

Markus Mikael Koponen

**IMPACT OF AIRBNB SHORT TERM HOLIDAY
RENTAL ON BARCELONA HOUSING MARKET**



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Markus Koponen

Impact of Airbnb short term holiday rental on Barcelona housing market

Abstract

This study explores the impact of short-term tourism rental platforms' effect on the rental price costs in the Barcelona city area, considering the local purchasing power and residents affordability for long-term rental housing. As a city resident, the author has seen first-hand how the cost of living has increased faster than salaries have improved. The primary motivator for the research was to investigate the underlying reasons for the long-term rental price evolution, and resident sentiment towards tourism has changed more negative. The study also analyses the regulations imposed by the Barcelona city council and discusses their effectiveness.

The study uses mixed-method where the quantitative data is collected from publicly available sources like Inside Airbnb, reports published by the Barcelona government and earlier research about Airbnb effect on housing costs. Active Airbnb hosts were interviewed for the study to understand the income potential through short-term tourist rentals. Based on the available data, the long-term rental prices are linked to the Airbnb activity in the area. The main driver to list an apartment or room for short-term tourist rental is the considerably higher earning potential compared to traditional long-term rentals. The current measures have not had the desired effect as the Airbnb listing count has not been significantly affected. The affordability of long-term housing is affected more by the recently introduced long term rental law limiting the maximum rent prices.

Keywords:

Airbnb, Barcelona, Catalonia, tourism, short-term rental, home-sharing, sharing economy

List of abbreviations

Abbreviation	Explanation of abbreviation
INE	Instituto Nacional de Estadística / National Statistics Institute
PEUAT	Pla Especial Urbanística d'Allotjament Turístic / Special urban plan for tourist accommodation
HUT	Habitatge d'ús turístic / Home for tourist use
PP	Partido Popular / People's party
YoY	Year over year
P2P	Peer to peer

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1. Introduction

The thesis focuses on analysing the short-term apartment rental platform AirBnB's impact on the housing market in the Barcelona city area. Personal interest in this research has arisen from seeing how the Barcelona housing market has developed in the past years and how the resident sentiment towards tourism has changed more negative.

1.1 Background information

The idea for Airbnb was created in 2007 when two roommates, Brian Chesky and Joe Gebbia, had troubles paying their rent and noticed that all hotel rooms in their city, San Francisco, were fully booked due to an industrial design conference. The pair saw a business opportunity and decided to purchase a couple of air beds and rent out a sleeping place with breakfast to the conference-goers. To promote this accommodation opportunity, they registered a domain "Air bed and breakfast" and managed to get the first visitors who paid 80\$ per night for the stay. (Ribbers, 2019)

Before the Covid-19 pandemic, Airbnb was the world's leading accommodation marketplace with over six million unique places to stay, covering over 100 000 cities in 191 countries. (Airbnb Press Room, 2019) They have transformed the hospitality and rental industries, expanded from their core space rental business to offer local experiences, and were valued at over \$38 billion before the corona crisis. (Team, 2018)

Airbnb's value proposition is to offer a more local and authentic experience to customers using their service than traditional hotel lodging. The tourists have well received this, but the rising popularity of Airbnb has also seemed to have adverse side effects. The author moved to Barcelona eight years ago and has observed how apartment rental prices have increased significantly during this time. Suitable options for long term rental with a limited budget are few, and the demand outnumbers the supply. The data published by the Catalan government supports these observations and show that the average rent has peaked from 681,60€ in 2013 to 1005,80€ in the third quarter of 2019, a rise of

over 47%. (Ajuntament de Barcelona, 2020). During the same period, the average salary levels have been steady, causing more and more challenges for the locals trying to find rental apartments they can afford. There is a particular term "mileurista" for persons earning a net salary of around a thousand euros, just above the minimum wage, per month (Gallego, 2017). In Barcelona, these workers account for 32% of the employees. For workers under 30 years, the mileuristas account for a higher 64,7% share of the employees (Barcelona, 2020). Finding a suitable apartment within the budget of mileurista is often an impossible task driving especially younger people to live longer with their family and share their apartment when eventually moving out.

Tourism numbers in the Catalan region doubled from 2000 when the city saw 8.9 million tourist arrivals to the record 19.38 million arrivals in 2019 (Lopez, 2020). The sheer number of visitors has caused a backlash from locals which have organised protests against mass tourism in the city. A holiday rental licence is required by Catalan law to rent out rooms in Barcelona officially. However, due to the increasing anti-tourism sentiment, the Catalan government halted all-new holiday rental licences in 2015. No new licences meant that the city's official bed capacity stayed the same, prices during the peak season raised and more tourists started to search for alternative lodging options. Short term rental platforms like Airbnb do not require the apartment owners to provide the holiday rental licence while placing the listing, making unofficial rental easy to market.

Barcelona is an ideal city for analysing the impact of short-term rental platforms on the local housing market. It is an attractive tourist location with rising visitor rates, and the regulations on new holiday rental licences restrict new accommodation development.

1.2 Research objectives and questions

The research paper explores the impact of tourist rental platform Airbnb popularity on the local housing market and what other effects arise from short-term holiday rentals in residential buildings. The thesis discusses the strict regulations placed by Barcelona's city council for short term rental platforms and estimates how effective the currently imposed measures are to limit the negative impacts. The thesis attempts to answer the following questions:

- An average rent costs have raised over 47% during 2013 - 2019 in Barcelona. Is there a link between the rise in housing costs and Airbnb's popularity?
- What is the difference in income potential for apartment owners between traditional renting and Airbnb short term rents?
- Has there been any effect on the affordability of long-term rental possibilities?
- The city has recognised short term rentals without a proper tourist license as a problem and has set new rules and regulations like high fines and rent control. Do these measures have the wanted impact?
- What have other countries facing the same issues done, and what means could Barcelona implement to minimise the negative impacts of short-term rentals?

Based on the findings, the objective of the thesis is to arrive at recommendations on what kind of measures could be effectively implemented to minimise the negative impacts of short-term holiday rentals and make tourism more sustainable for Barcelona.

2. Literature review

2.1 Airbnb

Essentially Airbnb is an online marketplace that enables individuals to list their property for rental. Airbnb itself does not own any properties; it just acts as a platform. Individuals renting out their properties are called hosts. To publish a listing on the Airbnb website, the hosts need to provide photos and details of the property that they want to advertise. They need to specify where the property is located, the listing type, the maximum number of guests, availability, and the nightly price for accommodation (Stainton, 2021).

Sharing economy is a concept where assets or services can be shared between individuals, delivering new opportunities for people to earn extra income. Airbnb is considered to be one of the best examples of sharing economy business model and a real disruptor to the traditional hospitality sector (Crommelin, 2018). The company has grown worldwide to be one of the most popular options for tourist accommodation, having 272 million bookings globally in 2019 before the Covid-19 pandemic hit (Curry, 2021).

Although Airbnb is a relatively new phenomenon, various research papers have already been published that assess the impact of Airbnb on property markets. The primary study researched for this work which analyses the impact of Airbnb on housing pricing in the USA, is made by Barron, Kung and Proserpio. The authors investigate the influence of Airbnb on rentals and housing prices across the United States. Their technique is to use a 'shift-share instrument, in which the time variation is based on Google Trends of 'Airbnb' searches, and the cross-sectional variation is based on a neighbourhood 'touristiness' score based on restaurant location. They discovered that a 1% increase in Airbnb listings increases rentals by 0.018% and house prices by 0.026%. (Barron, Kung and Proserpio, 2021).

Koster et al. (2020) investigate the consequences of Airbnb prohibitions enacted by several municipal governments in the Los Angeles area. The author estimates that prohibiting Airbnb reduces prices by around 5%.

Recent research examined the link between Airbnb popularity and rising long term rental costs in the Barcelona area and determined that there is a measurable correlation. The study focused on the tourism hot spots in the city, and the authors concluded that there is a substantial impact of a 7% increase in rent and 17% property sales prices on areas with high Airbnb activity. The study focuses only on housing prices and does not analyse the effectiveness of the current regulations or factors in other issues the local communities are experiencing (Garcia-López et al., 2020).

(Sheppard and Udell, 2016) researched Airbnb's impact on the housing market in the New York City area. They outlined an overview seen below of different transmission mechanisms of how Airbnb can affect property values. The authors identified three key mechanisms impacted by Airbnb which can increase property values. The most crucial mechanism is the new revenue stream enabled by the short-term tourism rentals for the apartment owners, the second mechanism is the increased demand for space which is followed by higher asking prices for housing, and the third mechanism is the increase to the quality for the local neighbourhood caused by the higher tourist spending in the area. While the study focused on the New York area, similar mechanisms can be observed in other cities where Airbnb activity is high. (Sheppard and Udell, 2016)

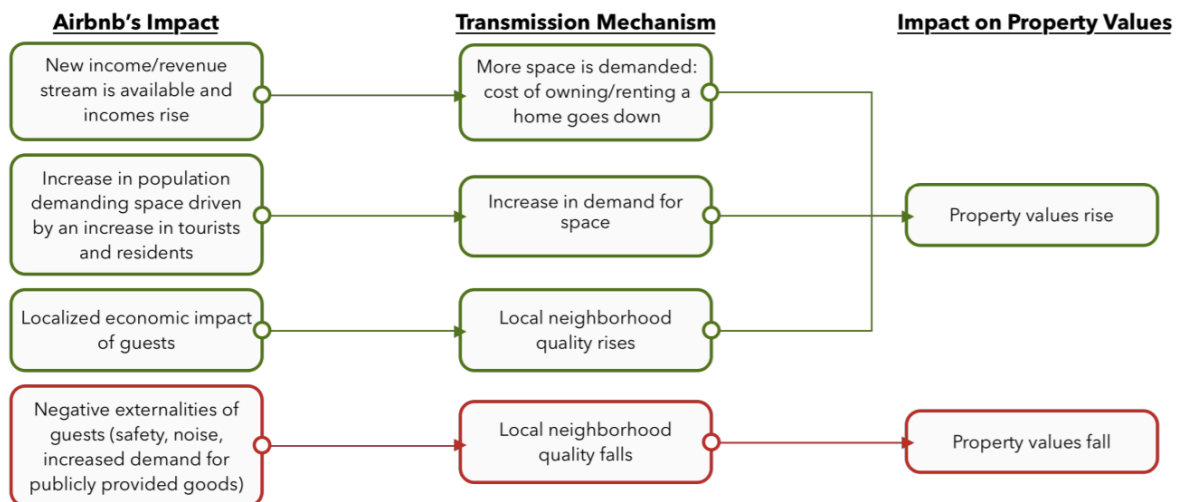


Figure 1. Transmission Mechanisms for the Impact of Airbnb Activity on Housing Prices (Sheppard and Udell, 2016)

