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Airbnb as an instigator of 'tourism bubble' expansion in Utrecht's Lombok neighbourhood

Dimitri Ioannides [ID][a], Michael Röslmaier[a] and Egbert van der Zee[b]

[a]Department of Tourism Studies and Geography, Mid-Sweden University, Östersund, Sweden; [b]Faculty of Geosciences, Utrecht University, Utrecht, Netherlands

ABSTRACT

The Airbnb phenomenon as part of the broader growth of the so-called collaborative economy has grabbed the attention of a growing number of tourism researchers. Among the topics explored have been investigations as to the spatial tendencies of Airbnb in cities and discussions concerning its effects, *inter alia*, on gentrification, over-touristification and eventual resident displacement. Recognizing that the majority of extant studies have been conducted either in major cities, which in their own right attract large numbers of visitors or in tourism-intensive smaller communities we chose to investigate what Airbnb growth means for a mid-sized city with a highly diversified economy, which is not yet over-touristified. Our focus was on the Dutch city of Utrecht. Through a geospatial and statistical analysis of AirDNA data, we explored the growth of Airbnbs in the city overall, focusing specifically on the phenomenon's effects on the Lombok neighbourhood, a nascent 'neo-bohemia' neighbouring the city-centre tourist bubble. Our analysis reveals that although Airbnb activity in this neighbourhood is relatively recent there are signs suggesting that further touristification of parts of Lombok has ignited increased Airbnb activity. Moreover, there is a distance decay of Airbnb activity as one moves away from the city centre and from established tourism services including restaurants. These findings suggest that in an emerging neo-bohemian space such as Lombok, Airbnb takes on a role as instigator of urban tourism bubble expansion. The study ends with a call for further investigations to better understand the implications expanded Airbnb activity has, among others, on social justice within cities. For example, future investigations could examine the manner in which Airbnbs influence the everyday life of the residents of urban spaces and investigate the conflicts that might arise in Airbnb ghettoes between visitors and locals.

摘要
随着所谓的"协作经济"的广泛发展, 爱彼迎 (Airbnb) 的现象引起了越来越多的旅游研究者的关注。在探讨的主题中, 有关于爱彼迎在城市的空间趋势的调查, 以及关于爱彼迎的影响, 尤其是对绅士化、过度旅游化和最终居民流离失所影响的讨论。认识到现存的大部分研究或是在本身吸引大量游客的主要城市进行,或是在旅游业发达的小型社区进行, 我们选择调查爱彼迎发展对一个经济

CONTACT Dimitri Ioannides ✉ Dimitri.Ioannides@miun.se

高度多元化而且尚未过度旅游化的中等规模的城市的影响。我们关注的是荷兰的乌特勒支市。通过对AirDNA数据的地空间和统计分析，我们探讨了爱彼迎在整个范围的城市的增长，重点关注的是对罗姆波克 (Lombok) 社区的影响，这是一个新兴的"新波希米亚空间"，邻近城市中心的旅游核心区。我们的分析显示，尽管爱彼迎在这一地区的活动相对较近，但有迹象表明，对罗姆波克部分地区的进一步旅游化已经引发了短租活动的增加。此外，随着人们离开市中心，从包括餐馆在内的现有旅游服务中，短租活动也会逐渐减少。这些发现表明，在一个新兴的新波西米亚空间，如罗姆波克，短租活动扮演了城市旅游核心区扩张的推动者的角色。这项研究的目的是呼吁进一步调查，以便更好地了解短租活动在城市内部的社会公平问题。例如，未来的调查可以调查短租活动对城市居民日常生活的影响，并调查短租在游客和当地人之间可能产生的冲突。

Introduction

Airbnb has emerged in recent years as a global *tour de force* in the tourist fabric of numerous places (Dredge & Gyimothy, 2017; Oskam & Boswijk, 2016; Sundararajan, 2015). This and similar innovations in the hospitality sector such as HomeAway, 9Flats or Housetrip constitute online peer-to-peer platforms enabling individuals to easily convert their properties (i.e. either entire homes or just one or two rooms) into short-term rentals. The advantage to the owners of these properties is that through the online platform they can easily reach a global market. Simultaneously, by using Airbnb, visitors have access to an ever-increasing range of accommodation options while travelling (Guttentag, 2017).

The proliferation of Airbnb and accommodations like it has transformed entire city blocks into areas catering to short-term visitors, frequently making it harder for locals to find affordable permanent housing (Füller & Michel, 2014; Colomb & Novy, 2017; Oppilard, 2017). Lee (2016) reinforces this point, arguing that landlords find it more lucrative to rent out their properties to visitors rather than local inhabitants or students. This can lead to severe housing shortages, which is a possible factor behind skyrocketing rents (Arias Sans & Quaglieri Dominguez, 2016; Lee, 2016). Others, however, (e.g. Füller & Michel, 2014) argue that increased housing prices in particular neighbourhoods can only partially be explained by the drastic expansion of short-term accommodation and that the complete explanation is far more complex.

The thorny question is what do these developments mean for the future of metropolitan areas and their populations worldwide? After all, Airbnb and similar companies face growing resentment of locals who fear that these developments, together with many other tourist-related activities, transform their once-tranquil residential neighbourhoods into visitor ghettoes (Colomb & Novy, 2017). Meanwhile, municipalities scramble to identify ways to regulate Airbnb's growth either through taxation or by imposing drastic measures aimed at limiting or entirely eradicating short-term rentals (Oppilard, 2017). For instance, Airbnb's phenomenal expansion in Reykjavik, has led the Icelandic government to impose curbs on transforming more homes and rooms into short-term rentals (Baranjuk, 2017). Similarly, Berlin and Amsterdam limit how long properties can be rented out through Airbnb (Comiteau, 2016; Füller & Michel, 2014).

