Urban Mobility of Tourism home guests: Analysis of the rental homes location and travel patterns

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ABSTRACT

The implementation of the collaborative economy or also called "platform economy" in the tourist sector has led to a relocation of traditional accommodation centres (hotels and resorts), which were previously concentrated in specific areas of the city, thus facilitating the organization of public space and the provision of urban transport. The rental of tourist homes in countries whose national economy is highly dependent on the tourism sector (such as Spain) places a "floating tourist" in the city, who travels through it generating impacts on the local activity centers (restaurants, shops, museums, etc.) and on the public space and mobility. These new tourists will define new frequent street itineraries around the city, access public transport in a more relocated way and probably visit different activity centers than if they were staying in a traditional hotel.

This new scenario poses a series of challenges to our knowledge of the effects on both the tourism sector itself and on the urban environment that serves as physical, social, economic and cultural support. Where do these tourists stay? What areas, monuments, public amenities or public spaces do they visit? What kind of shops do they frequent? And how do they move around our cities?

The location of tourism homes within city districts is particularly relevant to study this mobility and, until now, few studies in the literature use this approach to assess the behaviour of this type of tourist and his impact on local economies. This study is part of the first stage of the project MOVI-GUEST (PID2021-124428OB-100), financed by the

Spanish Ministry of Science and Innovation, whose main objective is to analyze the behavior of travelers and, specifically, their mobility patterns: the location of tourism homes, modes of urban transport used during the stay and itineraries selected, main amenities and public spaces visited and so on. In this paper we advance the general results offered by FEVITUR (Spanish Federation of Holiday Rental Association) for the main important touristic cities in Spain and introduce the case study of Malaga, Madrid and Alicante, where the detailed study will be carried out. The results of this research can help policy makers to better understand the mobility flows of tourist home guests and its impact on the transport system and public space.

1. INTRODUCTION

Nowadays, holiday homes represent 32% of the regulated tourist accommodation capacity in Spain. In the Autonomous Communities with the longest tourist tradition, especially in coastal destinations, holiday homes represent more than 50% of the regulated accommodation capacity. The housing destined for tourist use provides a capillarity and territorial implantation that no other type of accommodation provides, boosting the economy both of the main tourist destinations and of the municipalities with less tourist tradition. With 285,868 (National Institute of Statistics, 2022a) dwellings for tourist use in Spain, these accommodations represent only 1.28% (National Institute of Statistics, 2022b) of the total housing stock. The average stay in holiday homes is higher than in hotels. Thus, users who stay exclusively in a holiday home book an average of 5,2 nights compared to the 3,6 nights booked by users who stay in a hotel. (Muñoz et al., 2017). Holiday homes reduce tourist pressure on the main tourist resources, distributing tourist flows throughout the territory. Moreover, a long average stay also offsets the carbon footprint. The average length of stay is inversely proportional to both tourism pressure and carbon footprint. Therefore, for the same number of overnight stays, the longer the average stay, the lower the stress on the main tourist resources, the better the distribution of tourist flows throughout the territory and the better the carbon footprint is offset (EXCELTUR, 2023). One of the characteristics of tourist housing is its capillarity in the cities. This means, at the city level, advantages in terms of mobility of the tourists who stay there, encouraging de-gentrification, as opposed to other types of accommodations, which are mainly concentrated in the center of the cities, such as hotels. This characteristic, practically unique to this type of accommodation, promotes different mobility patterns of its guests. Indeed, the main challenges of this research work are to identify these patterns.

Some aspects of this new phenomenon have been analyzed to date, such as the competitive advantages offered by this new type of accommodation over pre-existing hotels for certain tourist profiles (Guttentag et al., 2018), its impact on hotel occupation (Zervas et al., 2017), sustainability (Bendickson et al., 2017) and on the price of housing (Sheppard and Udell, 2018). However, there are still unexplored lines of research around these new tourist models that examine the nature of the relationships between their mobility and the

territory. The paper is divided into the following sections: Section 1 contains the introduction; Section 2 presents the state of the art on these new tourist models; Section 3 describes the objective of the research project. Section 4 describes the materials and methods to analyze the behavior of travelers staying in holiday homes in urban destinations; Section 5 provides preliminary information from the Spanish Case Study and the selected cities. Finally, Section 6 presents the main conclusions and future steps in the research.

