

Checkpoint 2 - Interactive Visualizations

Team Name: The Wild Blazers

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Visualizations Chosen

1. Gender Distribution of Police Officers per District
2. Population Race Distribution vs Police Race Distribution per district
3. Population to Police Officer Ratio and Allegation Rate per police officer per district (Combined Interactive Visualisation)

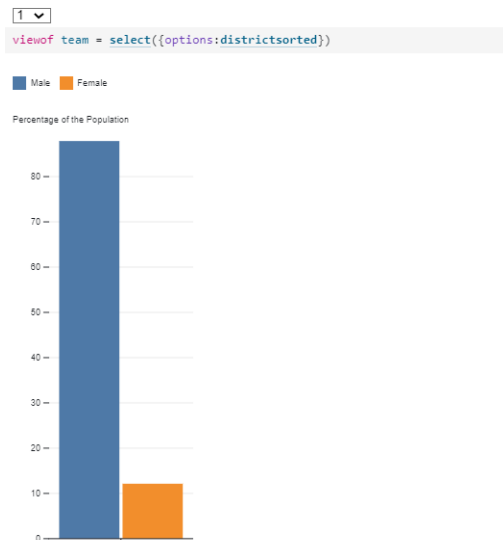
Visualization 1: Gender Distribution of Police Officers per District

Link: <https://observablehq.com/d/12675256968ae250>

For this Visualization, I was attempting to first get comfortable with d3.js on observable and wanted to create a visualization where everything was ordered by district. Given the disparity I saw when performing the relational analytics as well, my plan was to graph out the Gender distribution of the police officers as well so that I could better showcase the disparity that I had observed. If the link is opened, we can see a graph like this one below.

Gender Distribution of officers per district

District



As can be seen, there is a dropdown menu wherein we can select the District (now numbered correctly for the corresponding Chicago Police district) and changing the district would show the values for each new district. While this was a practice graph, I think this was an important one as it allowed me to properly take a look at the sheer discrepancy and male dominated police statistics. The Male police outnumber female officers on a near 4 to 1 ratio. This graph was a great representation that also showed how important it is to visualize values as while the numbers were still high, it doesn't showcase the values as well as a graph.

Visualization 2: Population Race Distribution vs Police Race Distribution per district

Link: <https://observablehq.com/d/03d15b41d6bb2884>

The objective of this question was to see whether the officer demographics in a district are similar to that of the population they serve. To do this, I created a bar graph which plotted the different racial groups and the population percentage for these groups for both the police and residents of a district. An example of the graph can be seen below:

Population Distribution vs Police Distribution

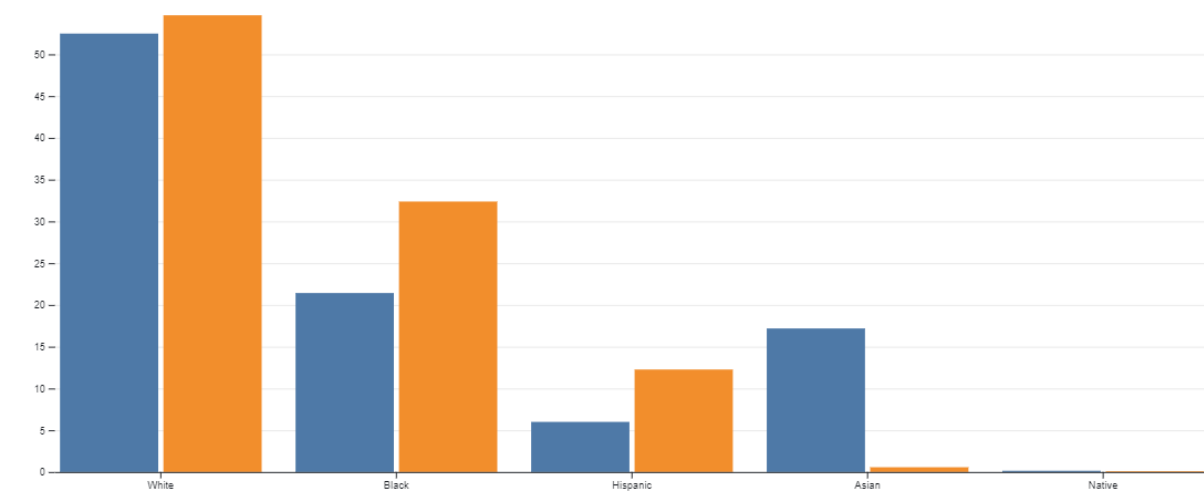
District

1

viewof team = select({options:districtsorted})

pop police

Percentage of the Population



As can be seen in this graph, there is a dropdown to select the district which allows us to iterate over the districts and see whether the population ratios match across districts. In this example, we can see that with respect to the population, there is a large number of Asian/Pacific Islander population with respect to the police officers in this area. Even so, this district is relatively similar in terms of the distribution of Police and Population by race.