To further understand how Airbnb influences host communities, it is important to study the pattern of its spatial expansion throughout the urban environment. Where does

Airbnb activity proliferate? Do Airbnbs concentrate within the so-called downtown 'tourism bubbles' (Edensor, 1998; Judd, 2003), which are 'areas insulated from the larger urban milieu' (Füller & Michel, 2014, p. 1305)? Alternatively, do they spread to other parts of the city? If so, what characteristics do neighbourhoods with Airbnbs have?

Several studies have explored these topics to varying degrees. For example, Arias Sans and Quaglieri Dominguez (2016) have shown how Airbnb activity in Barcelona overlaps with heavily touristified areas. Similarly, Gutierrez, Garcia-Palomares, Romanillos, and Salas-Olmedo (2017) have conducted a detailed investigation of the spatial distribution of Airbnb versus hotels in the same city. Yrigoy (2016) demonstrates that Airbnb activity in Palma de Mallorca concentrates overwhelmingly on the central city and in the case of New York City, Dudás, Vida, Kovalcsik, and Boros (2017) have noted the clustering of Airbnbs in neighbourhoods where the population is young, there are many homes and close proximity to attractions.

The common thread linking the aforementioned studies is either their focus on large cities with considerable tourist activity or smaller (often historical) cities, where tourism dominates the economy. Our own point of departure was to identify how Airbnb activity plays out in a mid-sized city, which is not immediately associated with heavy tourist flows. In other words, how does Airbnb activity evolve in places where tourism is only part of a diversified economy? To do this, we conducted a case study of Utrecht in the Netherlands, which is perhaps most famous for its university and being a major hub of the Dutch railway system. This is a historic city with a wealth of attractions and yet, according to Lonely Planet (n.d.) it is 'bizarrely under-visited'. We were especially curious to see how Airbnb expands outward from the historic city centre into the surrounding neighbourhoods, by focusing on the part of the city known as Lombok. Lying close to the city centre, this ethnically mixed community has functioned for several years as a retail hub for the city's diverse population. There are signs, however, that part of Lombok is becoming touristified with the emergence of upscale restaurants and shopping establishments. We examine how Airbnb is infiltrating the area and contemplate whether this phenomenon cements the expansion of the downtown tourism bubble within Lombok.

The paper is structured as follows. Following a review of the pertinent literature regarding the rise of the collaborative economy and the significance of short-term accommodation platforms like Airbnb we focus on our case study. We explain why Utrecht was selected as a case study and how we gathered the relevant data. The analysis of our findings is followed by a discussion and concluding remarks.

The rise of the collaborative economy and its implications for tourism

Dredge and Gyimóthy (2017) argue that contemporary tourism is increasingly influenced by the so-called collaborative economy, which according to the European Commission (2016, p. 3)

> refers to business models where activities are facilitated by collaborative platforms that create an open marketplace for the temporary usage of goods and services often provided by private individuals ... [It] involves three categories of actors: (service providers who share assets, resources, time and/or skills – these can be private individuals offering services on an occasional basis ('peers') or service providers acting in their professional capacity ('professional service providers'); (ii) users of these; and (iii) intermediaries that connect – via an online

platform – providers with users and that facilitate transactions between them ('collaborative platforms'). Collaborative economy transactions generally do not involve a change of ownership and can be carried out for profit or not-for-profit.

While additional terms are used to discuss this phenomenon, including 'sharing economy', 'gig economy', 'access economy' and 'on demand economy' (Dredge & Gyimóthy, 2017), to avoid confusion we talk exclusively about the 'collaborative economy'. The aforementioned European Commission report indicates that although this arguably remains a small part of the overall economy, sectors such as short-term accommodation rentals, passenger transport, household services, professional and technical services, and collaborative finance demonstrate substantial growth. Although it could be argued that transactions fitting the concept of 'sharing' such as the exchange of goods (bartering) have existed historically – and continue to thrive in some societies – (Belk, 2010), the fundamental force leading to the current acceleration of the collaborative economy has undoubtedly been the phenomenal diffusion of digital technologies. Effectively, anyone with a smart phone or a computer who puts her mind to it has the potential to become an entrepreneur offering goods and services to a global market. These can be provided for a fee but also include transactions where the entrepreneurs offers something in exchange for something else.

In this paper, we specifically focus on the collaborative economy's implications for tourism, a matter that has only recently grabbed the attention of scholars (Dredge & Gyimóthy, 2017; Forno & Garibaldi, 2015; Guttentag, 2015; Molz, 2013; Sigala, 2015; Tussyadiah & Pesonen, 2015). Tourism itself possesses several inherent characteristics, which drive many stakeholders within this sector to embrace the collaborative economy. Dredge and Gyimóthy (2015, p. 296) explain that 'redundancy is present in existing tourism systems in the form of dead capital, idling assets and latent expertise' meaning that 'local expertise and knowledge can be monetized by offering guided tours or dining experiences with local hosts'. In other words, 'technology-mediated platforms', enable the owners of assets such accommodation or private vehicles to respectively 'share' these for a fee.

Short-term accommodation rentals: the case of Airbnb

A key player in the collaborative economy is Airbnb, which Guttentag (2017, p. 97) labels a 'disruptive innovation' whose expansion in popularity signifies a transformation 'from a niche product into a mainstream one' (p. 98). Since it was established in 2008, Airbnb has grown rapidly. Today, approximately 4 million listings are found worldwide, a figure which astonishingly surpasses the 3.9 million rooms accounted for by the five largest hotel chains (Wood, 2017).

