

# Coffee Shops in SCL

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## Introduction

The problem to discuss here is finding the best location for a new Coffee Shop in the city of Santiago de Chile, according to the concentration of other Coffee Shops and the quality of these.

The number of Coffee shops have been on the rise for the last years, and new places are opening all the time. This work will show where are these Coffee shops and if they are available in all the city or not.

Due to Covid19 pandemic, the city of Santiago has been under lockdown for nearly 3 months, this generate an economical crisis, and Coffee Shops will be susceptible to this.

With the above, this work can be of interest for people who is looking to open a new business in the city, and want to know where to focus their financial research, but also for people who already have a store and wants to know if currently they have a good location for the economical reactivation or not.

Finally the criteria will be to find a place where you can find a balance between the density of other Coffee Shops (it should be high but not the highest) and good quality (since the area is already frequented by people looking for Coffee).

## Data

Data will be extracted from:

- Wikipedia for the city characteristics, like Sectores (areas: north, south, etc.), Comunas (Neighborhoods) and the population
  - [https://es.wikipedia.org/wiki/Anexo:Comunas\\_de\\_Santiago\\_de\\_Chile](https://es.wikipedia.org/wiki/Anexo:Comunas_de_Santiago_de_Chile)
- To get the geojson data, files of the following repository will be used:
  - <https://github.com/jlhonora/geo>
- Foursquare for the coffee shops names, foursquare's id, location and rating

Data will be loaded on dataframes so the analysis can be done.

Due to the COVID19 pandemic, Santiago has been about 3 months under lockdown, so the API version used is from February 1<sup>st</sup> of 2020, to make sure this has no effect on the data.

When data is obtained from foursquare, is imposed that the words "Coffee", "Café" or "Cafetería" must be in the "categories" column of each shop, if not, this place is not considered.

## Methodology

- First, with the data of the city, a map will be created to visualize the city and each Sector
- Then, data from foursquare will be obtained and checked, the words Coffee, Café or Cafetería must be in the categories cell. If not, that place will be dismissed.
- If the place doesn't have an address and the geographical data (latitude, longitude), address will be left as nan and latitude and longitude will be assigned as the same of the Comuna.
- Later, data of each place rating will be added to the dataframe
- Finally, data will be analyzed considering geographical distribution, the per capita number in each sector, and the average rating too.
- With the analysis described, it will be proposed the comuna in which a new Coffee Shop could be successfully placed.

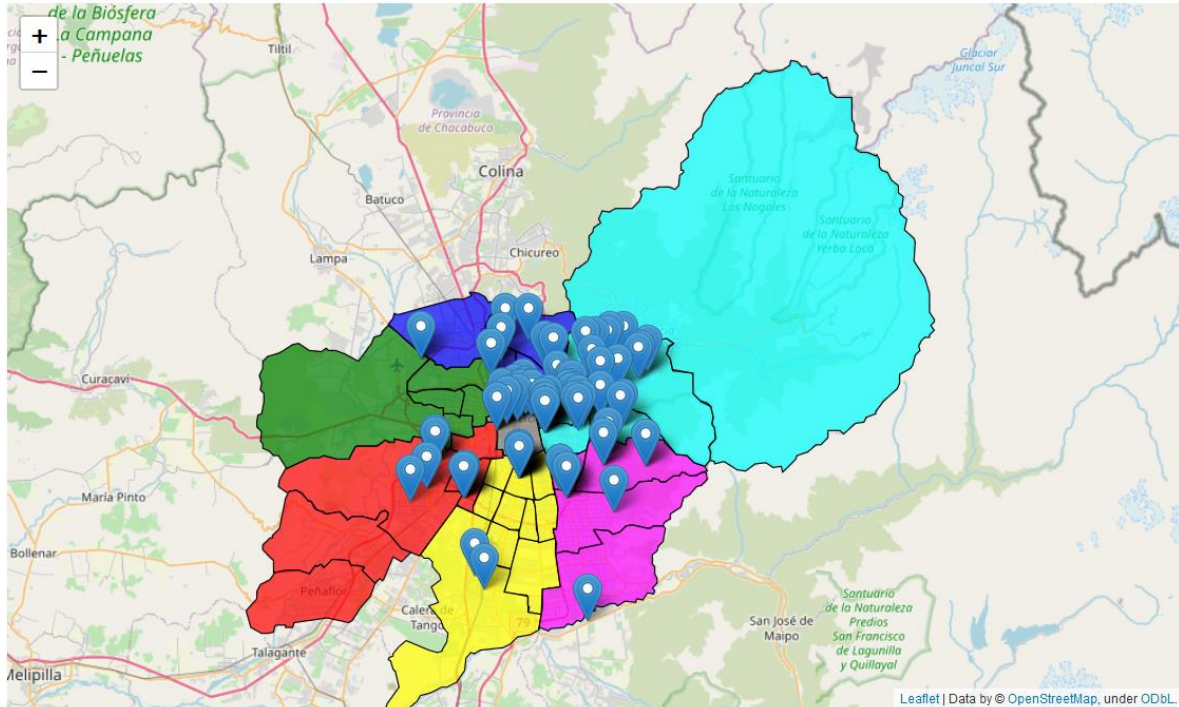
The criteria of decision for the location, is that the Sector (area) must have a high number of Coffee Shops (So the zone already is attracting people for Coffe and Food stores) but not the highest density (to avoid a high competetition). To decide the Comuna, it will be the one with the best rating

