Data Pirates - Tracking Effectiveness of Police Reform

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Overview:

Is police reform effective? We are assessing and tracking police reform to check if there are improvements after reformative interventions like the COPA. If police reform has been effective, there should be an observable yet gradual decrease in counts of misconduct and changes in officer behavior and accountability patterns. Research into tracking police reform is essential in knowing whether substantial improvements are being made across the board, identifying neighborhoods that might require additional supervision/intervention and checking for under-reporting of cases, and increasing vigilance in these areas accordingly.

Our goal is to leverage the information available on types of complaints made by both civilians and officers alike against police officers, based on neighborhood, complaint outcomes, the extent of discipline, and information on subsequent investigation to gain insight on if and how accountability is being enforced. The bird's eye view of this checkpoint explores (1) What the effect of COPA is geographically on types of complaints (2) How the officers are held accountable for their actions (3) What the effect of COPA is on the types of complaints.

Findings - Question 1

What are the top 3 complaints in each neighborhood before COPA?

Analysis:

The Chicago City Council passed an ordinance on October 15, 2016, to establish the Civilian Office of Police Accountability (COPA), which replaced the Independent Police Review Authority (IPRA) as a civilian oversight agency of the Chicago Police Department (CPD) which was then enforced from September 15, 2017. This question describes the top 3 categories of allegations against the officers of CPD in each neighborhood before the advent of COPA. If we can identify the most common allegations before the advent of COPA then we can compare the same with findings after the advent of COPA to see if the civilian oversight agency has had any effect. We can also pinpoint problem areas in each neighborhood so that training of officers and more stringent investigative procedures can be applied in these neighborhoods to decrease/change the trend of misconduct.

Discussion:

To answer this question we start with a series of queries on data_area, data_allegation_areas, data_allegation, and data_allegationcategory to create a temporary table instance called temp_ncd_data to hold data on the category and date of each complaint in a neighborhood. This table is partitioned to give us all the records before September 15, 2017, the advent of COPA, and stored in a temporary table instance called pre_copa. This table is further queried to get the top 3 categories of violations for each neighborhood.

name: Name of the neighborhood
category: type of allegation ranked in descending order per neighborhood
Number of rows generated for this query: 294 rows

1	name	category
2	Albany Park	Operation/Personnel Violations
3	Albany Park	Use Of Force
4	Albany Park	Illegal Search
5	Andersonville	Use Of Force
6	Andersonville	Operation/Personnel Violations
7	Andersonville	Verbal Abuse
8	Archer Heights	Operation/Personnel Violations
9	Archer Heights	Use Of Force
10	Archer Heights	Lockup Procedures
11	Armour Square	Use Of Force
12	Armour Square	Operation/Personnel Violations
13	Armour Square	Verbal Abuse
14	Ashburn	Operation/Personnel Violations
15	Ashburn	Use Of Force
16	Ashburn	Conduct Unbecoming (Off-Duty)
17	Auburn Gresham	Operation/Personnel Violations

Fig1: Sample output of question 1 results

NOTE: The percentages are floored/rounded off for ease of reference

	category	percentage
1	Operation/Personnel Violations	33
2	Use Of Force	25
3	Illegal Search	8
4	Verbal Abuse	7
5	Traffic	5
6	Lockup Procedures	5
7	Conduct Unbecoming (Off-Duty)	3
8	False Arrest	2
9	Domestic	2
10	Criminal Misconduct	2
11	Supervisory Responsibilities	1
12	Drug / Alcohol Abuse	0
13	Bribery / Official Corruption	0
14	Money / Property	0
15	Unknown	0
16	First Amendment	0
17	Racial Profiling	0
18	Medical	0
19	Excessive Force	0

Fig2: Allegation count in Chicago neighborhood before COPA (using pre copa table) (in descending order)

Conclusion:
From the results (Fig 2), at a first glance, we can see that Operation/Personnel Violations(33%) and Use of Force (25%) are the most prevalent allegations in Chicago. This table provides more insight when combined with the results from Question 2.

Findings - Question 2

What are the top 3 complaints in each neighborhood after COPA?

Analysis:
As an extension of question 1, this question describes the top 3 categories of allegations against the officers of CPD in each neighborhood after the advent of COPA. With our findings, we can compare our results with those in question 1 to ascertain whether there have been improvements since COPA was established in each neighborhood with regards to the most prevalent misconduct.

