



DATA VISUALIZATION – CS7DS4

ASSIGNMENT 4.1

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Code: <https://github.com/chhabriv/Data-Visualization/tree/master/barcelona-dataset-anaysis>

PART A

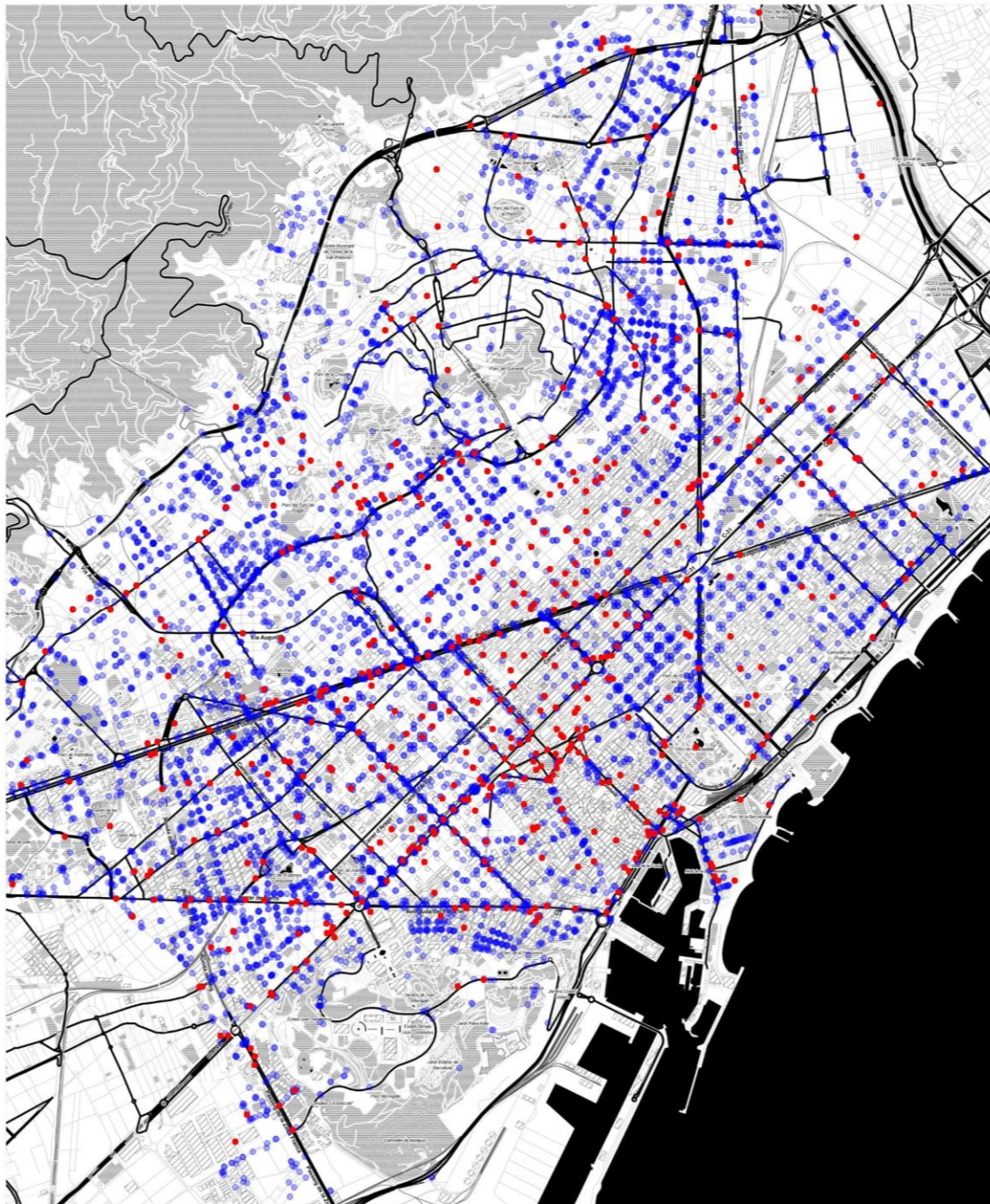
BARCELONA PEDESTRIAN ACCIDENTS - 2017

Data Source:

