase between 2012 (when new housing legislation was introduced) and 2018, but essentially in coastal municipalities. From 2012 to 2014, HUT licences were the official channel for legalization of the former illegal accommodation supply. Since then, HUT units have extended their influence to become, in 2018, the most important accommodation type in Catalonia, with 61,152 properties and 376,992 bedspaces (35% of the total offer). This positive evolution of HUT units in sun-and-sand destinations is also explained by the existence of an extensive stock of second residences, which are one of the principal expressions of the urbanization process of the region (Mazón Martínez & Aledo Tur, 2005). In Catalonia, 23.7% of dwellings are non-primary residences (INE, 2020), and in some municipalities, such as Salou (on the south coast) or Castelló d’Empúries (on the north coast), second homes outnumber primary residences. As we demonstrate in this study, HUT units in combination with second homes have also helped to expand the new typology of accommodation distributed by Airbnb across the tourist accommodation market, principally in coastal municipalities.

Figure 3. Evolution of HUT (number) by typology of municipality in Catalonia (2008–2018). Source: Generalitat de Catalunya and author’s own work.



To better explain and understand the importance of this evolution in the legal embeddedness of Airbnb in the tourist system of Catalonia, it is necessary to consider the special case of Barcelona in this respect. In Barcelona, HUT units were limited in 2010 by the city council through a moratorium on new permits for Ciutat Vella district (the historic/main tourist district), which was extended in 2015 to the whole city and finally consolidated in 2017 with the Special Urban Plan for Tourist Accommodation (PEUAT). Despite this control, HUT units are the second most important accommodation type in the city, with 9657 properties amounting to an estimated 58,911 bedspaces. This difference of evolution and policies regarding short-term accommodation rental licences reveals the divergent legal situation of Airbnb listings in non-urban Catalonia compared to the city of Barcelona. Airbnb was able to legally expand in 441 municipalities in Catalonia (where HUTs are equal or more numerous than Airbnb entire homes/apartments) by more than 34,186 units; at the time of writing, HUT units stood at 59,373, and Airbnb entire homes/apartments at 25,187. Furthermore, these are located in the most important touristic coastal municipalities in Catalonia, with a strong national and international sun-and-sea tourist demand. In Barcelona, entire homes/apartments in 2018 totalled 40,731 units, and HUT only 9071, which presupposes a very wide and problematic illegal framework for Airbnb expansion, as Wilson, et al. (forthcoming) have exposed.

Finally, the emergence and consolidation of these HUTs have provided a vehicle with which to control an offer of tourist accommodation that was previously largely unregulated, as well as a way to inspect it along with the rest of the regulated tourist offer. The HUT is a legal figure involving an economic activity according to which owners are obliged to collect the so-called tax on stays in tourist establishments (IEET) and, in due course, render the settlement to the Catalan Tax Agency. Thus, users of HUT units are obliged to pay this tourist tax, collected at the end of the stay, per person per day of stay. The results of the linear regression analysis shown in Table 3 not only confirm hotels as the most important collection agents of tourist tax collection and this regulated system, but also reveal the agency of Airbnb in this respect. Airbnb, then, is contributing to tourist tax income as a regulated activity, thanks to the existence of the HUT legal figure and Airbnb's function as a distribution channel for HUT units in most municipalities.

Table 3. Linear regression models, tourist tax collection vs independent variables. Catalonia.

	Non-standardized coefficients		Standardized coefficients		
Model	B	Standard error	Beta	*t*	Sig.
(Constant)	2542.056	1365.561		−1.862	0.063
Total hotel bedspaces	95.853	1.090	0.866**	87.899	0.000
Total Entire Airbnb bedspaces	37.281	2.398	0.153**	15.545	0.000
Adjusted R^2	0.96				
F-statistic 10,497.2**					
Significance scores: ** $p < 0.001$					

Source: Own data.

