

Checkpoint 1: Quantitative analysis

Our group analyzed the following 6 questions. Each question may have subsections. We have listed the corresponding SQL script found in src/ as well as a brief analysis of the result.

1. What percent of total complaints are sustained depending on the allegation category?

Script: script1.sql

This question helps us understand the various types of allegation categories against police officers in the database. We try to analyze if there could be a relation between the types of complaints and their sustainment. We find that 'Drug/Alcohol abuse' has the highest sustainment rate (58%), followed by Medical (40%) and Excessive force (32%).

	percentage	1	category
1	58		Drug / Alcohol Abuse
2	40		Medical
3	32		Excessive Force
4	31		Unknown
5	27		Conduct Unbecoming (Off-Duty)
6	18		Bribery / Official Corruption
7	15		Criminal Misconduct
8	14		Operation/Personnel Violations
9	12		Lockup Procedures
10	9		Traffic

2. What is the difference in percentage of sustained complaints from civilians and officers?

Script: script2.sql

We ask this question to analyze if there is a difference in sustainment of complaints based on whether the complaint against an officer is filed by a police officer or a civilian, and if there is a significant difference in the same. We infer that internal complaints filed by police officers have a

much higher rate of sustainment (42%), as compared to those filed by civilians (6%).

	percentofsustainedcomplaints	is_officer_complaint
1	6	false
2	42	true

3. a) What categories of complaints are most/least likely to have severe (more than reprimand) consequences?

b) What are the complaint categories with no severe consequences?

Script: script3.sql

a) To further explore the nature of the complaints, we decided to take a closer look at the outcomes of these complaints and how severe the consequences tend to be for each category. We defined “severe consequences” as any of the following categories : ‘Administrative termination’, ‘Resigned’, ‘Resigned - not served’ or ‘Suspended indefinitely’.

We found that ‘Operation/personnel violations’ had the highest number of severe consequences, followed by ‘Drug/Alcohol Abuse’ and ‘Criminal Misconduct’. Surprisingly, ‘illegal search’ and ‘false arrest’ are the two least reprimanded complaint categories.

1	641	Operation/Personnel Violations
2	270	Drug / Alcohol Abuse
3	249	Criminal Misconduct
4	198	Conduct Unbecoming (Off-Duty)
5	109	Use Of Force
6	67	Bribery / Official Corruption
7	46	Domestic
8	43	Lockup Procedures
9	34	Supervisory Responsibilities
10	16	Traffic
11	12	Illegal Search
12	10	Verbal Abuse
13	2	False Arrest

b) We then went out to decipher which of the allegation categories led to the least severe punishments. We defined the least severe punishments to be either of the following - 'No action taken', 'Penalty not served', 'Reprimand', 'Separated other case', 'Separation', 'Sustained-no penalty' or 'Violation noted'. Here too, we found that 'Operation/Personnel violations' was the category with the highest number of least severe punishments, followed by 'Use of force' and 'illegal search'.

count	category
68217	Operation/Personnel Violations
53793	Use Of Force
35982	Illegal Search
13229	Verbal Abuse
12620	Lockup Procedures
7868	False Arrest
7480	Traffic
6430	Conduct Unbecoming (Off-Duty)
5943	Criminal Misconduct
5847	Domestic
4313	Supervisory Responsibilities
705	Bribery / Official Corruption
671	Drug / Alcohol Abuse
75	First Amendment
43	Racial Profiling

4. Are the officers with sustained complaints against them part of a crew? **Script4.sql**

In this question, we investigate to see if there is any correlation between officers who are in a crew and officers against whom complaints are sustained. We find that 56% of the total officers for which the complaint was sustained were in a crew. This goes to prove the well-known fact that police offenders often operate in crews and tight knit communities.

percentage
56

5. What proportion of officers with 1 or more allegations and 0,1+,2+ sustained

allegations against them get promoted each year?

Script5.sql

This analysis takes a closer look at allegations and promotions in (3). We predicted that sustained allegations would be more detrimental to an officer's likelihood of being promoted, and it appears this trend holds in some years. Interestingly, however, in 2005, 2006, 2010, 2011, 2012, officers with one or more allegations were actually more likely to be promoted than both officers who had one or more unsustained allegations and those with no allegations at all! In other words, the category of officers most likely to be promoted in these years was officers with one or more sustained allegations against them. Officers with two or more sustained allegations in a given year are far more rare than officers with one or more sustained allegations. In most years, none of them are promoted. However, we did find three instances of officers with two or more allegations in a year being promoted in that same year: two officers in 2006 and one in 2017.