Individuals list their properties through Airbnb, aiming to utilize existing resources (i.e. their home) to expand their household income with limited investment. In this manner, the online platform encourages small-scale entrepreneurship (Gyimóthy, 2017). From the tourist's perspective, Airbnb opens up a diverse range of affordable accommodation alternatives. In Amsterdam, it provides cheaper stays than hotels (Kathan, Matzler, & Veider, 2016; see also Guttentag, 2015) Saving money through Airbnb encourages budget-minded travellers to overnight in upscale areas where hotels are expensive but also to stay longer or travel more frequently (Tussyadiah & Pesonen, 2015). Furthermore, these

visitors might engage in activities they normally would have avoided had they chosen more expensive accommodation. Finally, Guttentag (2015, 2016, 2017) regards Airbnb's appeal to its users as representative of MacCannell's (1999) point that travellers purposefully seek out local and authentic spaces. In fact, Airbnb itself argues that holidaying in real homes allows one to become more like a local.

Debates concerning short-term accommodation rental platforms

Despite the perceived benefits associated with Airbnb, several writers criticize this and platforms like it. Specifically, they suggest that Airbnb negatively affects the housing market, hotel industry, hospitality workers, neighbourhoods and revenues in various communities within, *inter alia*, the United States, Netherlands, Spain, Sweden and Finland (Fang, Ye, & Law, 2016; Gant, 2015; Interian, 2016; Lee, 2016; Lehr, 2015; Neeser, 2015; Zervas & Byers, 2016). Zervas and Byers, for example, believe it leads to declining occupancy rates in existing hotels (especially budget and mid-range establishments) and this, consequently, reduces these establishments' daily intake.

Others regard Airbnb as a gentrifying force in cities like Barcelona, New Orleans and San Francisco, arguing that it leads to rising rents and seriously reduces access to affordable housing (Fang et al., 2016; Gant, 2015; Johnson, 2015). Lee (2016) stresses that Los Angeles' affordable housing crisis is worsened because of short-term rentals. He believes that Airbnb creates a situation whereby millions of tourists compete with potential long-term renters for the identical housing stock. Lee states 'each apartment or home listed year-round on Airbnb is a home that has been removed from the residential housing market and added to the city's aggregate stock of hotel rooms' (p. 234). His point is that when property owners realize they can maximize their profits from Airbnb they are less likely to make their homes available for long-term leases. Meanwhile, Johnson (2015) attributes New Orleans' impressive growth in Airbnbs to (1) homeowners' tendency to use the platform to enhance their incomes and (2) importantly, the involvement of property companies in the short-term rental market. He maintains that the result is that 'the rapid spread of Airbnb rentals has altered the character of neighbourhoods' (p. 193).

Füller and Michel (2014) cautiously question the short-term holiday rental sector's role in neighbourhood gentrification. Referring specifically to Berlin's Kreuzberg district, they attribute rising housing costs to the increase in households wishing to own homes in the area where there is a fixed supply of residences and the fact that rental properties are being transformed into owner-occupied units, many of which are becoming second homes. Thus, they suggest that the growth in the area's holiday rentals is a consequence of the aforementioned forces.

Regardless as to whether the second home rental sector is a dominant reason of gentrification or merely a result of a far more complex set of broader forces, to further understand Airbnb's effects amid broader processes of touristification, it is worth revisiting the broader urban tourism literature (see Füller & Michel, 2014; Gotham, 2005; Hoffman, Fainstein, & Judd, 2003). In the following paragraphs, we briefly revisit issues and debates on this topic, specifically focusing on the hypothesized shift from neoliberal top-down-driven, major-scale and standardized downtown tourism projects to the appearance of new forms of urban tourism occurring in regular residential areas (Ioannides & Petridou, 2016;

Maitland, 2007). We ask whether or not activities such as Airbnb spread to these new zones of urban tourism and, if so, explore the implications for these neighbourhoods?

From tourism bubble to neo-bohemia

Much has been written over the last two decades concerning tourism's growth as a key redevelopment strategy for cities in the throes of economic restructuring (Fainstein, Hoffman, & Judd, 2003). Referring specifically to the United States, Hackworth (2007) argues that since the 1970s the so-called 'neoliberal spatial fix' (p. 79) has focused heavily on the revival of downtown areas through major real-estate undertakings motivated by large incentive packages. Thus, traditional downtowns and surrounding districts once associated with production (e.g. old factories, and waterfront warehouse areas) are transformed into spaces of consumption represented through shopping centres, luxury housing, and visitor attractions (Ioannides & Petridou, 2016). These redevelopments, variations of which appear in cities throughout the world are dubbed 'tourist bubbles' or 'enclaves' (Edensor, 1998; Judd, 2003) presenting the characteristics of highly regulated, predictable and sterile spaces, dominated by symbols of multinational capital (e.g. chain establishments) and displaying little – if any – connection to the rest of the city (Edensor, 1998; Fainstein et al., 2003; Füller & Michel, 2014). Although, to be sure, such places are not necessarily physically walled-off from other parts of the city, in the manner of a gated community or an all-inclusive tourism enclave, we can perceive of them as tourist bubbles, precisely because of their obvious disconnect to the rest of the city. The high level of standardization and regulation marking these spaces, often reflecting well-recognized images of global capital, signifies that they bear minimal association to the communities within which they are found (Ioannides & Petridou, 2016).

Yet, clearly many people choose to escape these tourist bubbles. Judd (2003) notes that they do so, precisely because they seek someplace more adventurous, places he describes as 'edgy' (p. 30), where encounters and experiences are not scripted as they can be within the bubble. These are once off-the-beaten-track parts of the city where locals go about their own regular lives. It is precisely these types of 'mundane activities' (Maitland, 2007, p. 176) that entice the visitors rather than any deliberate tourism-oriented attraction. Indeed, within these sought-after spaces the actions both visitors and locals engage in cannot be readily distinguished (Füller & Michel, 2014; Judd, 2003) since both groups belong to the 'cosmopolitan consuming class' (Fainstein et al., 2003, p. 243; see also Maitland, 2007).