Von Briel and Dolnicar published a study analysing the different regulatory responses from Amsterdam, Barcelona, Berlin, Hobart, London, New York, Paris, Reykjavík, San Francisco and Tokyo, which have been popular Airbnb destinations. Their paper examines the evolution of short-term rental regulations and restrictions placed by the local authorities. The authors conclude that while all examined cities have reacted to the short-term tourist rentals and introduced various restrictions, the impact of the actions on the Airbnb listings has been minimal. They also state that regulations for Airbnb activities do not seem to affect the tourism industry key performance indicators. (von

Briel, D. and Dolnicar, S. 2021)

City	San Francisco	New York	Amsterdam	London	Berlin	Paris	Barcelona	Reykjavik	Vienna	Hobart
Prior dates	End-run	Gap	Gap	End-run	Gap	Gap	Gap	End-run	End-run	End-run
2008	Activities start	Activities start	Activities start							
2009				Activities start						
2010		Strict Regulations								
2011		Regulation & Taxes			Activities start					
2012						Activities start	Activities Start Registration	Activities start	Activities start	Activities start
2013			Strict Regulations							
2014	Regulation & Taxes		Collaboration Regul. & Taxes	Regulation & Taxes	Strict Regulations	Regulation & Taxes	Strict Regulations			
2015	Registration		Registration	Registration*		Collaboration	Regulation & Taxes			Regulation & Taxes
2016	Refinement	Refinement	Refinement		Registration		Refinement	Regulation & Taxes	Regul. & Taxes Registration	
2017	Collaboration		Collaboration	Collaboration			Refinement	Registration		Registration*
2018		Collaboration	Refinement		Refinement	Registration*	Collaboration	Refinement	Refinement	
2019	Refinement	Refinement	Refinement			Refinement	Refinement			Collaboration
2020			Refinement			Collaboration Refinement	Refinement		Refinement	

Figure 2. Comparative evolution of Airbnb regulation (Von Briel, D. and Dolnicar, S. 2021)

2.2 Tourism in Barcelona

Located in Catalonia, on the eastern coast of Spain, Barcelona is one of the top European tourist destinations. With over 2500 hours of sunlight per year on average, easy access to beaches, stunning architecture and a world-class dining scene, it is easy to understand the popularity as a holiday choice. Before the Covid-19 pandemic, the city saw over 32 million visitors per year, around half of them day-trippers. (Brown, 2021)

Tourism is also crucial for Barcelona's economy. With 150,000 direct and indirect jobs, the tourist sector is one of the most important generators of economic activity in Barcelona. It employs 8.6% of the city's total workforce and represents 7.3 per cent of the GDP of Barcelona. (Pont Algueró, 2019)

However, the sheer number of tourist visitors place a significant burden on the city's infrastructure as Barcelona is ranked the eighth most densely populated city in Europe with 1,6 million people with a population density of 15,991 people per square kilometre (Wikipedia, 2021). This has caused the local population to become more and more resentful of the rapid rise of tourism, which has resulted in regular protests against over-tourism.

The change of opinion can be observed in yearly surveys conducted by the Barcelona city council. 71.8% of the respondents indicated that they would like Barcelona to continue attracting more tourists in 2012. Seven years later, that number had dropped to 35,6%, and the majority of 61,3% of respondents answered that the city is reaching its capacity to provide services to tourists.

Amb quina d'aquestes dues opinions està vostè més d'acord? (%)

¿Con cuál de estas dos opiniones está usted más de acuerdo? (%)

Which of these two opinions do you agree with most? (%)

Barcelona ciutat / Barcelona ciudad / Barcelona city

■ **Barcelona ha de continuar atraient més turistes**
 Barcelona ha de continuar atrayendo más turistas
 Barcelona must continue attracting more tourists

■ **S'està arribant al límit de la capacitat per donar servei als turistes**
 Se está llegando al límite de la capacidad para dar servicio a los turistas
 Barcelona is reaching the limits of its capacity to provide services to tourists

■ **Ns - Nc**
 Ns - Nc
 Dk - Nr

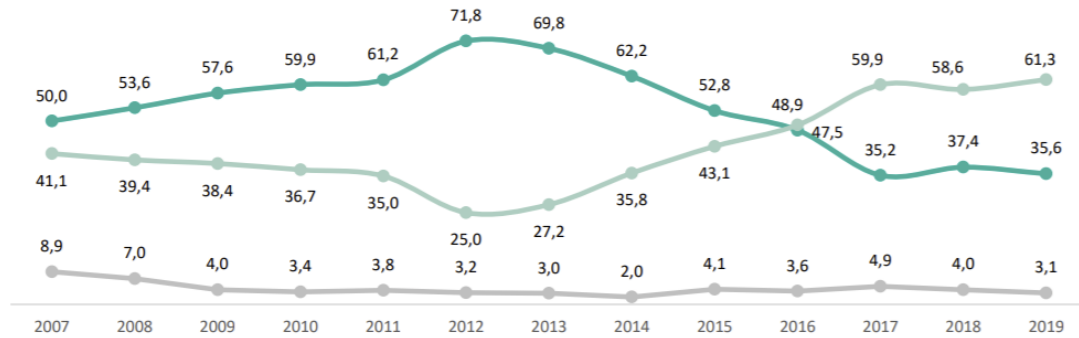


Figure 3. Public opinion on the number of tourists (Tourism activity report 2019)

In the yearly respondents are also asked which is the most positive and negative aspect of tourism to the city of Barcelona. The survey shows that 23,5% of respondents view the agglomeration caused by overtourism as the most significant negative factor, 15% consider the party and drinking tourism most negative, and 10,5% say that anti-social and bad behaviour is the worst aspect. The economic contribution is viewed as the most positive aspect of tourism by 57,7% of the survey participants. (Tourism activity report 2019)

2.2.1 Tourist accommodation trends

Observatori del Turisme is a public organisation that publishes annual tourism reports, which show the number of licenced tourist establishments, number of bed places and yearly overnight numbers per establishment type. Covid-19 pandemic affected the travel starting from 2020; this study uses the data from the 2019 report. The tourism report data is presented under three territorial areas:

1. Barcelona city
2. Barcelona region, which is Barcelona province without the Barcelona city area
3. Destination Barcelona which shows all data for the whole Barcelona province area

The tourism report shows that most of the tourist visits and overnight stays have been in hotels, followed by homes for tourist use in the Barcelona city area. (Tourism activity report 2019)

Table e. Breakdown of accommodation usage (Tourism activity report 2019)

Type of establishment	Tourists	Overnights
Hotels	9,472,562	19,852,416
Homes for tourist use	3,480,060	11,433,427
Guesthouses and inns	770,151	1,740,962
Tourist apartments	230,436	781,006

The report details how the number of hotels has increased. In the Barcelona city area, 87 new licenced hotels have opened between 2010 and 2019, representing a growth of 37% in the number of hotels. The number of new hotels has seen significantly higher growth in the Barcelona city area compared to the Barcelona province, where only 52 new hotels started operating during the same period.

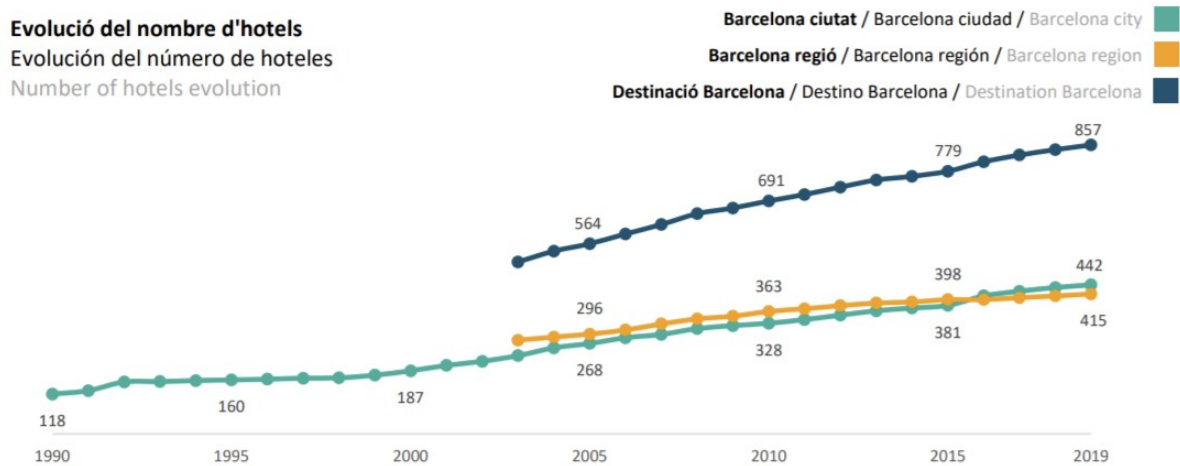


Figure 4. Evolution of hotels (Tourism activity report 2019)

Overall, hotel bed capacity has seen a smaller 18% increase during the same period. Data shows that, on average, the new hotels have a smaller capacity than hotels that have started business build earlier. A similar trend can be observed in Barcelona province bed capacity.

