

COVID-19 ERTes Impact Visualization in Barcelonès

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1 Introduction

Due to the Coronavirus disease (COVID-19) outbreak situation that the world has been suffering for the last months, on March 14, 2020, *the Spanish government declared the so-called *Estado de Alarma**, imposing restrictions on the mobility of the population and the economic activity of different sectors, in order to control the spread of the virus across the country.

These measures have had, unfortunately, a big impact on the economy and employment. Companies and employers are losing *thousands of millions of Euros* and, as a consequence, many of them have had to drastically reduce their number of employees via a procedure called *Expediente de Regulación Temporal de Empleo*, or *ERTE* for short, which allows companies and business to temporarily fire one or more employees, during the time their economic activity is suspended.

We are interested in visualizing the impact of such ERTes from a geographical point of view in the Catalan county of *Barcelonès*, which is one of the 42 counties of Catalonia, and the most important one from an economic point of view. It consists of 5 cities, which are:

- Barcelona
- L'Hospitalet de Llobregat
- Badalona
- Santa Coloma de Gramenet
- Sant Adrià de Besòs

This information could be useful for city governments or civil servants in order to have a clearer idea of the areas in their cities that are suffering bigger economic consequences from the pandemic.

In particular, we want to examine and classify the different types of venues, shops and services of each of the neighborhoods in each city, and use data of the ERTes in Catalonia in order to cluster neighborhoods in terms of the impact these ERTes have had on each of them. After all the analysis, we want to produce a map of *Barcelonès* that allows visualizing the results.

2 Data

We are going to use several data sources for this project. First of all, we need a list of all the neighborhoods that we are examining. There are several Wikipedia pages (one for each city) from which we can extract that information:

- [Neighborhoods of Barcelona](#)
- [Neighborhoods of L'Hospitalet de Llobregat](#)
- [Neighborhoods of Badalona](#)
- [Neighborhoods of Santa Coloma de Gramenet](#)
- [Neighborhoods of Sant Adrià de Besòs](#)

Also, we are going to use the *Foursquare API* to obtain venues and services, as well as information about them, in each neighborhood. Finally, we are using two datasets from the webpage [Dades Obertes Catalunya](#) that contain information on the number of ERTes per economic sector and per county, which will allow us to infer the effect of those ERTes on each neighborhood:

- [Number of ERTes per economic sector](#)
- [Number of ERTes per county](#)