



**DONDE
ESTAMOS,
DONDE IREMOS:**

**BARCELONA BY
THE NUMBERS**

By Matt Reichenbach



Introduction

Situated along the Mediterranean Sea in the northeastern province of Catalonia, Spain, Barcelona has earned its title as one of the most popular cities in Europe. With its uncommon urban design, one-of-a-kind local attractions and friendly populace, Barcelona stands out as a city that offers what no other city can. However, the city isn't without its problems. Confined geographically between two rivers, a mountain range and the Mediterranean, the city has struggled to grow and respond to challenges ushered in by the modern era. Politically as the capital of Catalonia, the city is constantly under fire from the national government in Madrid as a way to quell the locals' desire for independence. Even further, the sheer number of tourists that visit the city has put immense pressure on the city's infrastructure, impacting many aspects of city life from the availability of local housing to new concerns with transportation systems.

For these reasons, the city's livability is now called into question. Livability is defined as how habitable a place is and uses factors such as the environment, transportation, housing and demographic measures to determine how capable the city is for harboring life. In this report using disparate items of data, different aspects of the city will be explored and analyzed with the purpose of making recommendations that can be implemented in the future to help alleviate current concerns that the city faces. Data was collected from a variety of sources, namely Open Data BCN, the city's own data collection service, Inside Airbnb, Statista and reports provided by El Prat airport. Topics of special interest in Barcelona's case include issues in transportation, housing and the tourism industry. However, demographic measures such as immigration and emigration rates were also included in order to give a more holistic view of Barcelona society. The purpose of this report is for the Barcelona city council to use it in order to survey the current status of the city and how the city can be improved in the future to accommodate for modern concerns.

Transportation

For the purpose of this report, transportation includes ground transportation within the city as well as air traffic coming in and out of Barcelona's El Prat International Airport. Before breaking down traffic data, it's important to note how the urban plan of the city impacts traffic patterns (figure 1). In neighborhoods with very limited through traffic as a result of tight, zig-zagging streets, like Gràcia, Nou Barris and Ciutat Vella, accidents are minimal as only bicyclists, pedestrians and motorcyclists have the ability to



Figure 1

traverse those areas. However, in areas such as Eixample and Sant Martí, with large avenues and thruways, traffic accidents are to be expected. When looking at the number of vehicles involved in accidents during 2017, it's clear that the urban design of each neighborhood has a direct correlation on the number of accidents reported (figure 2). There are almost six times as many vehicles involved in accidents in the Eixample district compared to the number of vehicles of involved in accidents in Gràcia, Nou Barris and Sant Andreu. The situation becomes even more clear when looking at what streets have the most accidents (figure 3). Out of the top ten streets with the greatest number of traffic accident victims, five of them are considered to be thruways in which drivers can traverse the city in its entirety. For this reason, it is expected that there are more victims of traffic accidents on these streets because of the high frequency of use and immense volume of traffic. Even further, four of those streets, Corts Catalanes, Diagonal, Aragó and Meridiana, are all primarily located in the Eixample district. This does well to suggest that Eixample is one of the most problematic neighborhoods in the city when it comes to traffic accidents and congestion. With this, it's clear that further improvements can be made in addressing traffic concerns in high volume streets and neighborhoods where more ground traffic is located. Some possible improvements include more traffic regulation by local police, reviewing traffic light patterns on important thruways or even revising the superblock structure in the Eixample district to adjust for more modern considerations, specifically the increased volume of traffic.