This question is broken down into three sub-problems varying by the number of allegations an officer has received in that year (0 allegations, 1+, 2+).

year ÷	officer_count ÷	perc_adm ÷
2003	6681	1.2572968118545127
2004	5779	1.2978023879563938
2005	4428	1.1065943992773262
2006	5398	1.5561319007039645
2007	6527	1.8231959552627548
2008	6221	0.9805497508439157
2009	5792	0.7424033149171271
2010	5235	0.3247373447946514
2011	4778	0.041858518208455424
2012	4361	1.1006649850951618
2013	4066	1.0821446138711266
2014	3968	2.04133064516129
2015	3538	1.1001003110010031

6. What proportion of officers with 1 or more allegations and 0, 1+, 2+ sustained allegations against them get awarded each year?

Script 6.sql

Finally, we looked a bit more closely at the analysis from (4), how the number of allegations affect an officer's likelihood of being awarded that year. In our initial analysis, we found that the more allegations an officer had in a given year, the more likely they were to be awarded that year. By breaking down the information to include only sustained complaints, we still find that officers with one or more sustained allegations are more likely to be awarded than those with no sustained allegations. Officers with one or more allegations but no sustained allegations were the most likely to be awarded, but officers with one sustained allegation were still more likely to be awarded than officers with no sustained allegations that year. Because we have removed all officers' first years with the CPD, this relationship cannot be explained by the date an officer joined the force. Instead, it may be possible that this can be explained by a third factor such as the type of work an officer was doing: perhaps an officer with more public interaction is both more likely to be complained about and awarded for a task during a shift.

This question is broken down into five sub-problems varying by the number of allegations an officer has received in that year (0 allegations, 1+, 2+, 3+, 4+).

Summary:

Over our analysis through the different questions we asked, we gathered some very unique insights. Some of these insights were expected after reading through the Chicago Police Department articles whereas some insights were very surprising for us.

The Allegation Category '**Drug / Alcohol Abuse**' has the cases where the complaints against the police officers are sustained more than other categories. It also shares the space with the category '**Operation/ Personnel Violation**' in being the categories of complaints where officers have faced a heavy punishment. But to our surprise, the category '**Operation/ Personnel Violation**' also has the most number of cases where the officers are not punished or punished on a lighter note. This analysis tells us that **drug and alcohol abuse and violations of any kind are taken seriously by the police department** and that they are given punishment for them most of the time.

One more surprising revelation that we obtained from our analyses was that the percent of sustained complaints made by police officers and civilians were drastically different. **Only 6% percent of the complaints made by civilians against the police officers were sustained compared to the 42% made by the police officers.** This comparison shows us that the police department is more lenient with the complaints from the police officers and has a stringent check for the complaints made by the civilians.

Before our analysis, we predicted that sustained allegations would be more detrimental to an officer's likelihood of being promoted, and it appears this trend holds in some years. Interestingly, however, in 2005, 2006, 2010, 2011, 2012, officers with one or more allegations were more likely

to be promoted than both officers who had one or more unsustained allegations and those with no allegations at all! In other words, **the category of officers most likely to be promoted in these years were officers with one or more sustained allegations against them.** Although the case was very different for the officers with two or more sustained allegations in a given year. In most years, none of them were promoted.

Performing an analysis on whether police officers with 1+,2+ allegations against them were awarded showed us that **the more allegations an officer had against him in a given year, the more likely he was to be awarded that year too!** By breaking down the information to include only sustained complaints, we still find that officers with one or more sustained allegations are more likely to be awarded than those with no sustained allegations. Officers with one or more allegations but no sustained allegations were the most likely to be awarded, but officers with one sustained allegation were still more likely to be awarded than officers with no sustained allegations that year. It may be possible that this can be explained by a third factor such as the type of work an officer was doing: perhaps an officer with more public interaction is both more likely to be complained about and awarded for a task during a shift. But whether this hypothesis will stand the test of time still remains to be seen.