Discussion:
To answer this question we start with a series of queries on data_area, data_allegation_areas, data_allegation, and data_allegationcategory to create a temporary table instance temp_ncd_data to hold data on the category and date of each complaint in a neighborhood. This table is partitioned to give us all the records after September 15, 2017, the advent of COPA, and stored in a temporary table instance called post_copa. This table is further queried to get the top 3 categories of violations if available, for each neighborhood.

name: Name of the neighborhood
category: type of allegation ranked in descending order per neighborhood
Number of rows generated for this query: 204 rows

NOTE: The discrepancy in the number of rows of data despite being the same intended query is due to the disparity in the count of data before and after the advent of COPA. This is addressed further in the final conclusion of checkpoint 1.

	name	category
2	Albany Park	Operation/Personnel Violations
3	Albany Park	False Arrest
4	Andersonville	Operation/Personnel Violations
5	Andersonville	Conduct Unbecoming (Off-Duty)
6	Armour Square	False Arrest
7	Armour Square	Use Of Force
8	Ashburn	Use Of Force
9	Ashburn	Unknown
10	Ashburn	Conduct Unbecoming (Off-Duty)
11	Auburn Gresham	Operation/Personnel Violations
12	Auburn Gresham	Lockup Procedures
13	Auburn Gresham	Use Of Force
14	Austin	Operation/Personnel Violations
15	Austin	False Arrest
16	Austin	Use Of Force

Fig3: Sample output of question 2 results

NOTE: The percentages are floored/rounded off for ease of reference

17 rows

	category	percentage
1	Operation/Personnel Violations	44
2	Use Of Force	12
3	False Arrest	10
4	Illegal Search	6
5	Lockup Procedures	5
6	Conduct Unbecoming (Off-Duty)	5
7	Domestic	4
8	Traffic	2
9	Drug / Alcohol Abuse	1
10	Unknown	1
11	Money / Property	1
12	Verbal Abuse	0
13	Racial Profiling	0
14	Medical	0
15	Criminal Misconduct	0
16	Excessive Force	0
17	Bribery / Official Corruption	0

Fig4: Allegation count in Chicago neighborhood after COPA (in descending order)

Conclusion:

Comparing the findings from Question 1 and Question 2 we can see that there is a significant increase (>3%) in the allegation categories 'Operation/Personnel Violations' (11% increase i.e. from initial 33% to 44%) and 'False Arrests' (8% increase i.e. from initial 2% to 10%) since 2017; which is concerning as its the opposite of the desired effect. These cases need to be checked and flagged for COPA to conduct further tracking and investigation. Subsequently, new reformative actions need to be implemented to stop this trend in misconduct before it exacerbates. An alternative inference of this observation could be that due to the advent of COPA there has been an increase in the number of cases being reported. Given both the possibilities this insight will have to be further investigated in the later checkpoints.

In contrast, there has been a significant decrease (>3%) in the allegation categories 'Use of Force' (13% decrease i.e. from initial 25% to 12%) and ' Verbal abuse' (7% decrease i.e. 7% to 0%) which implies that reform, investigation, and intervention in these misconduct categories by the COPA has resonated well. Alternatively this decrease in the percentages could be due to less availability of data in these categories. Given both the possibilities this insight will have to be further investigated in the later checkpoints.

These findings can be extrapolated in later checkpoints to further derive insights from records of each neighborhood, and identify targeted reforms that can be tracked as well as implemented.

Findings - Question 3

For all officers that had sustained allegations, what were the disciplinary actions taken?

Analysis:

This question describes the disciplinary actions taken by the CPD against officers on a variety of sustained allegations. This will help us track if there's justly measured accountability for these misconducts.

Discussion:

To answer this question, we query the tables data_officer, data_officerallegation and data_allegationcategory joined on officer_id and allegation_category_id for all officers with a sustained count >=1.

id: officer identification ranked in ascending order
first_name: First name of the officer
last_name: Last name of the officer
category: type of allegation sustained against the officer
allegation_name: the name of the allegation sustained against the officer
final_outcome: the disciplinary action taken against the officer

