

Community Refectories in Rio de Janeiro

A clever way to diminish poverty effects and food waste.

Eduardo Campos

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1. Introduction

The city of Rio de Janeiro is going through a fiscal crisis, and has not been able to provide good social care policies to the population in need. Unfortunately, the city also has high inequality rates. In a situation like this where the government cannot expend, we have to be clever to propose solutions in order to help the poor without compromising the city's budget.

In this work we study data from the census of 2010 that clearly show the inequality problem of the city. Then, we propose the creation of system in which the supermarkets and their clients can sell products that are near to the expiration date or have any imperfections, at discount, to food banks and the creation of community refectories in which the poor can have meals paying affordable prices.

2. Data acquisition and cleaning

For this work we will use 3 data sets: * Excel table with the data of human development from "Atlas do Desenvolvimento Humano no Brasil", an organization that use the census data to generate a study. The excel file can be obtained in here. * GeoJson with the neighbourhoods of Rio de Janeiro, that you can find here. * Location and amount of supermarkets in the city, that we will get with the foursquare API.

At the beginning of the analysis we will focus on structuring the data. The excel file containing the human development data has a lot of sub regions, which made a

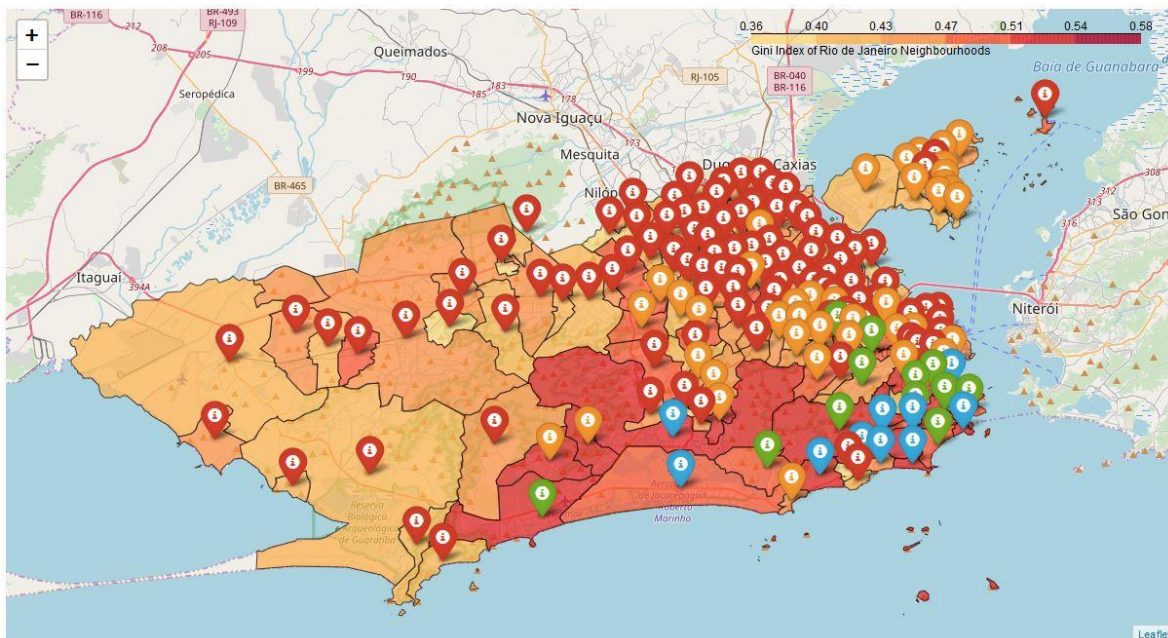
challenge to work with, as you will see. We get the official list of neighbourhoods from the geojson and match to the human development data, so we can visualize it in Folium choropleths.

Then we explore the supermarkets to conclude that the system is viable.

