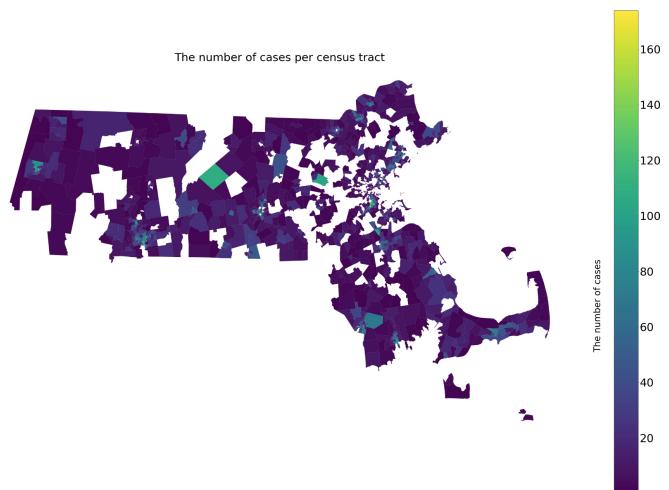


Distribution of clients in Massachusetts

The picture on the right shows how many cases there are in each census tract area in Massachusetts. The darker the color in the picture indicates the fewer cases in the area, and the lighter color indicates the more cases in the area. White indicates that there is no case in this area in the database. According to statistics, the area with the most cases is Census Tract 7327, Worcester County, Massachusetts, with 174 cases. On average, there are about 17 cases in each region of Massachusetts.



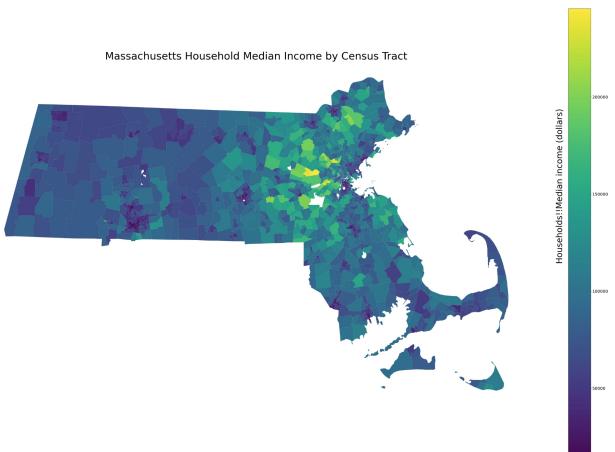
It can be seen from the figure that there are many cases in the central-eastern coastal areas (need to zoom in to see clearly). They are small in area, but the average number of cases in each area is higher than that in most parts of Massachusetts.

Analysis Overall Census Tract:

1. Income

The picture on the right is the heatmap of Massachusetts's household's median income in 2019. The darker the color, the lower the median income of the area; on the contrary, the lighter the color, the higher the median income of the area.

It can be seen from the figure that the household median income of eastern Massachusetts is relatively higher than that of the central and western regions.

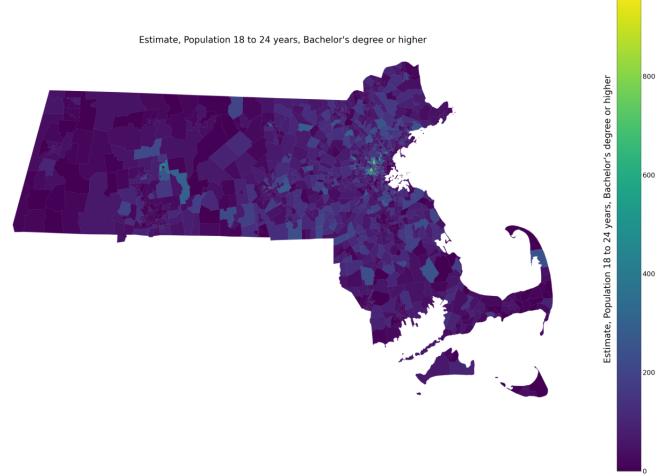


2. Education Attainment

Population 18 to 24 years old that have attained less than high school graduate in Massachusetts.