id	first_name	last_name	category	allegation_name	final_outcome
5	Carmen	Abbate	Operation/Personnel Violations	Inventory Procedures	No Action Taken
5	Carmen	Abbate	Operation/Personnel Violations	Slow / No Response	No Action Taken
5	Carmen	Abbate	Operation/Personnel Violations	Miscellaneous	Reprimand
5	Carmen	Abbate	Criminal Misconduct	Conspiracy To Commit A Crime	No Action Taken
6	Anthony	Abbate	Use Of Force	Excessive Force / On Duty - No Injury	No Action Taken
6	Anthony	Abbate	Lockup Procedures	Prisoners Property	No Action Taken
6	Anthony	Abbate	Operation/Personnel Violations	Weapon / Ammunition	Penalty Not Served
6	Anthony	Abbate	Use Of Force	Unnecessary Display Of Weapon / On Duty	Unknown
6	Anthony	Abbate	Operation/Personnel Violations	Inadequate / Failure To Provide Service	No Action Taken
6	Anthony	Abbate	Operation/Personnel Violations	Insubordination	Penalty Not Served
9	Michael	Abbey	Illegal Search	Improper Search Of Person	No Action Taken
9	Michael	Abbey	Drug / Alcohol Abuse	Positive Drug Screen - Originated From Complaint	Separation
9	Michael	Abbey	Operation/Personnel Violations	Inventory Procedures	No Action Taken
11	Laura	Abbott	Operation/Personnel Violations	Neglect Of Duty	No Action Taken
11	Laura	Abbott	Use Of Force	Excessive Force / On Duty - Injury	No Action Taken
11	Laura	Abbott	Verbal Abuse	Use Of Profanity	No Action Taken
11	Laura	Abbott	Criminal Misconduct	Theft	No Action Taken
11	Laura	Abbott	Use Of Force	Excessive Force / Off Duty - No Injury	No Action Taken
11	Laura	Abbott	Operation/Personnel Violations	Traffic Pursuit	1 Day Suspension
11	Laura	Abbott	Operation/Personnel Violations	Miscellaneous	No Action Taken
12	Andrew	Abbott	Supervisory Responsibilities	Federal Civil Suit	No Action Taken
12	Andrew	Abbott	Operation/Personnel Violations	Neglect Of Duty	No Action Taken
12	Andrew	Abbott	Supervisory Responsibilities	Federal Civil Suit	No Action Taken
12	Andrew	Abbott	Illegal Search	Search Of Premise Without Warrant	No Action Taken
12	Andrew	Abbott	Illegal Search	Improper Search Of Person	No Action Taken
12	Andrew	Abbott	Supervisory Responsibilities	Federal Civil Suit	No Action Taken
12	Andrew	Abbott	Use Of Force	Excessive Force / Off Duty - No Injury	Reprimand

Fig5: Sample output of question 3 results

NOTE: The percentages are floored/rounded off for ease of reference

63 rows

	final_outcome	percentage
1	No Action Taken	82
2	Unknown	3
3	Reprimand	3
4	1 Day Suspension	2
5	2 Day Suspension	1
6	3 Day Suspension	0
7	5 Day Suspension	0
8	Sustained-No Penalty	0
9	Penalty Not Served	0
10	Resigned -Not Served	0
11	Violation Noted	0
12	Resigned	0
13	10 Day Suspension	0
14	Separation	0
15	30 Day Suspension	0
16	15 Day Suspension	0
17	Suspended Over 30 Days	0
18	20 Day Suspension	0
19	4 Day Suspension	0
20	Administrative Termination	0
21	Reinstated By Police Board	0
22	7 Day Suspension	0
23	25 Day Suspension	0

Fig6: Final outcome for sustained allegations against the officer (in descending order)

NOTE: The percentages are floored/rounded off for ease of reference

130 rows CSV

	category	allegation_name	percentage
1	Use Of Force	Excessive Force / On Duty - Injury	14
2	Illegal Search	Search Of Premise Without Warrant	11
3	Operation/Personnel Violations	Inadequate / Failure To Provide Service	9
4	Operation/Personnel Violations	Neglect Of Duty	6
5	Operation/Personnel Violations	Miscellaneous	5
6	Verbal Abuse	Use Of Profanity	4
7	Use Of Force	Excessive Force / Off Duty - No Injury	3
8	Lockup Procedures	Prisoners Property	3
9	False Arrest	Illegal Arrest / False Arrest	2
10	Operation/Personnel Violations	Inventory Procedures	2
11	Operation/Personnel Violations	Reports	2
12	Illegal Search	Improper Search Of Vehicle	2
13	Illegal Search	Improper Search Of Person	2
14	Use Of Force	Excessive Force - Use Of Firearm / Off Duty - Injury	2
15	Use Of Force	Excessive Force / On Duty - No Injury	2
16	Domestic	Domestic Incident - Not Physical	1
17	Traffic	Misconduct During Issuance Of Citation	1
18	Conduct Unbecoming (Off-Duty)	Association With Felon	1
19	Conduct Unbecoming (Off-Duty)	Altercation / Disturbance - Other	1
20	Operation/Personnel Violations	Slow / No Response	1
21	Traffic	Miscellaneous	1
22	Verbal Abuse	Racial / Ethnic, Etc.	1
23	Domestic	Domestic Altercation - Physical Abuse	1
24	Criminal Misconduct	Conspiracy To Commit A Crime	0