Lloyd (2006) traces Chicago's Wicker Park's gradual transformation from a transitional area offering a mix of warehouses and low-income minority housing into an alternative neo-bohemian district, a few metro stops to the northwest of the central business district. Here, one finds entertainment venues and non-chain eating establishments, cafes and absinthe bars, which lure the sophisticated residents and tourists who are escaping the stereotypical visitor bubbles. Ioannides and Petridou (2016, p. 29) attribute the attraction of Wicker Park and similar neo-bohemias to their transmission of 'a feeling of far greater originality ... precisely because they retain much of their original (albeit refurbished) urban fabric and, importantly, because the visitor mingles with the locals representing various ages, socioeconomic levels, and ethnicities'.

Airbnb as a means to expanding the bubble?

If neo-bohemias entice visitors wishing to avoid the city-centre tourist bubbles, it stands to reason that they would also be places where there is an emergence of short-term rentals, including Airbnb properties, especially when there is a distinct shortage or absence of formal (commercial) tourism accommodation (i.e. hotels). Precisely, because the Airbnb phenomenon is one that responds rapidly to growing demand, it can be an important force of further touristification in such neighbourhoods. Indeed, one could argue that Airbnb is a multinational force – albeit one camouflaged by the absence of physical signs as to its existence – which reinforces the expansion of central city tourist bubbles into surrounding areas precisely because it eventually leads to commercialized areas with few long-term residents.

The Airbnb company itself (referred to in Arias Sans & Quaglieri Domìnguez, 2016) boasts that in Barcelona, Airbnb properties are likelier to locate outside neighbourhoods with hotels. This allows visitors to experience more than the stereotypical tourist sights on offer. Our cursory examination of the website Inside Airbnb (2017) reveals noticeable hubs of Airbnb activity in Chicago's Wicker Park, Melbourne's Fitzroy district, London's Islington and Barcelona's Vila de Gràcia all of which match the neo-bohemian profile. Similarly, Füller and Michel (2014) have pointed out that one of Berlin's 'new urban tourism' (p. 1309) areas, Kreuzberg, has seen a noticeable increase in short-term holiday flats stressing that such accommodations, rather than formal vacation rentals (e.g. hotels and hostels) give the visitor the sense 'of being seamlessly embedded in a local urban neighbourhood' (p. 1311).

These examples do not reflect, of course, that Airbnb spreads uniformly throughout the city. Rather, Airbnb activity is observed only in particular areas, which are either close to existing hubs of tourism activity or within districts with considerable visitor-related activity already (e.g. areas that have a reputation for night life). Referring specifically to Barcelona, Arias Sans and Quaglieri Domìnguez (2016) indicate a notable Airbnb cluster in and around the city centre itself. By contrast, several neighbourhoods throughout the city have little or no activity thus disputing Airbnb's assertions. Indeed, the dominant hub is within Ciutat Vella (the old city), coinciding precisely with the highest concentration of hotels. In other words, Airbnb operators cluster around existing holiday accommodations and *de facto* within or very close to well-established visitor attraction zones. A secondary cluster is found in the el Raval neighbourhood but Arias Sans and Quaglieri Domìnguez attribute this to the high proximity of the popular touristified zone of Las Ramblas. Interestingly, the Airbnb property descriptions for el Raval praise the city's main 'hotpots' (Arias Sans & Quaglieri Domìnguez, 2016, p. 217) and provide very little publicity about the immediate neighbourhood.

Only in La Vila de Gràcia with its secondary cluster of Airbnb activity do most property descriptions highlight the neighbourhood's charms. Explaining this as the exception rather than the norm, Arias Sans and Quaglieri Domìnguez (2016) argue that this well-established neo-bohemia is already a *bona fide* touristified zone and a popular side-destination for many visitors to Barcelona. Overall, their findings debunk the Airbnb corporation's argument that most of their properties are located outside touristic zones allowing the users to experience life in regular neighbourhoods. Indeed, the correlation between the presence of hotels and the presence of Airbnb properties in Barcelona is high. They

also dispute the assertion that users of Airbnb activities get to live like locals since the areas where these properties are located attract an international population including large groups of expatriates.

The preceding paragraphs illustrate our limited understanding of Airbnb's geographic spread throughout a community. Obviously, some parts of a city are noticeable Airbnb clusters as opposed to others and, certainly, historic centres are magnets for such activity. Neo-bohemian neighbourhoods seem to emerge as Airbnb hotzones though these properties are not uniformly spread throughout these areas. Questions to be investigated further include: (1) what effect if any does the distance from existing tourist bubbles have on Airbnb activity (i.e. is there a distance-decay effect); (2) to what extent does proximity to tourist infrastructure such as hotels and restaurants influence whether or not there is Airbnb activity?

In the next section, we investigate these issues through an examination of Airbnb activity in the Dutch city of Utrecht. We specifically focus on Lombok, a neighbourhood fitting the characteristics of an emerging neo-bohemia. Our aim is to investigate how Airbnb activity plays out in the city overall and how it influences Lombok, as well as to unravel the forces that are influencing the emergent patterns.

Study area selection and method

Utrecht

Our case study is Utrecht and, specifically, the Lombok neighbourhood located to the west of the city centre and separated from it by railway tracks. We purposefully selected this mid-size city rather than a larger metropolitan region (e.g. Barcelona and San Francisco), which often constitute the focus of investigations regarding Airbnb activity. Also, we avoided heavily touristified historic tourist towns such as Oxford, Bath or Bruges, which are completely overrun by visitors by choosing a city where tourism growth, though noticeable in recent years, is still at a relatively early stage despite the attractions on offer.

