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Checkpoint 2: Data Visualization

This checkpoint continues our goal to find those areas of Chicago which might be overpoliced. To that end, we began by identifying the characteristics that could be related to this status, namely the number of allegations originating from each area as well as the median income of the area. Due to difficulties in making meaningful hypotheses and conclusions using beats or neighborhoods as a basis in our first checkpoint, we pivoted to using police districts as a basis instead. The questions that we set out to answer with our visualizations were:
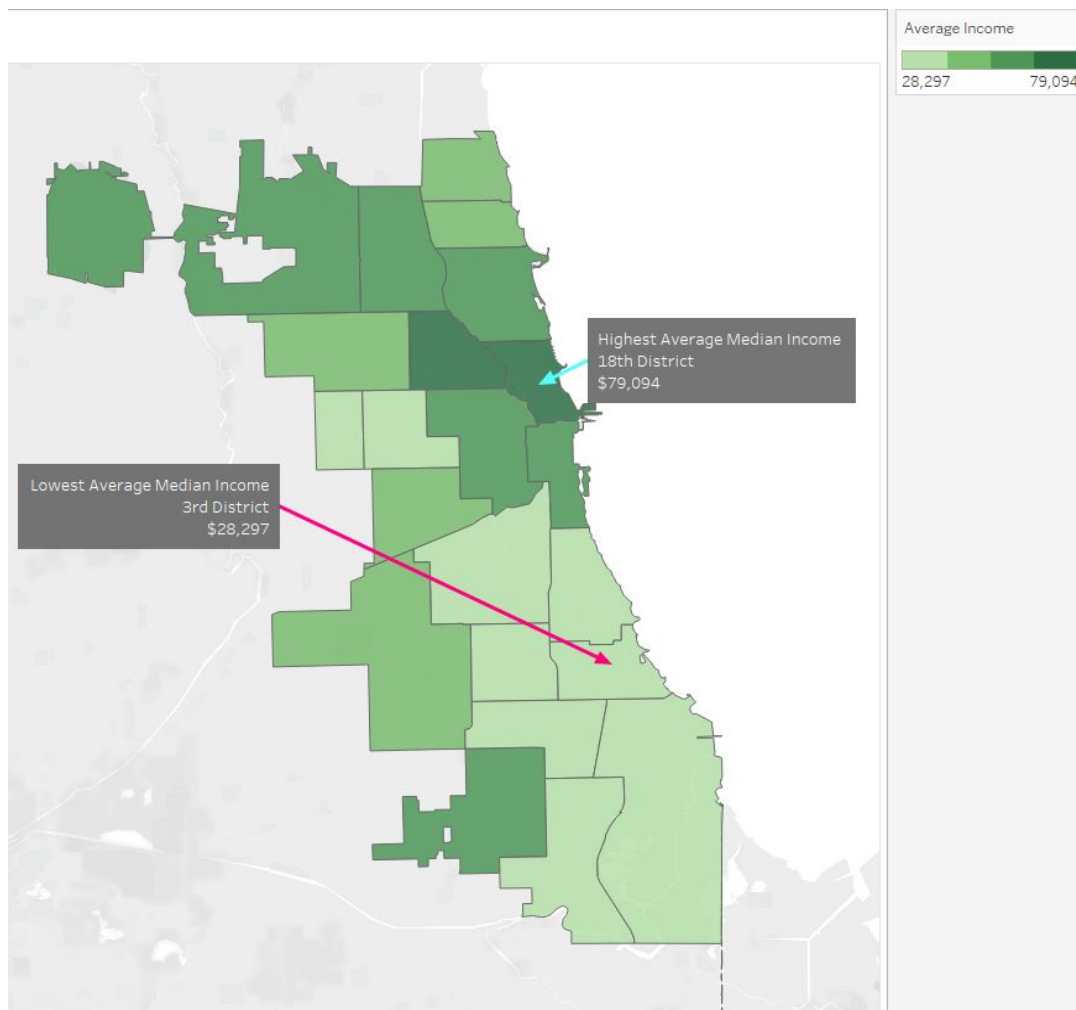
- Which police districts have the lowest income per capita?
- Which police districts have the highest number of aggregate complaints?
- What is the predominant race of the officers who patrol this area?
- What is the predominant race of the citizens in every district?