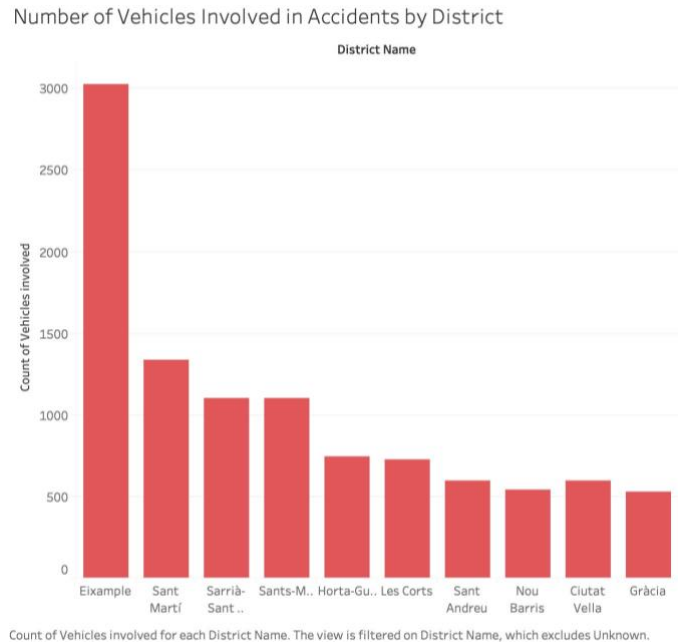


Figure 2

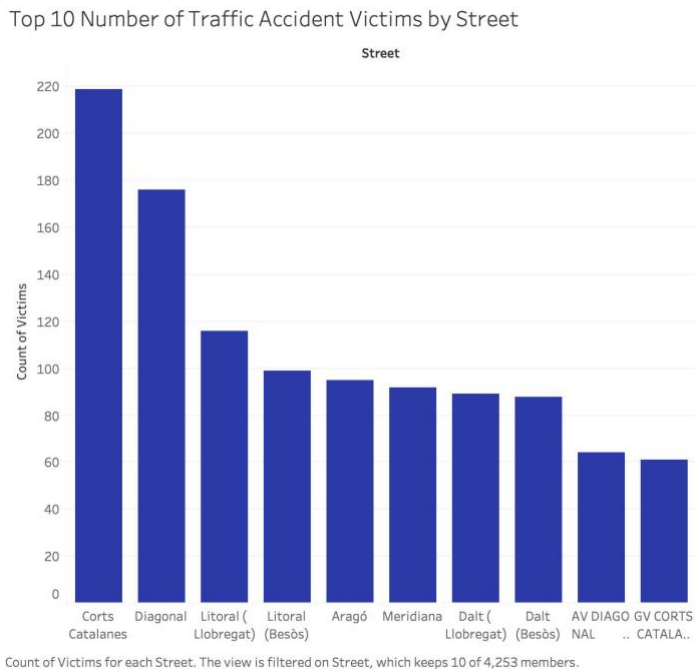

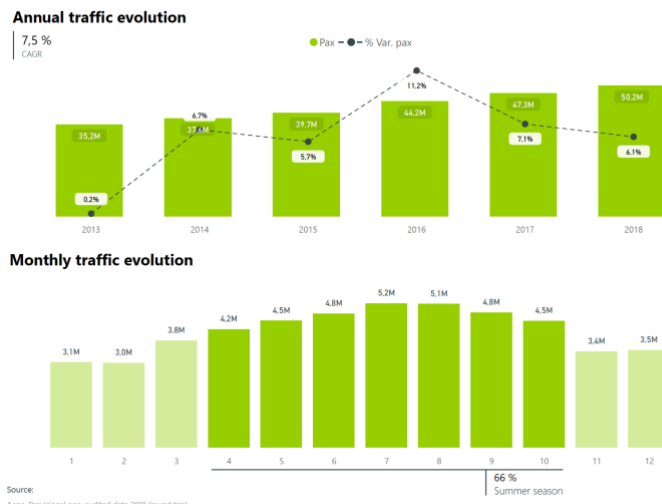


Figure 3

Aside from ground transportation, Barcelona's international airport, El Prat, is increasingly being recognized for its ability to handle the immense amount of human traffic that comes through it. In a 2018 report,

Traffic statistics 2018

JT Barcelona-El Prat 




compiled by Spain's air navigation manager Aena, many aspects of the airport were summarized. In figure 4, traffic statistics in 2018 are provided and illustrate the change in volume throughout the year. Two takeaways from this summary are worth noting. One, from 2013 to 2018 airport traffic has been steadily increasing. In the course of five years, the number of passengers has increased from 35.2 to 50.2 million, reflecting not only the increasing number of tourists that visit the city, but also the increasing focus on Barcelona as being a hub for both international and regional

Figure 4

travel. Secondly, 66% of airport traffic occurs during the summer season, again reflecting the impact that tourism has on the operation of the airport. More pertinent information becomes clear when looking at the demographic breakdown of passengers traveling through El Prat (figure 5). 50% of travelers say that their reason for flying is vacation related. When taking this percentage into account with the large number of passengers, it's clear that a majority of travelers through El Prat are not based in Barcelona proper. This observation is supported by the fact that only 39% of travelers have residence in the city and only 18% have residence in Spain. For this reason, El Prat's consumer base is largely reliant on tourism and international travel. While the city council doesn't have any control over the management of the airport, it's important to note these takeaways because in how the city can respond to El Prat's traffic patterns. During the summer months, local transportation systems, such as the bus and metro, could have more vehicles in rotation to not only deal with the sudden influx of tourists but also alleviate sudden onset congestion for locals. Additionally, while the city already has an airport shuttle service as part of its bus system, more varied shuttle options could be implemented that cater to the certain groups of travelers arriving at El Prat, specifically tourists and people traveling for business. In

Passenger profile

JT Barcelona-El Prat 

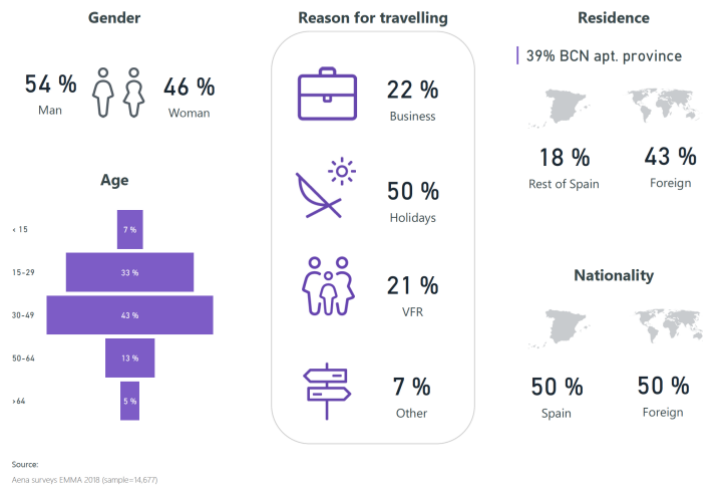


Figure 5

this way, the city could alleviate traffic congestion on the metro while also opening up more sources of profit on more tailored shuttle options.

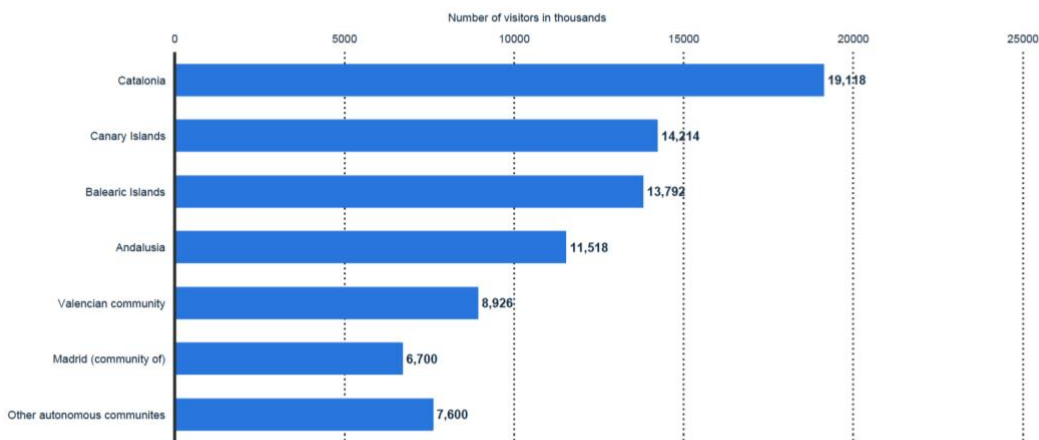
Tourism

Perhaps one of the most influential factors in the city, tourism in Barcelona has been steadily growing over the past decade and has presented itself as both a blessing and a curse for the city. While tourism has brought in millions in revenue for the city, it also has brought with it extreme issues in how the city can afford to house these tourists while also having enough room for locals to keep homes that have been passed down for decades.