- Sector:
  - Highest density is ruled out.
  - Of the other sectors, the one with the highest number of stores Will be selected.
- Comuna:
  - Highest density is ruled out.

Of the remaining comunas, the one with the best average rating is selected.

## Results

In Figure 1 is shown the data obtained, Coffee shops in Santiago de Chile and the city divided by Sectors (each color represent a sector). Each store is marked with its latitude and longitude.



**FIGURE 1: COFFEE SHOP MAP IN SCL. IN THE CHOROPLETH MAP, EACH COLOR REPRESENTS A SECTOR.**

In Figure 1 can be seen that the stores are concentrated around the center of the city. This can be represented by Figure 2 and Figure 3 where it's shown a higher concentration in the areas of "Centro" (center) and "Nororienté" (Northeastern). This concentration can be seen in the number of stores (higher in northeastern) and in density (higher in center).

Due to the criteria established in methodology, the sector selected is the northeastern area, as shown in Figure 4.

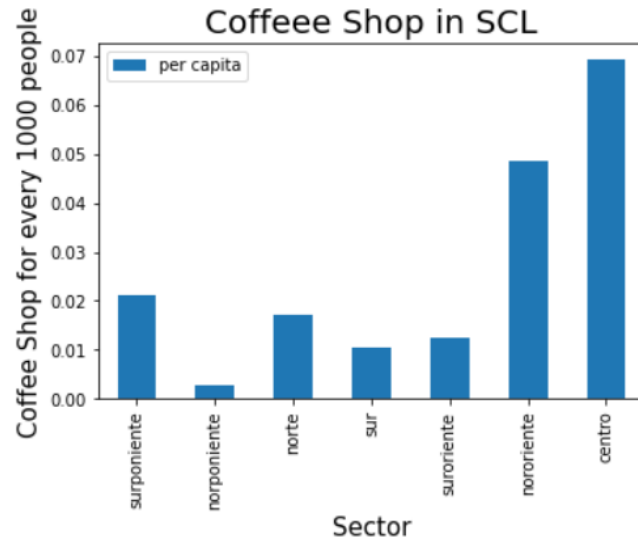


FIGURE 2: DENSITY OF COFFEE SHOPS FOR EVERY 1000 PEOPLE IN SCL, GROUPED BY SECTOR.