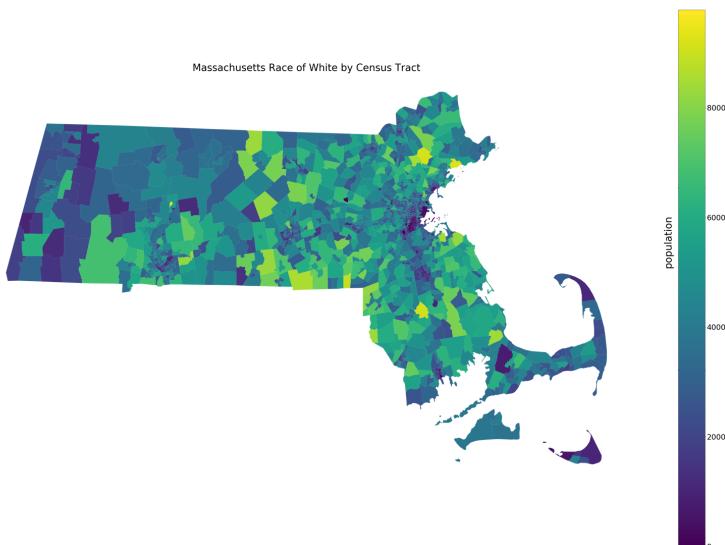
Population 18 to 24 years old that have attained Bachelor's degree or higher in Massachusetts.



3. Race

The following graphs are distributions of 5 different races in all census tracts. The lighter the color of a census tract, the more the population of that race in that census tract. The deeper the color of a census tract, the less the population of that race in that census tract.

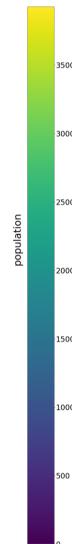
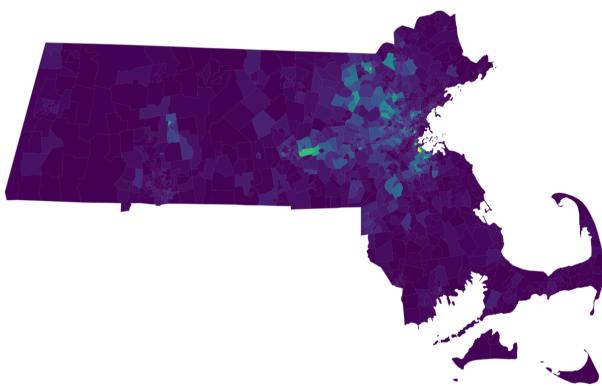
Massachusetts Race of White by Census Tract



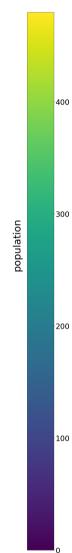
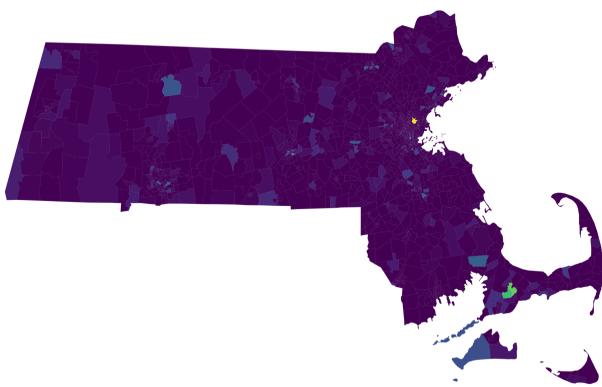
Massachusetts Race of Black or African American by Census Tract