Statista, a global leader in market and consumer data, has compiled various statistics on Barcelona's tourism industry. Using these graphs, it's possible to understand how tourism operates in Barcelona and what impact it has on the city.

Number of international tourists arriving in Spain in 2017, by destination region (in 1,000s)

International tourist arrivals in Spain 2017, by destination region



Note: Spain, 2017
Further information regarding this statistic can be found on [page 30](#)
Source(s): INE (Spain), [ID_447201](#)

6

[Overview](#)

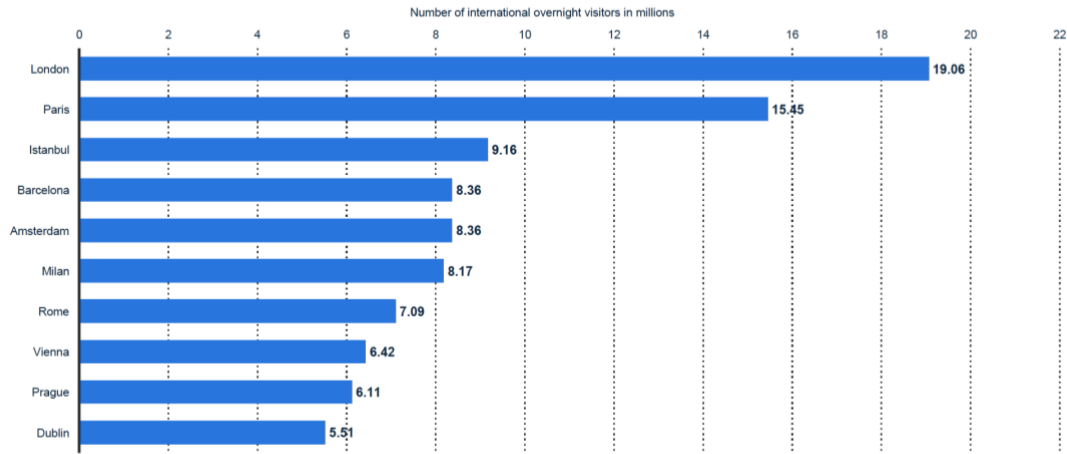
Figure 6

Firstly, when looking at the number of international tourists visiting Spain, it's clear that Catalonia stands out as being the most popular region during 2017 (figure 6). While it can't be inferred that these tourists are going to Barcelona, the capital of this region, it's reason enough to note that there is a noticeable difference in tourist traffic between this region and Madrid. Yet, the mass appeal of this region is also evident when looking at the most popular European cities (figure 7). In 2016, Barcelona was the fourth busiest city for international visitors in Europe, beating out historically popular cities like Rome, Milan and Vienna with Madrid not even

making the top 10 list. With this, it's clear that tourists from around the world consider Barcelona to be a worthy city to visit.

Number of international overnight visitors in the most popular European city destinations in 2016 (in millions)

International overnight visitors in European city destinations in 2016

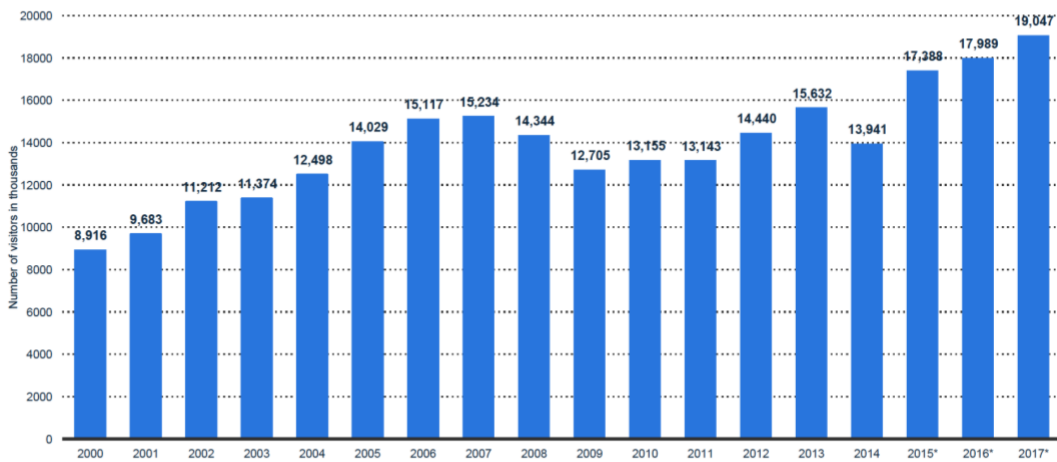


Note: Europe; 2016
 Further information regarding this statistic can be found on [page 65](#)
 Source(s): MasterCard; [ID 310535](#)

Figure 7

Annual number of international tourists visiting Catalonia from 2000 to 2017 (in 1,000s)

Annual number of international tourist arrivals in Catalonia 2000-2017



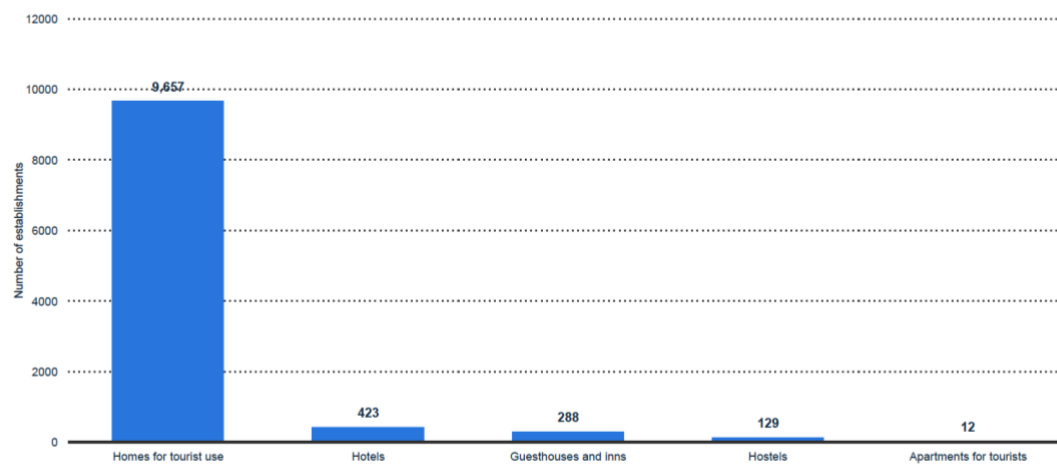
Note: Spain; 2000 to 2017
 Further information regarding this statistic can be found on [page 40](#)
 Source(s): Subdirección General de Conocimiento y Estudios Turísticos; INE (Spain); [ID 447623](#)