Some examples where we see large discrepancies are District 11 and District 15. Both these Districts have a large black population but the police officers distribution is skewed White with an extremely large number of white officers as compared to their ratio in the population. Correspondingly, if we take a look at the last visualization or the data itself, we see that District 11 has a large number of allegations as well which may showcase a potential correlation for racial bias in a district like this.

By visualizing the distribution of race across the police and the districts they serve, we can not only draw conclusions regarding whether the officers are representative of the community but also draw inferences regarding whether there is a potential for racial bias after comparing the distribution with allegation rates in that district.

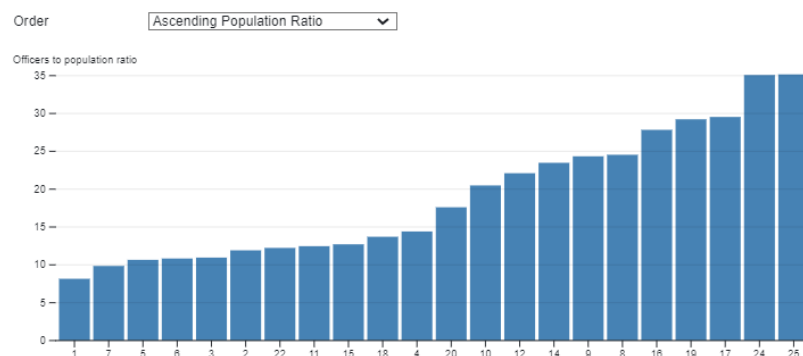
Visualization 3: Population to Police Officer Ratio and Allegation Rate per police officer per district (Combined Interactive Visualisation)

Link: <https://observablehq.com/d/9639fa4f48c4de3d>

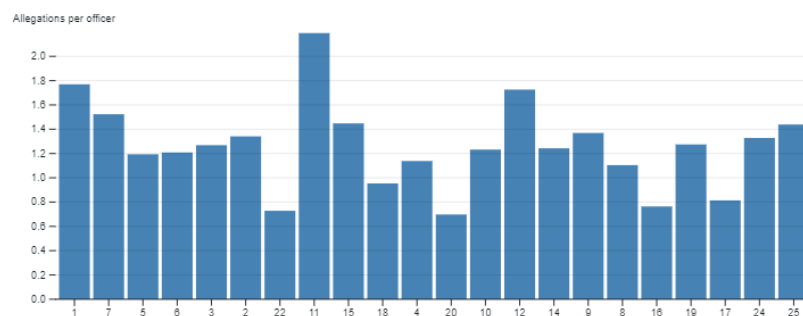
This was my favorite visualization of the 3 as not only was the interaction level higher but it brought up a very interesting point. The purpose of this visualization was to compare the Ratio of the Population to Police Officers to the Allegation Rate of Officers in a District. The reason this was an important visualization is because when trying to understand whether police officers may be biased or require sensitivity training based on their allegation rate or potential risk, it is important to first check whether the Allegation Rate corresponds to an increase in the population being served. This is because there is a chance that the police officers in a district with a higher population may be overwhelmed or may just potentially be subject to more allegations as a result of having to serve a much larger population. A still of the graph can be seen below.

Population to Police Officer Ratio and Allegation Rate per police officer per district

Population to Police Officer Ratio per district



Allegations per officer in each district



This is definitely a big graph but as can be seen there is a dropdown menu which allows a viewer to select the order of how they want to see this. Here, I have set it to an ascending population ratio which means that as we go from left to right in this graph, the number of officers relative to the population decrease. As can be seen, there is no linear correlation between these 2 graphs and adjusting it in other ways shows the same thing. This showcases that the police officers serving a district are not getting more allegations as a result of an increased population and points to the presence of an underlying bias. This visualization was extremely helpful and coupled with the racial distribution across the districts showcases clear progress towards the goal.