Evolució del nombre de places d'hotels
 Evolución del número de plazas de hoteles
 Number of hotel beds evolution

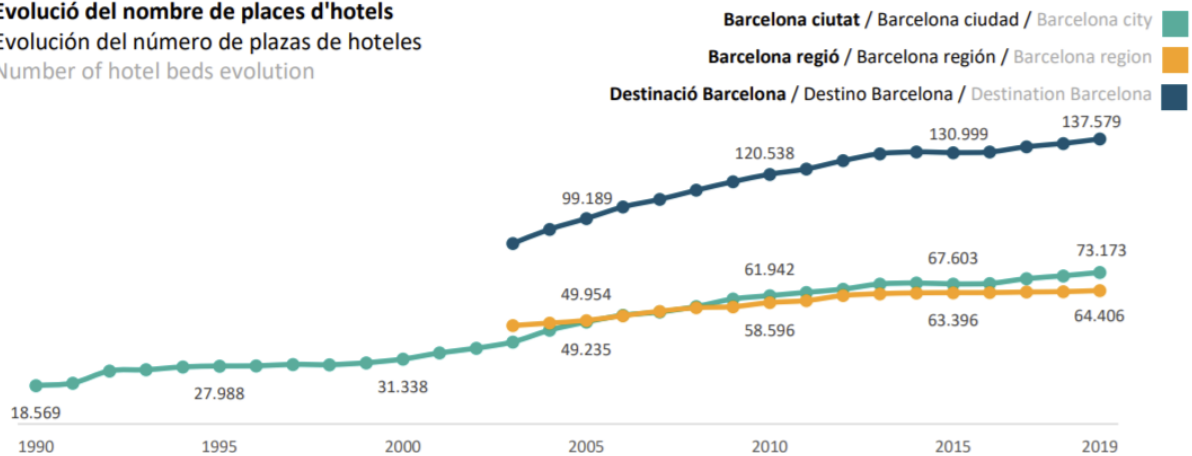


Figure 5. Evolution of hotel bed capacity (Tourism activity report 2019)

The overnight stay data is based on estimations from INE, Turisme de Barcelona and hotel business association Gremi d'Hotels de Barcelona. The report shows that during the 2010 – 2019 period, overnight stays in hotels have increased by 41%, raising the occupancy rates on hotels. The number of overnights hit the record of 19 852 416 in 2019, representing an increase of 2.9% in the Barcelona city hotels from the year earlier. The total hotel occupancy rate was 82.8% for the rooms and 72.7% for the total bed capacity in 2019 (Tourism activity report 2019).

Evolució de pernoctacions en hotels
 Evolución de pernoctaciones en hoteles
 Evolution of overnights in hotels

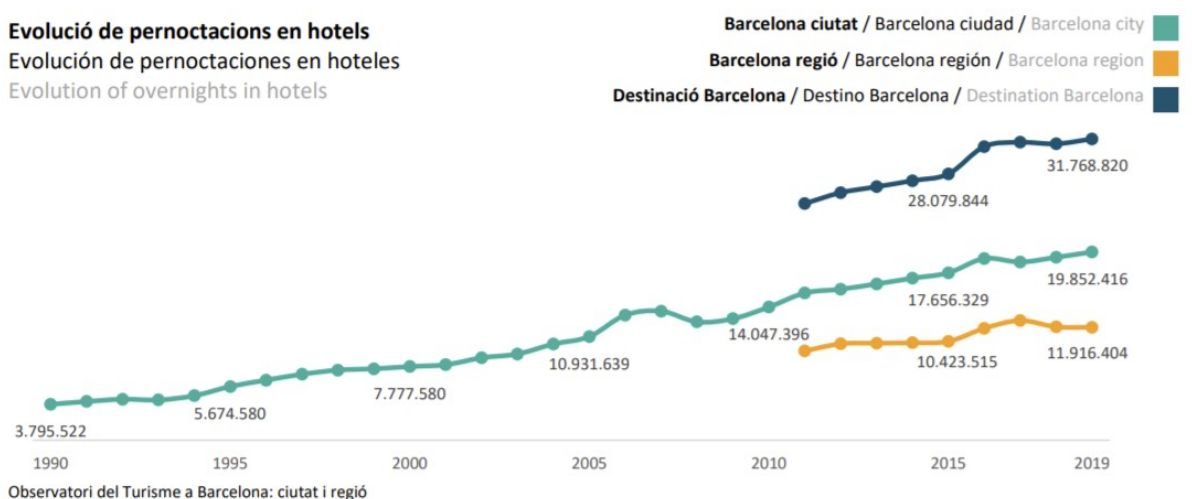


Figure 6. Evolution of overnights in hotels (Tourism activity report 2019)

Observatori del Turisme a Barcelona started to gather data from homes used for tourism accommodation in 2011 when they began to require the property to be registered as tourist accommodation and have a licence to rent the apartment for the short-term legally. Only registered

properties are included in the data. The new licences for HUT's, homes for tourist use, were frozen in 2014 in the Barcelona city area. Data shows that the registrations in Barcelona Province have almost tripled between 2015 and 2019.

Evolució del nombre d'habitatges d'ús turístic
 Evolución del número de viviendas de uso turístico
 Number of homes for tourist use evolution

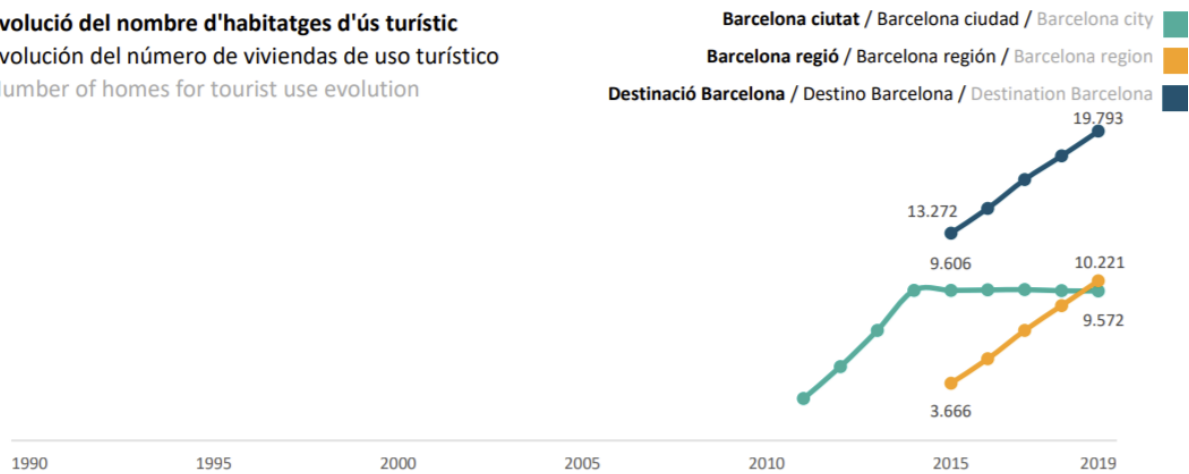


Figure 7. Evolution of HUTs (Tourism activity report 2019)

The total bed capacity in HUTs follows the same trend. Capacity in Barcelona province has increased as new licenced apartments have been introduced, but the bed capacity in the Barcelona city area has been stagnant as new licences have not been granted.

Evolució del nombre de places d'habitatges d'ús turístic
 Evolución del número de plazas de viviendas de uso turístico
 Number of homes for tourist use beds

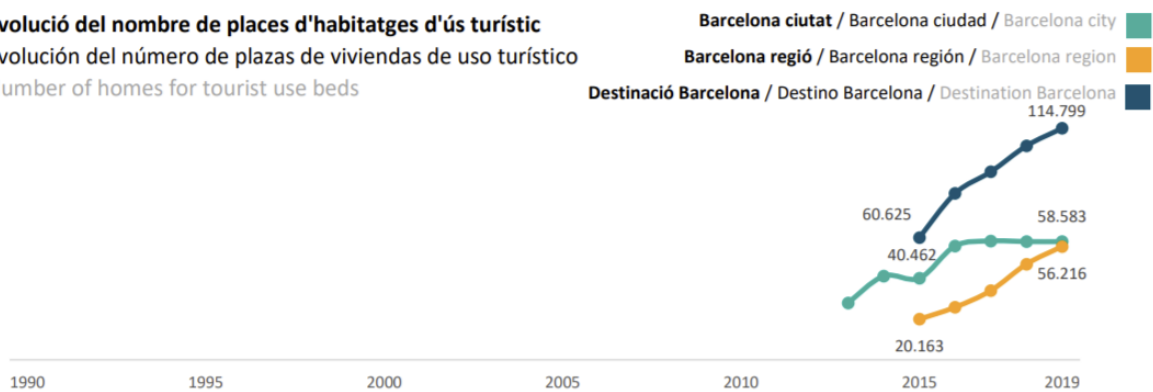
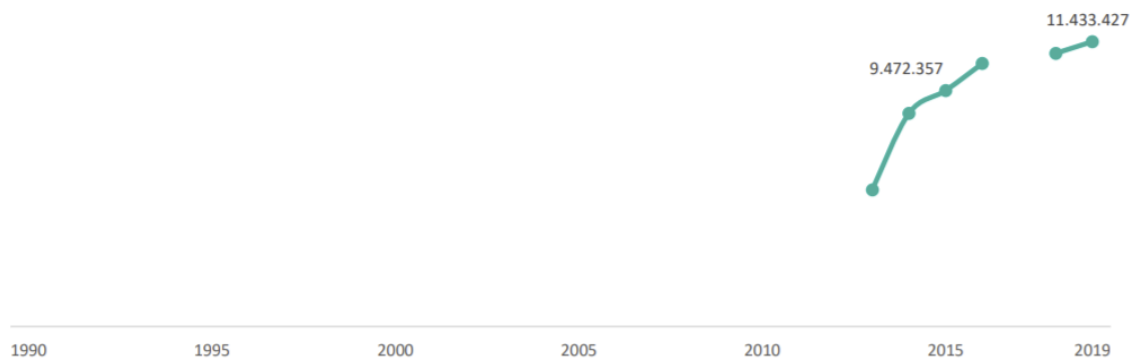


Figure 8. Evolution of the HUT bed capacity (Tourism activity report 2019)

The overnight stays statistics in HUTs are only available for the Barcelona city area and are missing the data from 2017. However, it can be observed that the stays have increased by over 20% from 2015 to 2019. Overnight stays reached the record of 11 433 427, which rose 4.3% from the earlier year. The HUT occupancy rate increased 1.7% from 2018 to 2019, reaching a record of 55.6% (Tourism activity report 2019).

