Analysing Officer-filed Allegations

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Theme

Large number of misconduct allegations are filed internally by police officers against other police officers.

Questions:

- Within a unit - does the rate of internal complaints indicate accountability?
- Individual officers - do internal complaints have a greater impact than civilian-filed complaints?
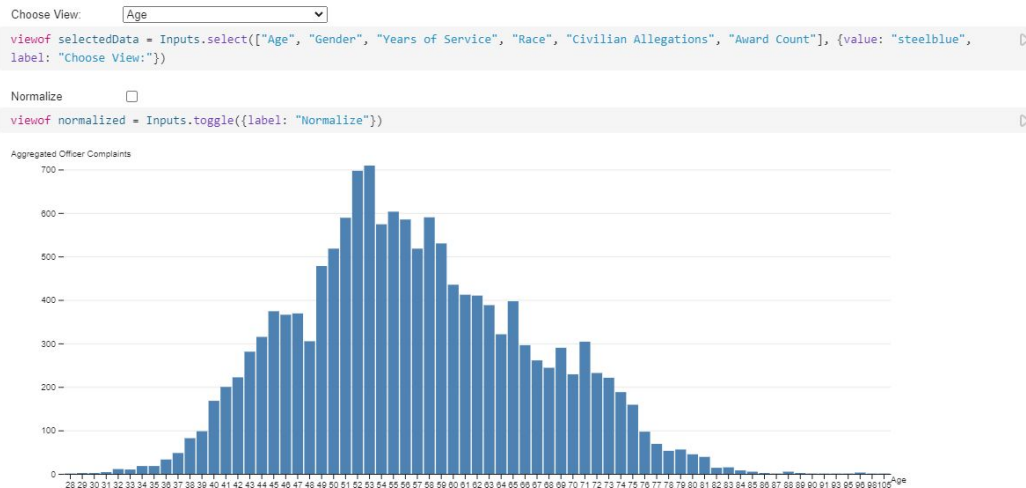- Are internal complaints predictive of future civilian complaints?

Preliminary Analysis (CP 1)

- % of allegations that are filed by officers

  - **6.22%**

- % of officers who resign within 2 years after receiving an internal allegation

  - **9.59%**

- Average age of officers who have sustained an internal allegation

  - **41.44 years old**

- % of internal allegations that involve the use of firearms

  - **3.22%**

Visualization - Officer Features (CP 3.2)

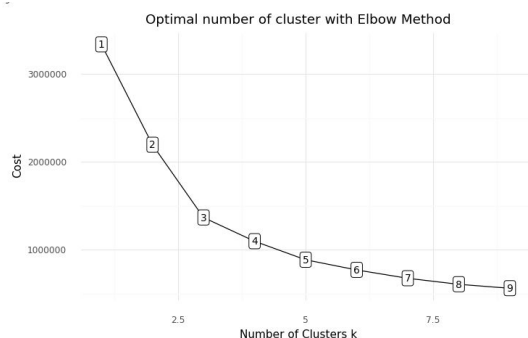https://observablehq.com/d/691e08eae899d1e5

Clustering Officers (CP 4.2)

- Using categories from Checkpoint 3
  - Age, civilian allegations, gender, internal allegations, race, years of service
- Elbow method
- K-Modes Clustering
- Use chi squared contingency to find most important features

	chi2	p	df
featureage	6350.184718	0.000000e+00	136.0
featurecivilian_allegations	7357.797890	0.000000e+00	212.0
featureyears_of_service	5939.654431	0.000000e+00	126.0
featureofficer_allegations	369.019143	6.971831e-58	34.0
featuregender	231.554412	5.231164e-51	2.0
featurerace	255.823765	1.003186e-50	8.0