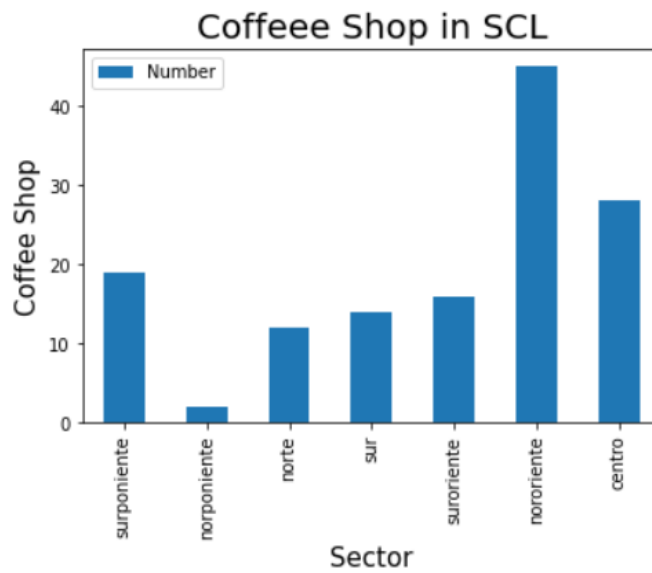
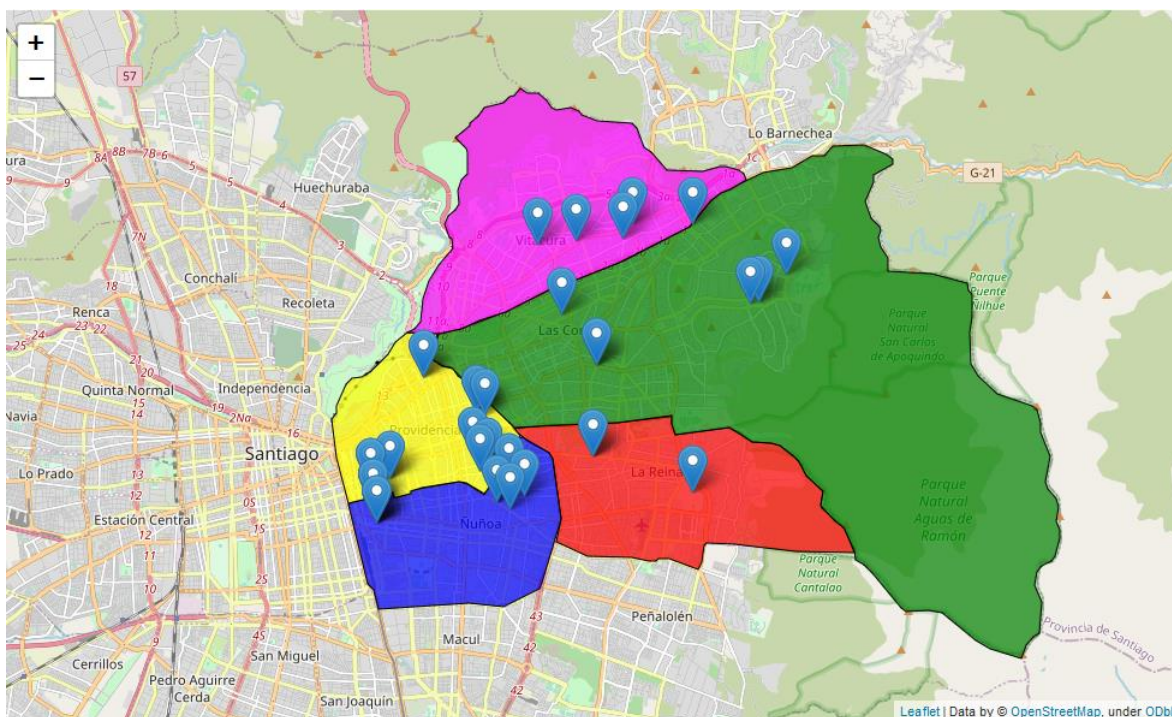
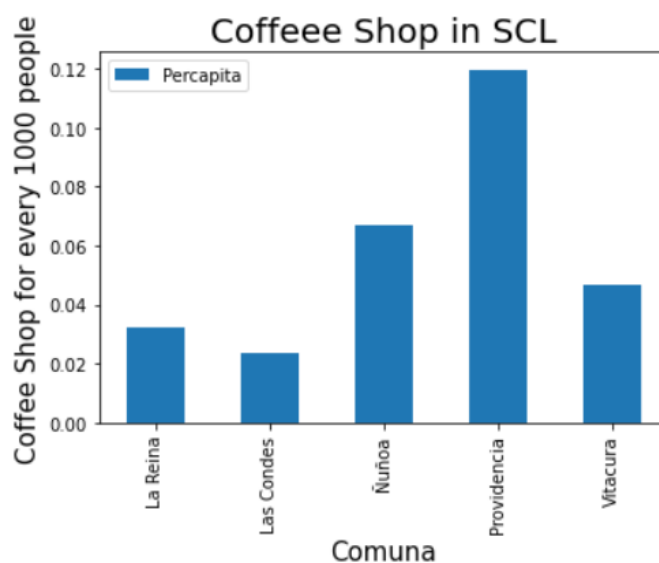


