

Fall 2022 Councilor Mejia x City Services Project
Team 4 - Deliverable 1

Date: Oct 15, 2022

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Checklist:

- Collect and pre-process a preliminary batch of data
- Perform preliminary analysis of the data
- Answer one key question
- Refine project scope and list of limitations with data and potential risks of achieving project goal

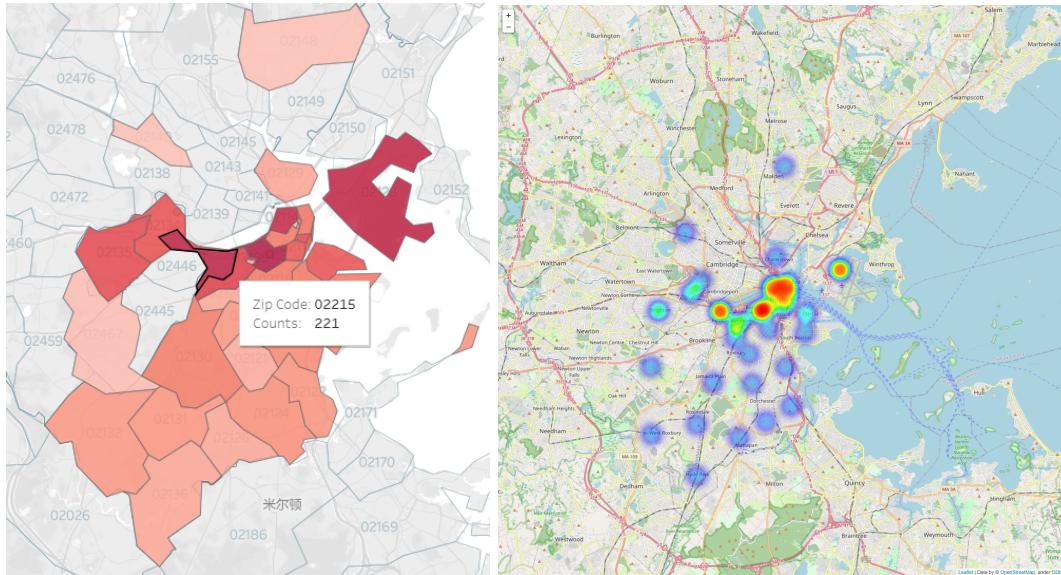
● **Collect and Pre-Process**

So far, we have collected the data that mainly focus on business funds and allocation. In question 3, we analyze in detail about how different small businesses' licenses are distributed and how funds of them are flown to, which are mainly categorized in food, liquor and consumers. In the future analysis, we will analyze the distribution of ethnicity as well as income level and combine them with the conclusions we draw during this period.

(All codes can be found in /dev/fall-team-4)

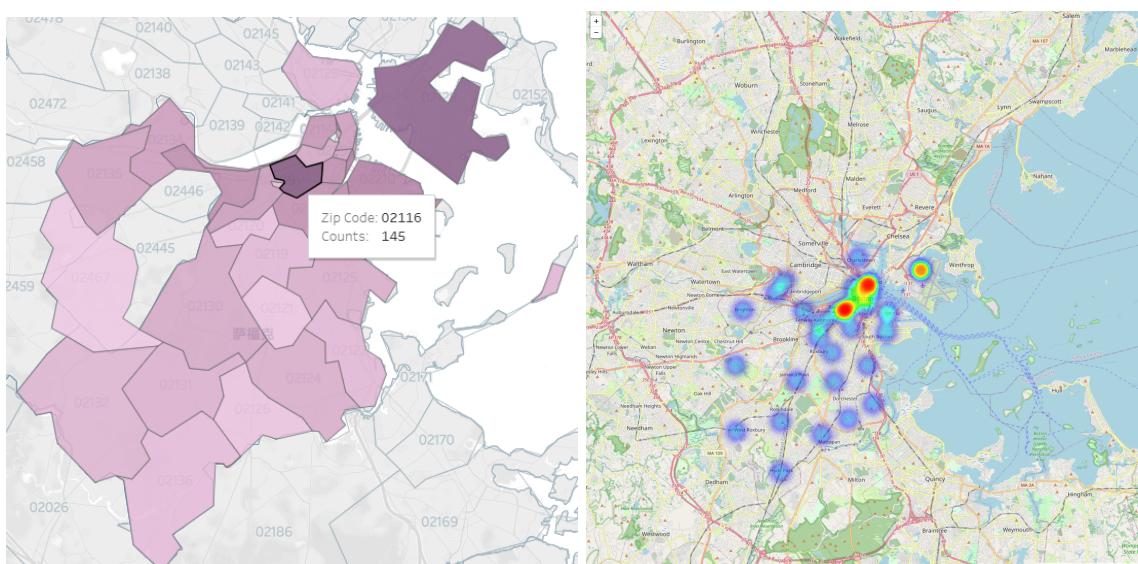
**Question 3: Where are the city's economic development licenses? Which communities are benefitting? Which communities are being left out?
(Food, Liquor, Consumer Affairs and Others)**