2. STATE OF THE ART ON TOURISM HOUSING AND ITS IMPACT ON MOBILITY AND SOCIOECONOMICS

Literature on tourism housing can be divided into three thematic blocks: location of new accommodation, identification of the activity centres and public amenities visited and transport modes used, and finally urban policies including the presence of temporary accommodation used.

In relation to the first issue, several studies carried out in the Spanish context show how the supply of vacation homes is more evenly distributed in Spanish cities than the supply of traditional hotels. Clear examples have been observed in the city of Barcelona (Gutiérrez et al., 2017) and the Canary Islands (Eugenio et al., 2019). Regarding mass tourism generated by the sudden arrival of the sharing economy to the cities of Madrid and Barcelona, it is worth mentioning the works "Atlas de la turistificación. Datos para la aproximación del impacto turístico en Madrid" (Fundación Montemadrid, 2017) and "Morfologías del Turismo" (Barcelona City Council, 2017). These works focus mainly on the analysis of the offer of tourist homes but show clearly a research gap in the demand analysis.

In relation to the second issue, the traditional method for identifying the activity centres and amenities visited and the modes of transport used between them is to consult the official statistics and studies based on observations, surveys and questionnaires. In the first case (official statistics), we refer to statistics obtained from visits to tourist attraction centres such as museums, monuments or tourist information offices. However, these data do not reflect visits to many other elements in the city, both public (squares, green spaces, beaches, etc.) and private (restaurants, shopping areas, etc.). In addition, these statistics are rarely presented in a disaggregated way, indicating the trip origin of the tourist or the type of accommodation used. In the second case, the observations, surveys and questionnaires may be useful if they are specifically aimed at the users of these tourist homes. Unfortunately, until 2023 (with the publication of the FEVITUR survey), there are practically no information or studies on mobility patterns of this tourist profile. These conventional techniques can be completed or even replaced by the use of new technologies based on GPS and GIS systems, which offer a significant advance in the analysis of tourist travel patterns. One reference for the use of these technologies for monitoring human behaviour is the Senseable City Lab of the Massachusetts Institute of Technology, which

has used the anonymous data obtained through an Activity-Oriented Mobile Phone Application AOMA (free to download in cities such as Boston or San Francisco) to carry out various studies on the effects of climatology on urban pedestrian paths (Vanky et al., 2017) and the habitability of spaces (Santucci et al., 2018). In our research, one of the major disadvantages of this methodology is the potential refusal of tourist to download the tracking app in order to protect their anonymity.

In relation to the last issues, urban policies related to tourist accommodations, most of the studies consulted in this field focus on analyzing the regulation of tourist housing related to the impact on housing prices and long-term rents: Gurran and Phibbs (2017), for the case of Sydney, Quattrone et al. (2016) in London, and Ortuño and Jiménez (2019) in the Spanish case, noting a gap has been identified in terms of mobility and urban space management policies based on objective data on the behavior of this new tourist in the city.

Although the negative picture of COVID-19, the tourism housing sector has characteristics that can determine its greatest resilience (compares to hotels) to an uncertain evolution of the pandemic. Its status as a "liquid supply" allows it to enter and exit the tourist market quickly, so it can be adapted well to the swings of demand. It also provides security and social distancing conditions that can be especially attractive to family units and groups of friends. Since its beginning till July 2020, according to the web platforms of Airbnb and Vrbo for various countries including Spain (AirDNA & STR, 2020), supply counts have remained relatively steady as hosts were opting to keep their listings active and welcome bookings not only for the year 2020 but for 2021, 2022 and 2023.