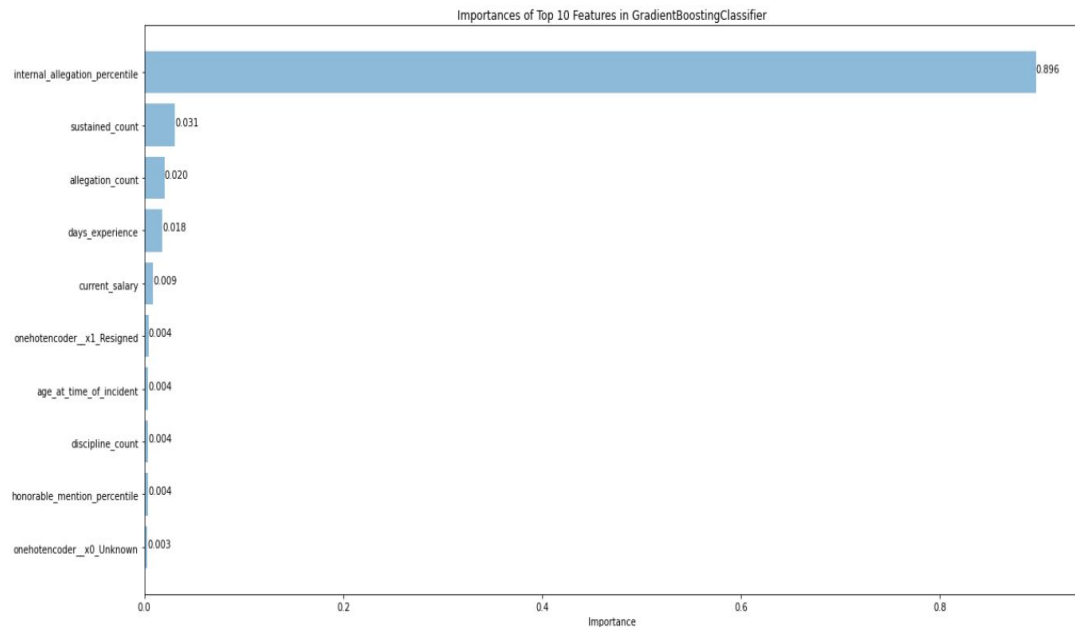Optimal number of cluster with Elbow Method

Predicting Civilian Complaints (CP 4.1)

- Can an internal allegation and basic information from the alleged officer be used to predict whether they will received a civilian complaint in the future?
- Features:
  - Internal allegation related feature examples:
    - Categories
    - Final outcome
  - Officer-related feature examples:
    - Race
    - Award count
    - Year service
    - Internal allegation percentile
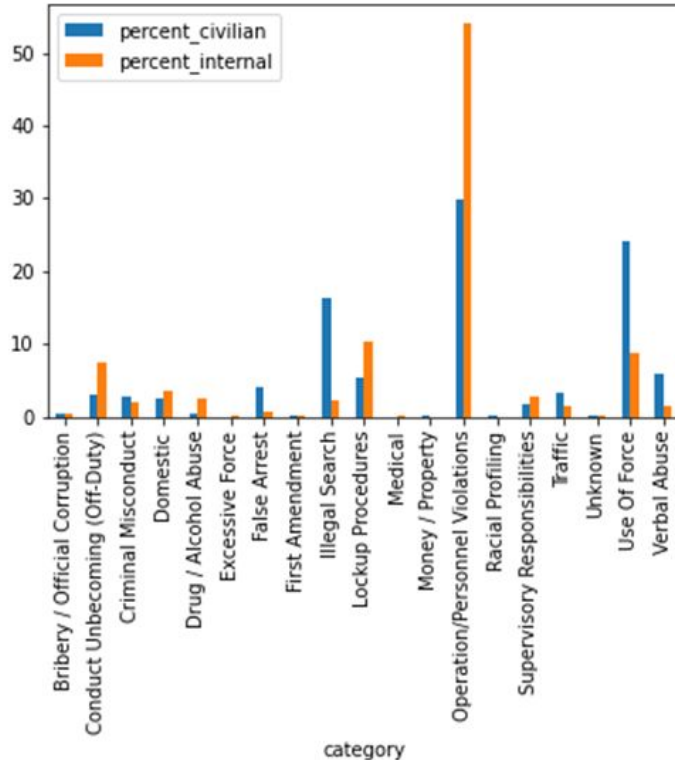- Target feature: civilian complaint in 2 years

Predicting Civilian Complaints (CP 4.1)

- Models tried:
  - Logistic regression
  - Random forest
  - Decision trees
  - Neural network
  - Gradient Boosting Classifier
    - Best accuracy: **81.2%**

Importances of Top 10 Features in GradientBoostingClassifier

Feature	Importance
internal_allegation_percentile	0.896
sustained_count	0.031
allegation_count	0.020
days_experience	0.018
current_salary	0.009
onehotencoder__x1_Resigned	0.004
age_at_time_of_incident	0.004
discipline_count	0.004
honorable_mention_percentile	0.004
onehotencoder__x0_Unknown	0.003