- Food Licenses



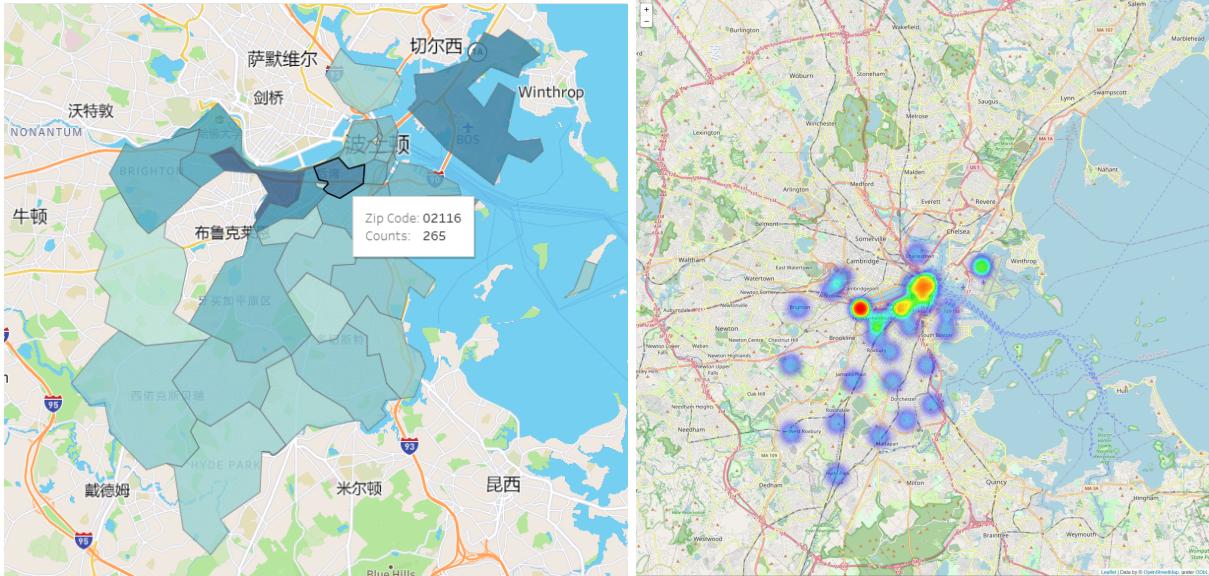
The above is the Food license data map showing the distribution of each of the food business licenses across the city. We are able to see from both graphs that the location of approved food businesses mostly aggregates around the Downtown, North End, Fenway/Kenmore, and Backbay. Other food retailers are pretty dispersed and equally clustered around each neighborhood.