Figure 8

Yet, when looking at tourism numbers solely within Catalonia it's apparent that this isn't necessarily a new trend (figure 8). Ever since 2000, the annual number of international tourists visiting Catalonia has steadily increased. While there were decreases in 2009, 2010, 2011 and 2014, most likely related to the unstable political situation in Barcelona as a result of a steadily growing independence movement, the trend has been generally positive. By looking at tourism trends on national, international and local levels, the tourism industry in Barcelona shows no signs of stopping, especially as the city continues to become more and more popular for tourists all around the world.

Number of accommodation establishments in Barcelona city in 2017, by type

Accommodation establishment numbers in Barcelona. Spain 2017, by type



Note: Spain, 2017

Further information regarding this statistic can be found on [page 56](#)

Source(s): Ayuntamiento de Barcelona, Turismo de Barcelona, Gremio de Hoteles de Barcelona, [ID 455185](#)

[Accommodation](#)

25

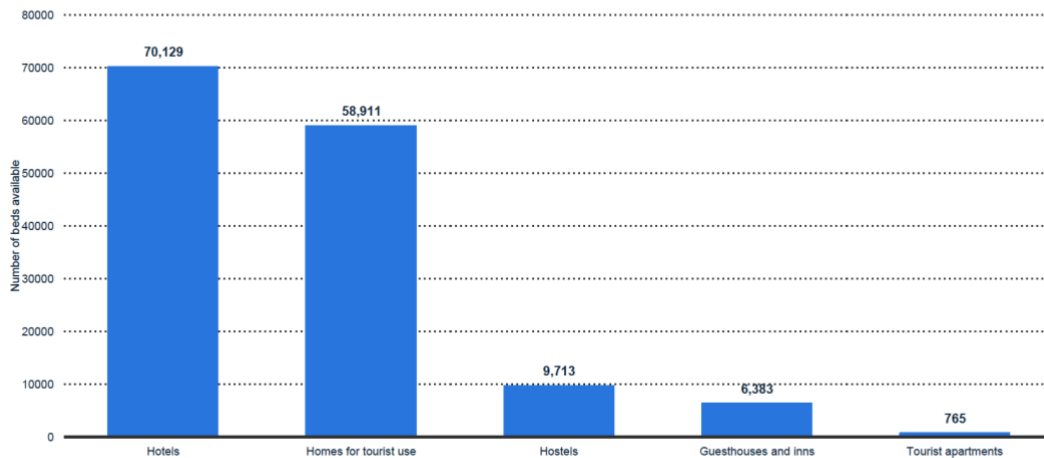
Figure 9

Another aspect of the Statista data that carries great interest is in where these tourists stay when they get to Barcelona (figure 9). When looking at the graph, it's clear that there is a big disparity between the number of homes for tourist use, like Airbnb, and the number of hotels. In Barcelona's case, this isn't necessarily surprising as it has struggled to rein in the growth of vacation rental giants like Homeaway, CouchSurfing and most notably, Airbnb -- an issue that will be explained in depth in the following section. The situation deepens when looking at the availability of these accommodations through the number of available beds (figure 10). Even though the number of hotels pales in comparison with homes for tourist use, the number of available beds greatly outnumbers those in all other categories, suggesting that even with such a small number of hotels, tourists are choosing other accommodations. Yet, this isn't necessarily the case. In 2017, there were 58,911 beds available in the 9,657 homes for tourist use. What is surprising about this number is how large it is when looking at hotels for comparison. If tourists are choosing homes for tourist use over hotels, why is it that there are still so many beds

available? This issue speaks to the overwhelming presence that vacation rental companies have in Barcelona. Even though there is a clear need to house tourists, the city is so saturated with homes for tourist use that so much available space goes unused, sometimes for months at a time.

Number of beds available in Barcelona in 2017, by type of accommodation

Bed numbers in Barcelona, Spain 2017, by type of accommodation



Note: Spain, 2017
Further information regarding this statistic can be found on [page 57](#)
Source(s): Ayuntamiento de Barcelona, Turismo de Barcelona, [ID 455202](#)

26

[Accommodation](#)

Figure 10

After looking at tourism data in the city of Barcelona, there's a lot the city can keep in mind to be further equipped to handle the constant influx of tourists that arrive in the city over the course of the year, especially during the summer months. Current tourism trends point to Barcelona continuing to grow in popularity in the coming years, meaning that the number of tourists will most likely continue to increase putting an even greater pressure on the city to respond. Perhaps the most pressing issue is in further regulating the types of accommodations that are provided to tourists, making sure that all homes for tourist use are registered in the tourist registry and are regularly checked and updated. In order to get more tourists in hotels, there could be a push to offer more discounts, deals and partnerships between hotels and the city. For example, a hotel could offer a deal that includes admission to popular tourist attractions in the city or even a deal in ticketing for local transportation. This would effectively pull tourists into staying in hotels while also promoting city attractions and drawing in revenue.