Evolució de pernoctacions en habitatges d'ús turístic
Evolución de pernoctaciones en viviendas de uso turístico
Evolution of overnights in homes for tourist use

Barcelona ciutat / Barcelona ciudad / Barcelona city



2.2 Airbnb listings

The P2P, also known as peer to peer, rental platforms like Airbnb, do not publicly share the statistical data on how the listings have been rented out. Still, multiple data collection services gather data from the listings. Inside Airbnb collects the statistics used in this study. Inside Airbnb is an activist-driven project that extracts and publishes data from Airbnb's website to quantify the impact of short-term rentals on housing and residential communities in major tourist destinations worldwide. The website offers an overview of hosts and their accommodation listings. In the case of Barcelona, a sample of 16 206 listings was gathered from Airbnb's platform in September 2021.

Table 1. Listing types and average price per night

Type of listing	Number of listings	Average price per night €
Entire home/apartment	8678	145.33
Hotel room	241	192.64
Private room	7104	62.93
Shared room	183	87.61
Grand Total	16206	109.26

These listings include entire apartments as well as private and shared rooms. For every listing, Inside Airbnb also provides details such as room characteristics, host unique identification number, listings geographical coordinates, available rental days per year and the date of first and last review.

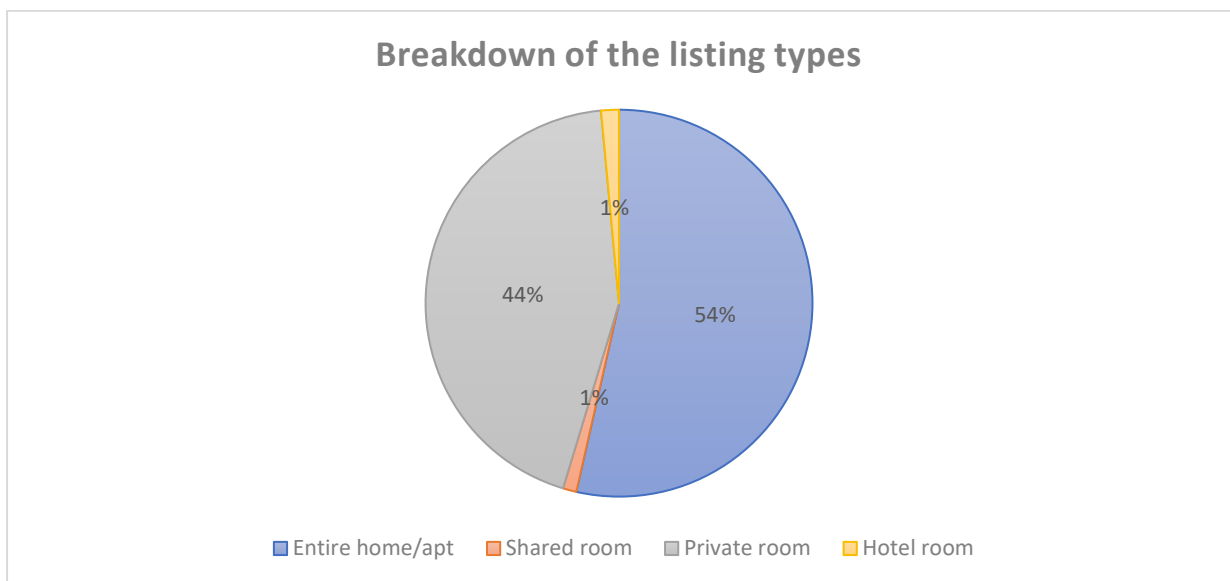


Figure 9. Airbnb listing types (Inside Airbnb: Barcelona. Adding data to the debate. 2021)

Listings from the Barcelona city area show that the most common listing is an entire apartment that can host four persons. This layout typically includes a king-size bed and a sofa bed in the living room or a 2-bedroom apartment. The average price per night for all whole apartments listing is 145.33€ per night, while listings with recent reviews posted during March 2021 and September 2021 is 118€. The average occupancy rate is estimated to be 53.42%, 195 nights per year, for the active listings with high availability. (Inside Airbnb: Barcelona. Adding data to the debate. 2021)

The number of active listings per host varies widely. 5517 hosts have only one active listing, 2004 hosts have two listings, and 1047 hosts have three listings active in the Airbnb platform. The majority of the hosts with 1 to 3 listings are advertising for private or shared rooms. Only 32,4% of the listings from these hosts are listings for entire apartment rentals. On the other hand, the top ten hosts with the most listings per host ID have a total of 1139 listings active. 970 of the listings from these hosts are for whole apartments, and only 170 are for rooms.

Most of the active listings are located in the central Barcelona area in Eixample, Ciutat Vella neighbourhoods.

Table 2. Airbnb listing locations

Neighbourhood	Number of listings
Eixample	5776
Ciutat Vella	3701
Sants-Montjuïc	1826
Sant Martí	1525
Gràcia	1444
Sarrià -Sant Gervasi	611
Horta-Guinardo	512
Les Corts	357
Sant Andreu	231
Nou Barris	223
Grand Total	16206

2.3 Long term rental price evolution

Barcelona was hit hard during the 2008 financial crisis, which caused the unemployment rate to climb during the following years, topping at 23.1% in 2013 (Unemployment rate 2020). This affected

the housing market in general, and rental prices started to decline. This trend continued until the economy started recovering and the rental prices started to increase again in 2015 and up until the Covid-19 pandemic started.

Barcelona city hall publishes statistics on how the rental prices have evolved in the Barcelona city area. The data is based on the new rental contracts signed each year. These new rental contracts usually require a two-month security deposit, which is transferred to Catalan government-owned entity Incasol. The data is derived from the Incasol new contract deposit figures.

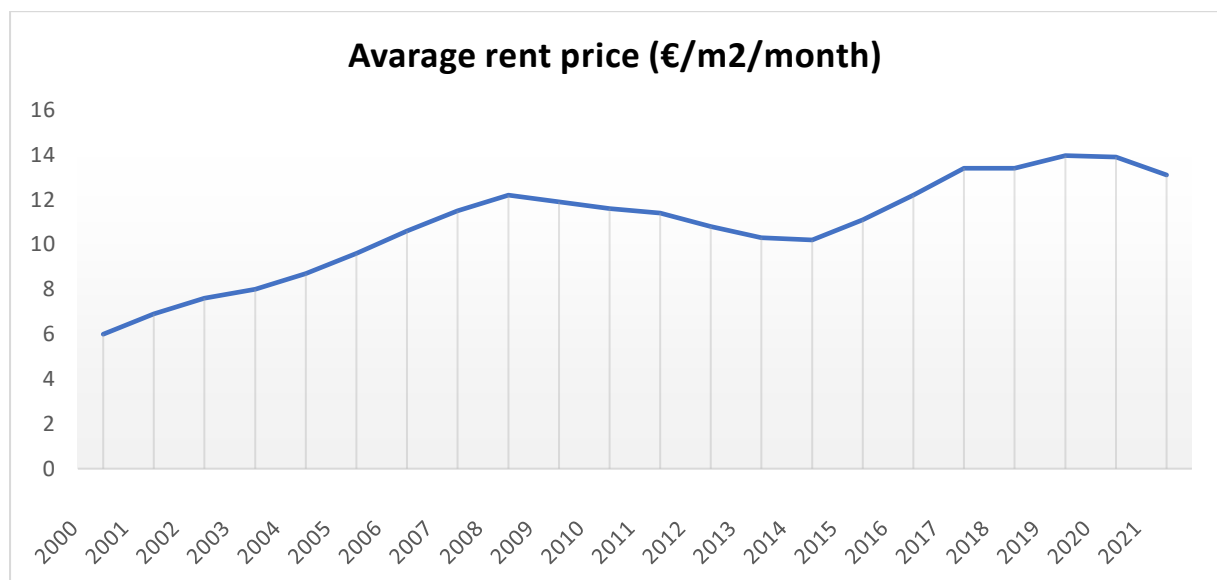


Figure 10. Evolution of average rent price (Alquiler medio por m2 (€/m2 mes), 2021)

Multiple factors affect the cost of living; when compared to the inflation rate during the 2015-2020 period, it can be observed that the rent prices in the Barcelona city area increased at a higher pace than the national inflation rate (Macrotrends, 2021).