- Liquor Licenses

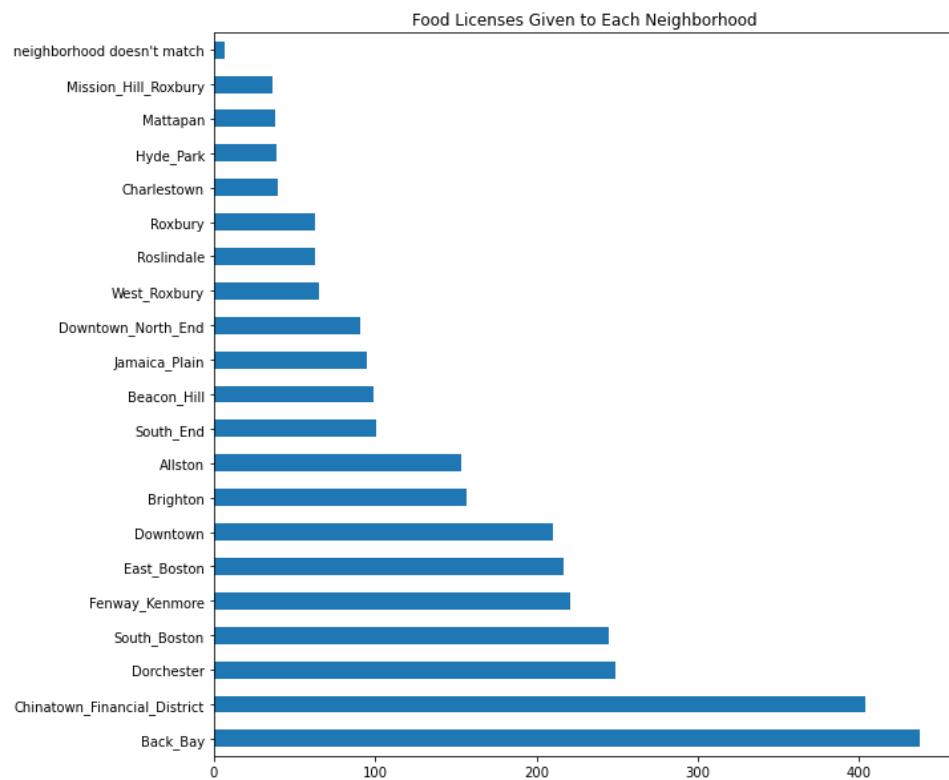
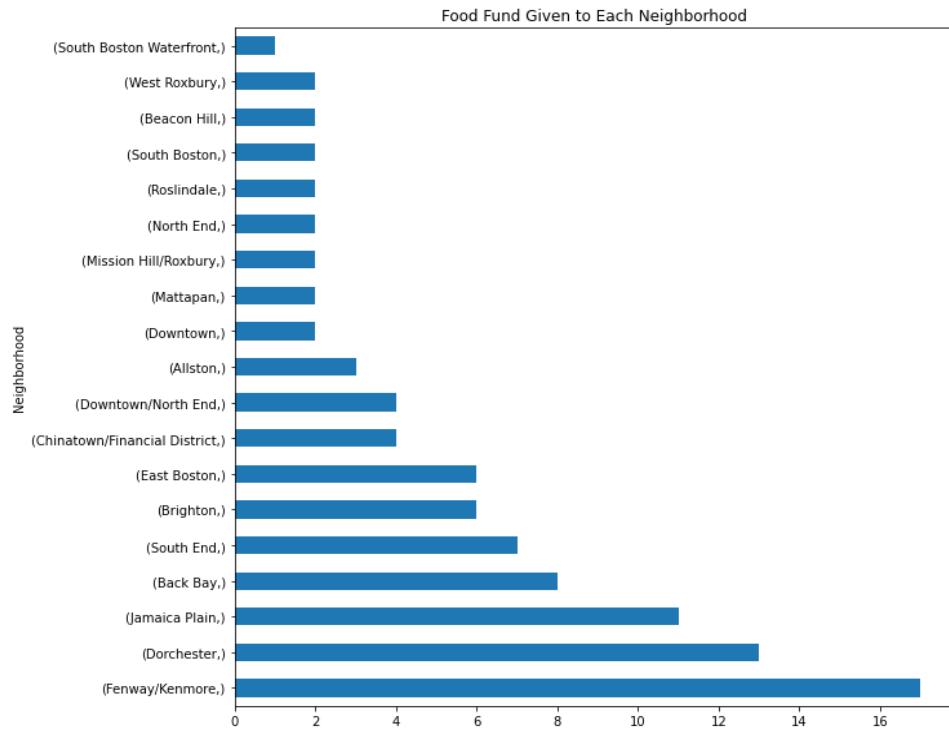


The above is the Liquor license data map showing the distribution of each of the liquor business licenses across the city. We are able to see from both graphs that the location of approved liquor businesses mostly aggregates around the Downtown, North End, and Backbay. Other liquor retailers are pretty dispersed and equally clustered around each neighborhood.