Housing

One of the most pressing issues the city faces is in regard to housing. With a booming tourism industry, an already tight local housing crisis and the city's already very restricted geographic location, the city has struggled to address the issue in a way that appeases locals

while also accommodating the high number of tourists. To make matters worse, Airbnb has taken over the city and with it many local properties. In fact, in July of 2014 the local government in Barcelona sued Airbnb for \$30,000 for breaching local laws regarding the lack of listings on the city's tourist registry, according to an [article](#) by The Guardian. More recently however is an [article](#) from The New Yorker in which writer Rebecca Mead investigates how Airbnb has ultimately led to the "touristification" of the city with dire consequences:

“Nearly half the Airbnb properties in Barcelona are entire houses or apartments. The conceit of friendly locals renting out spare rooms has been supplanted by a more mercenary model, in which centuries-old apartment buildings are hollowed out with ersatz hotel rooms. Many properties have been bought specifically as short-term-rental investments, managed by agencies that have dozens of such properties. Especially in coveted areas, Airbnb can drive up rents, as longtime residents sell their apartments to people eager to use them as profit engines. In some places, the transformation has been extreme: in the Gothic Quarter, the resident population has declined by forty-five percent in the past dozen years.”

Inside Airbnb is an open source data tool that collects and analyzes Airbnb properties in major global cities and how these properties impact local neighborhoods and communities. While the tool provides a large number of metrics for Airbnb properties, it also overlays Airbnb properties on select city maps. When looking at the maps of Madrid and Barcelona, the top two most visited cities in Spain, it's clear how much of an impact Airbnb has had on Barcelona (figure 11 and 12). Even from a quick glance it is evident how densely packed Barcelona is with Airbnb listings. While this is a reflection of the city's unfortunate surrounding geography, these maps serve well to illustrate Barcelona's issue with Airbnb. Additionally, as part of research done on Barcelona listings, Inside Airbnb found that 78%, or 11,520 out of 14,699 listings, lacked a license number indicating that most properties were either unlicensed or illegal. This is

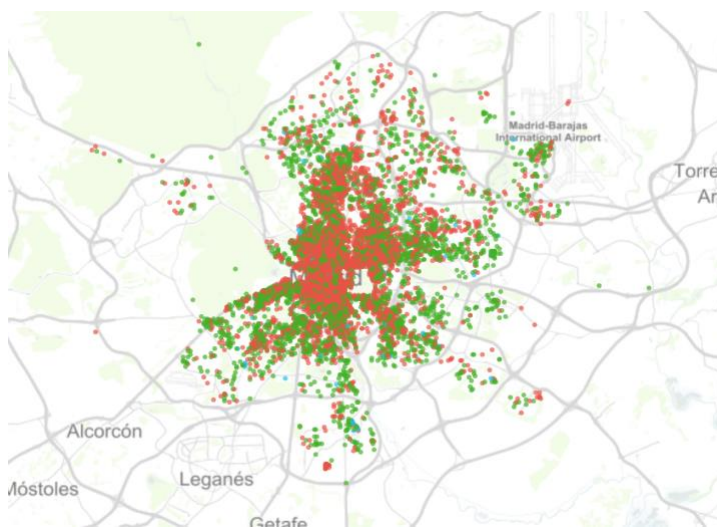


Figure 11

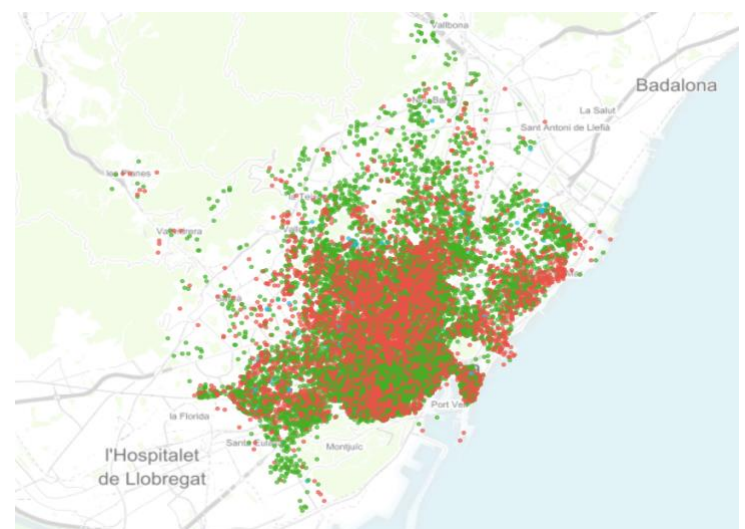


Figure 12

an extreme issue, one that impacts both the availability of cheap, local housing as well as the high paywall that is created as a result of competition. The situation worsens when taking into account the fact that the occupancy rate is 39% and listings are only rented out 106 nights out of a year on average, according to Inside Airbnb. This means that for more than two thirds of the year, most properties in Barcelona were vacant, taking away precious housing that could be given back to locals.

According to [TINSA](#), a housing appraisal agency that operates in Spain, the average price per square meter in Barcelona during 2018 was €3,380. When looking at the average price per night in each Barcelona neighborhood, it's clear how much vacancies take their toll on the locals (figure 13). On top of not having people renting out their spaces, locals aren't able to adequately sustain themselves because of how cheap it is for visitors to rent in comparison to owning the property. Especially in neighborhoods with long-time locals, like Gràcia and Sarría-Sant Gervasi, those who own properties aren't able to keep their houses while also hoping to turn a profit. However, it isn't just the local neighborhoods that are struggling, as indicated by figure 14. The Eixample district,