3. HYPOTHESIS, OBJECTIVES AND METHODOLOGY

The presence of a new type of off-site tourist accommodation in Spanish cities has been a disruptive reality in the scientific field of tourism, mobility and urban planning. The literature has not yet clarified the magnitude of the impacts that this recent and increasingly widespread phenomenon has generated on cities. The positive or negative effects on local economies in a country with such an important tourism sector (15% of Spain's GDP comes from tourism), also remain unknown. The impact of this new phenomenon (tourist homes) has probably not yet been addressed from the scientific field due to the fact that the only consistent way to quantify its impacts requires the detailed monitoring of the geolocation (tracking) of a sample of tourists and the large-scale treatment of these data. The fact of finding different tourist behavior and mobility in comparison to traditional hotel tourism has not been explored, and the possibilities offered today by the development and widespread use of ICTs serve to create a new framework for the scientific field.

The general hypothesis on which this project is based are as follows:

- The relocation of traditional accommodation centers towards floating tourist homes implies a new type of tourist behavior and different ways to access to urban tourist points of interest in comparison to traditional hotel guests.
- The tourist houses have showed a higher resilience during COVID-19 in comparison to hotels. Therefore, a greater role for them is expected next year in the tourist accommodation sector and there is an urgent scientific need to study the guest behavior.
- The behavior of this type of tourism generate new impacts on public transport and on street and public space occupation.
- The study of the mobility of individuals hosted in tourist homes is one of the best approach to analyze their behavior and quantify positive and negative effects on local economies.
- The use of ICTs due to the current massive use of smartphones offer today a suitable framework for the scientific field as a complementary tool of surveys.

Despite this lack of any scientific basis, the political and social debate aroused by this type of tourist accommodation is at a peak, and there is a risk that local public administrations may define a legal framework for this kind of activity without taking into account the scientific results that explore the impact of tourist housing on mobility and territory. Under these hypotheses, the main aim of this study is to analyze the mobility and behavior of guest housed in tourist homes of urban scenarios through the use of digital technologies. A group of Spanish cities will be selected for the case study and a group of representative guests will be contacted for the study.

4. PRELIMINARY DATA ON MOBILITY PATTERNS OF TOURIST HOME GUESTS IN SPAIN OF THE SPANISH CASE STUDY

In order to have more exhaustive and concrete data for our research, first, we will analyze a study led by FEVITUR and carried out by the University of Salamanca (2022). This study, called "Observatorio de la vivienda turística en España 2022", aims to determine the behavior of travelers hosted in tourist homes. The main goal of this project is to have an x-ray of the tourist housing (VT) user in Spain throughout the year 2022. On e of the main limitations of this survey is that the report is only focused on users who are residents in Spain.

The market of Spanish tourist accommodations is capable of fully satisfying the demands of users according to their preferences. The holiday homes (VUT) has a very presence in all the developed tourist markets, covering the market space that is generated by user demand, related to independence of use, cost of rental and stay, or location. The Public Administrations should ensure that this supply of VUTs continues to be sufficient and competitive both for its users and companies that promote it.

The target population of this survey were people resident in Spain, aged 18 to 74 years old, who during the last year (2022) have used at least one full rental tourist dwelling in Spain. According to the dates of the survey, we are referring to the period from December 2021 to November 2022, both inclusive. In a first phase of prospecting to establish a preliminary sample of people targeted by the study, the invitation to respond was sent to a large initial sample of panel members (provided by the company Netquest). This sample was selected respecting the quotas of the Spanish population according to INE (Census data at January 1st 2021) according to sex, age group and Autonomous Community of residence. Finally, a total of 17,632 people began answering the "OBSERVATORIO DE LA VIVIENDA TURÍSTICA EN ESPAÑA 2022" survey.