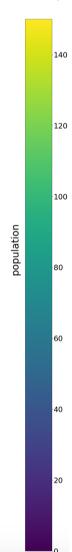
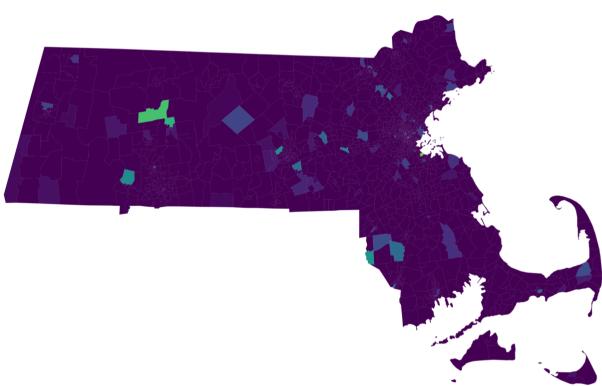
Massachusetts Race of Asian by Census Tract



Massachusetts Race of American Indian and Alaska Native by Census Tract



Massachusetts Race of Native Hawaiian and Other Pacific Islander by Census Tract

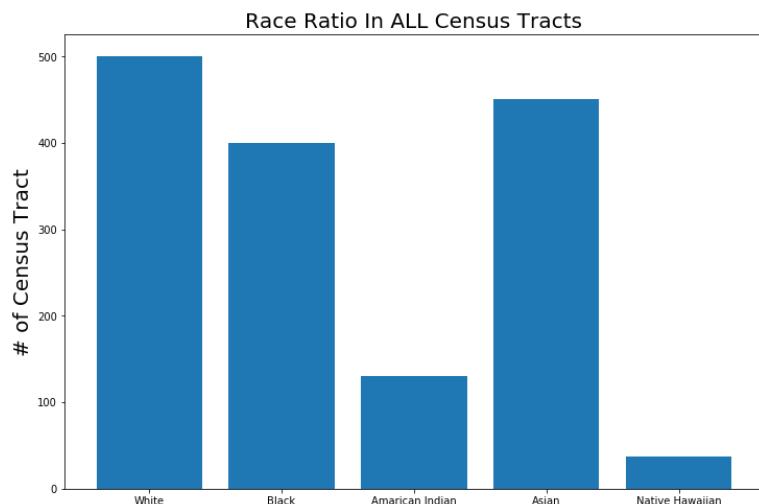


Concentrated Census Tract

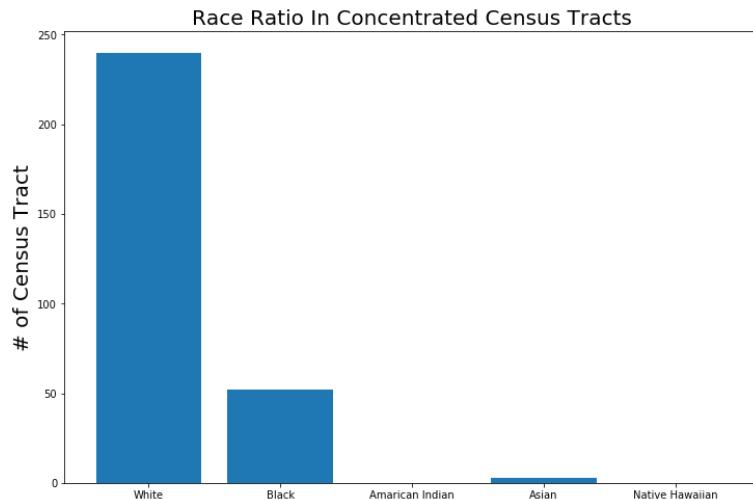
We decided to select the top 20% of the most concentrated census tract as our analysis dataset, which covers about 60% of all cases.

1. Race

The following graphs are race ratio in all census tracts and race ratio in concentrated census tracts. We consider 5 races in a census tract. We label a census tract by the dominant race living in that census tract. The following bar graphs represent the number of census tracts of five different races.