Using these visualizations, we aimed to investigate what kinds of neighborhoods were more likely to file allegations against officers, using district income, citizen race, and officer race as metrics. Specifically, we were curious as to whether districts with lower average income and higher populations of non-White races were more likely to have a larger number of allegations filed against officers.

Question 1: Which police districts have the lowest income per capita?

In order to answer this question, it was necessary to realize that much of the information available to us was sorted at the beat or community level. Thus, we began by coalescing all of the median income data to be used at the police district level - essentially creating a map of average median incomes. This map is depicted below. When the map was made, the potential values for income were binned into 4 distinct groups, signified by the gradual changing colors of each district. Initially, we were surprised to see how low the average income was, particularly in the Southern regions of the city.
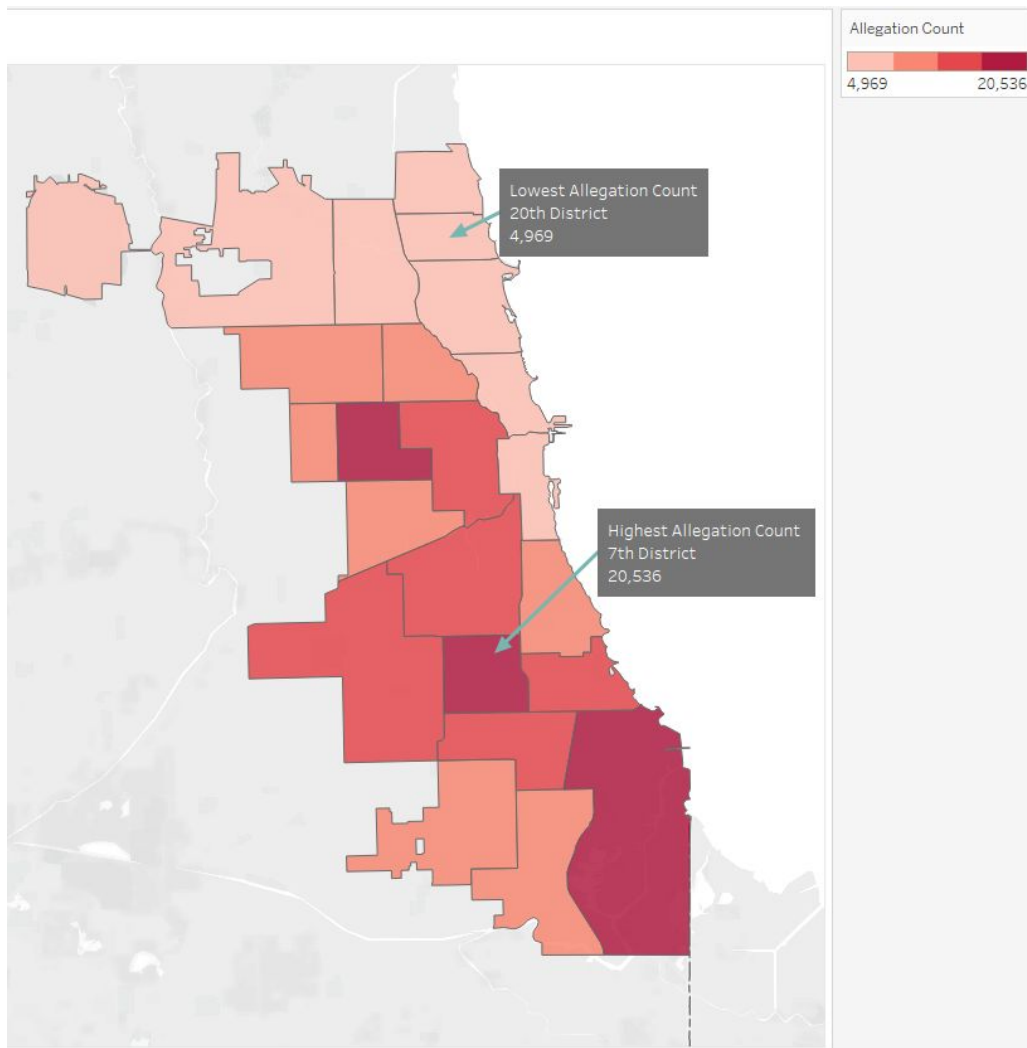
However, the majority of the data analyzed were as expected: northern areas, particularly close to Evanston and O'Hare, had higher average incomes, while those districts near the south and state border had lower average incomes. One thing to note is that the 31st district, located near O'Hare in the top left, has been omitted from all visualizations and analyses; the lack of median income data as well as strange latitude and longitude boundaries resulted in data that was confusing to navigate. Therefore, we have chosen to omit this district in favor of clear and concise visualizations.

