Annals of Tourism Research xxx (xxxx) xxx–xxx

Contents lists available at ScienceDirect

Annals of Tourism Research

journal homepage: www.elsevier.com/locate/annals

Research Note

Mapping Airbnb supply in European cities

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ARTICLE INFO

Associate Editor: Sara Dolnicar

Keywords:
Airbnb
Peer-to-peer accommodation
Sharing economy
Geography

Airbnb is the largest peer-to-peer platform offering tourist accommodation in private homes. Tourism scholars are increasingly interested in its influence on the tourism industry, tourist behaviour, destinations and urban housing (Dolnicar, 2017; Dredge & Guimóthy, 2017; Guttentag, 2015). Several studies have used spatial analysis to determine the local impacts of peer-to-peer accommodation by examining the distribution of Airbnb supply and demand in urban areas (Gunter & Önder, 2017; Gutiérrez, García-Palomares, Romanillos, & Salas-Olmedo, 2017; Quattrone, Proserpio, Quercia, Capra, & Musolesi, 2016). There are also sparse and selective comparative studies between large cities (Coyle & Yeung, 2017) and between countries (Abdar & Yen, 2017). However, no study to date has comprehensively analysed the distribution and characteristics of Airbnb activity at the European level. Moreover, none have examined middle-sized cities apart from large metropolises. This research note attempts to fill these two gaps by providing a generic spatial description of Airbnb supply across European cities.

Airbnb does not publish statistics on properties available for rent in individual cities. Yet, such information can be gathered from the webpage using web-scrapping techniques. The most advanced system of tracking Airbnb offers and bookings is run by the AirDNA company (AirDNA, 2017). As the only service of this kind, they gather data not only about major cities, but also smaller destinations around the world. This study uses basic data on “Airbnb markets” (cities) acquired from the AirDNA webpage in early December 2017. The study covers European countries according to the UNWTO regionalisation, excluding Siberia and Central Asian states. Three maps present data for 432 cities with at least 100 thousand inhabitants. Data for a further 336 cities of this size (mostly located in Eastern Europe) were unavailable. Generally the units of analysis are cities in municipal borders. Yet, if AirDNA data is only available for larger urban regions (e.g. for some German districts rather than cities), or numerous Airbnb listings are offered in many municipalities of one agglomeration (e.g. in French metropolitan areas), entire urban regions serve as units of analysis. Three successive maps present the following characteristics of Airbnb supply: (1) the number of listings (active rentals) and their number per 1000 inhabitants; (2) relative importance of Airbnb for tourism in a city calculated as the ratio of the number of bed-places in Airbnb offers to the estimated capacity of hotels; and (3) three measures of the level of professionalisation of Airbnb hosts: the percentage of entire properties, the share of properties owned by users who host more than one property, and the share of properties available for rent for more than six months during a year.

There are 737 thousand active Airbnb rentals in all cities in the analysis. The two largest markets are Paris and London, followed by other European metropolises (Table 1 and Fig. 1). To estimate the relative intensity of Airbnb activity in cities, the numbers of listings in relation to the population (according to latest available data of national statistical offices) were calculated. In the largest

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https://doi.org/10.1016/j.annals.2018.02.008
Received 15 December 2017; Received in revised form 21 February 2018; Accepted 22 February 2018

Table 1
European cities with the highest numbers of Airbnb listings and the highest numbers of Airbnb listings per 1000 inhabitants.

Highest number of Airbnb listings				Highest number of Airbnb listings per 1000 inhabitants			
	City	Number of listings (thous.)	Number of listings per 1000 inh.		City	Number of listings (thous.)	Number of listings per 1000 inh.
1	Paris (Métropole)	56.8	8.0	1	Batumi	6.1	40.1
2	London	55.4	6.3	2	Split	6.1	34.2
3	Rome	25.3	8.8	3	Marbella	4.4	31.1
4	Barcelona (Àrea Metropolitana)	21.6	6.7	4	Venice	7.0	26.7
5	Berlin	16.6	4.7	5	Florence	8.9	23.2
6	Madrid (Área Metropolitana)	14.9	2.7	6	Lisbon	12.4	22.8
7	Aix-Marseille-Provence (Métropole)	14.0	7.5	7	Syracuse	2.7	22.4
8	Copenhagen	13.5	17.6	8	Reykjavík	2.8	22.3
9	Istanbul	12.9	0.9	9	Porto	5.8	19.3
10	Amsterdam	12.5	14.7	10	Nice Côte d'Azur (Métropole)	9.9	18.4