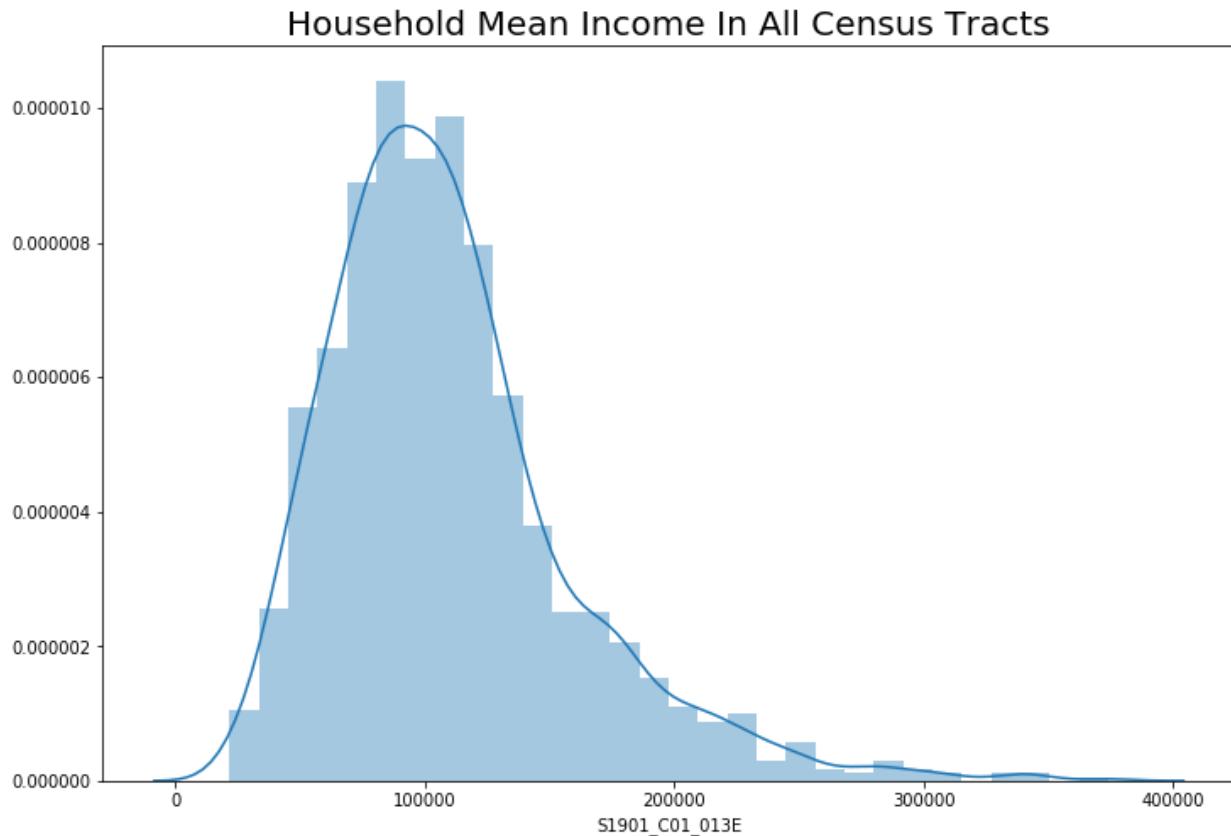
On the above graph, we can see that the white, black, and Asian census tracts are the most ones.