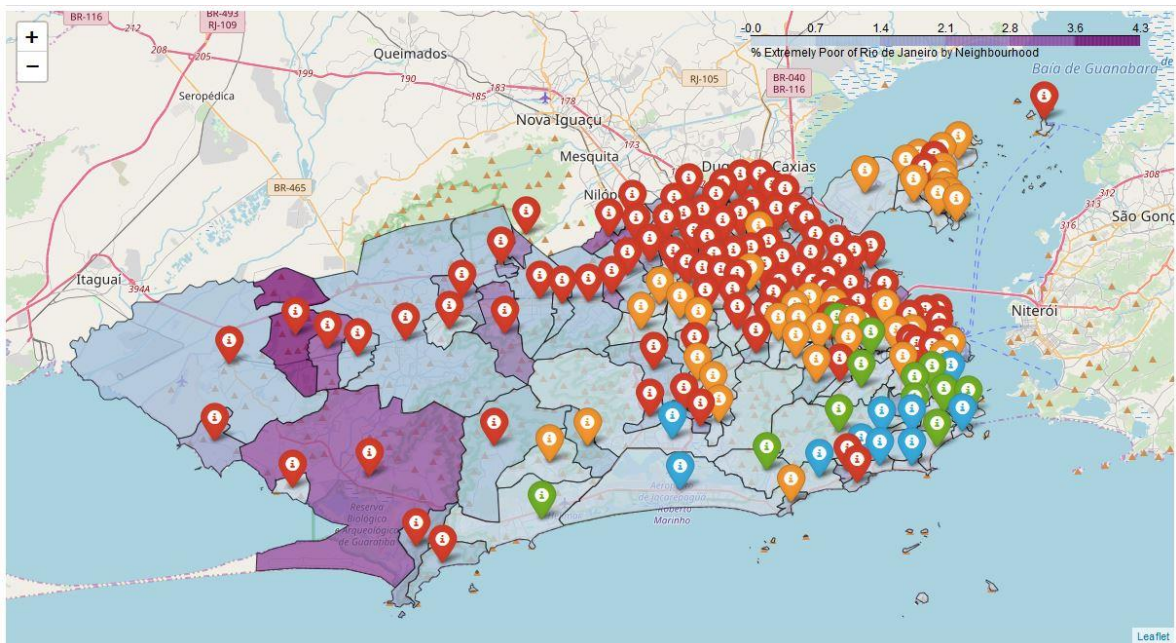
3. Data Analysis

The markers in the maps are as follows:

- Blue: Cluster of higher income;
- Green: Cluster with second highest income;
- Orange: Cluster with second lower income;
- Red: Cluster with lower income.
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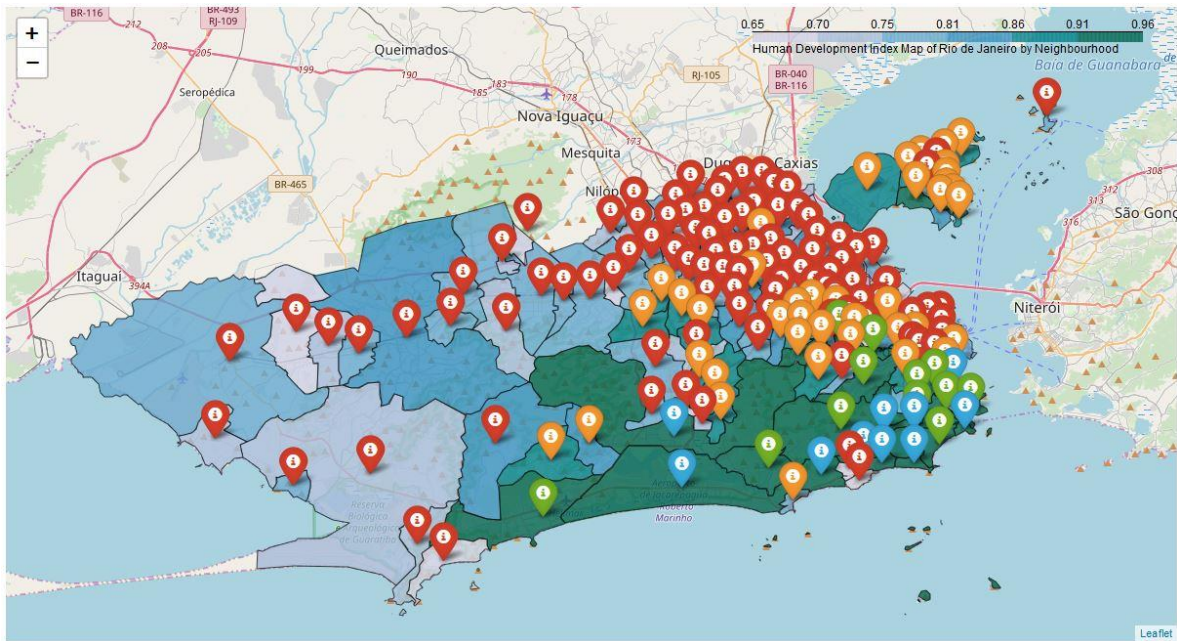


We can observe that in general the neighbourhoods of the blue and green clusters are more unequal according to Gini Index.



