

# British Pub in Madrid?

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## 1. Introduction – the Business Problem

In the project, I will try and locate the best place for a company to set up a British/Irish-style pub in Madrid, Spain. There are already several of such pubs in Madrid, but I want to identify which district would be the optimal.

Since there are lot of these pubs in Madrid and since they are little bit of a novelty, it is prudent to work out their competition and in which areas they tend to be more popular or other types of bars or Tapas bars. It is also important to find a location as close to the central districts as possible.

### Quick Note on Language

In this report, there are some Spanish words which are used which may be confusing for some readers:

**Barrio** - the Spanish equivalent of a neighbourhood

**Distrito** - the Spanish equivalent of a district

**y** - Spanish word for "and"

These words will be written in italics throughout this document e.g. *Barrio*

## 2. Data

The nature of the problem requires the following information:

- Number of pubs already in Madrid
- What their main competition is
- Where they are located as opposed to the competition
- Location compared to the city-centre

The following data will need to be extracted to perform this analysis:

- Location coordinates of Madrid districts/barrios (neighbourhoods)
- Number of British/Irish-style pubs already in Madrid
- Location of the competition
- Where such pubs are more popular than the competition

This data will be abstracted using **data scrapping** and the **Foursquare API**. The final analysis will include clustering the different venues to locate the most popular in each *Barrio*.

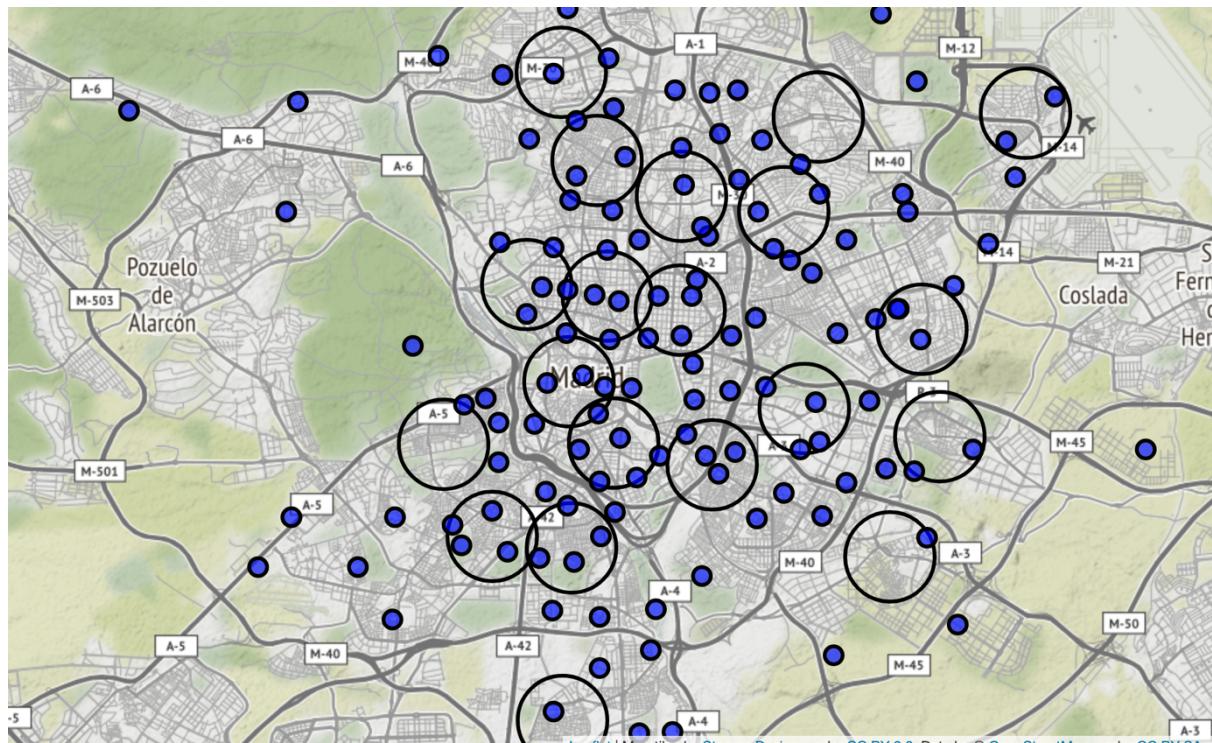
## Distritos y Barrios

To begin, let's show the location *Distritos* and *Barrios* inside of Madrid . To do these, I compiled a CSV file which contains all the coordinates of the Barrios for Madrid, since trying to do it through scrapping proved an impossibility.