From the total of the 17,632 participants of the initial sample to whom the invitation to answer the preliminary filtering questionnaire was sent, 1,889 completed questionnaires were obtained, which served as the basis for obtaining the random samples for the national report and for the samples for the reports of each of the Autonomous Communities of interest. In the case of the sample of 1,100 individuals used to prepare the national report, the quotas per Autonomous Community of destination for trips using a VUT are respected, according to the INE's Resident Tourism Survey 2021.

The survey results obtained in relation to the usage of VUTs in Spain are summarized below:

- **The Use of VUTs** (tourist housing). The 31.8% of people between 18 and 74 years old who went on a trip staying at least one night away, have used a VUT, which represents a sensitive increase compared to the 23% recorded in 2019. The forecast for 2023 is that 84.4% of VUT users will return to this type of accommodation on their trips in 2023VUT users have used this type of accommodation 2.6 times throughout 2022, significantly higher than the 1.26 in 2019.
- **Loyalty to VUT**. For 41.5 % (47.2 % in 2019) of these users, VUT is the only type of accommodation they were interested in, while for 50.6 % (46.1 % in 2019) they hired VUT after comparing with the hotel offer
- **User profile.** VUT was hired for 5.5 nights and to accommodate 3.9 people on average. Families are still the group that uses VUT the most (38.1 %), but their weight has decreased compared to the 2019 figures, in favour of couples (36.5 %) and groups of friends (20.4 %) who see their participation increase. Going to the beach (24.7%), visiting cities or artistic heritage (22.2%) and enjoying nature and the countryside (19.4%) are the main motivations for travel using a VUT.
- **Determinants in the choice of the VUT**. In the search for and selection of the VUT that was purchased, they mainly looked at its location and price, a result that coincides with what is observed in past years.
- **Preferences on the location of the accommodation**: the chosen VUT is

usually in the center of the places to which one goes to (56.3%) and somewhat less in the outskirts (43.7%), which implies that the means and time of travel change.

Before concentrating on the main focuses of our study (location and mobility patterns), the most important determinants for tourists in the decision making process of booking VUTS will be described. When making the decision to book a VUT, users evaluate the available accommodation alternatives and finally select the one they consider most suitable according to a series of determinants. The two main determinants most valued when choosing the VUT are the price and the location of the housing in the area (4.4 points). These determinants seem to be even more relevant in 2022 compared to 2019. The location of housing in the area is more important for the age group between -35 and 44 years compared to the younger ones. Price is more relevant for the age group between 35 and 44 years compared to those between 65 and 74 years. Table 1 shows the most important determinants in the decision to book VUTs, being the location and the price the most important features of the tourist home.

	Average (máximum 5)
Comments or ratings from previous users on the internet about this property	4,13
Price	4,42
Information about security against thieves and burglaries	3,45
Dealing with the person in charge of the VUT	3,89
Location of the property in the area	4,43
Environmental and sustainability commitment: LED light bulbs, intelligent air conditioning, water economizers, waste separation...	3,05
Information about spaces and interior and exterior equipment of the house.	4,18

Table 1 - Important determinants in the decision to book VUT

Given the relevance of the location of the accommodation when selecting it, we are going to analyze the degree of sensitivity that the user has to the distance of the accommodation to the places of interest of the tourist destination and their preferences. Any measure adopted on the location of the tourist accommodations offered has a crucial importance in the degree of user satisfaction with the vacation experience. If comparing the data for 2022 with those for 2019, it is observed that the VUT is located to a greater extent in the center (56.3%) compared to 2019 (51.3%). When it comes to choose the mode of travel, **in 2022 users staying in the center indicate a greater use of car, motorcycle or public transport (51.7% vs. 47.5% in 2019), and therefore fewer trips on foot, bicycle or scooter. In terms of commuting times, the vast majority (52.7%) indicate that they spent between 10 and 20 minutes commuting. If we look at those who used a VUT that was located on the outskirts, we observe that 84.4% use car, motorcycle or public transport, a higher percentage compared to VUTs in the center, and also higher than in 2019 (78.8%).** Travel times are similar to those of users with VUT in the center, although a higher percentage of respondents indicate that they took more than 20 minutes (23.5% vs. 15.7%). There are no significant differences in these figures by sex or age group.