Pedestrian Crossings: <https://opendata-ajuntament.barcelona.cat/data/en/dataset/infraestructures-inventari-pas-vianants>

Pedestrian Accidents: <https://opendata-ajuntament.barcelona.cat/data/en/dataset/accidents-gu-bcn>

2017 - Pedestrian Accidents vs Pedestrian Crossings in Barcelona



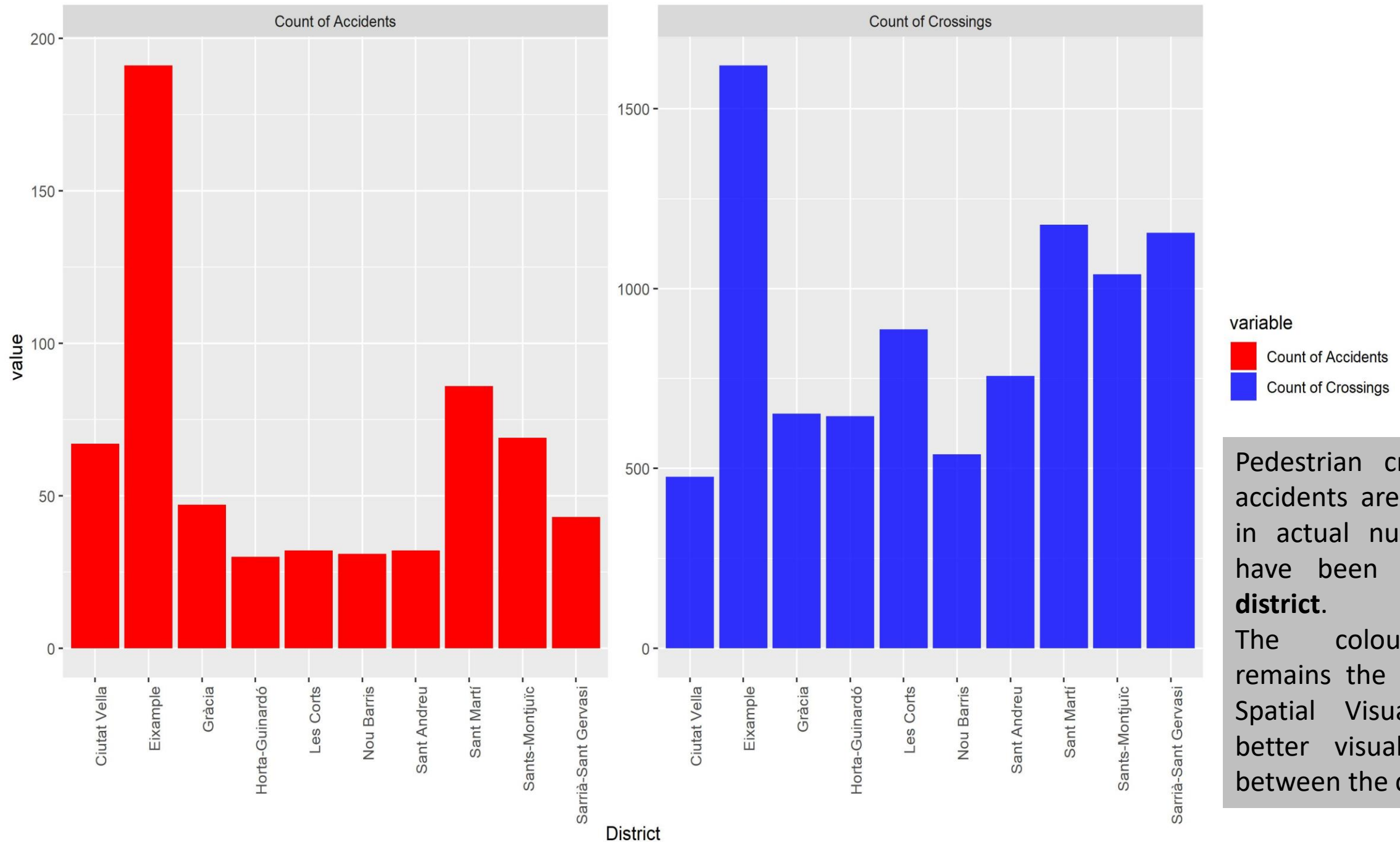
Representation

- Pedestrian Accidents
- Pedestrian Crossings