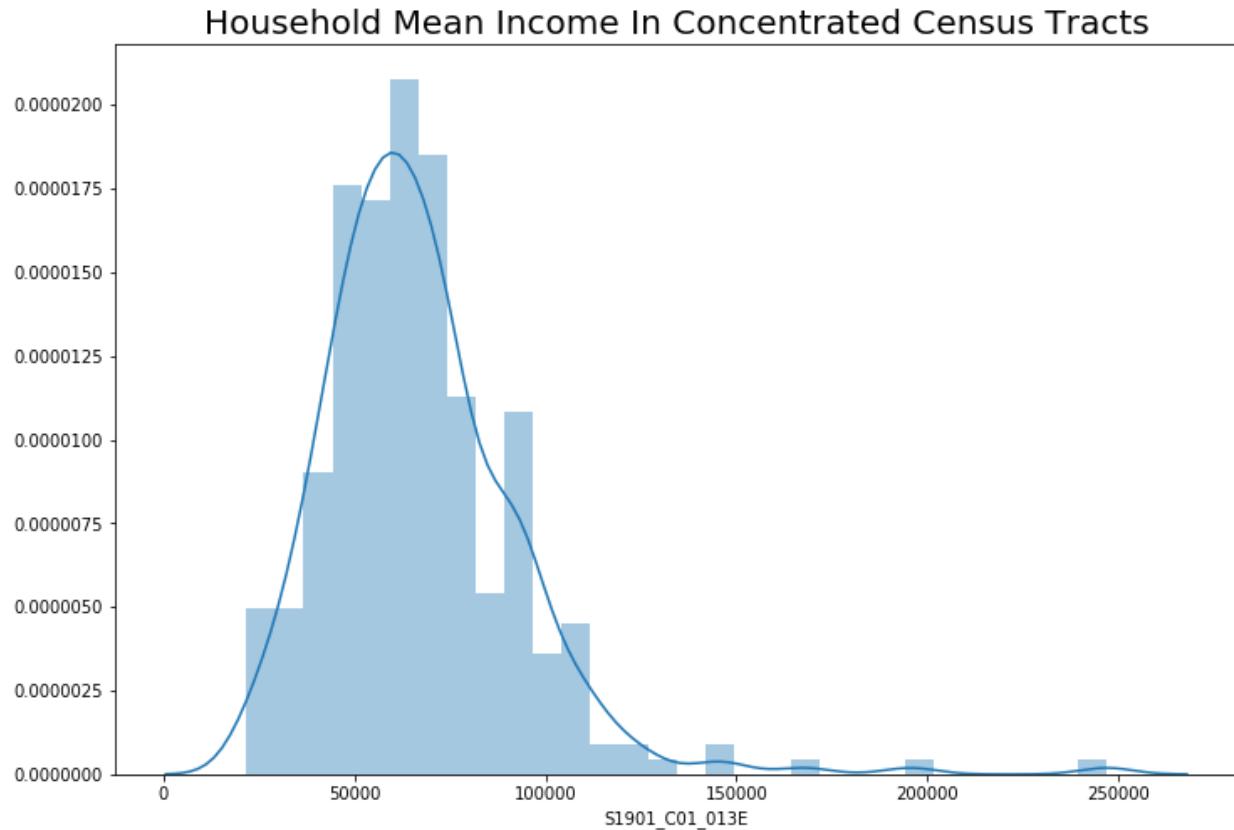
On the above graph, which is only showing the concentrated census tracts. We can see that the census tracts with the most cases are white and black census tracts, but white census tract has a higher ratio than the previous graph.

2. Income

The following graph is the household mean income in all census tracts. We can see the most samples clusters around 100000.



The following graph is the household mean income in concentrated census tracts.



We can see that both graphs share that distribution, but there is a shift to the left on the household income in concentrated census tracts, which means that the concentrated census tracts tend to have a lower mean household income than the all census tracts.

Social Services

Here we tried to analyze whether the social services provided to the clients can produce better legal results on clients' cases. Based on our calculations, the average disposition code of cases with clients receiving social services is about 1.999, and the average disposition code of cases with clients NOT receiving social services is about 1.864. Therefore, the social services are working, although not in a significant amount. But such improvement could be magnified to a significant extent over a large population.