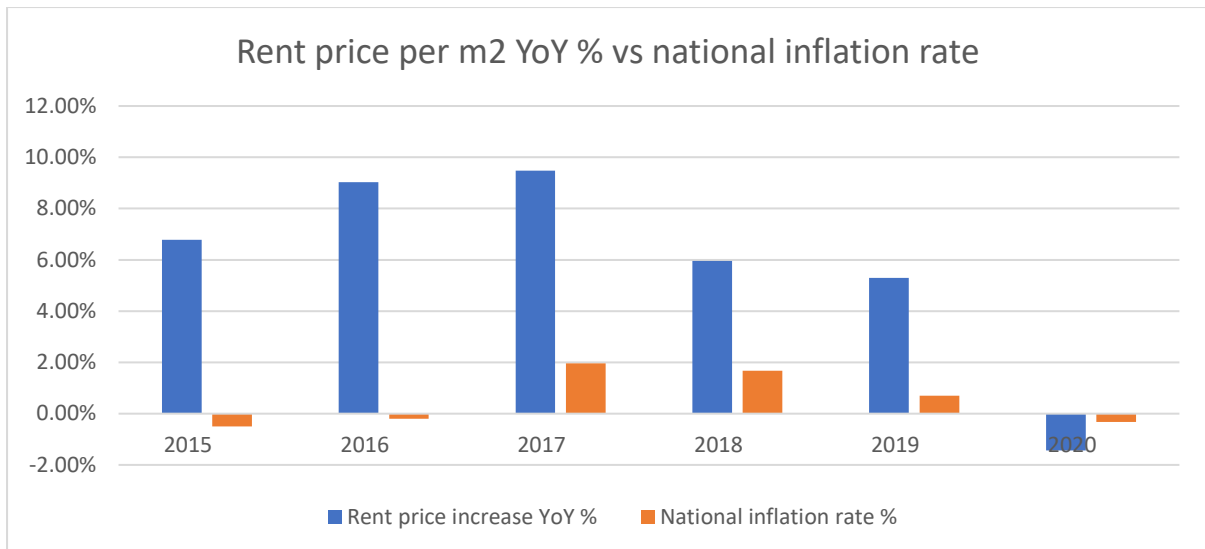


Figure 11. Rent price evolution vs inflation. Graph by author

The rental price evolution is also reported by the average monthly rental price. As shown in the chart below, after 2014, the average rental price for apartments has increased 7.31% per year until the Covid-19 pandemic started in 2020.

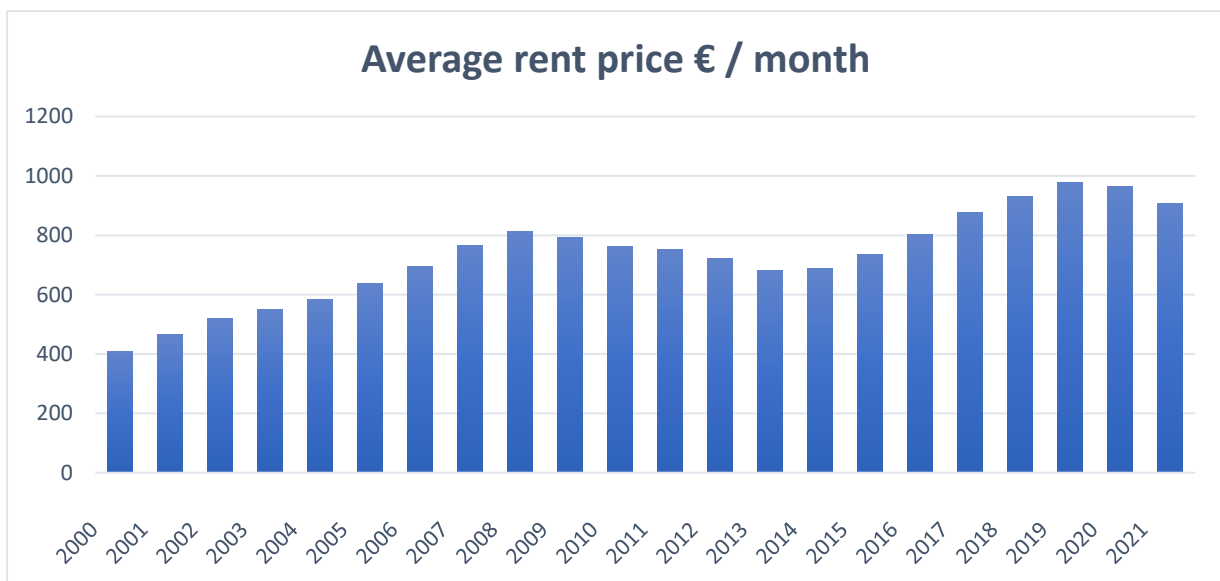


Figure 12. Evolution of the average monthly rent price (Ajuntament de Barcelona, 2020)

2.4 Salary evolution

Salaries for Barcelona city area residents were stagnant between 2010 to 2015 and only recently have started to climb, as shown by the statistics published by the city hall. While the average salary has increased, there is a significant discrepancy between older and younger workers. The average wage for workers under 24 years is 13 464€ per year while workers between 60 and 64 years earn 38 212€ per year on average.



Figure 13. Barcelona average salaries (euros/year) 2010-2019

One factor for the recent average salary increase is the national legal minimum monthly gross wage, which has raised gradually from 764.40€ in 2017 to 1050€ in 2019. However, the minimum wage only applies to full-time positions and does not affect persons doing part-time or temporary work (Spain, 2021). The workers union UGT estimates that over 196 000 people are earning the minimum wage in Catalonia. (Ubieto, 2021)

2.5 Long term rental affordability

Taxes, social security fees, and other income payments are approximately 23.5% of the total income. After the mandatory payroll deductions, it is possible to calculate that the average rent cost portion has reached almost 50% of the total take-home income by 2019. 50/30/20 budget rule popularised by senator Elisabeth Warren instructs to allocate half of the take-home income to basic needs, including all mandatory expenses like housing costs, utility bills, food. The 30% could be spent on non-essential expenses, and the 20% of the net income should be set aside for savings (Whiteside, 2020). On average, the rental costs alone rise to half of the take-home income for a single person household in the Barcelona area.

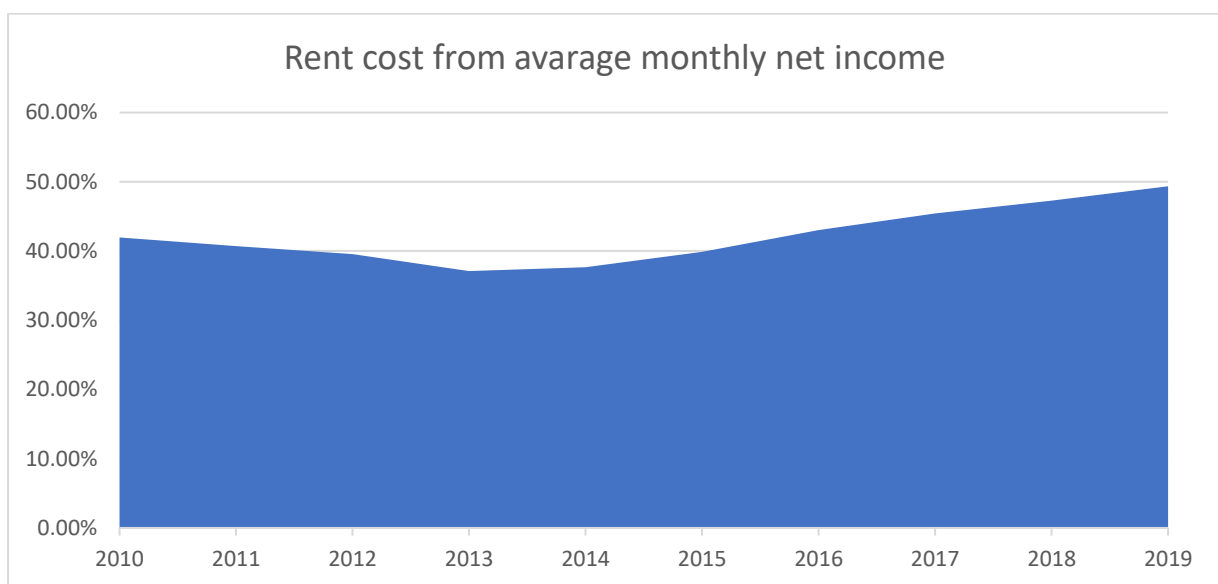


Figure 14. Rent cost percentage of net income. Graph by author

While the average salary for all age groups is enough for renting an apartment, the picture looks different for people under 35 years who earn considerably less than the average income. The city council conducted a survey of 1400 Barcelona residents between 14 and 35 years. The results showed that the average net income was only 888€ per month after taxes, which is lower than average rent costs. Only 4.4% of the surveyed people between 18 and 24 years old live alone; for people from 25 to 34 years, the percentage rises to 13.7%. (Blanchar, 2021)

2.6 Profitability of renting through Airbnb

Comparing the profitability of a whole apartment long term renting to a short-term tourism rental depends highly on the estimated occupancy rate. Long term rentals bring constant income, while short-term rental income is more seasonal. Tourist arrivals are highest during May to mid-September, which also shows in the occupancy rates for traditional hotels and short-term tourist apartments. During this period of higher demand, the night rates usually are higher than in the low season. Apartment owners who decide to take advantage of the high season can offset the lower occupancy during the off-season by listing their property with higher pricing during summer or renting the apartment for more extended periods when the demand is lower. Exchange students are one critical demographic that usually look for apartments for 3-6 months between September and May. (Rechavia, 2018)

Another factor that affects the occupancy rate is the location of the property. Short-term tourism rentals have more natural demand in tourist hotspot areas where attractions are easily accessible. Properties located in residential neighbourhoods are less attractive to short term stays and are usually offered with a lower nightly rate compared to centrally located apartments. (Abdul-Samad, 2021)

Based on the Inside Airbnb average 53.42% occupancy rate on properties with high availability and 118€ average daily rate, we can estimate average apartment to have a yearly income potential of 23010€. This would mean an average of 1917.5€ monthly earnings, which would be over double the average 905.4€ long term rental monthly income. Renting short-term through Airbnb involves more work as the apartment must be cleaned between the guests, and the keys must be given and collected. This can be outsourced to an agency that generally charges a 15% fee from the rental income. (Inside Airbnb: Barcelona. Adding data to the debate. 2021)

The new long term rental regulations with the rent cap will limit the income potential for long term renting, so apartment holders might value higher earnings than the steady long term rental income, especially when the travelling is normalising after the Covid-19 travel restrictions.