In this Spatial Visualization, the **pedestrian crossings** and **pedestrian accidents** are depicted that occurred in Barcelona in 2017.

It is evident from the map, that there are areas in Barcelona where pedestrian accidents occurred, **due to lack of pedestrian crossing** in those areas. However, in certain areas, **pedestrian accidents took place, despite the presence of crossings.**

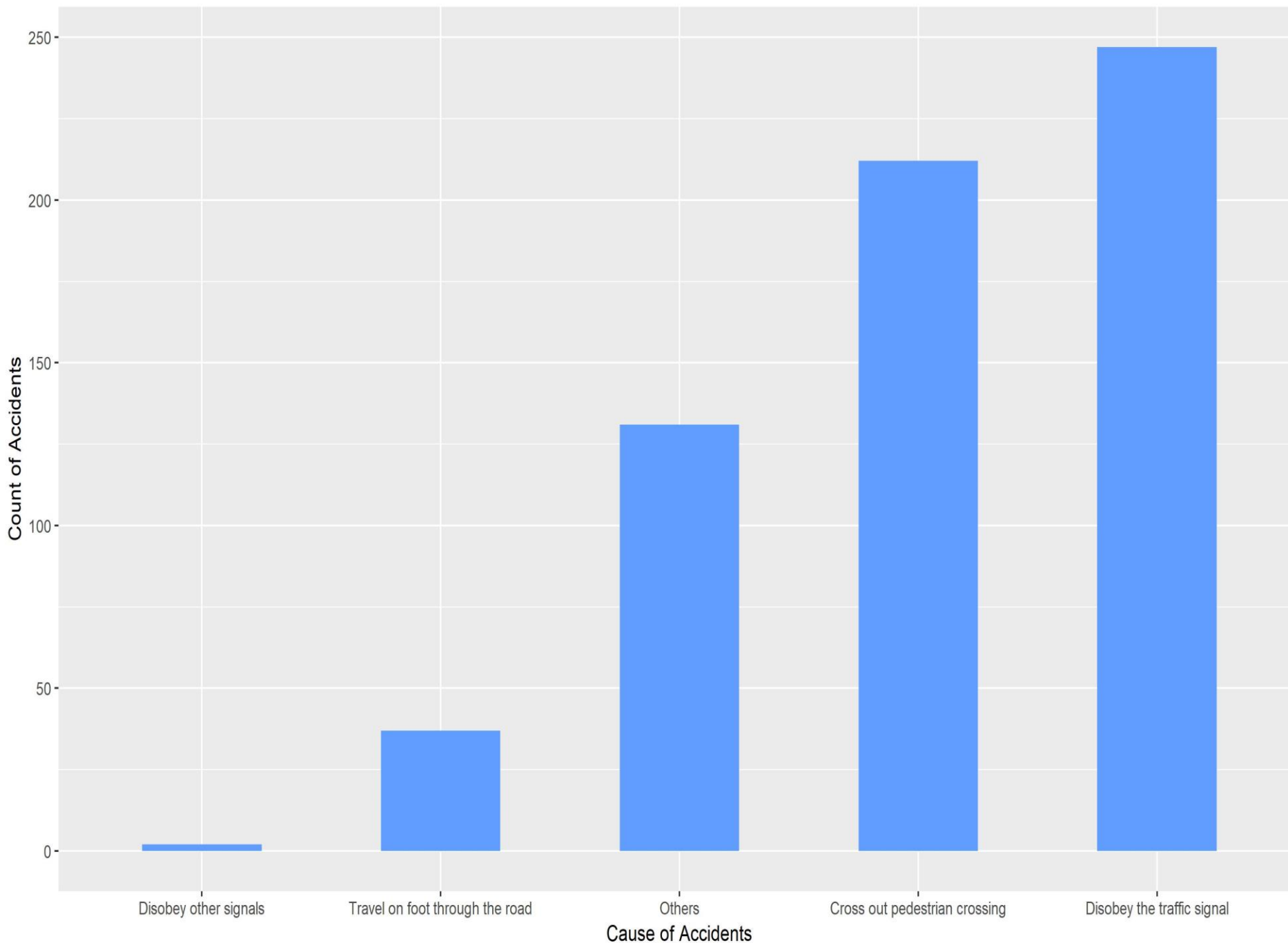
2017 - Number of Pedestrian Accidents and Crossings per District in Barcelona