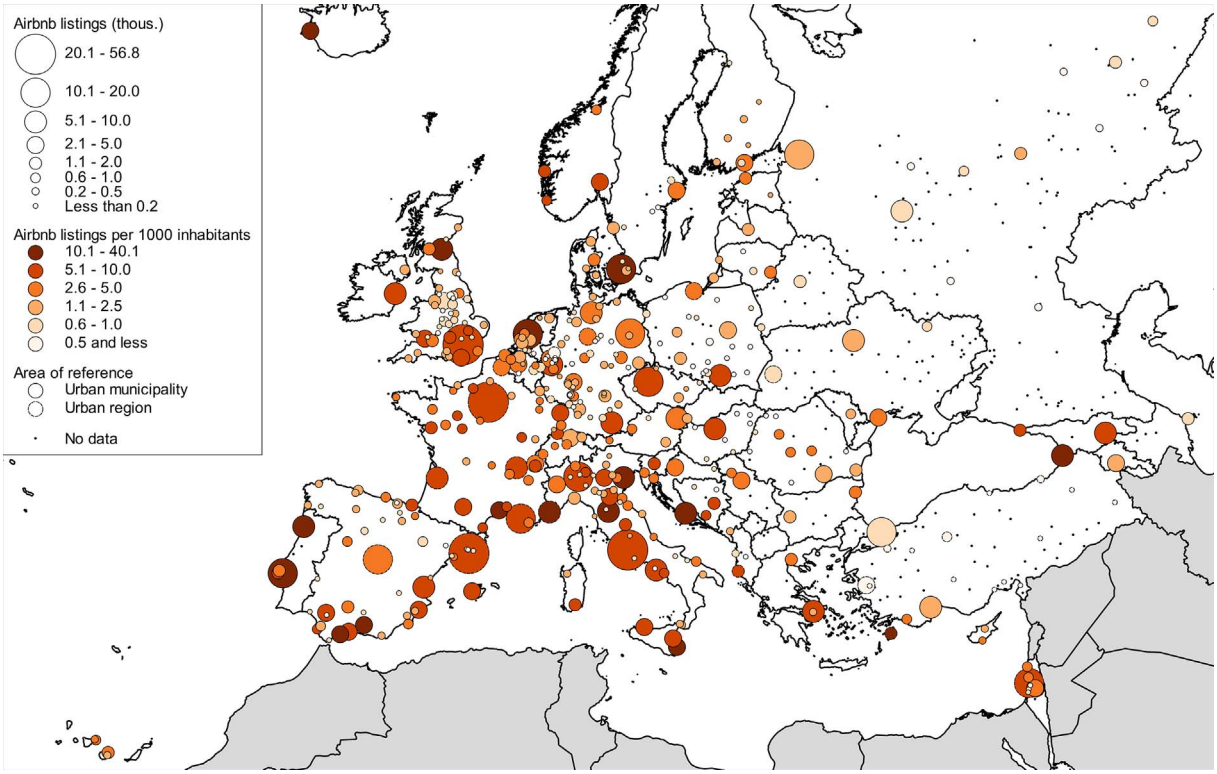

Fig. 1. Number of Airbnb listings and number of Airbnb listings per 1000 inhabitants in European cities.

Airbnb markets, this value varies between 0.9 and 17.6. The higher values of the ratio are observed in coastal resorts of southern Europe (Batumi, Split, Marbella) and historic tourism destinations (Venice, Florence, Edinburgh). If towns below 100 thousand inhabitants were included in the analysis, then several coastal and mountain resorts would attain even higher values (e.g. 95 in Dubrovnik, over 200 in Chamonix-Mont-Blanc).

The second map (Fig. 2) presents the role that Airbnb plays in providing tourist accommodation in cities. It shows the capacity of Airbnb listings compared to the estimated capacity of hotels. There are no internationally comparable official statistics about hotels on the city level. Hence, the numbers of hotels were derived from the TripAdvisor webpage. TripAdvisor aggregates information on hotel offers from several online travel agents, and its search engine identifies hotels in administrative borders of cities, making the results comparable with AirDNA data. Estimated hotel capacity for each city is a product of the number of hotels listed on TripAdvisor and the higher of the two average hotel size indicators: for a proper NUTS-2 region and for all urban areas in a country, based on Eurostat data. For countries not covered by Eurostat data, the average hotel size for all other countries was used. In all the cities