

CS 496: Data Science Seminar

Checkpoint 1 Findings Summary

In our project, we are trying to analyze the North vs. South sides of Chicago police complaints data to investigate the correlation between class + racial differences and police violence. Therefore, as the first step, we performed a quantitative analysis to answer the following questions:

1. **How many complaint reports are filed per capita on the north and south sides annually?**

This question will shed light on whether there are any trends in the magnitude of potential police misconduct in the north vs south sides of Chicago.

2. **What is the racial distribution of each side of Chicago? What is this distribution for complainants in the database? Put these side-by-side.**

Answering these questions will help us understand whether there are any racial trends in filing complaints in the north vs south sides of Chicago.

3. **What is the distribution of complaint categories in the north and south sides?**

Answering this question will help us understand the most frequent police misconduct types in the north vs south sides of Chicago. This will also implicitly show whether police officers are behaving more violently in the south vs. the north sides.

4. **What is the median income of the north and south sides?**

Knowing the median income of the north and south sides will be helpful to put in perspective whether there is potentially more police misconduct in the poorer areas of the city.

Results:

1.

	year	south_per_capita_perc	north_per_capita_perc
1	2000	0.00274822260122106887	0.00239711960876545454
2	2001	0.00192289088744869327	0.00151407153458941631
3	2002	0.0017237714040560572	0.00138805922770808624
4	2003	0.00143423167603101634	0.00124280840069220195
5	2004	0.00151503346059614402	0.00107158557149466949
6	2005	0.00150156649650195608	0.00112833920589160441
7	2006	0.00159294946714108857	0.00112545342787142127
8	2007	0.002099884472686592	0.00158910176311417773
9	2008	0.00196040520171107398	0.00154581509281143076
10	2009	0.00210180832470004742	0.00154389124079797534
11	2010	0.00209603676865968116	0.00141787893391664526
12	2011	0.00193924282956306435	0.00132745788928424048
13	2012	0.00186325067503157522	0.00119375017434908872
14	2013	0.0017699438523789873	0.00113218690991851525
15	2014	0.00147270871630012476	0.00086380955404148402
16	2015	0.00114084424397906464	0.00083976140387329126
17	2016	0.00102829890119192251	0.00077146465739562381
18	2017	0.00094268748659315628	0.00065891931460848169
19	2018	0.00051078270957241427	0.00030781632215286736

The findings show that for every single year from 2000 to 2018, there were more registered per-capita complaints in South Chicago compared to North Chicago. This implies that communities in the south side of Chicago suffer from higher rates of police misconduct. Therefore, this invites us to determine possible factors behind these results. To make these calculations, we had to know the population of both sides of the city. We used external tools and a Python script to determine that and then included the obtained numbers as constants in our SQL queries. We can provide the Python code if needed.

2. Racial and complainant distribution for North Chicago

	racial_distribution.race	population	complainant_distribution.race	complainants
1	<null>	<null>	Asian/Pacific Islander	343
2	Black	63957	Black	3619
3	Hispanic	326498	Hispanic	2600
4	<null>	<null>	Native American/Alaskan Native	31
5	White	550086	White	6538
6	Other	26170	<null>	<null>
7	Asian	83944	<null>	<null>

Racial and complainant distribution for South Chicago

	racial_distribution.race	population	complainant_distribution.race	complainants
1	<null>	<null>	Asian/Pacific Islander	84
2	Black	351617	Black	14887
3	Hispanic	58751	Hispanic	841
4	<null>	<null>	Native American/Alaskan Native	11
5	White	78993	White	3712
6	Other	7338	<null>	<null>
7	Asian	18887	<null>	<null>

As we may observe, White people constitute a racial majority in the North whereas the South is dominated by minorities - with Black and Hispanic people being the largest two. It is interesting to notice that although there are almost eight times fewer Black people residing in the North, the number of complaints is only twice smaller than that of White people. Furthermore, Hispanic people seem to file fewer complaints on average than White or Black people.

On the other hand, on the south side of the city, Black residents filed police misconduct complaints three times more often, on average, than Hispanic people. This makes us wonder whether Black communities are more heavily policed and so, suffer from greater levels of police violence and misconduct. Interestingly, on average, White people filed similar amount of complaints, on average which, in turn, makes us ponder what other factors apart from race are contributing to police misconduct on both sides of Chicago.

3. Distribution of complaint categories in North (left) and South (right) Chicago (Cont. on next page)

The results show that top three complaint categories in the North are: Operation/Personnel Violations, Use of Force, and Verbal Abuse. Similarly, in the South, the top three complaint categories are: Operation/Personnel Violations, Use of Force, and Illegal Search. Overall, our findings show that the distribution of complain categories across the city is fairly similar with an

exception of a few categories with swapped places. It is, however, disturbing that Use of Force is the second most frequent complaint category for both sides of the city and is worth taking into account for potential future policy change proposals.

category	count	category	count
1 Operation/Personnel Violations	7902	1 Operation/Personnel Violations	10241
2 Use Of Force	6375	2 Use Of Force	6730
3 Verbal Abuse	2188	3 Illegal Search	2521
4 Illegal Search	1816	4 Verbal Abuse	1956
5 Traffic	1585	5 Lockup Procedures	1552
6 Lockup Procedures	1222	6 Traffic	1392
7 Conduct Unbecoming (Off-Duty)	1004	7 Conduct Unbecoming (Off-Duty)	1288
8 Domestic	709	8 Domestic	871
9 Criminal Misconduct	505	9 False Arrest	789
10 False Arrest	440	10 Criminal Misconduct	573
11 Supervisory Responsibilities	386	11 Supervisory Responsibilities	526
12 Drug / Alcohol Abuse	166	12 Drug / Alcohol Abuse	287
13 Bribery / Official Corruption	130	13 Bribery / Official Corruption	84
14 Unknown	8	14 Unknown	14
15 First Amendment	6	15 Medical	10
16 Medical	5	16 First Amendment	8
17 Money / Property	5	17 Money / Property	7
18 Excessive Force	2	18 Racial Profiling	7
		19 Excessive Force	3

4. Median incomes in North vs South sides of Chicago

	north_median_income	south_median_income
1	51713	37084

As we observe, the difference between the median income in the south side vs. north side of Chicago is drastic. On average, a resident of North Chicago earns 1.4 times more than a resident of South Chicago. Given the findings from previous questions, it makes us wonder whether income disparity is a fueling factor for police misconduct. We believe that it may be beneficial to further investigate the impact of class differences on police misconduct.