

Checkpoint 1: Relational Analytics

Our investigation concerns the relationship between racial demographics and the nature of police misconduct, so our primary goal for this checkpoint was to establish some preliminary answers to questions that are more foundational to the investigation of the topic. Before we can dive deeper into the intricacies of this relationship, we need to establish some base level understanding of the statistics, such as how heavily policed different areas are, what kind of misconduct they commit, and how the racial demographics break down geographically. We chose to investigate these questions with the following queries:

- 1) What is the number of police officers per capita that are assigned to each police district?
- 2) What is the number of complaints per capita per police district?
- 3) What is the proportion of black residents in each police district?
- 4) Which type of complaint is most likely in each police beat?

While these by no means form an exhaustive list of the necessary considerations to answer this question in its entirety, they provide a solid foundation. Each question was motivated separately to tackle a different facet of the problem.

Our analysis begins with question 3 where we broke down the proportion of black residents in each district. District ids 1537 (97.5% black), 1534 (96.8% black), 1535 (94.4% black), 1540 (94.2% black), 1547 (93.3% black), and 1546 (84.7% black) had the highest proportions of black residents in all of Chicago. On the other side, district ids 1542 (1.0% black), 1527 (3.3% black), 1531 (6.6% black), 1533 (6.8% black), and 1544 (9.1% black) had the lowest proportions of black residents in Chicago. In our analysis we will focus on these districts to find correlations between police misconduct and the proportion of black residents in each district.

Our first question is aimed at determining how heavily policed each area is. Each police district is broken into several beats which are typically patrolled by 8 or 9 officers at a given time.

However, beat and district size vary greatly meaning that in different police districts, the number of police officers assigned and the density of officers in a district is not consistent across districts. By looking specifically at the number of officers assigned to each district, we can see which geographic locations have higher concentrations of police officers. The highest policed district were district ids 1546 (86.56 officers/100k residents), 1534 (61.91 officers/100k residents), 1535 (53.17 officers/100k residents), and 1549 (50.97 officers/100k residents). Of the four highest policed districts, 2 of them correspond to the districts with the highest proportions of black residents. Contrastingly, the least policed districts were district ids 1541 (17.73 officers/100k residents), 1542 (18.55 officers/100k residents), 1527 (18.74 officers/100k residents), 1543 (19 officers/ 100k residents), and 1531 (19.92 officers/100k residents). Of the 5 least policed districts, 3 of them also have the lowest proportions of black residents in Chicago. Thus, a high correlation exists between the proportion of black residents in a district and the number of officers assigned to that district, indicating the possibility of over policing in black neighborhoods.

Question 2 is something of an expansion to the inquiry of question 1, instead looking at how likely police are to get into an altercation. While the number of police officers operating in an area might reveal how heavily policed a district is on a governmental level, this question provides a more nuanced perspective on how aggressive the officers are in their policing. The district ids with the highest allegations per capita were 1534 (0.289), 1546 (0.256), 1535 (0.182), 1537 (0.180), 1540 (0.157), and 1547 (0.152). These districts correspond to the six districts with the highest proportions of black residents in Chicago meaning there is a very high correlation between the number of complaints from police misconduct in a neighborhood and the proportion of black residents. This suggests that police are more likely to commit misconduct against black residents. The district ids with the fewest allegations per capita are 1531 (0.030), 1541 (0.037), 1542 (0.042), 1527 (0.047), and 1528 (0.054). Of these five districts, three of them have the fewest proportions of black residents in Chicago, reinforcing the

conjecture that police misconduct is directly correlated to the proportion of black residents in the district.

Questions 1-3 work together to create a picture of police misconduct against black residents in Chicago. The districts with the highest proportions of black residents also have the most police per capita. The districts with the highest proportions of black residents have 3-4 times the amount of police officers assigned to their districts than the districts with the lower proportions of black residents. In similar fashion, districts with the highest proportions of black residents had 4.5 times the amount of complaints against police officers than districts with the lowest proportions of black residents on average.

Our fourth question had an interesting result. We saw very little correlation between the demographics of a beat and the most frequent type of complaint. Across all beats except for three, operation/personnel violation was by far the most common complaints civilians had against officers. Although the number of complaints varied by beat, for example officers in beats with higher percentages of black residents tended to have more complaints, the actual complaints against the officer were extremely comparable to those in beats with low percentages of black residents. This meant that although officers had more allegations against them in black communities, the type of misconduct in the Chicago police department is highly similar across the whole city. It would be interesting to see if police misconduct across the country followed similar patterns, or if this was unique to Chicago. If unique, CPD could reevaluate their training methods to possibly reduce their most common misconduct in the future.