Distrito		Latitude	Longitude
0	Centro	40.415347	-3.707371
1	Arganzuela	40.402733	-3.695403
2	Retiro	40.402733	-3.695403
3	Salamanca	40.430000	-3.677778
4	Chamartín	40.453333	-3.6775
5	Tetuán	40.460556	-3.7
6	Chamberí	40.432792	-3.697186
7	Fuencarral-El Pardo	40.478611	-3.709722
8	Moncloa-Aravaca	40.435151	-3.718765
9	Latina	40.402461	-3.741294
10	Carabanchel	40.383669	-3.727989
11	Usera	40.381336	-3.706856
12	Puente de Vallecas	40.398204	-3.669059
13	Moratalaz	40.409869	-3.644436
14	Ciudad Lineal	40.450000	-3.65
15	Hortaleza	40.469457	-3.640482
16	Villaverde	40.345925	-3.709356
17	Villa de Vallecas	40.379600	-3.62135

<b>Distrito</b>	<b>Latitude</b>	<b>Longitude</b>	
<b>18</b>	Vicálvaro	40.404200	-3.60806
<b>19</b>	San Blas-Canillejas	40.426001	-3.612764
<b>20</b>	Barajas	40.470196	-3.5848

Now let's map out the *Barrios* and *Distritos* out on a map:



This will help to build an accurate picture of which venues are more popular within each *Distrito*.

### Foursquare API

Now let's use the **Foursquare API** to get information on the venues in each of the *Distritos* in Madrid. So now, let's have a look at all the types of venues in Madrid and then work out which ones are most appropriate for the analysis

The list of those venues which should be included in our British/Irish-style pub list are:

- **Beer bar**
- **Gastropub**
- **Pub**
- **Irish Pub**
- **Beer garden**

And those venues which are selected for competition:

- **Tapas restaurant** - because these are very popular among the Spanish
- **Bar**
- **Wine Bar**

So let's now count the number of these British/Irish-style pubs in Madrid:

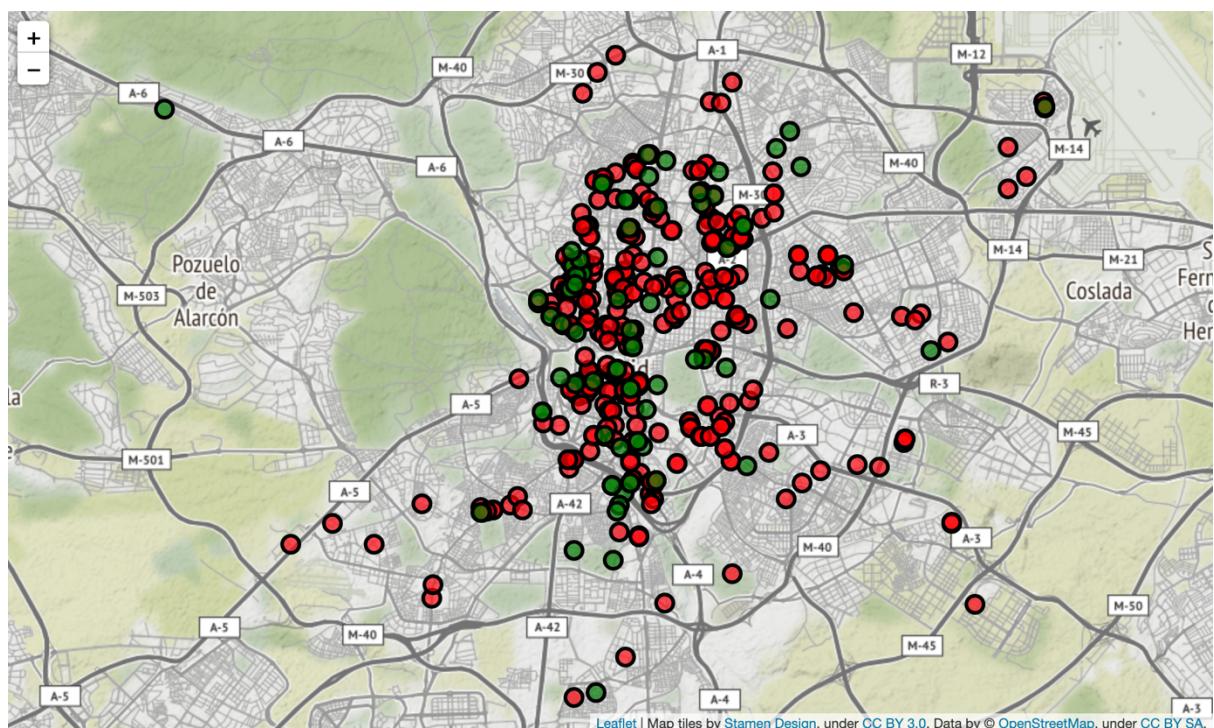
**Total number of Madrid Bars: 435**

**The number of Pubs in Madrid: 79**

**Percentage of Pubs out of all venues in Madrid: 2.16%**

**Percentage of Pubs out all bars in Madrid 22.19%**

Let's see all these pubs on a map:



- **Pubs = Green**
- **Other Bars = Red**

We can see on the map that the majority of these pubs are in around the centre of the city and more in the north of the city than in the south and they follow a similar distribution throughout the city as all the other bars.

### 3. Methodology

In this project, I want to concentrate on finding the *Distrito* in which a British/Irish-style pub would face the most competition in Madrid.

In the first part of this study, I have gathered the relevant data on the locations of the both the *Distritos* and *Barrios* inside of the Madrid, and utilised the Foursquare API to gather information of all the venues within the city.

In the analysis part, I will break down the data on all the bars within Madrid and organise them according to each *Barrio* which is the first, second and third most frequented in those areas. Based on this breakdown, I will then use K-Means clustering to view any patterns inside of the data which might emerge and analyse that data to see in which British/Irish-style pubs already located in Madrid are frequented more.

From this information, I will recommend where a British/Irish-style pub would be best located inside the Spanish capital.