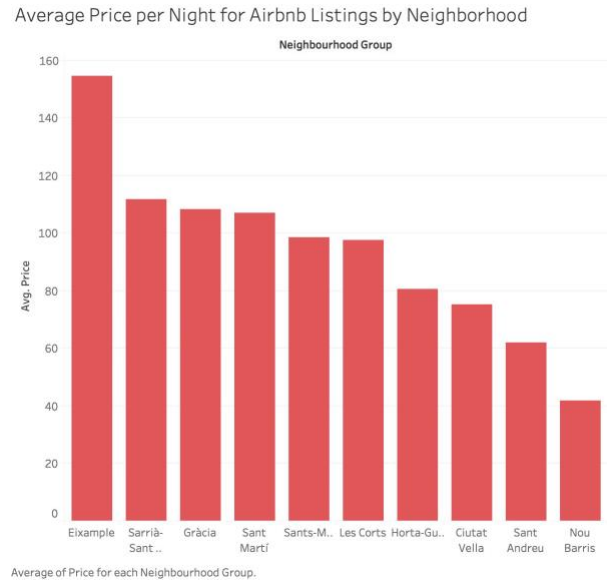


Figure 13

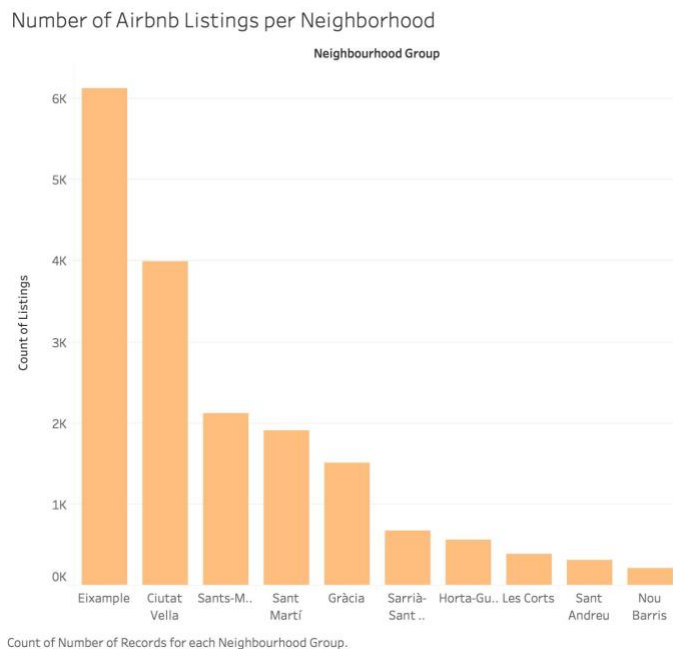


Figure 14

known for being where the bulk of downtown Barcelona is located, has over 6,000 Airbnb listings. This is over 2,000 more listings in comparison to Ciutat Vella, a neighborhood just to the east over Parc de Montjuïc. It's interesting to note that while Gràcia and Sarría-Sant Gervasi have relatively high prices, the actual number of listings that they have is far less. This is a reflection of gentrification patterns in the city. Areas located near tourist hotspots of the city, namely the Gothic Quarter and the Barceloneta area, are far more likely to turn over to rental housing as a means to generate profit while also being convenient for tourists.

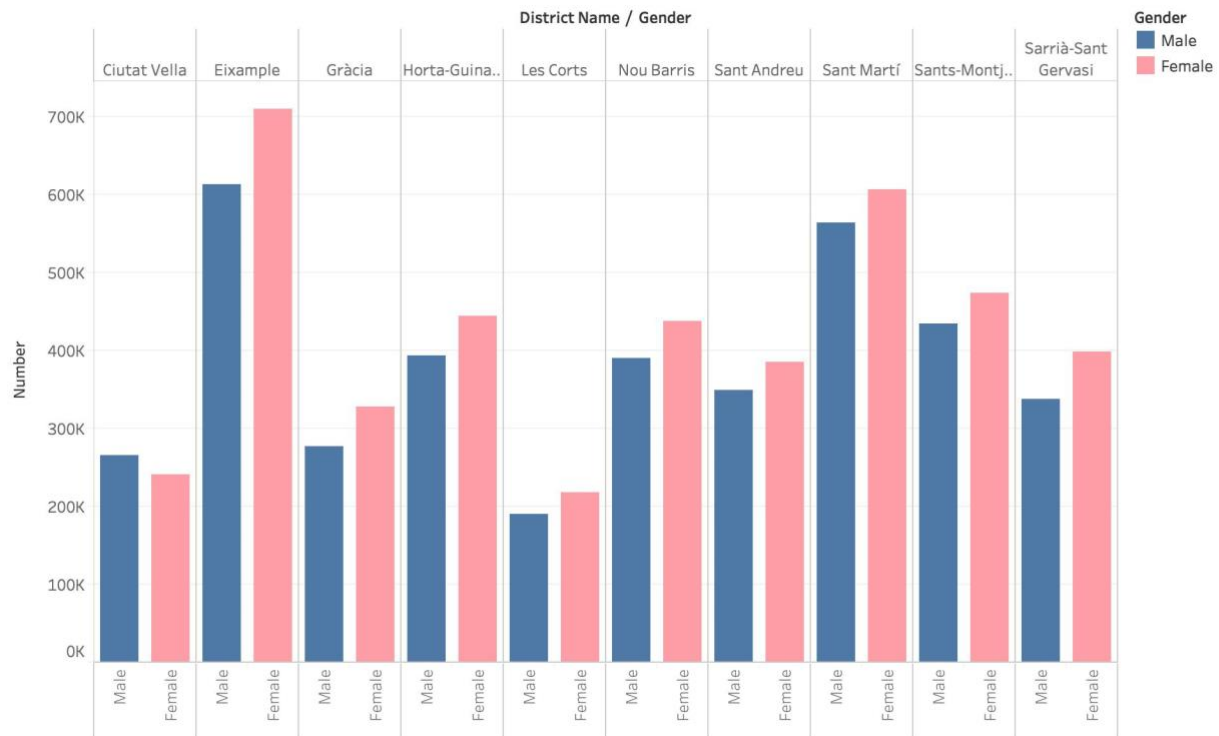
With all of this disparate housing data, it's evident that more purposeful, direct legislation needs to be passed that helps protect local homeowners survive Airbnb's invasion into the city. Some specific considerations include determining appropriate prices to match both the needs of both the owner and the tenant, enforcing the enlisting of properties onto the tourist registry in order to fully gauge how much housing is being unused and above all, educating locals on the benefits and consequences of working with a company like Airbnb in the scope of the current housing crisis in the city.

Society

In the previous sections, very specific aspects of the city were explored. However before concluding, it's important to look at demographic aspects of Barcelona society in order to see how the population is responding to a variety of factors. For the purposes of this report, society will be analyzed through population makeup, immigration and emigration trends.