Pedestrian crossings and accidents are shown here in actual numbers. They have been **grouped by district**.

The colour scheme remains the same as the Spatial Visualization for better visual correlation between the components.

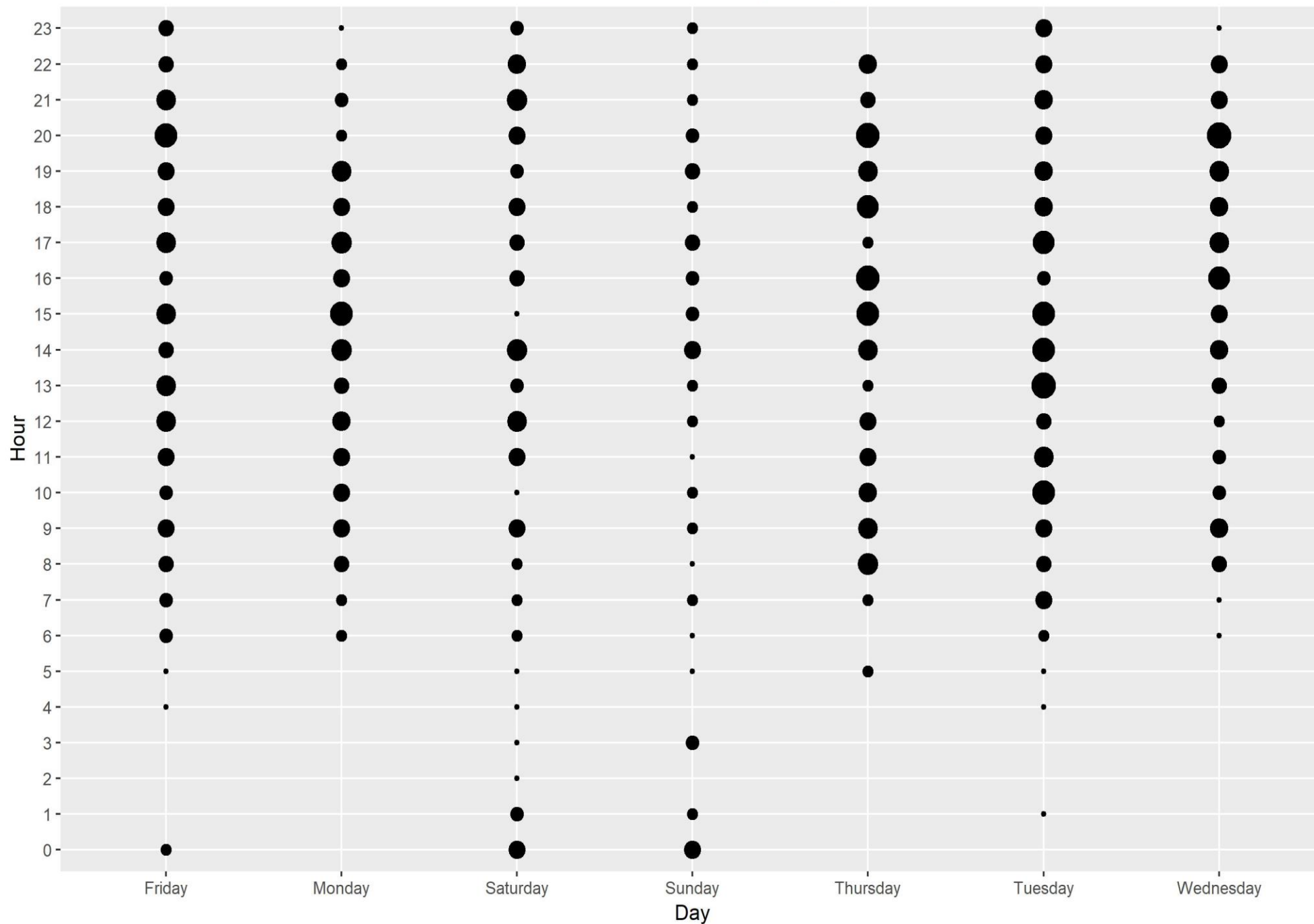
2017 - Pedestrian Accidents Cause in Barcelona