2.7. Catalan regulations for short term rentals

From 2011 Barcelona required tourist licenses from anyone wishing to rent out their apartment for tourism use, defined as short term renting for a maximum of 31 days. When advertising the residence, the registration number must be displayed. A tourist license is not required for longer rental periods or for a spare room rental in an apartment where you are registered and present during the rental period. The number of dwellings licenced for tourism use skyrocketed after the requirement for licences was introduced. (PEUAT | Plan Especial Urbanístico de Alojamiento Turístico, 2021)

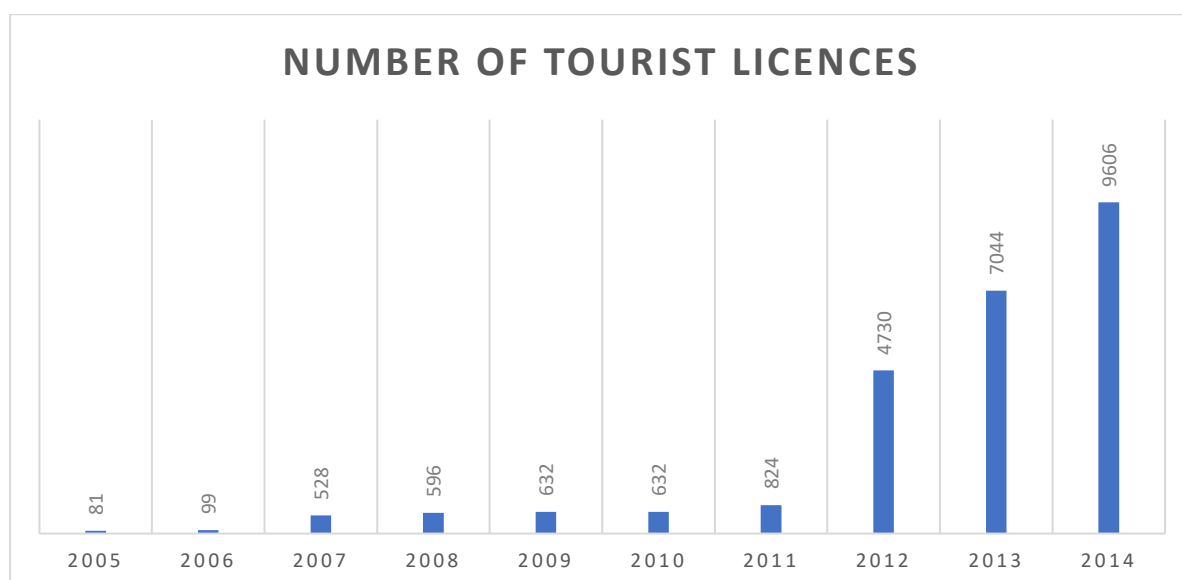


Figure 15. Evolution of tourist licences (PEUAT | Plan Especial Urbanístico de Alojamiento Turístico, 2021)

In Late 2014 the Barcelona's city hall froze, granting new tourist licences for most touristic parts of the city; the Gothic Quarter, Ciutat Vella and Eixample neighbourhoods. In June 2015, Ada Colau was elected as the mayor of Barcelona. Colau ran on a platform of affordable housing and limiting overtourism, and fines of up to 30 000€ were introduced for advertising and renting properties without a valid tourism licence. Barcelona's authorities fined AirBnB and its competitor HomeAway with the maximum fine for publishing announcements of apartments that didn't have valid tourist licences. The city hired a team of inspectors who are cross-referencing granted tourist licences to the apartments advertised on Airbnb and other short term rental platforms.

The following year the freeze was extended to the whole city, and the maximum fines were doubled to 60 001€. Airbnb and Homeaway were issued new fines of 60 000€ at the end of the year. Airbnb's spokesperson gave an interview to the newspaper El País defending the company by stating that the 17 000 listings in the Airbnb platform are too few to impact the housing prices as they present under 2% of all the apartments in the city (Verdú, 2021).

In 2016 the city increased the sanctions for illegal short term tourist rentals and multiplied the maximum fines tenfold, to 600 000€, for tourist rental properties that are not registered to Catalan Tourism Register (RTC) and have a valid license. The city council fined Airbnb and HomeAway for the third time with the maximum possible fee by failing to comply with the local tourism regulations and allowing the advertising of apartments without a valid licence on their platforms. (Calvo, 2016)

The city council commissioned a study to examine the extend how many illegal tourist apartments are present. The study found out that there out of the 15881 apartments advertised for holiday rentals while only 9606 had the licence. 6275 apartments, or 39.5% of the listings, were illegal rentals. The study concluded that tourist rentals represent 7.7% of the total rental apartment pool in the city. They also analysed the profitability of the short-term rentals to the homeowners: depending on the areas and occupations, the income for the owner is between 2.3 and 4 higher than that of the conventional long term rentals. (Dans, 2016)

The study also indicated that the tourist accommodation supply is highly concentrated. For example, in neighbourhoods like Dreta del Eixample and Vila Olímpica, the percentage of short-term tourist rental apartments exceeds 25% of the total rental apartments. The study shows that where the profitability of the tourist accommodation is higher, there is an apparent withdrawal of flats from the conventional long term rental market to use them for tourism. This causes a reduction in the already scarce rental apartment supply, impacting the rental apartment prices (Blanchar, 2016) adversely.

Catalan also government increased their efforts by hiring more inspectors to find tourist apartments that were operating without proper licence in 2017 (Barcelona cracks down on Airbnb rentals with illegal apartment squads, 2020).

The city council started to work on Pla Especial Urbanístic d'Allotjament Turístic (PEUAT), an urban plan for tourist accommodation, which would organise and control the implementation of tourist accommodation within Barcelona. The plan was approved on 27.01.2017 and entered into force on 06.03.2017. Barcelona City Council communicated that they are working to ensure that tourism activities are compatible with a sustainable urban model and stated the goals of the PEUAT plan consist of:

1. Relieving tourist pressure from highly congested zones
2. Balancing and diversifying the tourist activities in a sustainable way
3. Responding to citizens' concerns and discomfort caused by mass tourism
4. Guaranteeing the right for housing over-tourism accommodation as well as for privacy and well-being of the neighbourhoods

In the PEUAT plan, Barcelona is divided into different zones according to already existing tourist licences and the amount of tourism activity in the area. The plan included the freezing of any new tourist licences, but in case of licenced property ceases activities new licence may be granted to a zone with less tourist activity.

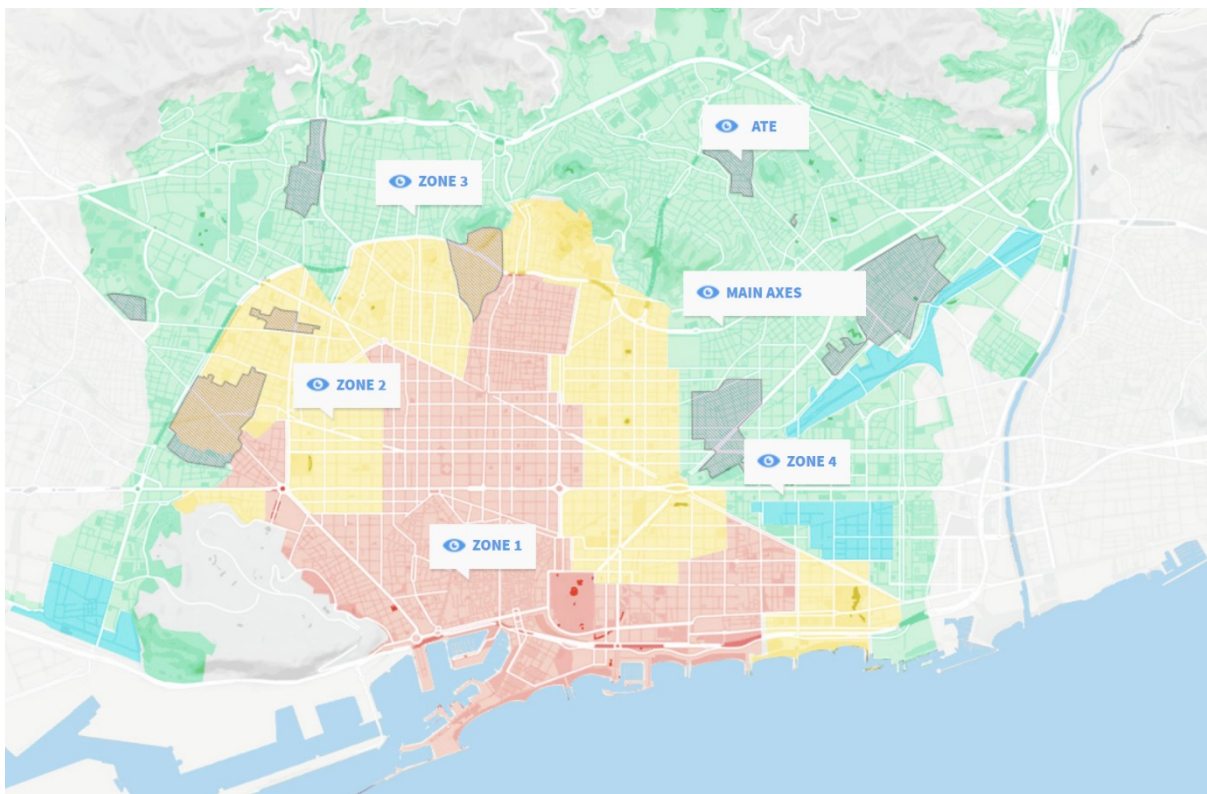


Figure 16. Map of the PEUAT zones (PEUAT | Plan Especial Urbanístic de Alojamiento Turístico, 2021)

Each of the zones has specific regulations and aim at how the tourism activity will be managed in the future. As the below breakdown of tourism licences and bed places indicates, the accommodation for tourists is highly concentrated in specific areas of the city.