FIGURE 3: NUMBER OF COFFEE SHOPS IN SCL, GROUPED BY SECTOR.



**FIGURE 4: COFFEE SHOPS IN NORTHEASTERN SECTOR OF SCL. EACH COLOR OF THE CHOROPLETH MAP REPRESENTS A COMUNA.**

The selected area represents where in the city you can find a high number of Coffee Shops without having the maximum density. This area is divided in five Comunas, represented in different colors in Figure 4: La Reina (Red), Las Condes (green), Ñuñoa (Blue), Providencia (yellow) and Vitacura (magenta). In each of this Comunas, we can apply the Criteria defined, as show in Figure 5 and Figure 6:



**FIGURE 5: DENSITY OF COFFEE SHOPS FOR EVERY 1000 PEOPLE, GROUPED BY COMUNA**

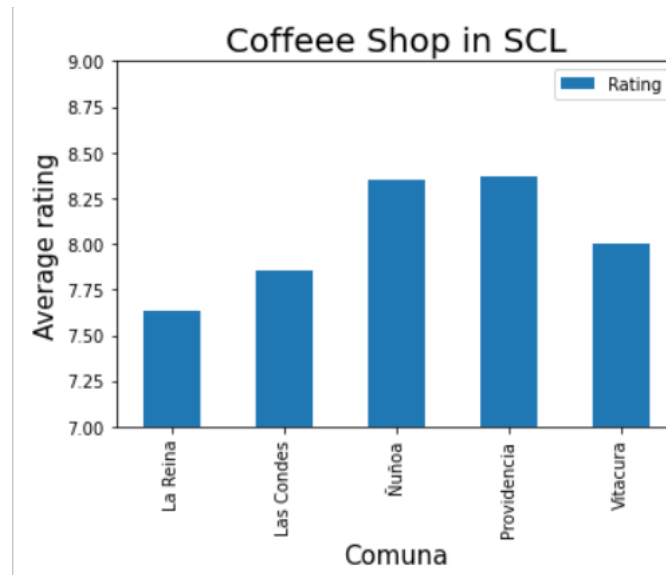
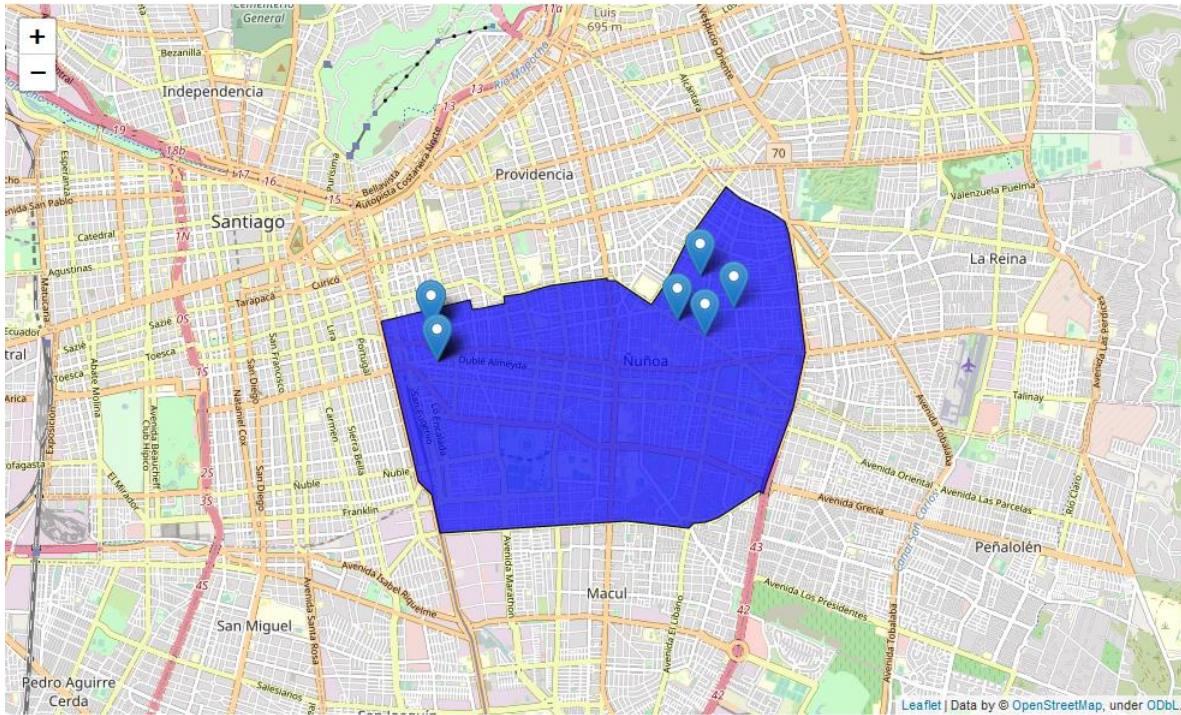