Utrecht, a major university town has a historic centre featuring several attractions including a medieval canal, churches and the university's ceremonial buildings (Lonely Planet, n.d.). There are several popular museums, a lively bar and restaurant scene, a 100,000 m^2 trade fair facility and the busiest transportation hub in the Netherlands (the central station). The city boasts a UNESCO world heritage site (the Rietveld Schröder residence) just to the east of the centre. Each year, approximately 4 million international and Dutch visitors are drawn to the city (the vast majority are day-visitors, presumably because of Utrecht's proximity to Amsterdam and Rotterdam), while 540,000 registered overnight visitors were recorded in 2015. Most overnight visitors are business travellers (approximately 300,000) (Toerisme Utrecht, 2015). Meanwhile, the stock of available hotel rooms is surprisingly low considering the level of visitation (only 1749 in 2014) and struggles to cope with peak-pressure during events, conferences and trade fairs (Horwath, 2014). In 2014, the average annual occupancy rate was 72% while the mean room price was €93, rating Utrecht second only after Amsterdam in the ranking of the accommodation sector in major Dutch cities (Horwath, 2016). By contrast, the informal (peer-to-peer) accommodation sector is sizeable and absorbs the peak pressure for accommodation in the city during major events (e.g. the Tour de France' Grand Depart in July 2015). Airbnb is included

within this informal peer-to-peer accommodation sector, which also accounts for other similar platforms and couch-surfing.

Within Utrecht itself lies Lombok, a densely populated, former working-class neighbourhood built in the late nineteen and early twentieth century to accommodate factory workers. The area was set for renewal in the 1970s but because of an influx of squatters and many migrants, especially from Morocco and Turkey, it retained its working class residential feel. Much of the housing stock was seriously dilapidated, with several units lacking proper sanitation, heating, and hot water. From the 1990s onwards, Lombok witnessed waves of gentrification, precisely due to its central location, aesthetic and architectural features. The rise in the neighbourhood's popularity, especially among highly educated households had much to do with its cosmopolitan vibe (Permentier, Van Ham, & Bolt, 2008).

Lombok displays characteristics demonstrating its slow but gradual transformation into a neo-bohemia, certainly one catering to new urban tourism (Füller & Michel, 2014). It entices both residents from other parts of the city and out-of-town visitors. Visit Utrecht explains that the neighbourhood's proximity to the Central Station and the city centre adds to the area's attraction. While its main shopping street, Kanaalstraat, retains a multi-ethnic feel with several shops and other businesses catering to ethnic minorities and students, there has been a recent shift whereby a growing number of establishments serves an upscale cosmopolitan clientele. At the neighbourhood's western edge, closest to the city centre, several trendy restaurants have opened in buildings such as refurbished factories. Examples include fashionable street-food cafes and world cuisine and fusion restaurants. Also, there are cultural initiatives such as a museum café (exhibiting the local history) and an old sawmill celebrating the area's industrial heritage. No major hotels are present in the neighbourhood but there is a single B&B establishment. Two chain-hotels lie just beyond Lombok's border with the city centre. Conversely, the offer of peer-to-peer holiday accommodation, though limited, is growing.

Data selection

Because Airbnb data are proprietary, we utilized information purchased through the intermediary service, AirDNA, which obtains data on Airbnb presence and usage through scraping the Airbnb website daily. Using algorithms, AirDNA estimates the following: whether or not Airbnb accommodations are rented out; for how long; at what price and; whether the accommodations are blocked off by the owner? AirDNA's advantage is that the daily scraping leads to an estimate of Airbnb activity, while other services such as Inside Airbnb gather data infrequently, only revealing numbers of accommodations.

The data-set used contained all active properties on Airbnb since the data scraping began (20 August 2015). It contains a wealth of information about: the host; the property itself; the listing; and activity. We referred to two data-sets, one with information collected during a full year since the first day of scraping (until 20 August 2016) (AirDNA, 2016) and one ending on 22 October 2017 (AirDNA, 2017). Using more than one data-set enables a comparison for Utrecht of the evolution of Airbnb in the period August 2015 to October 2017.

Airbnb accommodations identified as part of the 'formal' visitor accommodation sector were filtered out. Thus, we subtracted hotels and other registered visitor accommodation

Table 1. Utrecht's Airbnb profile focusing on Lombok and the Historic city centre (August 2016 and October 2017).

Neighbourhood characteristics (2016)	Utrecht (entire city)		Historic city centre		Lombok	
Surface area	99.21 km^2		1.42 km^2		1.49 km^2	
Inhabitants	338,967		14,370		19,085	
Number of households	174,765		9950		11,280	
Percentage non-western migrants	22.0%		8.5%		21.9%	
Airbnb characteristics	August 2016	October 2017	August 2016	October 2017	August 2016	October 2017
Number of active Airbnbs	1202	2156	221	415	152	224
Active Airbnbs per 100 households	0.69	1.23	2.22	4.17	1.35	1.96
Number and percentage of very active Airbnbs (>60 days rented out)	199 (16.6%)	832 (38.6%)	40 (18.2%)	165 (39.8%)	22 (14.5%)	88 (39.3%)
Number and percentage of Professional Airbnbs (Private home AND owned by host offering multiple listings AND available for more than 60 days)	94 (7.8%)	214 (9.9%)	26 (11.2%)	53 (12.8%)	14 (9.2%)	27 (12.1%)
Average realized price per night	€98	€97	€125	€115	€90	€97
Average amount of bookings (nights) per active Airbnb	7.4 (34.2)	16.4 (66.7)	8.4 (34.2)	20.6 (74.0)	6.1 (30.6)	16.6 (69.4)
Average yearly income per active Airbnb	€3100	€6300	€4000	€8000	€2500	€6400

Sources: Central Bureau for Statistics (2017); AirDNA (2016, 2017).

that list their rooms on the Airbnb platform, instead focusing on the 'informal' Airbnb sector, meaning private homes or rooms within private homes listed on the online platform. 'Active' properties are those rented out at least once in the 12 months prior to the data collection and 'very active Airbnbs' the ones rented out for more than 60 days per year. 'Professional Airbnbs' refers to entire homes/apartments, controlled by owners with multiple listings (two or more), available for over 60 days per year (see Table 1).