In this Bar Plot, a distribution of number of pedestrian accidents can be seen with respect to the cause of pedestrian accidents - as reported by the local authorities of Barcelona.

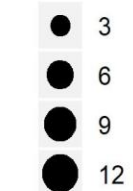
In the earlier Spatial Map, it was observed that some of the pedestrian accidents occurred at locations where pedestrian crossings were available. This can be attributed to the **high number of pedestrians crossing outside of the pedestrian crossing** as see in this bar plot.

2017 - Hourly count of accidents per day of the week



This Scatter-Bubble plot has been used to show relationship between 3 dimensions of the data – **Day of the Week, Hour of the Day** and the respective number of accidents.

`Count of Accidents`



This plot shows some clear trends about when the pedestrian accidents occur. **More pedestrian accidents occurred during peak hours and lesser during weekends and wee hours of a day.**



PART B

BARCELONA TERRITORIAL INCOME AND UNEMPLOYMENT - 2017

Data Source:

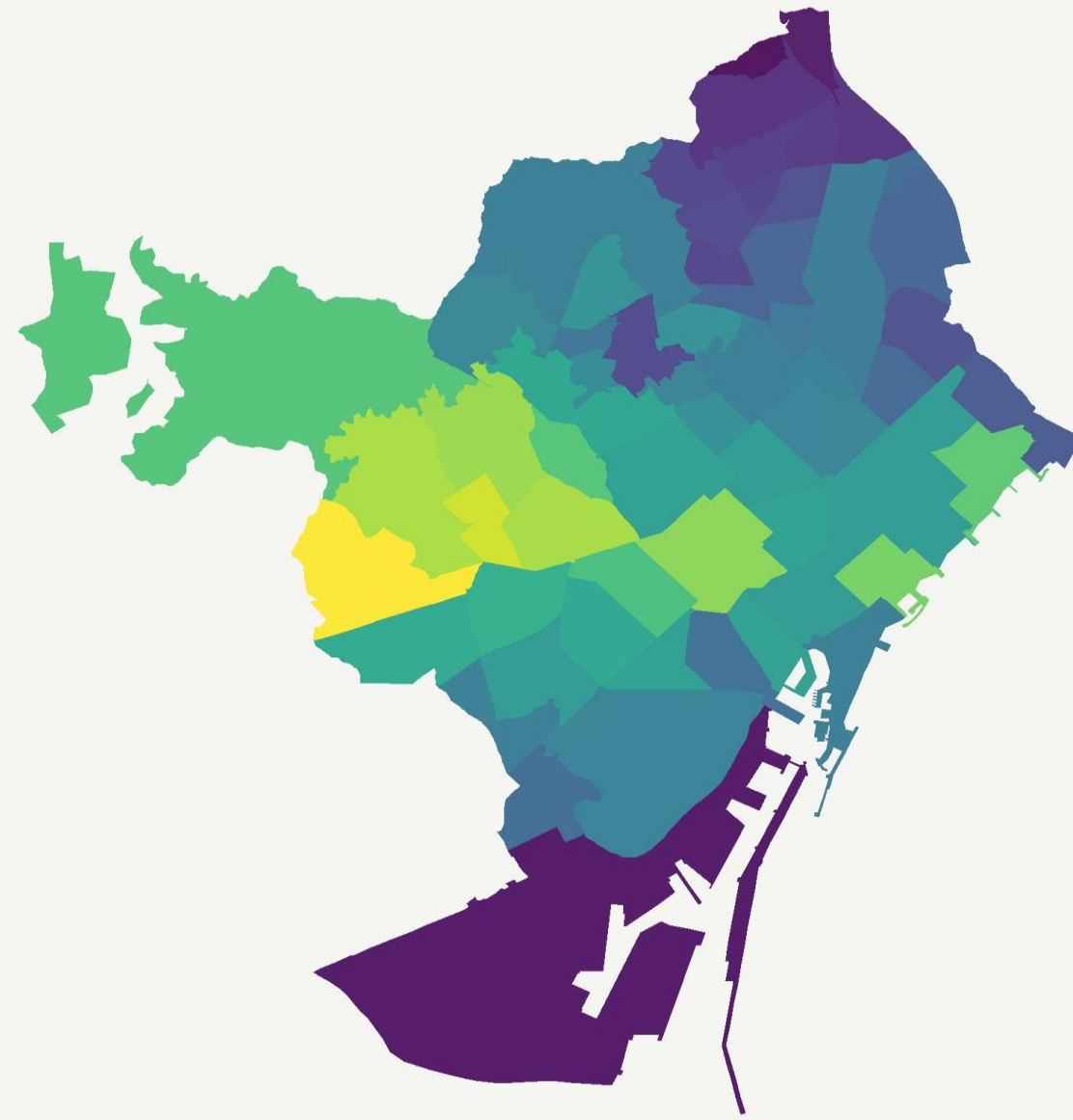
Territorial Income: <https://opendata-ajuntament.barcelona.cat/data/en/dataset/est-renda-familiar>

Unemployment Data: <https://opendata-ajuntament.barcelona.cat/data/en/dataset/est-atur-sexe>

2017 - Wealth Distribution in Barcelona - Neighborhood Heatmap

The Choropleth Map of Barcelona shows the **wealth distribution across the different neighbourhoods** of Barcelona.