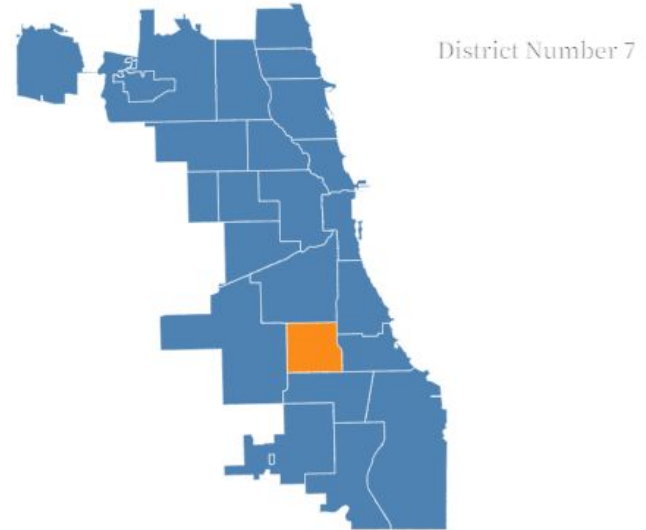# Visualization - Allegation Categories

- Category distributions are vastly different between internal and civilian complaints

- Higher in civilian complaints: Use of Force, Illegal Search, False Arrest, Verbal Abuse
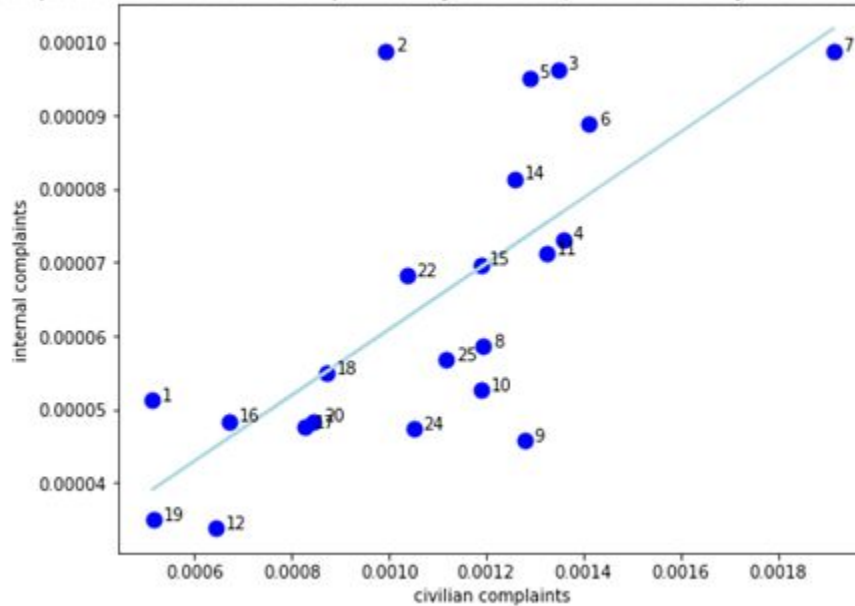
- Possibly shows different priorities

Visualization – Police Units (CP 3.1)

https://observablehq.com/d/664d92cd192aa9f1

District Number 7

Do internal complaints correspond with lower civilian complaints? No...

Civilian Complaints vs Internal Complaints by district (normalized by total shift hours) (R=0.718)

Conclusion - Insights

Do internal complaints have a greater impact than civilian-filed complaints?
- *Some evidence with the 2-year resignation rate. (**9.59%** vs **6.48%**)*

Within a unit - does the rate of internal complaints indicate accountability?
- ***Undecided***: *no solid evidence found*

Civilian/internal complaint categories are very different:
- *Internal complaints filed for different reasons*

Can internal complaints be predictive of future civilian complaints?
- *Yes (**81.2% accuracy**) but causality is yet to be determined*

Have to be cautious about potential causal relationships, always some confounding factors.

Conclusion - Open Questions

- There is a correlation between internal allegations and resignation rate, but is it a causal relationship?
- Why would internal complaints be more impactful on an officer's behavior?
- What explains the different distributions of categories (internal vs civilian)?
- Do high rates of internal complaints in a police unit indicate accountability or disfunction?