	2022	2019
In the center of the city	56,27	51,33
In the outskirts	43,73	48,67

Table 2. Location of the lodging in the area

The chosen VUT is usually in the center of the places to which one goes (56.3%) and somewhat less in the outskirts (43.7%), which implies that the means and time of travel change. When the VUT is in the center, the means used is almost equally divided between travel by car, motorcycle or public transport (51.7%) and walking, bicycle or scooter (43.7%); on the other hand, when it is in the outskirts, motorized travel increases (84.4%) and walking, bicycle or scooter travel decreases (15.6%). Relative to 2019, there has been a five percentage point increase in downtown VUT hiring.

5. THE SPANISH CASE STUDY: SELECTED CITIES

Following the conclusions obtained in the "Observatory of tourist housing in Spain 2022" conducted by the University of Salamanca and led by FEVITUR, we have decided to expand the mobility information on a series of aspects. The project will take as case studies the cities of Madrid, Malaga and Alicante, since they can reliably reflect the Spanish reality of tourist housing rental. Madrid corresponds to big city tourism, a very diversified leisure tourism, with a strong weight of business travel. Malaga is associated with cultural tourism and, finally, Alicante represents an urban destination linked to sun and beach. The results pursued by this analysis will include indicators of the most used itineraries and modes of transport, trip duration and schedules. We will identify the centers of activity visited, their location, the order of the visits, the frequency of visits to the tourist centers, the way of accessing these centers by transport, the average expense made per guest and their distribution by activities and districts of the city. All these indicators will be used to design recommendations to facilitate decision-making by local Administrations. The following are the maps of the three cities of the study in which the tourist housing units are depicted. It can be observed how they are located not only in city centers but along the neighbourhoods of the cities.

The offer in the municipality of Alicante (Figure 1a) has a distribution focused on three areas: one, located in the surroundings of the city center and in the area of the urban beach "El Postiguet"; another one, in the northern part of the city, in an area further away from the center, in the vicinity of one of the main arteries (Gran Vía); and a last area along the beaches of "La Albufereta" and "San Juan", mainly destined for residential tourism.

In the case of Malaga, there are two areas where the offer is concentrated (Figure 1b): one, to the east of the Guadalmedina river, which occupies the historical center of the city and the area of the urban beaches of "LaMalgueta", "La Caleta", "Pedregalejo" and "El Palo"; and the second area, to the southwest of the Guadalmedina river, where several residential

complexes are located around the beaches of "San Andrés", "Misericordia" and "Sacaba". In this case, there is a higher density of supply in the surroundings of the urban center.

Fig. 1 – (a) Tourist homes location in the municipality of Alicante in 2023. (b) Tourist homes location in the municipality of Málaga in 2023. Source: AIRDNA

The offer of tourist accommodation in Madrid (Figure 2) is mainly located in two areas: one, in the historic centre and in the area known as "Almendra Central"; the other one, of lesser intensity, is scattered in the peripheral areas of the municipality.
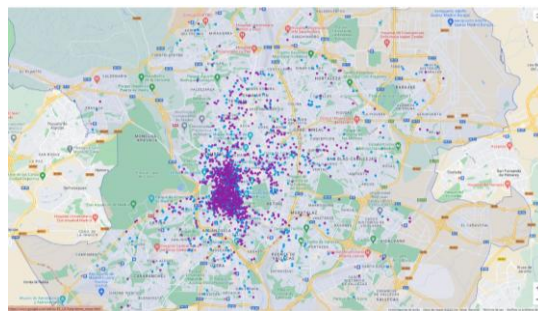
Fig. 2 – Tourist homes location in the municipality of Madrid in 2023. Source: AIRDNA

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