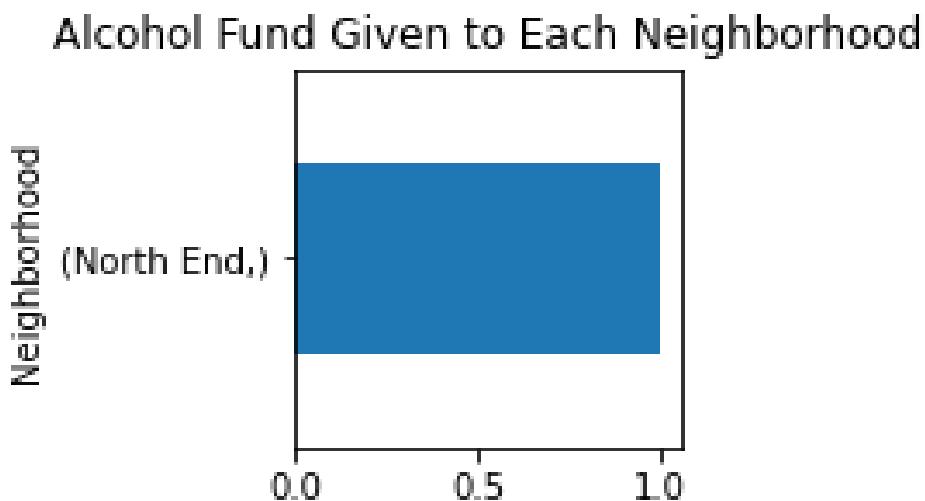
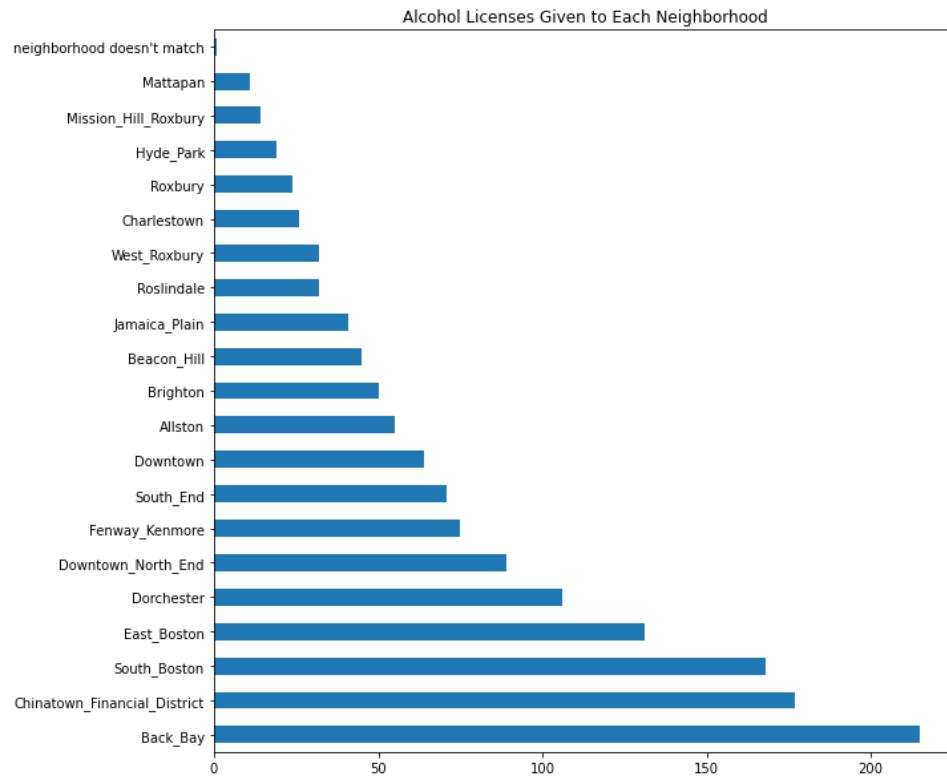
- Consumers and Others Licenses