Fig7: Category based sustained allegation made against the police officer where no action has been taken (in descending order)

NOTE: The percentages are floored/rounded off for ease of reference

15 rows CSV

	category	allegation_name	percentage
1	Use Of Force	Excessive Force / On Duty - Injury	14
2	Use Of Force	Excessive Force / Off Duty - No Injury	3
3	Use Of Force	Excessive Force - Use Of Firearm / Off Duty - Injury	2
4	Use Of Force	Excessive Force / On Duty - No Injury	2
5	Use Of Force	Excessive Force - Use Of Firearm / On Duty - Injury	0
6	Use Of Force	Unnecessary Display Of Weapon / Off Duty	0
7	Use Of Force	Excessive Force / Off Duty - Injury	0
8	Use Of Force	Excessive Force - Use Of Firearm / Off Duty - No Injury	0
9	Use Of Force	Unnecessary Physical Contact / Off Duty - No Injury	0
10	Use Of Force	Unnecessary Physical Contact / On Duty - No Injury	0
11	Use Of Force	Unnecessary Display Of Weapon / On Duty	0
12	Use Of Force	U Converted To C.R. (Records Keeping Only, Initial)	0
13	Use Of Force	Excessive Force - Use Of Firearm / On Duty - No Injury	0
14	Use Of Force	Excessive Force - Taser - Use Of	0
15	Use Of Force	Injury / Death (Under Color Of Law)	0

Fig8: 'Use of Force' category of sustained allegation made against the police officer where no action has been taken (in descending order)

1-500 of 501+

	first_name	last_name	allegation_name_count
1	Jerome	Finnigan	173
2	Joe	Parker	137
3	Edward	May	136
4	Glenn	Evans	128
5	Charles	Toussas	123
6	Adam	Zelitzky	121
7	Jerome	Turbyville	117
8	Kevin	Ryan	112
9	Emmett	Mc Clendon	110
10	Maurice	Clayton	109
11	Marvin	Bonnstetter	107
12	Broderick	Jones	106
13	Kenneth	Wojtan	105
14	Tamara	Matthews	105
15	Eugene	Bikulcius	102
16	James	Grubbs	102
17	Raymond	Piwnicki	102
18	Jose	Lopez	101
19	Thomas	Carey	100
20	Gregory	Jackson	99
21	Frederick	Hasenfang	97
22	Ronald	Holt	95
23	Robert	Quintero	95
24	Corey	Flagg	95

Fig9: Count of Allegation cases against each police officer (in descending order)

5 rows

	first_name	last_name	final_outcome	count
1	Jerome	Finnigan	No Action Taken	159
2	Jerome	Finnigan	Unknown	8
3	Jerome	Finnigan	Penalty Not Served	4
4	Jerome	Finnigan	10 Day Suspension	1
5	Jerome	Finnigan	2 Day Suspension	1

Fig10: Count of Allegation cases against each police officer (in descending order)

Conclusion:

At first glance of Fig6, it's quite concerning to observe that the final outcome for 82% of the sustained allegations has no action taken by the CPD. Moreover in general the most severe punishment given to the police officer has been either reprimanding or a 1day/2day suspension. This can result in reduced accountability on part of the officer since based on the data at this stage the punishments for sustained allegations has been fairly light. On further drilling down the various categories where the final outcome is no action taken (Fig7); we observe that the

top 3 results are (i) ‘Use of Force’ category with allegation ‘Excessive Force/ On Duty -Injury’ (14%), (ii) ‘Illegal Search’ category with allegation ‘Search Of Premise Without Warrant’ (11%), and (iii) ‘Operational/ Personnel Violations’ category with allegation ‘Inadequate/ Failure To Provide Service’ (9%). Upon further hyper focusing on the ‘Use of Force’ category where no action taken was the final outcome (Fig8); we can see that the total ‘Use of Force’ allegation cases that resulted in Injury is 16% which is roughly 3 times higher than the 5% total allegation cases where ‘Use of Force’ didn’t result in any injury. Since no action was taken in these scenarios this results in decrease of trust between the citizens and the police force. Also, this sort of behavior, if left unchecked, can be a violent precursor to more serious allegations.

We can also observe individual officer behavior patterns. For instance from Fig9, we can observe that Officer Jerome Finnigan has the highest sustained allegation cases (173 cases) against him. This is indicative of a strong pattern of misconduct. Upon further inspection in Fig 10, we observe that 159 cases resulted in no action being taken against him (i.e. roughly 92%) and he has faced at max of one 10 day suspension and 4 Penalty charges (which he hasn’t served) throughout his tenure. Therefore we can conclude that allegations against an officer may have patterns that can be flagged and should entertain intervention from COPA in terms of corrective action being taken in order to increase officer accountability.