For reliability, we cross-referenced our data-set to a sample of 30 Airbnb accommodations that shared information with us. This revealed that the Utrecht data-set was accurate on the listing and accommodation information (all accommodations were present, and all information was scraped correctly). However, the Airbnb locations varied slightly compared to the precise addresses, as Airbnb distorts these to safeguard user privacy. Also, the AirDNA data-set was less accurate on accommodation activity variables since, on average, there was an overestimation on booking numbers and number of nights and yearly income. Airbnb accommodations with high cancelation rates or those frequently blocked out for short periods proved less reliable, probably due to the inability of the scraping algorithm to distinguish between actual bookings and cancellations and/or (short) blocked-off periods. This means that the actual average amount of bookings, nights and incomes should be interpreted cautiously since, in reality, they are likely to be between 8% and 15% lower. The data were mapped and analysed using ArcGIS 10.4.

Additionally, we applied a multivariate regression analysis to uncover the factors influencing the distribution of Airbnb over the city. The Dutch Central Bureau for Statistics (CBS, 2017) offers a rich data-set of statistics on sub-neighbourhood level. These statistics give an insight in, among other characteristics, demographic composition, socio-economic status and vicinity of various services for these sub-neighbourhoods. In total, Utrecht consists of 111 neighbourhoods. Lombok is subdivided into 5 sub-neighbourhoods, while the historic inner city is subdivided in 8 sub-neighbourhoods. After testing for multicollinearity and checking the complete correlation matrix for all independent variables, we chose to include: 'the percentage of children between 0 and 15 years old'; 'the

Table 2. A multivariate linear regression analysis on the relative presence of Airbnb per neighbourhood.

Variables	Dependent variable: relative presence of Airbnbs (Airbnbs per 100 households) B (Beta)
Presence of families with children (% of children between 0 and 15 years old among neighbourhood population)	−0.058 (−0.340)**
Presence of non-Western minorities (% of neighbourhood inhabitants with a first or second generation non-Western background)	0.007 (0.079)
Presence of low-income households (% of households belonging to the 40% lowest household incomes in the Netherlands)	−0.024 (−0.315)**
Average housing value (average neighbourhood housing value estimated by tax agency in 1.000€)	7822E-5 (0.005)
Presence of services (average number of restaurants located within 1 km from neighbourhood inhabitants)	0,013 (0,559)***
Distance to city centre (average distance to the Dom church for neighbourhood inhabitants in metres)	0.000 (−0.268)**
*P < 0.10; **P < 0.05; ***P < 0.01	R^2 0.662 Intercept 3.466 n 86

Sources: Central Bureau for Statistics (2017); AirDNA (2017).

percentage of low-income households'; 'the percentage of ethnic minorities'; and 'average property value'. We also included important socio-economic and demographic neighbourhood characteristics as well as the 'average number of restaurants within 1 km' to show the vicinity of services important for tourists. We calculated the average distance to the Dom church for all neighbourhoods to factor in a centrality measure and included this in the multivariate regression analysis as a last variable. This analysis was performed through SPSS and the results shown in Table 2.

Data analysis

Utrecht's Airbnb sector reveals several characteristics summarized in Table 1 and Figure 1, respectively. In addition to general data and Airbnb-specific information relating to the entire city, Table 1 summarizes information concerning Utrecht's historic centre and Lombok. Overall, the city has 174,765 households, 9950 of which reside in the centre and a further 11,280 in Lombok. Both Lombok and the city as a whole have sizeable percentages of non-western migrants (around 22%).

Between August 2016 and October 2017, the number of active Airbnbs in the entire city expanded by nearly 80% from 1202 properties to 2156. The centre witnessed the largest increase (88%) while Lombok experienced a more modest growth (47%). Of the 1202 active properties in the city in August 2016, most were entire homes/apartments (860) while a further 329 were private rooms and only 13 shared rooms. The number of active Airbnbs in the city per 100 households was 0.69. This figure was lower than that in the city centre (2.22) but also Lombok (1.35). Significantly, by October 2017 the numbers of Airbnb units per 100 households had increased to 4.17 for the city centre, 1.96 for Lombok, and 1.23 for the city as a whole.

Figure 1 reveals an Airbnb cluster in Utrecht's historic centre, spilling over into some of the nearby pre-1930 residential neighbourhoods. The latter, are those experiencing gentrification, including Lombok (Permentier et al., 2008). Meanwhile, the traditionally wealthy eastern neighbourhoods register few Airbnbs. The post-1960 neighbourhoods (e.g. Kanaleneiland or Overvecht), located beyond the centre – albeit connected to this via public
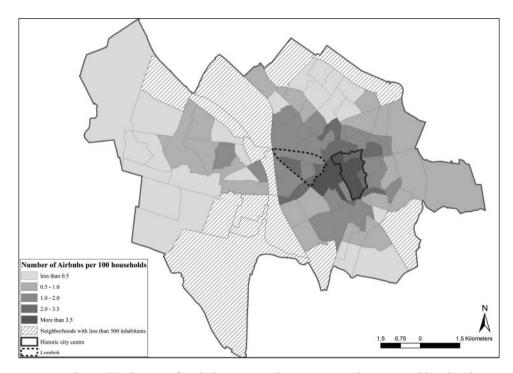
Figure 1. Relative distribution of Airbnb accommodations in Utrecht per neighbourhood active between October 2016 and October 2017. Source: AirDNA (2017); Central Bureau for Statistics (2017).

transportation – with high percentages of social housing and a noticeable population of ethnic minorities, have few such properties. This is also the case in family-oriented suburban neighbourhoods like Lunetten and within the city's recently expanded area where there is a high proportion of private homes and a low population of ethnic minorities (e.g. Leidse Rijn).