To start off, the demographic makeup of Barcelona's population will be analyzed. In terms of gender, Barcelona exhibits a clear trend (figure 15). In all districts except for Ciutat

Population of Barcelona by District and Gender in 2017



Sum of Number for each Gender broken down by District Name. Color shows details about Gender.

Figure 15

Vella, there are more females than males. Additionally, large swaths of the population are located in the Eixample and the Sant Martí districts, situated in the heart of the city and a little bit east of the city center respectively. The overwhelming female presence is an interesting one, given that a statistic reported by [Catalan News](#) cited that women are earning 30% less than men in Catalonia.

Spread of Age in Barcelona in 2017

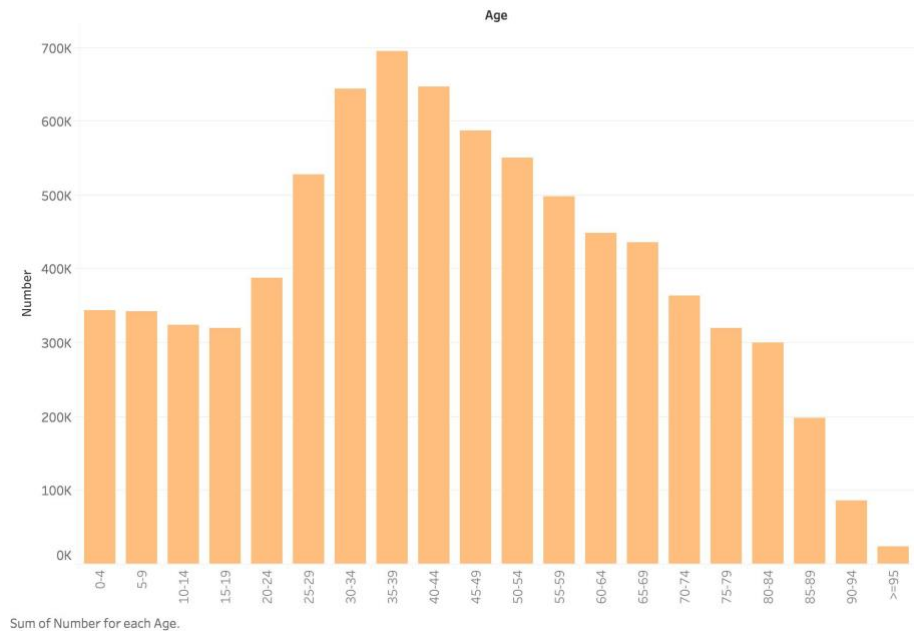
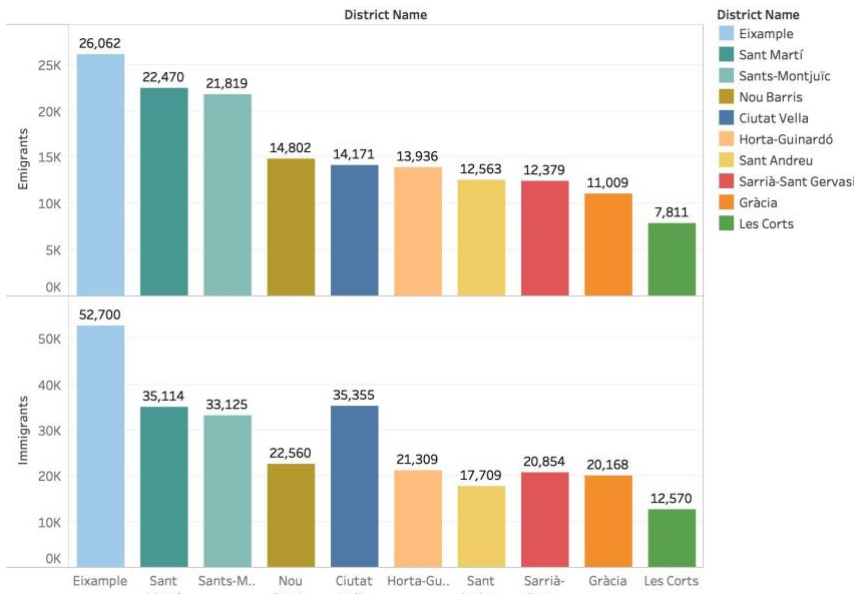


Figure 16

When looking at the population in terms of age, it's possible to see what problems the city might have in the coming years (figure 16). In Barcelona's case, most of the city is middle aged with a majority of citizens being between the ages of 30 and 44. This is to be expected in any major city, but what is concerning is the relatively small number of young people ages 0 to 24. Since the amount of young people is so small compared to middle aged people and the elderly, young people will become strained in supporting the older population. However, this isn't an issue just confined to Barcelona. Europe as a whole has recently been dealing with an [aging population](#) and how that might impact the labor force and the economy. European countries are now starting to create programs that invest in young people so that they are adequately equipped to respond to the situation and support the aging population.

Aside from the population's gender and age makeup, what do the city's immigration and emigration trends indicate about Barcelona's population? When looking at the number of emigrants and immigrants by district in 2017, there are a couple necessary distinctions to be made (figure 17). In general, there are more immigrants arriving in Barcelona than emigrants trying to leave. When immigrants do arrive in the city, they are likely to reside in Eixample or Ciutat Vella. While it's no surprise that Eixample is a popular district, Ciutat Vella appears as the second most popular district because historically it's had an ethnically diverse population. Another important observation comes in understanding how the location of a district might impact a citizen's desire to move. Eixample, Sant Martí and Sants-Montjuïc are the top three districts in which emigrants are leaving from. A reason for this might be because these districts

Number of Emigrants and Immigrants by District in 2017



Sum of Emigrants and sum of Immigrants for each District Name. Color shows details about District Name. The view is filtered on District Name, which excludes No consta.