We can see in this map that probably the purple areas, near to Guaratiba, are good choices of location to open community refectories.





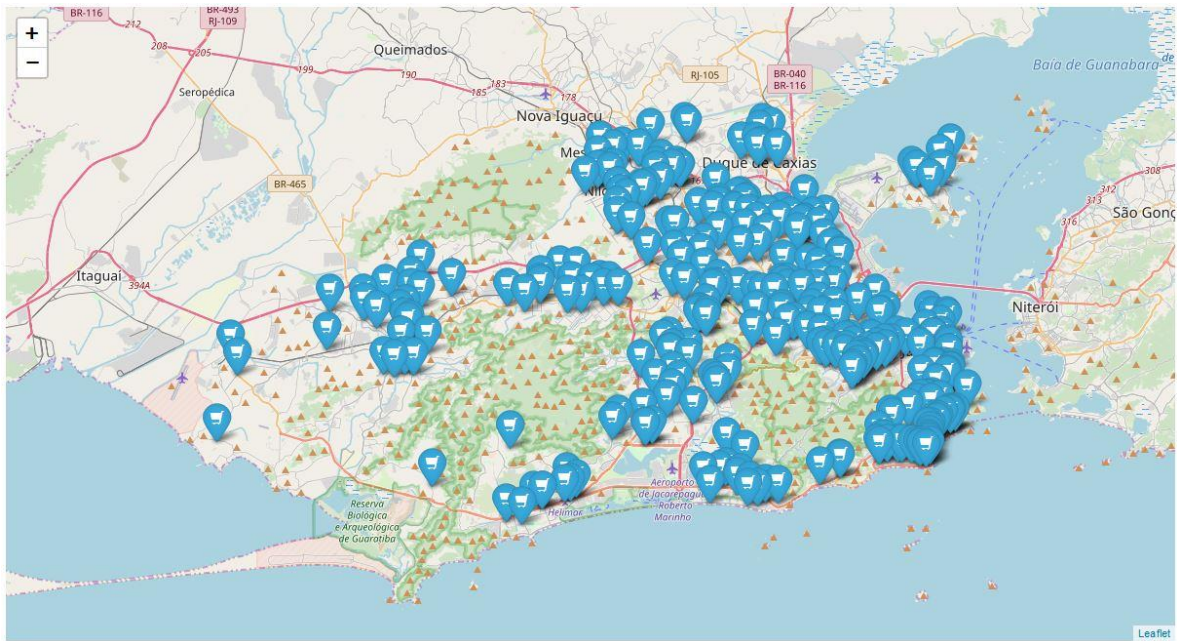
We can see the human development index varies widely between neighbourhoods. This is primarily due to the fact the income distribution is very unequal across the city. Guaratiba is one of the most populated areas and have really bad social indicators.

Even though this data was collected in 2010, we have reasons to believe that the outlook is probably very similar nowadays. As mentioned before, Rio de Janeiro is going through a fiscal crisis, and this took a toll in the city's the social policies. And not only that, Brazil is facing the same problem and we saw the poverty levels increase in the last years.

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We can see that "Guaratiba" and its surroundings have few supermarket options, and earlier we saw that this same area is one with the highest extremely poor people. In this work, we believe this area should be the first contemplated with a community refectory, due to its poor social indicators, the high populated area and low amount of supermarkets.

The supermarkets of the city, could sell products near to expiration dates, or any other foods and products that otherwise would be wasted, but are still proper for consumption, to the community refectory. And the city hall could buy these products at discount and sell meals for affordable prices for the population in need. A register could be created to keep control of who could have the benefit of using the community refectories.

The supermarkets would also benefit from this, because they can sell products that otherwise would be wasted and they could also advertise that they joined the program.

After the system is established, the supermarket could also reserve a little space to receive products of clients that they wouldn't consume but are proper for consumption.

4. Conclusion

We conclude that the first area to open the community restaurant should be Guaratiba, or a neighbourhood in its surroundings that also have poor social indicators.

The supermarkets would be stimulated to work as partners of the city hall in this project, as they can diminish their losses with waste and can advertise they participate in program that would have such a positive impact.

In this work we could see that poverty and income inequality are a big issue to be faced in Rio de Janeiro.

5. Further Directions

A similar system in which the city partner up with the restaurants as well could be studied.