Table 3. Breakdown of tourist licences and bed capacity. (PEUAT | Plan Especial Urbanístico de Alojamiento Turístico, 2021)

Type of accommodation	Number of	Zone 1	Zone 2	Zone 3	Zone 4
Homes for tourist use	Licences	5,358	3,245	1,041	13
	Places	33,240	19,753	5,854	64
Hotels, apart-hotels and hostels	Licences	570	139	53	1
	Places	53,886	21,682	7,330	356
Youth hostels	Licences	86	31	13	-
	Places	6,857	1,425	1,152	-
Accommodation residences	Licences	21	11	19	-
	Places	1,849	2,105	2,831	-

Zone 1, which is the most congested area with more than 60% of the total bed places, aims to decrease the number of tourist establishments. Any new tourist establishment or the expansion of places in existing establishments is not allowed. PEUAT also introduced a requirement of bed place reduction for hotels located in Zone1 when renovating the property.

Zone 2 is an area to maintain the current number of tourist accommodations. If an existing establishment ceases activities, another with the same number of places may be established.

Zone 3 allows implementation of new tourist establishments and expansion of existing ones if the maximum density of offered bed places is not exceeded. The maximum density is established based on the capacity of the area and the current degree of supply of tourist accommodation.

Zone 4 is under special regulation, and no new licences are allowed. (PEUAT | Plan Especial Urbanístico de Alojamiento Turístico, 2021)

The global Covid-19 pandemic began in 2020, and travel restrictions were introduced, which halted the tourist activity. The city council readjusted the priorities of the team responsible for investigating the illegal tourist accommodations to analyse the obtained data further and seek for potential

irregularities. They found 969 active listings on Airbnb' platform, of which 524 either had incorrect or false tourist licence information and 445 were listed as individual rooms, but the reality was offered for renting the whole apartment. (Barcelona pide a Airbnb la retirada de un millar de pisos turísticos ilegales, 2021)

In January 2021, Barcelona City Council approved a modification to the PEUAT banning also the renting of rooms for under 31 days, practically making all short-term tourism rentals without a valid licence illegal in Barcelona. This latest measure makes Barcelona the only major city in Europe with sanctions towards short-term room rentals.

Homesharing, the activity to rent a spare room while living in the property, is a crucial way to supplement income for many Barcelona residents. A survey conducted by Airbnb shows that half of the hosts who rent out rooms in Barcelona depend on this extra income to pay their rent and other bills. The penalty for renting a spare room for under 31 days is 6001€ in case the apartment owner is living and registered for the same address and does not have other apartments. The fine can be reduced by 50% if the renter is in a vulnerable situation, financial or medical, and has documentation to prove it. The penalty can be raised 50% to 9001€ in case there are more than ten reviews on the platform where the room is advertised, or there is evidence that the tourist activity has caused inconvenience to neighbours. (Jorro, 2021).

Many Barcelona residents who rent out part or entire apartments through Airbnb just to be able to pay the bills have received fines reaching up to 66 000€. Without the means to be able to pay the fines, they are at risk of losing their house. 300 affected people have organised and started a discussion to get the fines annulled. (Castán, 2021)

2.7.1 Regulation effects on the Airbnb listings

A tourist licence is required by law for all establishments offering short-term rental for under 31 days, and the Barcelona city council has ruled that the licence needs to be shown when advertising the property. Inside Airbnb database provides the licence info in case it has been entered into the listing. Examining the data, we can observe that only 5524 listings have the tourist licence, which is

in a valid format, starts with HUTB- and includes a 6-digit number for identification. 6008 listings have the tourist licence field empty, and 3913 listings have input the word "Exempt" in the advertisement.

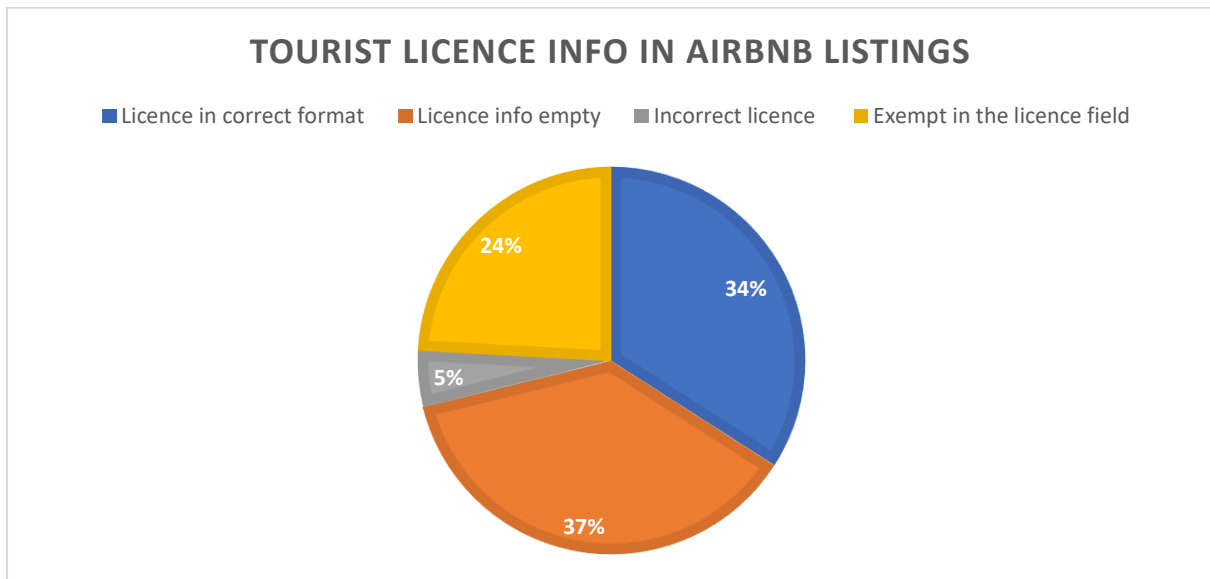


Figure 17. Tourist licences in Airbnb listings (Inside Airbnb: Barcelona. Adding data to the debate. 2021)

Based on the 2021 September snapshot of the Airbnb Barcelona listings, only 34% complied with the regulations. The only scenario where the listing would legally be exempt from tourist licence after the January 2021 new PEUAT regulations are when the listing is only for room rental and where the rental period is a minimum of 31 days. Of the 3913 listings that include the word Exempt in the listing, only 517 listings have a minimum stay of 31 or more. Under the recent update to the regulations, the remaining 3396 listings would need a valid tourist licence to be rented. (Inside Airbnb: Barcelona. Adding data to the debate. 2021)

2.8 Changes to rental law

In September 2020 Catalanian government introduced tight rent regulations for new long term rental contracts with an aim to lower the cost of living in areas which they deemed to have a tense housing market. The new law affects 61 cities and towns where approximately 70% of the Catalan population are living and which have seen over 20% increase in rental fees between 2014 and 2019 (Trindade, 2021). In these areas, the rent amount for the new or renewed contract is determined by the Catalan government's average price index. The index determines the maximum price for a square meter for any new rental contract. The index prices are based on the historical rent prices in

the area, the age of the building and the condition of the apartment. In the case of rental contract renewal, if the old price is over the calculated maximum, it must be lowered to match the index price. The index price must be included in the rental contract, failure to comply with the new regulations can result in a fine of up to 9000 euros. (BOE-A-2020-11363 Ley 11/2020, 2020)

While this law has been in place since September 2020, at the time of writing, there has been only one case where the Barcelona authorities have fined a homeowner who charged a higher rental price than allowed in the rent index. In October 2021, there has been a total of 337 filings, of which only 11 have been initiated for further processing. (Rodríguez, 2021)

These drastic measures were widely applauded by tenants but received major backlash from apartment owners and housing agencies which have argued that capping rental prices is unconstitutional. Spanish government led by the Spanish Socialist Workers' party PSOE and Unidos Podemos introduced a similar law in October 2021 which regulates the rental market by introducing a maximum rent cap for tense housing areas. (Gallego, J, 2021)

Political party Partido Popular (PP) has challenged the constitutionality of both Catalan and Spanish new renting regulation and it has appealed to the Spanish constitutional court to decide whether the laws are constitutional. The constitutional court has not made a ruling on the matter at the time of writing this paper.

3. Methodology of the research

This study and conclusions are limited to the Barcelona city area, and its goal is to fill in the gaps of the earlier work done by other authors on the various secondary effects of short-term rentals. The main body of the research has been done with the quantitative method by gathering available data of Barcelona's tourism activity, the housing market and salary evolution, and Airbnb statistics scraped by activist organisation Inside Airbnb.

The qualitative method is applied to interpret the results from surveys about tourism made by the Barcelona city council and the semi-structured interviews made with two active non-professional Airbnb hosts. Semi-structured interviews were chosen as the best way to understand why the individuals select to rent through Airbnb instead of renting for the long term and what the hosts think about the current short-term rental regulations. The interviews were conducted in July 2021, and the questions asked were focusing on the hosts Airbnb currently, the historical gains through short-term rentals and the host's views of the measures taken by the Barcelona city government. The one-on-one interviews have the advantage of providing precise data about a person's beliefs and personal motivations. This method also allowed follow-up questions to get more information depending on the interviewee's answers. However, there is a significant downside to this approach as the findings cannot be applied for larger-scale conclusions due to the sample size of the interviews.