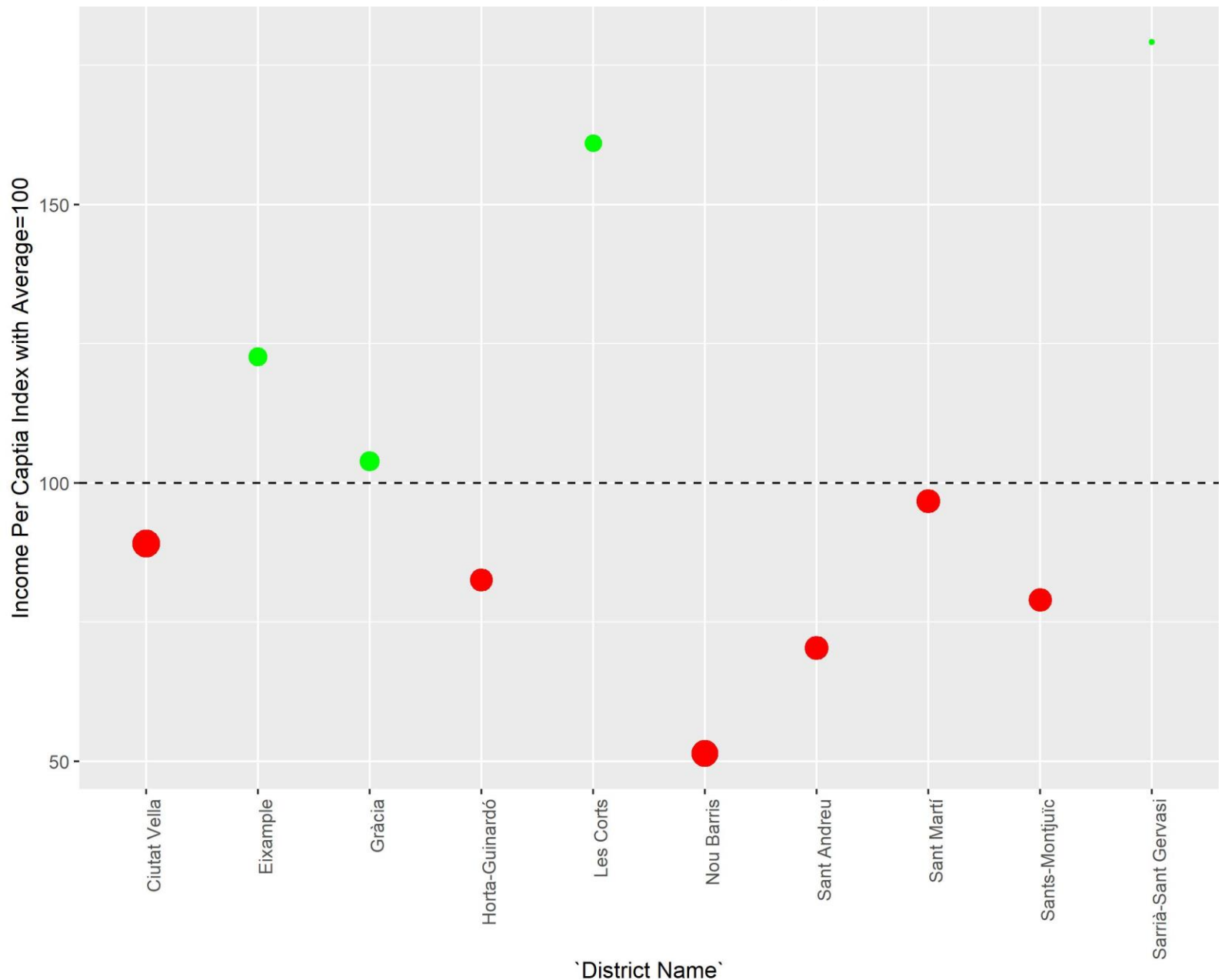
The wealth distribution shown is in terms of income per capita index with average = 100.



Income Per Capita Index



2017 - District wise Wealth Vs Unemployment Rate



Having seen the territorial income distribution in Barcelona, a correlation between the average income per capita index of a district and the unemployment rate of the respective district can be derived.