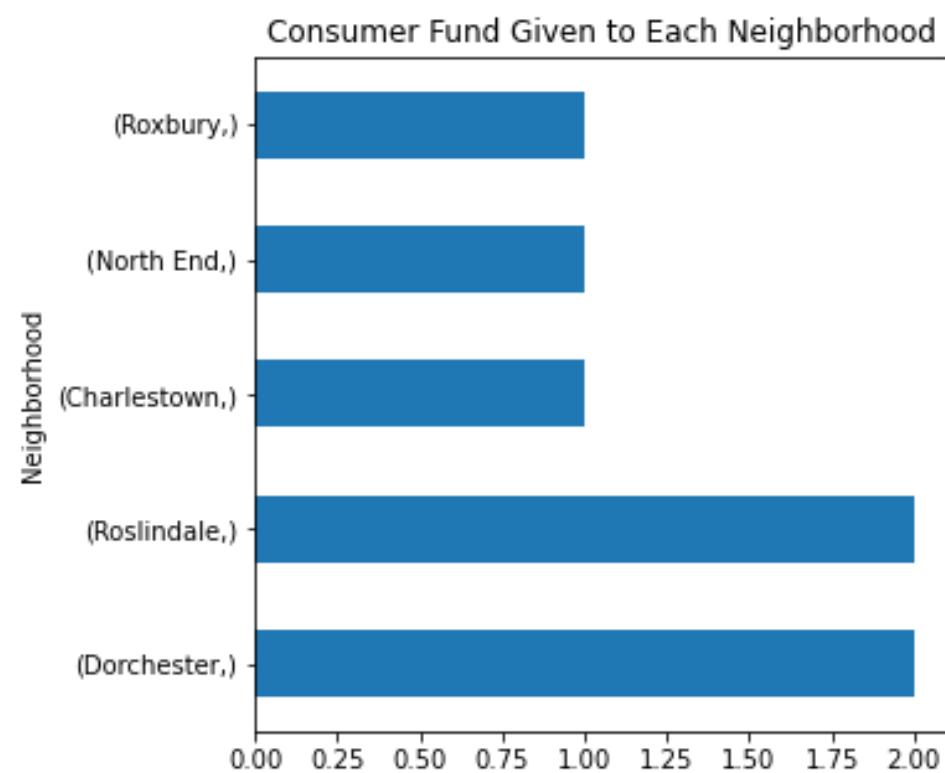
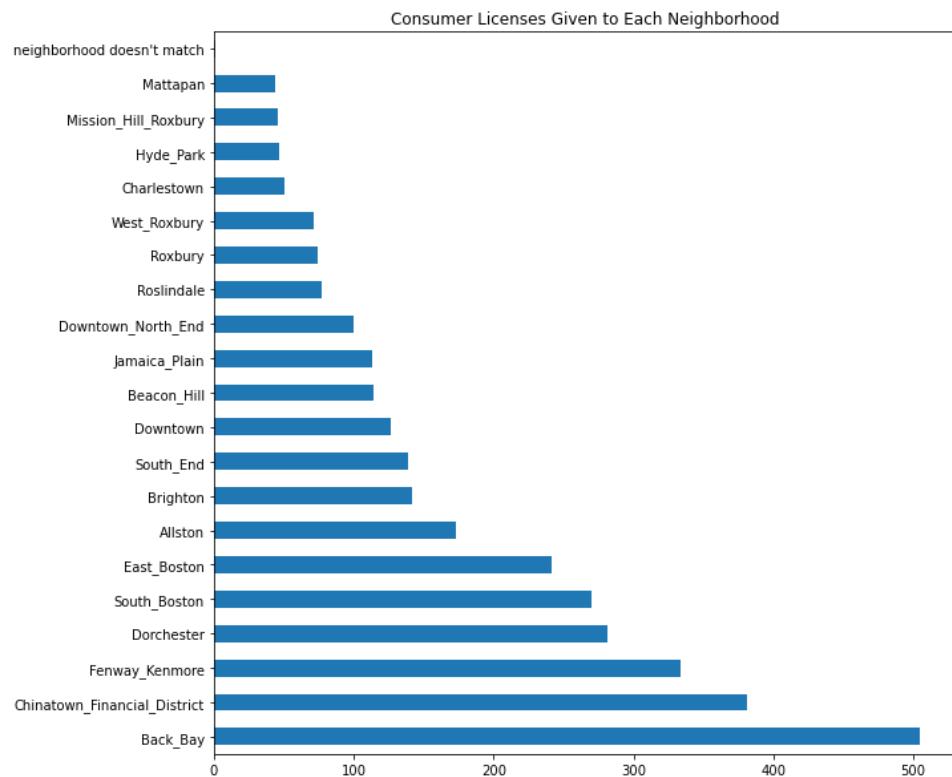
The above is the Consumer Affairs and other license data map showing the distribution of each of the Consumer Affairs and other business licenses across the city. We are able to see from both graphs that the location of approved corresponding businesses mostly aggregates around the Downtown, North End, Fenway/Kenmore and Backbay. Fenway/Kenmore neighbourhood has the largest number of these types of businesses. Other business holders are pretty dispersed and equally clustered around each neighbourhood.