Conclusions

Our results allow us to adduce valuable empirical findings regarding the distribution and nature of Airbnb accommodation in regional destinations. The results show that in Catalonia the nature of Airbnb is dual, i.e. both peer-to-peer and B2C models, the platform acting mainly as a distribution channel, as Wegmann and Jiao (2017) pointed out for the case of urban locations. Airbnb does not exclude either model but which of them predominates? Types of accommodation and their distribution throughout Catalonia give us many clues as to what drives Airbnb but the most accurate answer is provided by the analysis of multi-hosting variables. The results show that Airbnb accommodation in Catalonia is currently controlled by a small number of agents, mostly commercial hosts with multiple advertisements, as the qualitative research has also showed. These results clearly indicate that Airbnb is not (or is not only) the platform for collaborative tourism it claims to be in its publicity. In regional areas, we largely find the same commercial model that various authors (Arias Sans & Quaglieri, 2016; Coldwell, 2016) had already identified as predominating in its urban developments.

Correlational and statistical analysis reveals that Airbnb is a new actor in the accommodation sector but, far from creating tensions, it is playing a primarily additive role. Our results emphasize that Airbnb listings tend to be concentrated in the same coastal municipalities as the traditional tourist accommodation supply, coinciding also with accommodation commercialized by Booking.com. In short, as observed by Arias Sans and Quaglieri (2016), the platform is not reducing pressure on established tourism areas by opening up opportunities for development in areas not known for tourism (redistributing impacts and benefits); rather, it is making an effective contribution to tourism marketing in areas which already had a high level of activity. The Airbnbization of Catalonia, then, is increasing tourist pressure in existing tourist (and coastal) hot-spots. Entire home/apartment accommodation follows a distribution pattern slanted towards the coastline and is basically concentrated around two clusters, the Costa Brava and Costa Daurada tourism brands, reflecting the findings of previous studies of other regional destinations (Adamiak et al., 2019; Eugenio-Martin et al., 2019). The results of our deductive analysis also indicate that the coastal variable is the most influential in determining the availability of Airbnb accommodation. The other two types of accommodation based on rooms (which can be identified with a more cooperative approach to tourism, where there is a real relationship between hosts and guests) are also influenced by the attractiveness of the coast, but to a lesser degree. Rooms account for 13.5% of all Airbnb accommodation in Catalonia and of this percentage only 0.3% corresponds to shared rooms. Apart from their distribution, this is another element that belies the narrative sold by Airbnb on its platform (Roelofsen & Minca, 2018).

Notwithstanding, one of the main findings of our study relates to our last research question and the explanatory value of the tourist dwellings (HUT) variable. The strength of the relationship between Airbnb entire homes/apartments and HUT units and second homes seems to indicate that, not only are they located in the same places, but are also in fact the same accommodation. We can draw the conclusion that most of the apartments offered by Airbnb are HUT units that came onto the market in the past to obtain income from the stock of second homes by the sea in the busiest tourism areas on the Catalan coast, where, as has been shown, a large number of holiday accommodation management companies operate, using Airbnb as a distribution channel. In this respect, Airbnb acts as a platform which adds a new marketing channel but does not transform the existing tourism model, a fact also demonstrated by the correlation with accommodation offered via Booking.com.

Far from having merely explanatory value, HUT units have also acted as the channel through which Airbnb has become a regulated activity in the region. The regression model in this study has revealed Airbnb as a new actor in the regulated tourist system in Catalonia, with great potential for expansion, particularly if we consider the importance of multi-hosts in the listings' management. While regulating the activity of Airbnb in large cities is complex (as we have seen in Barcelona in the present study and other recent studies (Aguilera et al., 2019), in other parts of Catalonia the contradiction seems to disappear, thanks to the existence of the HUT legal figure. Beyond Barcelona, Airbnb has the potential to legally expand its activity in the main tourist municipalities of the region. Here, then, we can see an important difference between what has happened in the urban sphere compared to the rest of the region. In Barcelona, the municipal government has been especially belligerent with Airbnb, attempting to mitigate its impact with local regulations and penalties, while the regional government has facilitated the platform's activities, or at least not hindered it, as in other destinations such as Madrid (see Wilson et al., forthcoming). Meanwhile, in other municipalities, especially the traditional mature tourist destinations of Catalonia, local municipal pressure has not been significant, and the growth of Airbnb has been largely driven by a legal figure, that of the HUT, which has reported higher tax revenues (tourist tax) but without taking into account the potential problems in terms of increasing tourist pressure.