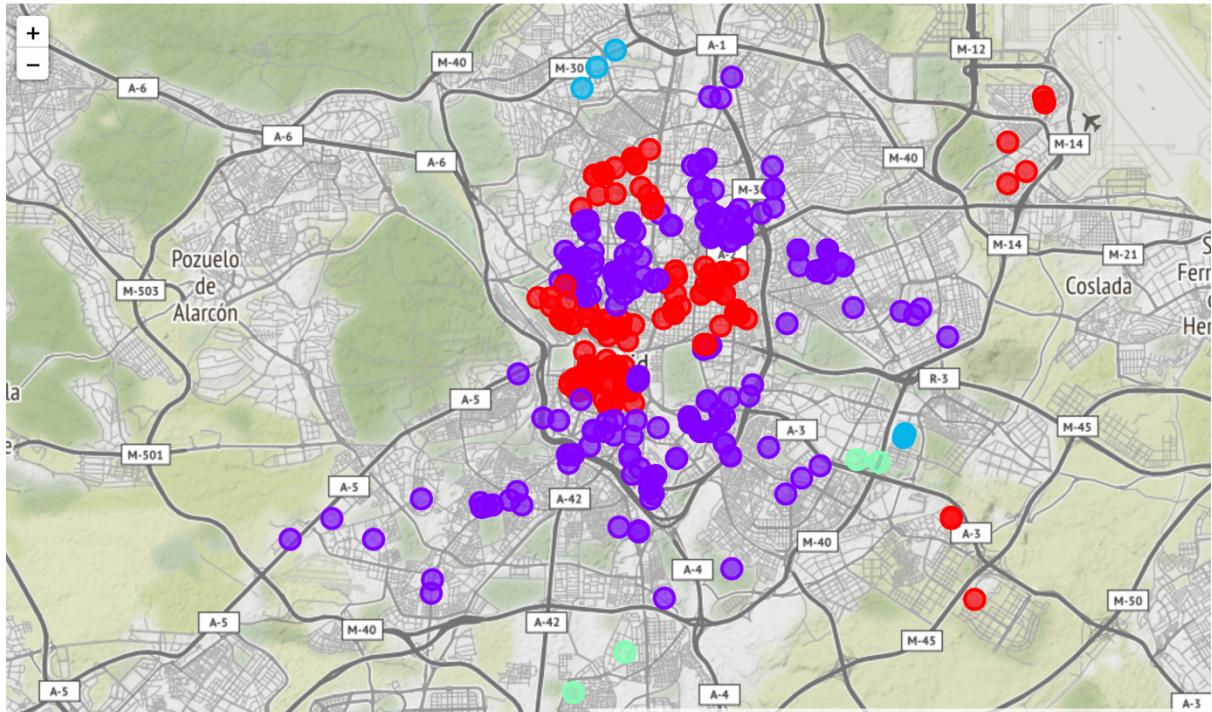
### 4. Analysis

Now we have had a look at the data, let's perform some analysis to work out the relationship between bars and pubs in Madrid. First, we will have a look at the most popular type of bar according to each *Distrito* (rather than each *Barrio* ) to get an idea of where they are most popular. Let's have a look which are the three most popular bars in each *Distrito*.

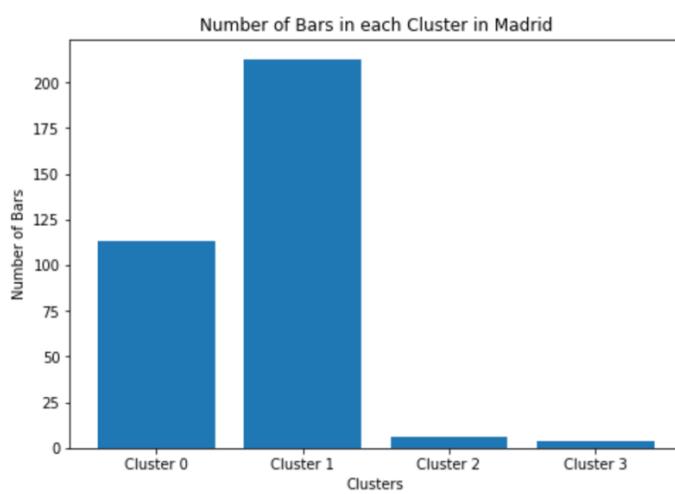
	Distrito	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue
0	Arganzuela	Tapas Restaurant	Bar	Beer Garden
1	Barajas	Tapas Restaurant	Wine Bar	Gastropub
2	Carabanchel	Bar	Tapas Restaurant	Pub
3	Centro	Tapas Restaurant	Bar	Pub
4	Chamartín	Bar	Tapas Restaurant	Pub
5	Chamberí	Bar	Tapas Restaurant	Pub
6	Ciudad Lineal	Bar	Tapas Restaurant	Pub
7	Fuencarral-El Pardo	Tapas Restaurant	Wine Bar	Pub
8	Hortaleza	Pub	Irish Pub	Gastropub
9	Latina	Bar	Tapas Restaurant	Beer Garden
10	Moncloa-Aravaca	Tapas Restaurant	Bar	Gastropub
11	Moratalaz	Bar	Wine Bar	Tapas Restaurant
12	Puente de Vallecas	Bar	Tapas Restaurant	Pub
13	Retiro	Tapas Restaurant	Bar	Gastropub
14	Salamanca	Tapas Restaurant	Bar	Wine Bar
15	San Blas-Canillejas	Bar	Tapas Restaurant	Beer Garden
16	Tetuán	Tapas Restaurant	Bar	Pub
17	Usera	Bar	Gastropub	Beer Garden
18	Vicálvaro	Tapas Restaurant	Wine Bar	Pub
19	Villa de Vallecas	Tapas Restaurant	Bar	Wine Bar
20	Villaverde	Bar	Beer Garden	Wine Bar

So now we have used K-Means cluster analysis to see what clusters are present. From looking at the visual from the map, it is clear we have two large clusters and two smaller ones.