According to the comparison graphs on **Food**, we get to know the number of food licenses and funds given to each specific neighbourhood. The top five of the number of food licenses are Back Bay, Chinatown/Financial District, Dorchester, South Boston, and Fenway/Kenmore. However, the top five neighbourhoods benefiting from the business assistance fund are Fenway/Kenmore, Dorchester, Jamaica Plain, Back Bay, and South End. As we can see from these two lists, some of the neighbourhoods differ. Chinatown/Financial District and South Boston didn't get enough funds even if they have quite an amount of licenses. Also, though there are not very much licenses distributed for Jamaica Plain and South End, they were able to attain enough funds. We believe the reason behind this is that Chinatown/Financial District and South Boston are able to keep the business running even if the business retailers weren't funded. They have enough economic basis. But the same situation doesn't apply to Jamaica Plain and South End. We also found that Charles Town and Hyde Park food retailers didn't get a single fund (left-outs).

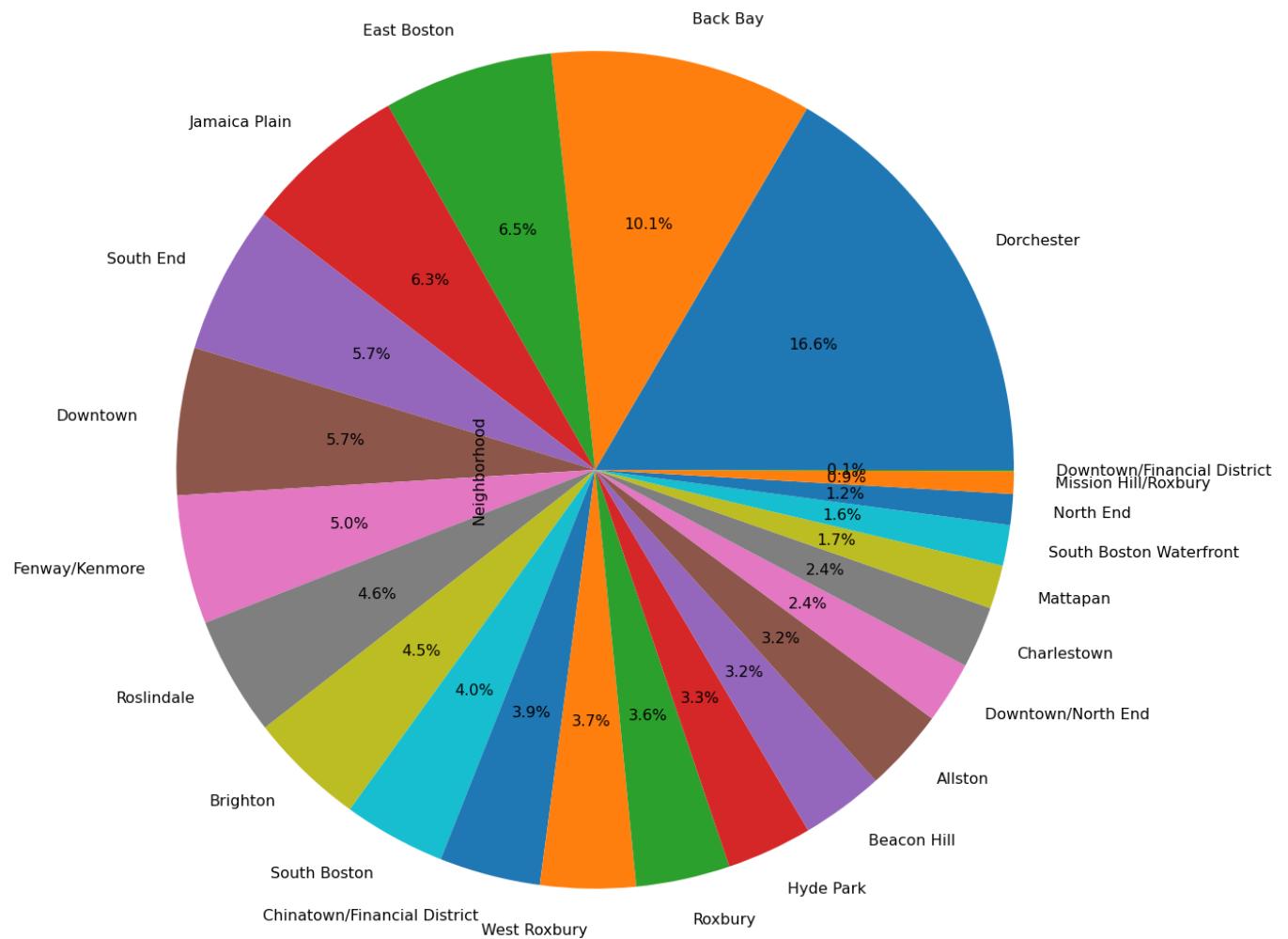


According to the comparison graphs on **Liquor**, the top five on the list are Back_Bay, Chinatown/Financial District, South_Boston, North_Boston and Dorchester. Nevertheless, there is only one fund given to one in the North End. This is mostly because alcohol is a highly profitable business, which is relatively reasonable since the funds should flow to the businesses that truly require them.



According to the comparison graphs on **Consumer Affairs and others**, Back bay, Financial District and Fenway/Kenmore are top 3 neighborhoods that have the highest number of licenses in consumer affairs and others, however, the top 3 neighborhoods that receive the most number of funds for consumers&other licenses are Dorchester, Rosindale and Charlestown, suggesting that the funds are not given to the right neighborhoods that need the most funding.

Overall Percentage of the Total Number of Funds in Each Neighborhood



- **Interpretation about the Liquor heatmap**

Given there is no information of the distribution of the existing licenses, we can't give any explanation for the licenses distribution based on demand. According to the first look on the heat map of the alcohol distribution: there is a significantly large amount of distributed licenses centered at the downtown area, and the distribution to the rest area are more dispersed and with no obvious concentrations.