Findings - Question 4

For each type of allegation, how many were sustained before and after COPA?

Analysis:

This question describes the number of allegations per year that were sustained in each category of misconduct before and after the advent of COPA. This will allow us to understand the complaint trends and check what misconduct has decreased with COPA’s intervention and which has increased and require more stringent reformative actions.

Discussion:

We first assume that “SU” in final_findings denotes Sustained and the rest of the notations are variations of the non-sustained allegation. We acknowledge that if this assumption proves to be false then there would be a huge no. of misclassification cases in our results. This could result in over-reporting of non-sustained cases painting the reform made by COPA in a poorer light in comparison to the reality due to this “bias” introduction caused by our assumption. However for further checkpoints based on the subject matter expert’s opinion we would rectify this assumption made or completely remove this approach of binary classification of final_findings. Having said that at this stage we continue with our assumption made for a binary classification of final_findings and then start with a series of queries on data_officerallegation and data_allegationcategory joined on category_id where final_finding is “SU” - sustained, to create a temporary table instance called allegation_findings that holds data on category, the end date of findings of all sustained allegations. This table is further partitioned into two temporary table instances called precopa_allegation_findings (end_date < '2017-09-15') and postcopa_allegation_findings (end_date >= '2017-09-15') based on the end date. These tables

are further queried to obtain temporary table instances prefindings and postfindings that have the count of allegations for every category of complaint, pre COPA and post COPA respectively.
The dataset holds records dating back to 49.9 years before the advent of COPA (September 15, 2017) and data of records 0.78 years after the advent of COPA. We do a primitive normalization on complaint counts over the number of years of data collected.
Our resultant table holds the category, allegation/year pre COPA and allegation/year post COPA on querying prefindings and postfindings.

category: type of allegation
pre_copa_allegations_per_year: allegation/year pre COPA per complaint category
post_copa_allegations_per_year: allegation/year post COPA per complaint category

1	category	pre_copa_allegations_per_year	post_copa_allegations_per_year
2	Operation/Personnel Violations	226.4929859719438878	10.2564102564102564
3	Domestic	8.6372745490981964	15.3846153846153846
4	Use Of Force	40.9619238476953908	57.6923076923076923
5	Excessive Force	0.02004008016032064128	8.9743589743589744
6	Illegal Search	3.6472945891783567	5.1282051282051282
7	Conduct Unbecoming (Off-Duty)	45.250501002004008	1.2820512820512821
8	False Arrest	0.64128256513026052104	7.6923076923076923
9	Lockup Procedures	33.6272545090180361	6.4102564102564103
10	Verbal Abuse	6.4328657314629259	8.9743589743589744

Fig4: Sample output of question 4 results

Conclusion:
Despite the data being disparate due to the duration of data collection, we can still make a few observations.

1. The most common allegations pre COPA were Operations/Personnel Violations, Conduct Unbecoming (Off-Duty), and Use of Force.
2. The most common allegations post COPA were Use of Force, Domestic, Operations/Personnel Violations.

One thing we need to keep in mind at this stage is that the increase in post copa cases observed in Use of Force and Domestic categories could be potentially due to the increased number of reported cases due to the advent of COPA creating public ease. This inference would have to be further investigated in upcoming checkpoints before any final conclusions can be made regarding this hypothesis.
Based on the results of this hypothesis verification can we suggest whether training and more stringent disciplinary actions needs to be suggested via COPA intervention in Use of Force and Domestic Violations categories or no action needs to be taken since its a potential positive effect of COPA due to increased trust between citizens and police force resulting in increased number of reports. It's possible that some other unknown variable apart from that considered in our hypothesis could also be responsible for this outcome.

Final Conclusion of Checkpoint 1:

The most glaring observation made about the dataset is about how skewed it is. We have 49.9 years' worth of data pre COPA whereas we have 0.78 years' worth of data post COPA. This adds bias and assumptions to the observations made above that can be rectified by normalizing the sustained vs non-sustained allegations over the number of police officers active in the force for every year. The effectiveness of reform can be checked for a few months before and after the timestamp '2017-09-15' to get a clearer picture. This can be further explored by using time series data visualization.

We can also further reconcile our assumption on the final_finding attribute by getting subject matter experts' opinions. This project can also evolve into the reconciliation of the data disparities between the website and our database.

References: https://www.chicagocopa.org/about-copa/our-history/