Income Per Capita Index Comparison to Average

- Above Average
- Below Average

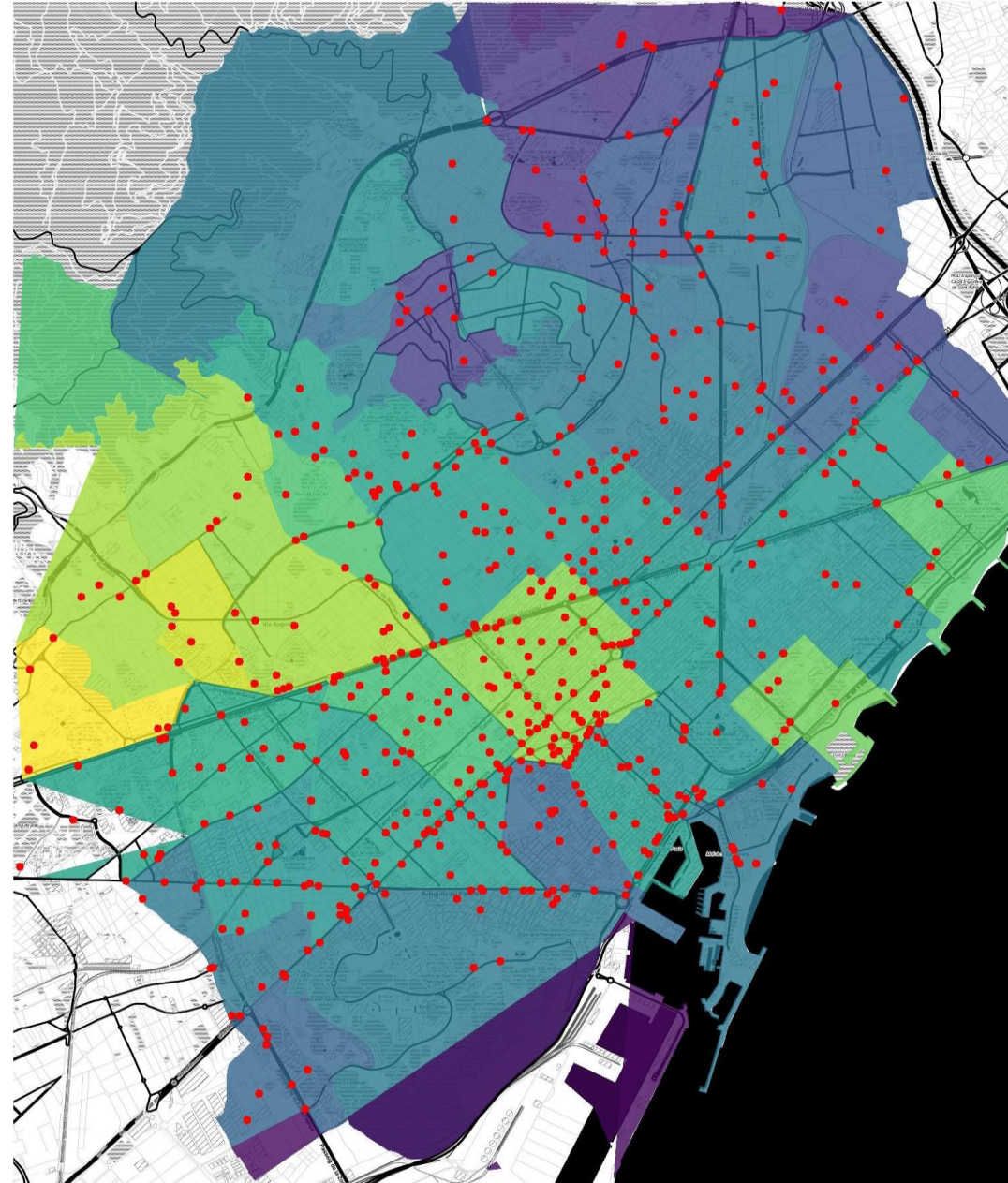
Unemployment Rate

- 30
- 40
- 50
- 60
- 70

It is evident from this chart that the districts that have a **higher unemployment rate, have income per capita index below the average.**

2017 - Territorial Income Vs Number of Pedestrian Accidents

The pedestrian accidents locations shown in Part A were cast as **RED** dots upon the Choropleth Map depicting the Territorial Income in Barcelona.



Income Per Captia Index



An interesting pattern here, shows a **higher density of pedestrian accidents in well off areas**. This could be due to 2 reasons:

1. Better Accessibility, hence higher volume of vehicular movement leading to pedestrian accidents
2. Faster cars in wealthier areas potentially causing a higher number of pedestrian accidents

THANK
YOU