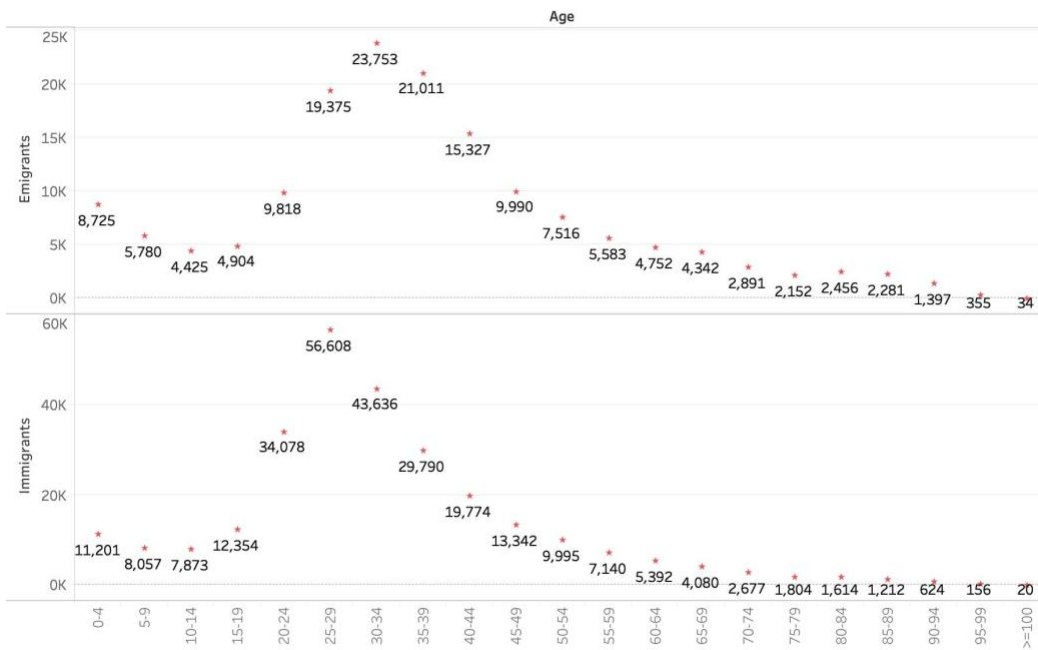
are all centrally located downtown and are where most urban issues exist. When looking at the bottom three districts, Les Corts, Gràcia and Sarrià-Sant Gervasi, all three are known as being the suburbs of Barcelona and have more long-time community members. This would explain why people in those districts are less likely to leave -- they have deeper roots.

Now that the number and location of immigrants and emigrants in Barcelona have been analyzed, age will now be called into question. When looking at the differences in age distribution between emigrants

Figure 17

and immigrants, there appears to be a slight deviation between the two (figure 18). The age distribution for emigrants is slightly more right skewed than the distribution for immigrants,

Number of Emigrants and Immigrants to and from Barcelona by Age in 2017



Sum of Emigrants and sum of Immigrants for each Age. The data is filtered on Exclusions (Age, District Name) and District Name. The Exclusions (Age, District Name) filter keeps 213 members. The District Name filter excludes No consta.

Figure 18

signifying that there are more older people leaving than arriving. A reason for this might be due to the changing housing landscape in Barcelona, older people might be looking for opportunities elsewhere because the cost of housing in Barcelona has skyrocketed in recent years. Meanwhile, the trend of young people moving to Barcelona could be explained by the increasing popularity of the city as a place to live; people are drawn to Barcelona because of its physical location near both mountains and the Mediterranean and because of its warm and inviting culture and populace.

Even though there aren't necessarily recommendations to be made after looking closer at Barcelona's population makeup and trends in immigration and emigration, these aspects of society are important because they paint a picture of what type of people are living in the city and where they are located. This is useful in resource allocation as well as understanding the weight that social problems, like the gender pay gap or housing crisis, may have on the populous.

Conclusion

After examining different aspects of Barcelona city life in this report, through transportation, tourism, housing and society, there are key takeaways that the city could benefit from. For the sake of clarity, below are bulleted recommendations from each section:

Transportation

- Increase traffic regulation in high traffic areas like Eixample and thruways whether that be by a greater presence by local police or by restructuring traffic light patterns
- During summer months, local bus and train systems should have more vehicles in rotation to accommodate for the influx of tourists
- More varied shuttle options from El Prat could be offered to appeal to the varied groups of travelers that go through the airport while also cutting down on congestion on metro and roadways. This would also open up more sources of revenue for the city

Tourism

- Tourism in Barcelona will continue to grow in the coming years as the city's popularity also continues to increase
- On local, national and international levels, Barcelona stands out as being an extremely popular destination for tourists
- Discounts, deals and partnerships between hotels and the city could be made to entice tourists to stay in hotels rather than homes for tourist use
- While relatively difficult to do given the political situation in Catalonia, discussions could be made between Barcelona city council and the national government in Madrid to advocate for a greater allocation of resources toward tourism in Barcelona; even though

[20 percent of Spain's GDP](#) comes from Catalonia, the monetary resources given to the region is lacking

Housing

- More purposeful legislation could be passed that helps safeguard against vacation rental companies overtaking the city
- Further regulation is necessary in making sure that all homes for tourist use are registered with the city's tourist registry
- The city could work with vacation rental companies in outlining appropriate pricing models that benefit both the owners of these properties but also tourists that rent them out
- More resources regarding working with vacation rental companies could be made for the populous so that they are more informed about the benefits and consequences of doing so, especially in the scope of the current housing crisis

Society

- Due to the gender makeup of the city being majority female, social issues like the gender pay gap have an even greater magnitude and should be thought of accordingly
- Keeping in mind where immigrants are settling into the city, resources could be allocated more effectively to cater to these individuals
- In order to plan for the impact that the aging population could have on the city, much like the rest of Europe, young people should be aware of the situation and how it might impact social programs in the future

While in no way is this report an exhaustive list of all the aspects of city life that impact livability in Barcelona, the topics called into question in this report have a significant impact on the city because of how vital they are in relation to living in Barcelona. As the city continues to progress into the modern era, keeping these recommendations in mind will benefit the growth of the city in being able to address current concerns from the populous while also planning for the growing pains that might come in the future. Even with all of the barriers to growth that Barcelona currently faces, it's possible to look forward and know that there are ways to lessen the impact that modern conveniences will have on the city while also improving the livability for those that have been long-time residents of Barcelona.