- **Cluster 0 = Red**
- **Cluster 1 = Purple**
- **Cluster 2 = Blue**
- **Cluster 3 = Green**



Now we can see the percentages of these clusters within Madrid and it is clear that both Cluster 0 and Cluster 1 represent a very high percentage each. Let's generate a bar-graph to help visualise this:



## Cluster Results

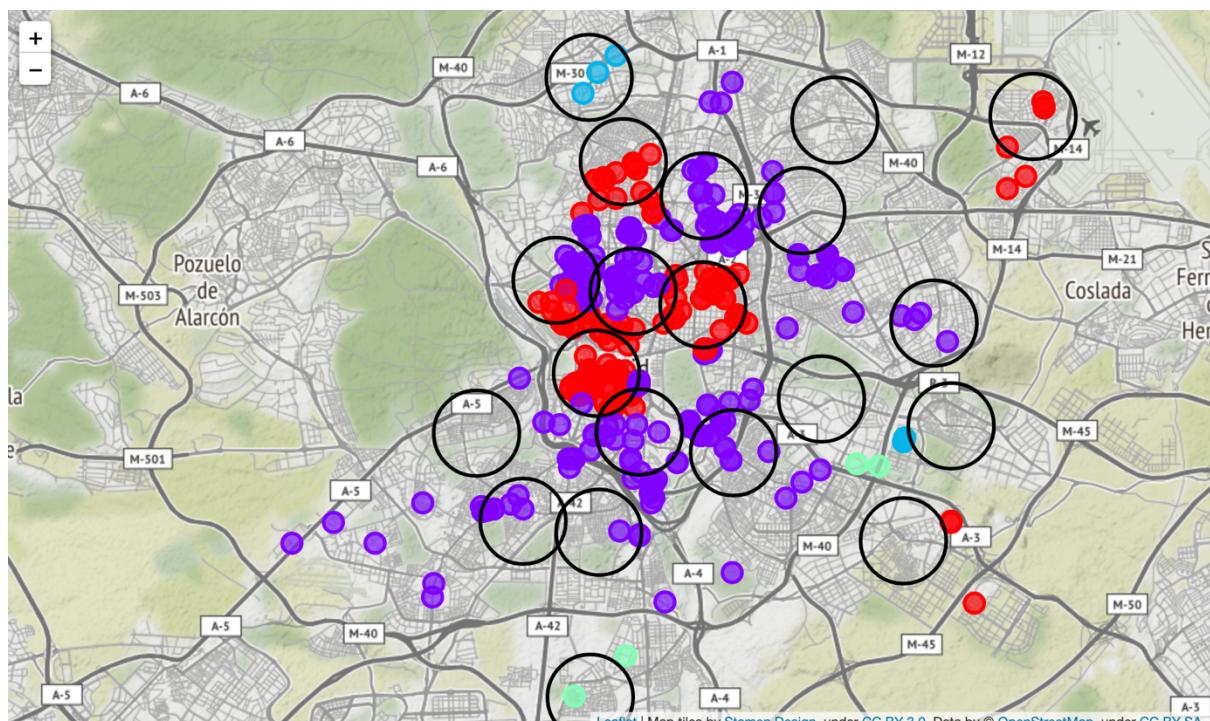
In none of the four clusters do British/Irish-style pubs overtake the other competition in Madrid, in the two major clusters which are closest to the centre of the city, the main competition in Cluster 0 is both a mix of Bar/Wine Bars and Tapas Restaurants, where, in some *Barrios*, Pubs slip out of the picture. In Cluster 1, however, Pubs consistently occupied the third position with most competition from either Tapas Bars or normal Bars.

Since the other two Clusters exist outside of the city-centre, I will not be including them in a recommendation on where to best put a British/Irish-style pub in Madrid.

From the makeup of the Clusters and the type of competition from the paragraph above, let's concentrate on Cluster British/Irish-style pubs in a *Distrito* from Cluster 1.

The following *Distritos* are:

- **Chamberí**
- **Arganzuela**
- **Retiro**



## Number of Pubs

So now let's see how many pubs are in each of these *Distritos*

**Number of Pubs in Chamberí:** 15

**Number of Pubs in Arganzuela:** 12

**Number of Pubs in Retiro:** 4

From what we see in these counts, the most number of Pubs are in Chamberí (15) and the least in Puente de Vallecas (1).