In the period ending on 22 October 2017, 140,000 overnights were recorded in the city's 2156 active Airbnbs. Indeed, 110,000 overnights were in the 832 properties described as 'very active'. These figures show an impressive increase from the period ending in August 2016 when 41,154 overnights were recorded in 1202 active properties and the total number of very active Airbnbs for the entire city was only 199. Very active Airbnbs are spread throughout the city. Both within the city centre and in Lombok they constitute around 39% of the entire stock. Between August 2016 and October 2017, there was an increase in the so-called 'professional' Airbnbs for the city as a whole from 7.8% to 9.9% of the total. This means that about one tenth of the capacity represents properties owned by hosts with multiple listings who make these available for more than 2 months in a calendar year. Both in the centre and in Lombok the respective proportion of professional listings for the period ending 22 October 2017 was higher than the city-wide average.

Considering that only a few years ago there were almost no places to stay overnight in Lombok the appearance of 224 accommodation units constitutes a considerable transformation (Figure 2). Just like the city centre, Lombok has seen an increase in the booking
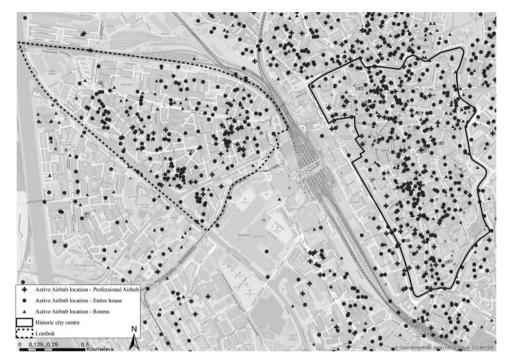
Figure 2. Distribution of Airbnb accommodation in central Utrecht active between October 2016 and October 2017. Source: AirDNA (2017); OpenStreetMap contributors (2017).

numbers and nights per active Airbnb. The average number of nights per active Airbnb has doubled in the period August 2016 to October 2017, now standing at 69.4.

To ascertain the factors influencing the location of Airbnb in Utrecht and to see the relationship between this activity and other variables we performed a cross-neighbourhood study. We examined 86 out of the city's 111 neighbourhoods by conducting a multivariate regression to detect neighbourhood characteristics influencing Airbnb presence. Neighbourhoods with missing data (probably because they are non-residential or have small populations) were omitted, while we excluded one of the central city neighbourhoods as a statistical outlier; although this area has very few residents, AirDNA indicates the presence of a high number of Airbnbs due to location distortion.

There is a distance decay effect of Airbnb activity as one moves outward from the city centre (defined as the Dom church) (Table 2). Unsurprisingly, the highest concentration is in neighbourhoods within and surrounding the city centre where the central station and most of the visitor attractions and tourist infrastructure are located. The statistical analysis demonstrates that the number of Airbnbs is highest in neighbourhoods with restaurants within 1 km. Indeed, the presence of restaurants within close proximity is the strongest explanatory variable for Airbnb presence. In Lombok itself, the fact that Airbnb is clustered mostly in the neighbourhood's western part closest to the centre reinforces the influence that services such as eateries have on such activity. There is also a negative correlation between lower-income neighbourhoods and Airbnb presence. Interestingly, neighbourhoods with high proportions of children under 15 years of age have few such properties. To summarize, the multivariate analysis indicates that Airbnbs are likelier to be present in

neighbourhoods offering a number of touristic services (such as restaurants), which are near the city centre and where there are few families with children and also few low-income households. The presence of ethnic minorities and also property values do have an effect on Airbnb presence. Overall, these results are not in the least surprising, considering that in areas that already draw many visitors by virtue of their attractions and services on offer enterprising owners of Airbnb properties can command high prices but also occupancy rates. Their opportunity for profit-making is far greater than it would be in a leafy suburban residential neighbourhood.

Discussion and conclusions

Although Utrecht is a historic mid-sized city with several attractions and despite drawing a considerable number of visitors (mostly on day trips) it has not yet emerged as an over-touristified hotspot compared to similar European cities (e.g. Bruges and Oxford). This is partly true because Utrecht's economy in quite diversified (it has a major university and serves as a major railway hub in the Netherlands). This situation made it ideal for investigating how Airbnb influences communities that are not yet major tourism magnets but are rapidly emerging as the 'must see' hidden gems of global tourism.

Overall, Airbnb activity remains at its early stages with few active properties per 100 households compared to far more popular venues (e.g. Venice or Reykjavik). Nevertheless, despite these modest figures, the number of Airbnb units is increasing rapidly and in 2016, this option represented roughly 15% of total overnight stays in the city. Indeed, given the city's shortage of hotel accommodation, an alderman of Utrecht was quoted in a national newspaper article (Franck, 2016) saying 'Airbnb complements the offer of touristic accommodation in Utrecht'.

Our study reveals that just as in more heavily touristified venues, Utrecht's Airbnb activity is growing, especially within the city centre and immediate surroundings. This suggests that the transformation of regular housing into Airbnb rentals strongly relates to nearby tourism attractions but also supporting services including restaurants and hotels. This observation, in turn, reinforces findings from Barcelona demonstrating that rather than spreading evenly throughout the city, Airbnbs cluster in neighbourhoods in and around the city's core, within close proximity to hotels (Arias Sans & Quaglieri Domìnguez, 2016).

There is an obvious distance-decay effect from the very centre of the city (marked by the Dom Tower) in the number of active Airbnb rentals. As the city itself witnesses increasing Airbnb activity, gradually this activity spreads to surrounding areas all of which are within easy access to the central station, the main visitor attractions, and facilities including restaurants.

Focusing specifically on Lombok, which displays neo-bohemian traits – albeit at an early stage – Airbnb is not evenly spread throughout the neighbourhood but rather occurs in the part closest to the city centre, which also happens to be the area where most of the touristification is occurring. Most Airbnbs are concentrated within the neighbourhood's western edge, an area where the higher-end restaurants and upscale cafes have been appearing. Further into its core, Lombok retains its ethnic character and there is a noticeable decrease in Airbnb activity. This suggests that Airbnb activity is a process following after the initial intensification of tourism activities in particular areas and does not occur haphazardly throughout a city. In other words, individuals owning one or more

property are likelier to list these through the Airbnb platform when located in or close to established visitor areas.