In conclusion, we would point to the strong points as well as the limitations of the present study. We are aware that Catalonia is a good laboratory for examining the reality of the platform in mature destinations, but that many of the results need to be compared with other destinations with similar characteristics or studies with a different geographical scope. We would also add that we envisaged examining the phenomenon in depth with a view to describing the way in which it affects and could potentially benefit rural areas, which are often omitted from such studies and where there is a need for government policies that take them into account. Unfortunately, the type of research we conducted did not provide us with answers to these questions. Although rural areas were considered, using variables indicating their situation, they have been marginalized due to the disproportionate concentration of Airbnb in other areas, such as the coast. In fact, the current concentration follows 'urbanized' areas, though many of these cannot strictly be defined as urban (and therefore we are careful not to speak directly of non-urban territories).

Finally, one element that has not yet been analysed is the impact and the consequences of this growth in these destinations, which can give rise to interesting future research projects. All these limitations help us to understand that we are still exploring a very recent phenomenon, whose growth has been explosive, and which still has a long way to go. We understand that these initial analyses will serve to provide more and better information regarding the subject for government bodies, so that appropriate action can be taken in time, minimizing the potentially negative consequences reported in the literature in connection with urban destinations.

Disclosure statement

No potential conflict of interest was reported by the author(s).

ORCID

Soledad Morales-Pérez http://orcid.org/0000-0002-8170-9286

Lluís Garay-Tamajón http://orcid.org/0000-0002-4209-3319

References

Adamiak, C. (2018). Mapping Airbnb supply in European cities. *Annals of Tourism Research*, *71*(C), 67–71. https://doi.org/10.1016/j.annals.2018.02.008

Adamiak, C., Szyda, B., Dubownik, A., & García-Álvarez, D. (2019). Airbnb offer in Spain – spatial analysis of the pattern and determinants of its distribution. *ISPRS International Journal of Geo-Information*, *8*(3), 155. https://doi.org/10.3390/ijgi8030155

Aguilera, T., Artioli, F., & Colomb, C. (2019). Explaining the diversity of policy responses to platform-mediated short-term rentals in European cities: A comparison of Barcelona, Paris and Milan. *Environment and Planning A: Economy and Space*, 0308518X19862286

Altinay, L., & Taheri, B. (2019). Emerging themes and theories in the sharing economy: A critical note for hospitality and tourism. *International Journal of Contemporary Hospitality Management*, *31*(1), 180–193. https://doi.org/10.1108/IJCHM-02-2018-0171

Arias Sans, A., & & Quaglieri, A. (2016). Unravelling Airbnb: Urban perspectives from Barcelona. *Reinventing the Local in Tourism: Producing, Consuming and Negotiating Place*, *73*, 209.

Arias Sans, A., & Quaglieri Domínguez, A. (2016). Placing network hospitality in urban destinations: The case of Airbnb in Barcelona. In *Reinventing the local in tourism* (pp. 209–228). Channel View.

Artioli, F. (2018). Digital platforms and cities: A literature review for urban research.

Botsman, R. (2014). Collaborative economy services: Changing the way we travel. *Accessed May*, *9*, 2015.

Botsman, R., & Rogers, R. (2011). *What's mine is yours: How collaborative consumption is changing the way we live* (Vol. 5). Collins.

Cocola-Gant, A. (2018). 17. Tourism gentrification. In *Handbook of gentrification studies* (pp. 281).