Question 2: Which police districts have the highest number of aggregate complaints?
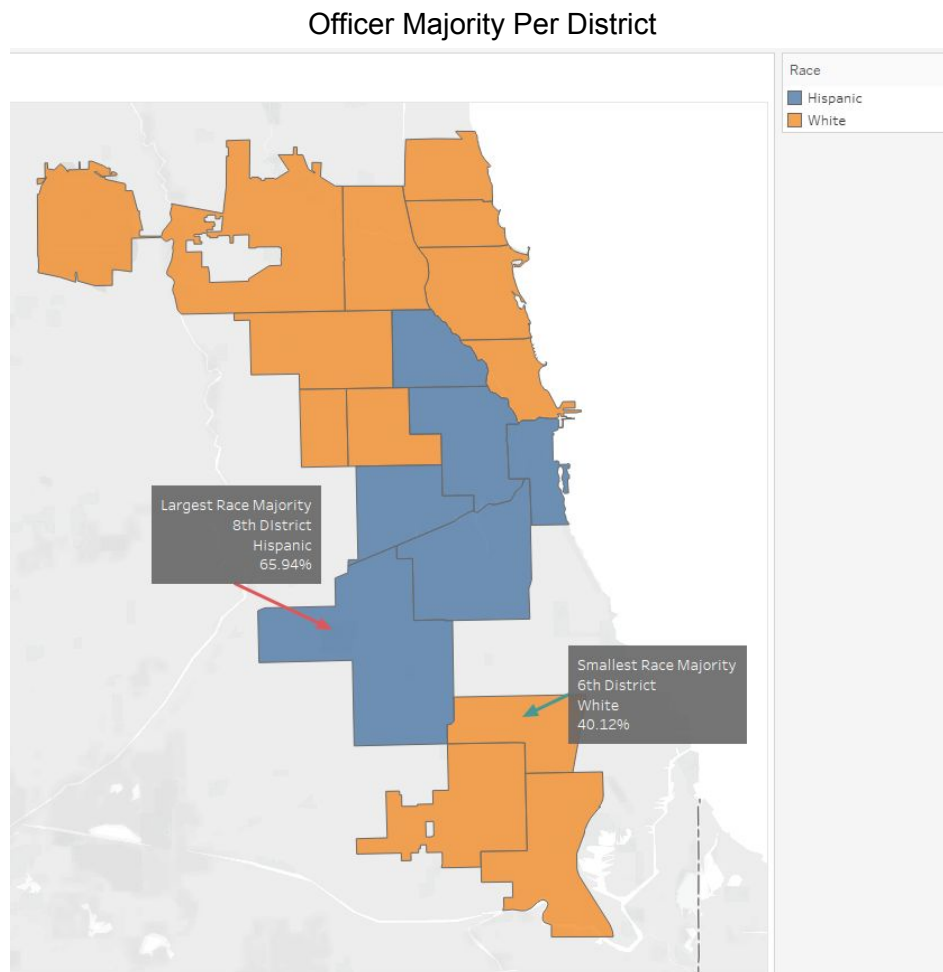
As the below chart indicates, the northeast and southwest regions of the city receive complaints at significantly different rates. The north and northeast districts universally have low numbers of allegations, dropping as low as 4,969. However, as you move further south and west, the allegations increase, jumping to over 20,000 in Englewood's 7th District. When compared to the above per-capita income map, the relationship between wealth and police complaints is unmistakably inversely proportional. In almost every district, a lower income indicates a greater likelihood of the police in that area to receive an official allegation.
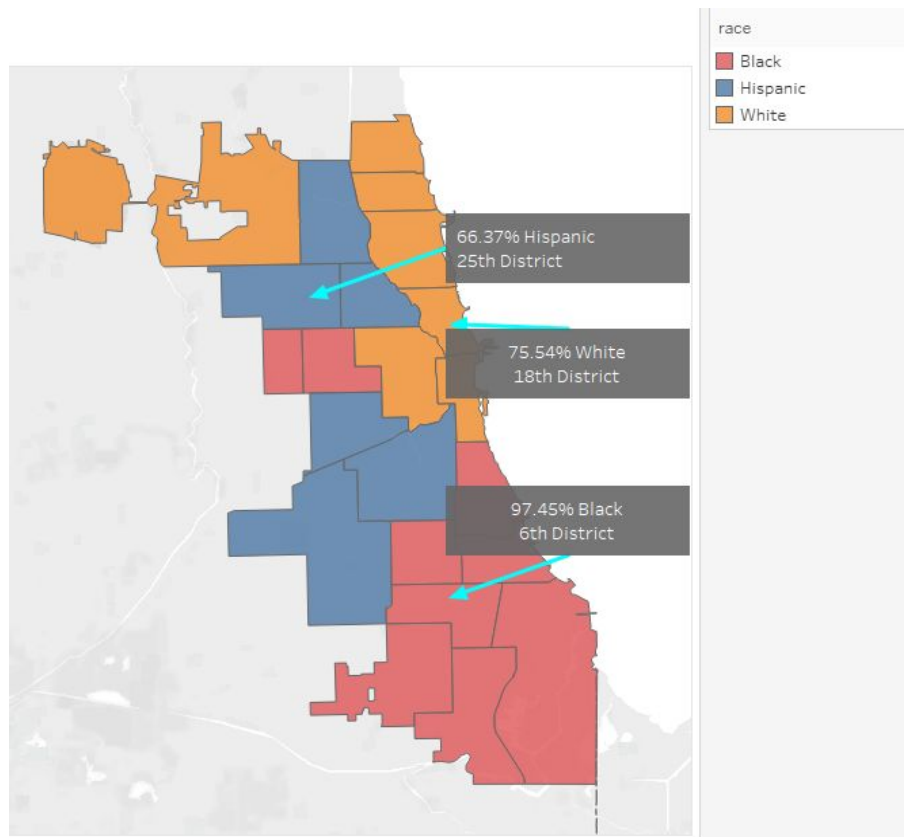
Allegations Per District