So let's see how densely organised these pubs are in these four *Distritos*

## Observation from the Maps

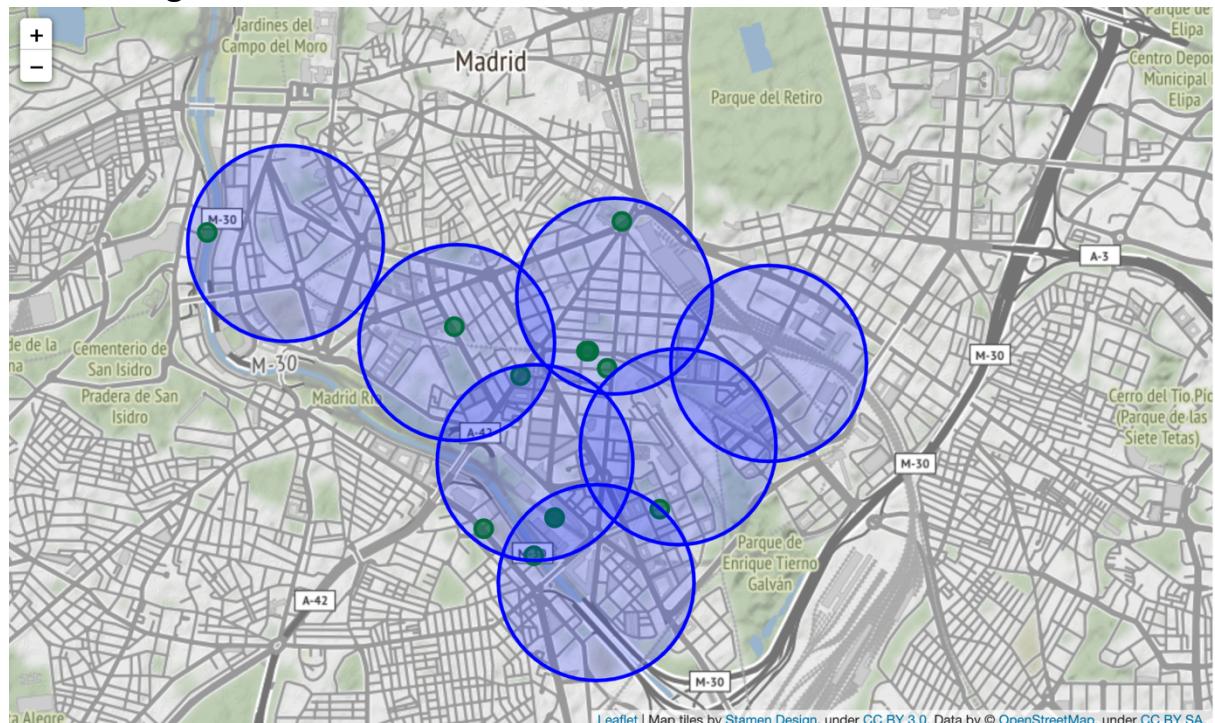
So looking at the maps above of the different Distritos where Pubs are the Cluster 1, we can see that the pubs are fairly sparsely populated across each of the Distritos.

In Chamberí, there is a cluster of pubs in the *Barrios* of Gaztambide and Vallehermoso whereas the rest are more sparsely distributed. In Arganzuela, the pubs are more or less around the *Barrios* of Legazpi, Acacias and Palos de Moguer. In Retiro, there are only four pubs, three of which are in the Barrio of Ibiza and the remaining one in Jerónimos.