Coldwell, W. (2016). Airbnb: from homesharing cool to commercial giant. *The Guardian*, *18*, 2016.

Deboosere, R., Kerrigan, D. J., Wachsmuth, D., & El-Geneidy, A. (2019). Location, location and professionalization: A multilevel hedonic analysis of Airbnb listing prices and revenue. *Regional Studies, Regional Science*, *6*(1), 143–156. https://doi.org/10.1080/21681376.2019.1592699

del Romero Renau, L. (2018). Touristification, sharing economies and the new Geography of urban conflicts. *Urban Science*, *2*(4), 104. https://doi.org/10.3390/urbansci2040104

Dredge, D., & Gyimóthy, S. (2015). The collaborative economy and tourism: Critical perspectives, questionable claims and silenced voices. *Tourism Recreation Research*, *40*(3), 286–302. https://doi.org/10.1080/02508281.2015.1086076

Dudás, G., Boros, L., Kovalcsik, T., & Kovalcsik, B. (2017a). The visualisation of the spatiality of Airbnb in Budapest using 3-band raster represeantation. *Geographia Technica*, *12*(1), 23–30. https://doi.org/10.21163/GT_2017.121.03

Dudás, G., Vida, G., Kovalcsik, T., & Boros, L. (2017b). A socio-economic analysis of Airbnb in New York city. *Regional Statistics*, *7*(1), 135–151. https://doi.org/10.15196/RS07108

Eugenio-Martin, J. L., Cazorla-Artiles, J. M., & González-Martel, C. (2019). On the determinants of Airbnb location and its spatial distribution. *Tourism Economics*, https://doi.org/10.1177/1354816618825415

Ferreri, M., & Sanyal, R. (2018). Platform economies and urban planning: Airbnb and regulated deregulation in London. *Urban*

Studies, *55*(15), 3353–3368. https://doi.org/10.1177/0042098017751982

Freytag, T., & Bauder, M. (2018). Bottom-up touristification and urban transformations in Paris. *Tourism Geographies*, *20*(3), 443–460. https://doi.org/10.1080/14616688.2018.1454504

García Montoro, L. (2016). Agenda europea para la economía colaborativa.

Gil, J., & Sequera, J. (2018). Expansión de la ciudad turística y nuevas resistencias. El caso de Airbnb en Madrid. *Empiria. Revista de Metodología de Ciencias Sociales*, (41), 15–32.

Gutiérrez, J., García-Palomares, J. C., Romanillos, G., & Salas-Olmedo, M. H. (2017). The eruption of Airbnb in tourist cities: Comparing spatial patterns of hotels and peer-to-peer accommodation in Barcelona. *Tourism Management*, *62*, 278–291. https://doi.org/10.1016/j.tourman.2017.05.003

Guttentag, D. (2015). Airbnb: Disruptive innovation and the rise of an informal tourism accommodation sector. *Current Issues in Tourism*, *18*(12), 1192–1217. https://doi.org/10.1080/13683500.2013.827159

INE. (2020). Censo 2011. Censos de Población y Viviendas Retrieved 23/04/2020, 2020, from https://www.ine.es/censos2011_datos/cen11_datos_inicio.htm

Ioannides, D., Röslmaier, M., & van der Zee, E. (2018). Airbnb as an instigator of 'tourism bubble' expansion in Utrecht's Lombok neighbourhood. *Tourism Geographies*, 1–19. https://doi.org/10.1080/14616688.2017.1409261

Koopman, C., Mitchell, M., & Thierer, A. (2014). The sharing economy and consumer protection regulation: The case for policy change. *The Journal of Business, Entrepreneurship & the Law*, *8*, 529.

Lee, D. (2016). How Airbnb short-term rentals exacerbate Los Angeles's affordable housing crisis: Analysis and policy recommendations. *Harvard Law & Policy Review*, *10*, 229.

Lladós-Masllorens, J., & Meseguer-Artola, A. (2020). Pricing rental tourist accommodation: Airbnb in Barcelona. In *Sharing economy and the impact of collaborative Consumption* (pp. 51–68). IGI Global.