4. Interviews with Airbnb hosts

The author discovered that the high penalisation for illegal short-term discouraged hosts from participating in the interviews as only two persons accepted to be interviewed. The author contacted multiple hosts through the Airbnb messaging system but got only one positive response for the interview request. The second interview was arranged by asking the around the neighbourhood if there were Airbnb hosts willing to be interviewed. The interviews were conducted in July 2021, when international inbound travel was allowed in Spain. The interviewees were asked five predetermined questions, and the open follow up questions were based on their answers. The interviewees did not want to be recorded; the author was able only to take written notes during the interviews.

The predefined interview questions:

- How long have you used Airbnb to rent out your property?
- What is your main reason for hosting through Airbnb?
- How much have you earned from the Airbnb rentals?
- Does your listing comply with Barcelona's short-term rental legislation?
- What is your view on regulations currently in place?

Host one interview

The first host is living in Gracia neighbourhood in a rented 4-bedroom apartment, paying around 1500 per month for the rent and utility bills. She started renting 3 of the rooms through Airbnb in 2015 while living in the apartment at the same time. All of the rooms have double beds and windows with natural light. For pricing, she uses a dynamic system when listing the rooms, keeping the nightly rates at 30€-40€ during the offseason and raising the room rate up to 90€ during peak tourist seasons. Before Covid-19 and consequent travel restrictions, she was able to make comfortable living only by the short-term rentals. She estimates that her average income up until 2020 was over 3000€ per month. During the summer peak season, monthly earnings of over 6000€ were possible,

and she remembers at times having so many booking enquiries that she was able to choose the guests. The house rules prohibited parties, but in case multiple queries came to the same room, she favoured older guests as they were more unlikely to cause noise than younger tourists.

When asking about the new Airbnb regulations and possible fines, she stated that she is worried about them, but at the time being, she sees the short-term rental income to be too enticing and worth the risk. She is also certain that the newest regulations to room rentals will be overturned in the future as so many Barcelona residents are relying on the extra income Airbnb rentals provide.

Host two interview

The second host owns a 2-bedroom apartment in the Eixample district, which he is advertising through Airbnb and multiple tourist online forums. He has been renting the property for short-term stays since 2014 but had one long term tenant living in the apartment from the start of the pandemic up until spring 2021, but the owner has again started the tourist rentals. He estimates that during the normal year, he is earning over three times as much through short-term rental than it would be possible renting for a longer term. He did not want to specify the amount that he had earned through Airbnb. He says the new rental law, which caps the maximum rents, is deterring him from renting the property for longer-term as the return on his investment is considerably higher with the tourist rentals. When asking about the regulations, he says that while he does not have the required tourist licence for the apartment, he believes that he is advertising the apartment so that he will not get penalised. He declined to give more concrete details on what is the way he mentioned. He believes that the Barcelona city council and the mayor Ada Colau are overstepping citizen rights when penalising the use of private property and setting price limits for property rental. He expects the supreme court to rule out the current rental law in effect in Catalonia as unconstitutional.

5. Conclusions

The aim of this paper was to examine the potential impact of short-term tourist rentals in the Barcelona city area. There are five defined questions which this thesis intends to answer based on the research results.

Thesis question 1

An average rent costs have raised over 47% during 2013 - 2019 in Barcelona. Is there a link between the rise in housing costs and Airbnb's popularity?

There are multiple existing studies that examine the short-term tourist rental impacts on housing costs on popular tourist destinations are indicating a link between Airbnb listings and raised rent prices. Specific to Barcelona and its most touristic areas, the evaluated data seemed to correlate with the research done by Miquel-Àngel Garcia-López and Jordi Jofre-Monseny, which shows an estimated 7% impact on housing costs in areas with high Airbnb activity. The primary mechanism impacting the rise of rental prices is the wide gap between the earning potential between short-term and long-term renting.

Thesis question 2

What is the difference in income potential for apartment owners between traditional renting an Airbnb short term rents?

The income potential for short-term tourist rentals is significantly higher than long-term rentals. While highly seasonal and more dependant on the property location, the homeowner can earn over double renting through Airbnb than longer-term let. The new rent law, which limits maximum prices for long-term rental contracts, further limits the earning potential for homeowners. The interviewed Airbnb hosts evaluate the more significant Airbnb income potential is worth the risk of potential fines as their listings are not complying with the tourist rental regulations.

Thesis question 3

Has there been any effect on the affordability of long-term rental possibilities?

The salary evolution in the Barcelona city area hasn't reached the rate at which the rental prices increased. The affordability of own apartment is considerably low, especially for people under 35 years or people in low wage professions. The new rental law is putting a ceiling to the rent price paid per square meter, but as it is valid only to more extended rental contracts and not applicable to under 12-month rental periods. This introduces a risk that homeowners start to limit the contract periods so that they can set the rental prices freely, which would reduce even further the affordable housing pool in the city area. Browsing through popular real estate sites like Idealista and Fotocasa shows that many rent listings are limited to a maximum of one year contract, therefore bypassing the new rental law rent cap requirements. As the measures have been only valid for one year and have been challenged in the supreme court, time will ultimately tell is there going to be an impact on the affordability of long-term renting or not.

Thesis question 4

The city has recognised short term rentals without a proper tourist license as a problem and has set new rules and regulations like high fines and rent control. Do these measures have the wanted impact?

Barcelona city council has acknowledged the negative impacts coming from using homes as tourist accommodation and imposed the strictest regulations in Europe to short-term tourism rentals platforms like Airbnb. However, examining the data seems to have failed to have a meaningful effect. While the number of active listings in the Airbnb platform has dropped from the peak of over 20 000 listings in 2016 to 16206 in September 2021, it can be assumed that the global pandemic and travel restrictions have played a bigger part in the decrease.

The massive fines for violating the tourism rental laws do not seem to have the desired deterring effect; as much as 66% of the listings in the Barcelona city area are missing the valid tourist licence info in the listing, making them illegal under the current regulations. This also came apparent from the conducted interviews where the Airbnb hosts acknowledged the possibility of receiving the hefty fines but still saw the earnings from short-term tourist rentals worth the risk. Many Barcelona residents are relying on short-term rentals to receive extra income and often just in order to be able

to pay the monthly expenses. The fines up to tens of thousands of euros enabled under the current legislation can have a devastating effect on regular residents, which in the author's opinion are not the root cause of the issue.

After analysing the listings, a significant part of the short-term rental offering comes from a small number of hosts with multiple properties. The biggest host in the Barcelona area has 177 listings active, and there are 84 hosts with 20 listings or more on the Airbnb platform. These professionally operating hosts are forming a big part of the total listings for entire apartments. Examining the listings show that the majority of the listings from these professional hosts include tourist license. These listings comply with the Barcelona tourist accommodation legislation and can be observed, for the most part operating legally.

The PEUAT plan that has been refined over four years by the Barcelona city council has well-defined goals which, if realising, would help with the tourist activity congestion in the city centre area. Based on the available data, these goals, however, seem pretty far-fetched. By nature, the touristic demand is essentially dependent on the proximity of touristic activities like landmarks or museums. One of the crucial points of the PEUAT plan is the intention of expanding the tourist demand by expanding the accommodations options further from the tourist hotspots, which in the author's opinion, is not feasible. On the other hand, stopping the allocation of new tourist licences and allocating the already granted tourism licences to a different part of the city with less touristic concentrations when the original operations cease is not financially feasible because the natural demand is not the same.

Thesis question 5

What have other countries facing the same issues done, and what means could Barcelona implement to minimise the negative impacts of short-term rentals?

Multiple cities worldwide have introduced regulations for Airbnb rentals. The regulatory measures range from obligatory registration of the tourist apartment, capping the maximum time that the apartment can be rented to an outright ban, to unhosted rentals if the apartment is not designated explicitly for tourism use. Barcelona currently has the strictest legislation for short-term tourist rentals; besides having high fines for not complying with the regulations, it is the only city in Europe

that has banned short-term room rentals. As Barcelona has already imposed the toughest legislation for Airbnb rentals, there is no realistic possibility to implement measures used in other countries. Time will ultimately tell if these strict regulations are efficient to combat the negative side effects of short-term rentals.

5.2 Limitations on the research

There have been multiple factors that have limited the scope of this research. Primarily the Covid-19 pandemic is still affecting travelling worldwide, and while the situation has improved from spring 2020, it is still far from normal. Therefore, data reflecting the Airbnb activity in the city is subject to change when tourism is recovering.

Secondly, the regulations for short term room rentals have changed during the research period. As there isn't enough data available

Thirdly the author acknowledges that while the insights of the interviews of the two Airbnb hosts can provide anecdotal evidence of the short-term rental business, they cannot be used on drawing broader term conclusions due to the minimal sample size.

5.3 Recommendations for regulations and future research

The author finds that one of the most significant issues with the current situation is the lack of cooperation between the Barcelona city council and the Airbnb platform. The platform allows the publishing of listings missing the officially required information of the tourism licence ID. The author recommends that Airbnb will check the validity of the tourism licence before publishing the listing on the website. This should be done for all advertisements for entire apartments.

The author also thinks that the penalisations for renting a room when the host is staying in the apartment at the same time should be removed. Many of the Barcelona residents are dependent on

this extra income, and while they are staying in the property, they can better monitor that the guests are not causing any inconveniences like noise to the neighbours.

Further future research is recommended on how the rental price levels have evolved and to what extent the newly introduced room rental regulations have an effect on the short-term Airbnb listings.

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