Intuitively, alcohol is not a rigid demand to households and more likely to be consumed as recreational products. Meanwhile, in an economical aspect, alcohol is a kind of demerit goods that is unlikely to dramatically increase in demand when there is no significant rise in the number of households, and there is unnecessary to over supply the goods (no need to excess supply). An increase in license can be inferred to an increase in the supply. Thus, the most rational way to interpret the concentration of the alcohol license distribution in the downtown area is that the increase in supply is driven by the rising alcohol demand in the downtown area.

But there is no existing data about alcohol consumption preference for the households who live in such an area, we can't match the supply and demand to assess whether the current distributed license is actually efficient and would not intensify the price competition in certain areas...

Despote different preference and consumption patterns of alcohol consumption of the households, a more dispersed license distribution to the rest area can be inferred to an increase in alcohol supply uniformly across the neighborhoods. Households are benefited from an increased supply. Also, given the downtown area may have averagely higher purchasing power, the increase in welfare to households living around that area may not be highly different compared to the increased welfare to the households who live in the rest areas.

- **Refinement:**

We have analyzed the business fund and distribution of food, liquor and consumers, but we have not taken cannabis into consideration up to now. It is because the charts of cannabis are more complicated than the other three types, which contain two different versions. One is about the applicants of cannabis, while the other is about the flow of funds to the cannabis business. We will add this in future reports.

- **Limitations and Risks:**

We have not moved forward to Census datasets, so the relationship between the group information and the flow of funds is still unknown. Also, the funds are not predictable based on existing datasets. Furthermore, the amount of each fund in the chart of Small Business Relief Grant Recipients is missing, which results in regarding each fund totally equal and causing inaccurate conclusions. Also, Many of the business names in funds cannot match the names in each category of the business chart, so the results are not comprehensive.