Martin, C. J. (2016). The sharing economy: A pathway to sustainability or a nightmarish form of neoliberal capitalism? *Ecological Economics*, *121*, 149–159. https://doi.org/10.1016/j.ecolecon.2015.11.027

Mazón Martínez, T. M., & Aledo Tur, A. (2005). *Turismo residencial y cambio social: Nuevas perspectivas teóricas y empíricas*. Universidad de Alicante.

Morales, S., Wilson, J., & Garay, L. (Forthcoming). Airbnb's contribution to socio-spatial inequalities and the geographies of resistance in Barcelona. *Tourism Geographies*.

Nieuwland, S., & van Melik, R. (2018). Regulating Airbnb: How cities deal with perceived negative externalities of short-term rentals. *Current Issues in Tourism*, 1–15.

O'Regan, M., & Choe, J. (2017). Airbnb and cultural capitalism: Enclosure and control within the sharing economy. *Anatolia*, *28*(2), 163–172. https://doi.org/10.1080/13032917.2017.1283634

Quattrone, G., Proserpio, D., Quercia, D., Capra, L., & Musolesi, M. (2016). *Who benefits from the sharing economy of Airbnb?* Paper presented at the Proceedings of the 25th international conference on world wide web.

Ravenelle, A. J. (2017). Sharing economy workers: Selling, not sharing. *Cambridge Journal of Regions, Economy and Society*, *10*(2), 281–295. https://doi.org/10.1093/cjres/rsw043

Roelofsen, M., & Minca, C. (2018). The Superhost. Biopolitics, home and community in the Airbnb dream-world of global hospitality. *Geoforum; Journal of Physical, Human, and Regional Geosciences*, *91*, 170–181. https://doi.org/10.1016/j.geoforum.2018.02.021

Scholz, T., & Schneider, N. (2017). *Ours to hack and to own: The rise of platform cooperativism, a new vision for the future of work and a fairer internet*. OR books.

Slee, T. (2017). *What's yours is mine: Against the sharing economy*. Or Books.

Tussyadiah, I. P., & Sigala, M. (2018). *Shareable tourism: Tourism marketing in the sharing economy*. Taylor & Francis.

Wachsmuth, D., & Weisler, A. (2018). Airbnb and the rent gap: Gentrification through the sharing economy. *Environment and Planning A: Economy and Space*, *50*(6), 1147–1170. https://doi.org/10.1177/0308518X18778038

Wegmann, J., & Jiao, J. (2017). Taming Airbnb: Toward guiding principles for local regulation of urban vacation rentals based on empirical results from five US cities. *Land Use Policy*, *69*, 494–501. https://doi.org/10.1016/j.landusepol.2017.09.025

Wilson, J., Garay, L., & Morales, S. (Forthcoming). A (digital) tale of two cities: The Airbnb effect and digital narratives of collaborative tourism platforms in Madrid and Barcelona. *Journal of Sustainable Tourism*.

Yrigoy, I. (2016). The impact of Airbnb in the urban arena: towards a tourism-led gentrification. The case-study of Palma old quarter (Mallorca, Spain). *Turismo y crisis, turismo colaborativo y ecoturismo. XV Coloquio de Geografía del Turismo, el Ocio y la Recreación de la AGE*, 281–289.

Yrigoy, I. (2017). 580. Airbnb en Menorca:¿ Una nueva forma de gentrificación turística? Localización de la vivienda turística, agentes e impactos sobre el alquiler residencial. *Scripta Nova. Revista Electrónica de Geografía y Ciencias Sociales*, *21*.**[Q17]**

Zervas, G., Proserpio, D., & Byers, J. W. (2017). The rise of the sharing economy: Estimating the impact of Airbnb on the hotel industry. *Journal of Marketing Research*, *54*(5), 687–705. https://doi.org/10.1509/jmr.15.0204