We could argue that geography matters since in the case of Lombok, an emerging neo-bohemia, the chances for local resources (i.e. homes) to become monetized and attractive as tourism business investments (i.e. Airbnb or other short-term rentals) depend highly on physical proximity to mainstream tourist attractions but also, importantly, formal tourism infrastructure (i.e. hotels, restaurants, bars, shops). This is especially the case for 'professionally driven' properties (ones controlled by multi-property owners who lease them out over two months per year). Thus, proximity to the existing city centre tourist bubble appears to be a strong explanatory variable in determining Airbnb density in Utrecht and as activities from this bubble spill over into surrounding areas, including Lombok, Airbnb follows. Also, as opposed to Guttentag (2015, 2016, 2017) who describes Airbnb as an opportunity for visitors to seek out and experience a variety of local and authentic spaces (MacCannell, 1999), the appeal as to where to stay seems to be more hedonic and utilitarian in nature. This likely explains why in Lombok the demand for Airbnb stays and the average income generated from such units is higher than the city-wide average with the exception of listings located within the existing city-centre bubble.

Whether Airbnb causes any tangible or intangible negative effects on, for example, the housing market, the hotel industry, or the neighbourhood's social fabric is far from certain at this moment. Digging into this issue in future studies, would be most relevant given that, for instance, recent gentrification processes in Utrecht have already led to expanding conflict between the well-educated and high-income newcomers into Lombok and the long-term residents and shopkeepers (Huisman, 2017). Indeed, the area is already quite fragile and the proliferation of Airbnb activity as the trends suggest could signify yet another layer of gentrification processes that might eventually prove harmful to Lombok's social fabric. As demonstrated by Lee (2016), the likelihood is high that owners transform property into short-term rental units as soon as they have proof that this is a more profitable avenue than making their homes available to the long-term housing market. In that sense, geographical location, that can either be thought of as an advantage or a disadvantage, may in the end invite for more tensions and, subsequently, lead to further scholarly criticism being aimed at Airbnb (Fang et al., 2016; Gant, 2015; Interian, 2016; Lee, 2016; Lehr, 2015; Neeser, 2015; Zervas & Byers, 2016).

Undoubtedly, Lombok is experiencing a gradual transformation into a neo-bohemian district increasingly catering to new urban tourism. This transformation, however, is not happening uniformly within the neighbourhood nor is it always overtly visible. To be sure, there are transformations of second-hand shops into designer boutiques catering to an upscale clientele, refurbished factory buildings metamorphosing into restaurants aimed at a cosmopolitan class (Ioannides & Petridou, 2016), or the introduction of global brands such as the hotel-chain Ibis, located close by in downtown Utrecht. Nevertheless, transforming residential units into Airbnb within Lombok is both a clandestine and camouflaged process whereby a multinational presence has began infiltrating neo-bohemia. Thus, although we could consider Lombok as a space without obvious marks of the city centre bubble - it is less regulated and predictable and bears few, if any, signs of multinational capital (Edensor, 1998; Fainstein et al., 2003; Fuller & Michel, 2014) - this neighbourhood shows signs of its emergence as a place of cosmopolitan and multinational production and consumption. A major force behind this shift is Airbnb as a global brand.

This occurs in a neo-bohemian context that outwardly projects the illusion of 'edginess' where non-scripted experiences associated with predictable bubbles are shunned (Ioannides & Petridou, 2016; Judd, 2003; Lloyd, 2006; Maitland, 2007). It happens in an area where just recently, a former simple kebab-store owned by an immigrant was upgraded into a classy Neapolitan pizzeria despite the fact that the premises kept their 'edgy' décor so as not to stand out too much from the surroundings (DUIC, 2017).

Ultimately, these processes suggest that 'mundane' neighbourhoods like Lombok, which are transforming into neo-bohemian spaces also project signs of Airbnb intensification. This phenomenon arises as individual homeowners but also real-estate barons increasingly recognize the profit-making capabilities of their properties. Further Airbnb activity and that of other short-term rental platforms in the neighbourhood is likely to lead to even further visits and cause intensification of tourist-related activities in the form of additional restaurants, nightclubs, upscale cafes and related venues. The gradual touristification of parts of Lombok, which is likely to eventually be accompanied by an exodus of some long-term residents as more properties transform into Airbnbs could signify the expansion of the nearby centre-city tourism bubble. To be sure, we cannot assume from this one case study that this is a phenomenon that is repeated in every city but there is enough evidence to suggest that in places like Utrecht where there is a nascent touristification process, in the absence of a clearly targeted policy related to short-term rentals, certain neighbourhoods run the risk of being transformed into bubbles in their own right. A final point to ponder over is whether such a developmental path will enable a neighbourhood like Lombok to achieve a healthy balance whereby experience-seeking visitors coexist with multiple groups of locals, or whether never-stopping gentrification processes will eventually kill the community's spirit.

Disclosure statement

Notes on contributors

Dimitri Ioannides is the chaired professor of human geography at Mid-Sweden University, where he also serves as the director of the European Tourism Research Institute. Previously, he worked for several years at Missouri State University. His principle research interests relate to sustainable development and the economic geography of tourism. He is the series co-editor of the New Directions in Tourism Analysis series (Routledge).

Michael Röslmaier has been working within the tourism and hospitality industry for most of his life. He received the MS degree in human geography from the Department of Tourism Studies and geography at Mid-Sweden University and was recently admitted into the PhD program in tourism studies in the same department.

Egbert van der Zee is working as an assistant professor at Utrecht University within the Department of Human Geography and Planning. His main research interests are the changing impact of tourism on cities, combining qualitative methodologies and spatial analysis of (big) data using GIS and current issues such as the sharing economy and the influence of web 2.0 on tourism.

ORCID

Dimitri Ioannides http://orcid.org/0000-0002-3549-750X

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