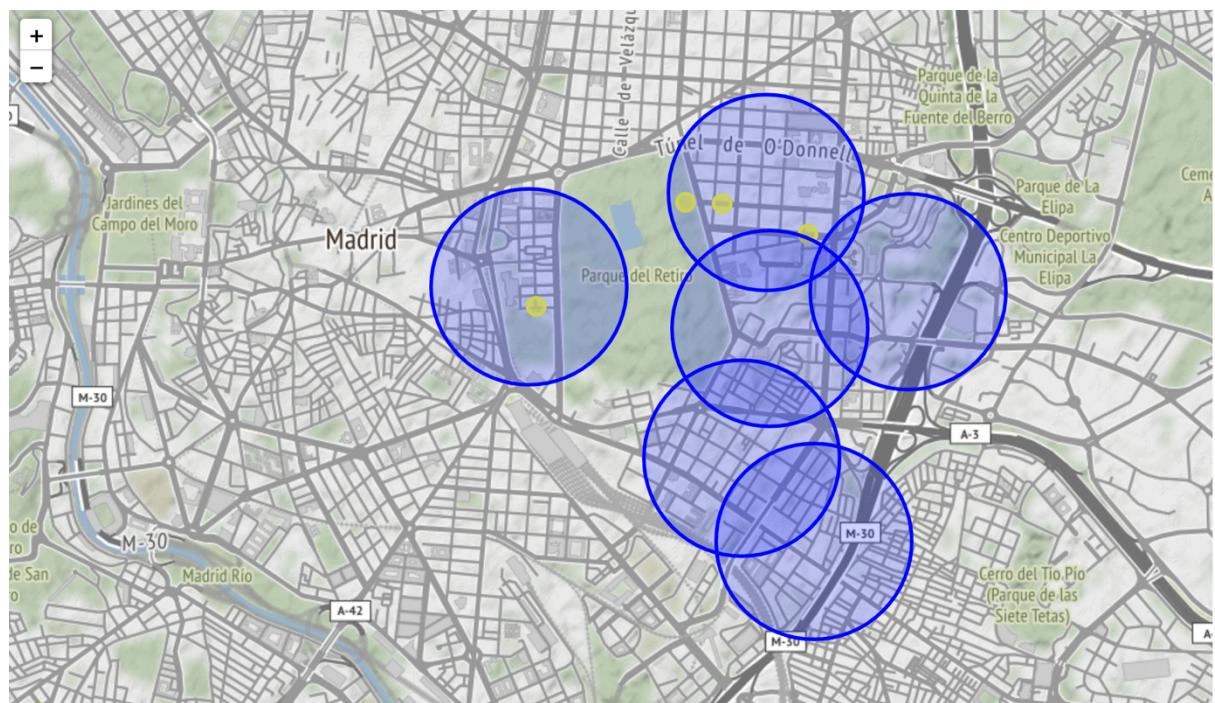
## Pubs in Chamberí



## Pubs in Arganzuela



## Pubs in Retiro



## 5. Results and Discussion

The analysis shows that there are a number of places in which a British/Irish-style pub could thrive, however it also shows that there are some specific locations where one would benefit from the lowest amount of competition from both non-pub rivals, such as Tapas Bars, Bars and Wine Bars, and also competition from other Pubs.

The important part of this investigation was to find the popularity of the existing British/Irish-style pubs in Madrid as opposed to its main competition. The Cluster analysis revealed that, although there was nowhere a pub outstripped its rivals in frequentedness, there are still better locations than others where that competition is slightly less.

Observing the number of pubs in these Clusters, breaking down their location down to where they are located in each Barrio, the ideal location can be determined. First, after having found the location in which a Pub does best against its non-pub competition and still remains close the city-centre, the next step was to find out the concentration of those pubs within those *Distritos* to find the optimal location where other Pub competition is minimal, but where there is still demand.

From examining the breakdown of each of more popular *Distritos* for pub within the chosen ideal Cluster it shows that either in eastern parts of Chamberí, in the Barrio of Ríos Rosas for example, and the Barrio of Niño Jesús in Retiro would be where a British/Irish-style pub would benefit from both low competition and closeness to the city-centre.

## 6. Conclusion

The intent and purpose of this project was to determine the ideal location for putting a British/Irish-style pub in the Spanish capital of Madrid. By calculating the distribution of already existing pub alongside their competition, we now have a rough idea of where such a venue would do well. Although further analysis is recommended, such as looking into the individual success of each pub and the demographic makeup surrounding more popular one, we can safely assume that this analysis provides some suggestion as to where to start.

The ultimate decision of a pub's location will of course be made by the owners of it, and perhaps they may consider other factors which will require more investigation and analysis, yet this project can be a good base to continue from.