FIGURE 6: AVERAGE RATING OF COFFEE SHOPS IN NORTHEASTERN SCL, GROUPED BY COMUNA.

According to the figures shown above, the higher density of Coffee Shops is in the Comuna of Providencia, followed by Ñuñoa (Figure 5). The best average ratings are in Providencia first and Ñuñoa second (Figure 6).

As the location must be in a Comuna with a good average rating, but it can't be the most dense of the Sector, the best choice is Ñuñoa, which has the second highest density and the second best average rating according to foursquare data.





**FIGURE 7: THE COMUNA OF ÑUÑOA IS SELECTED. COFFEE SHOPS ALREADY IN THE COMUNA ARE SHOWN.**

## Discussions

The last image shows that there is a high concentration of Coffee Shops in the limit between Providencia and Ñuñoa, creating a concentration of stores in the northern zone of the Comuna. This might be due to a special condition of the zone like a commercial area or office buildings that are attractive for Coffee and food business.

It must be noticed that the number of Coffee Shops might be higher, because it will depend if the place is registered in the Foursquare database and if it fits with the criteria imposed in the data analysis.

For further analysis, an economic research must be done, to find the better place within the comuna.

Another point to notice is in Figure 7, where six stores can be counted, this low number can lead to a misrepresentation, so in further work data must be checked against other databases.

## Conclusions

As a conclusion we can say that the optimal place to locate a new Coffee Shop in Santiago de Chile, it's in the Comuna of Ñuñoa, since it shows a balance between the concentration of stores and the average rating. It is noticed that the Coffee Shops in Ñuñoa are concentrated in the north area of the Comuna, so further analysis will be necessary to find an ideal spot to place a new Coffee Shop within this Comuna.

Also, is worth to mention the difference in the city, as shown in Figure 2 and Figure 3, where there is a hugh difference between the areas of center (Centro) and northeastern (nororiente). This can be produced for economical reasons and for the concentration of workplaces in these areas of the city. But this shows a big difference in the access of this kind of stores across the city.