Question 3: What is the predominant race of the officers that patrol this area?

While the data does not completely exist across all districts, police race is divided not only between districts, but significantly between regions of the city. The north side and far south are predominantly white. However, the southernmost districts in Chicago, while primarily white, are also the least skewed. The 6th District has a plurality of only 40% white officers. Central and southwest Chicago districts are dominantly hispanic. These areas' police forces are more demographically skewed, with the hispanic majority reaching up to 60% in the 8th District. This is surprising for a minority demographic in the city, but may reflect the makeup of the citizens more than a white-dominant force. There are no tracked districts that have a majority-black force.

Officer Majority Per District

Question 4: What is the predominant race of the citizens in every district?

Finally, we visualized the predominant race of the citizen population in every district. We were curious as to how officers were assigned to each district, so we used this map, shown below, to compare to the officer race data explored previously. First, it is important to note that districts in Southern Chicago have predominantly Black communities; White citizens most commonly inhabit districts in Central and Northern Chicago, which is a trend that also follows for the Hispanic population. Asian and Native American populations are never the majority in our current data and scope.

A curious coincidence is that, while we are missing full district data for officers, three of the Southern-most districts are patrolled by mostly White officers, despite the citizens being mostly Black. Recall that in the allegation map shown in question 2, there was a fairly high concentration of allegations in this part of Chicago. It is possible that due to racial tensions, officers are particularly hard on citizens of un-like races. The opposite may also be true, where citizens are more likely to aggravate officers who are of a different race than them. Regardless, we believe that these findings validate our hypothesis that non-White population and allegation count are somewhat correlated.

In the future, to further examine this relationship, we are planning to explore Tactical Response Reports (TRRs) filed by officers. Doing so will provide us with a picture on both sides, as it will allow us to better judge whether the increased allegation count is truly a sign of over-policing, or if it is the result of citizen-led aggressions against police officers.