

Supervisors' Influence within the Chicago Police Department

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A dark blue diagonal gradient bar that starts from the bottom left corner and extends towards the top right corner, covering the lower half of the slide.

A troubling history of the former Superintendent

Career of Eddie Johnson, former Chicago Police Department superintendent

History of misconduct

Was he influencing officers that he was in charge of to also engage in this behavior?



Our theme:

Analyzing the influence that supervisors have on the officers they manage.

Why is this important?

Measuring and predicting:

- The likelihood that a supervisor will have a negative effect on the officers they manage
- How much supervisors end up costing the department monetarily

Our approach

Part I: Who are supervisors?

Part II: What is their influence?

Part III: How much do problematic supervisors cost the department?



Who are supervisors?

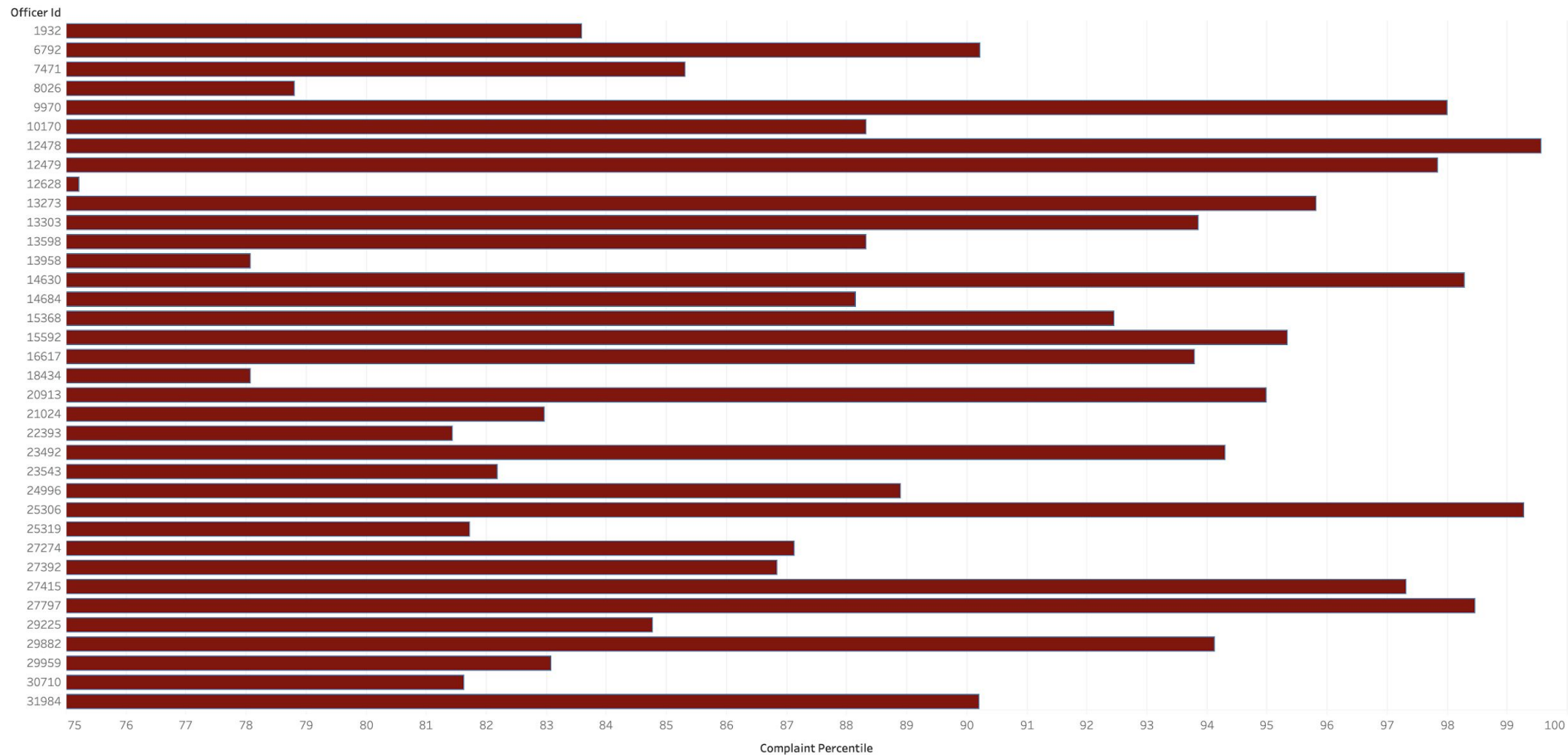
Choosing supervisors based on:

- Highest salary in unit
- If there was a tie for highest salary:
 - Rank
 - Date appointed

Focusing on:

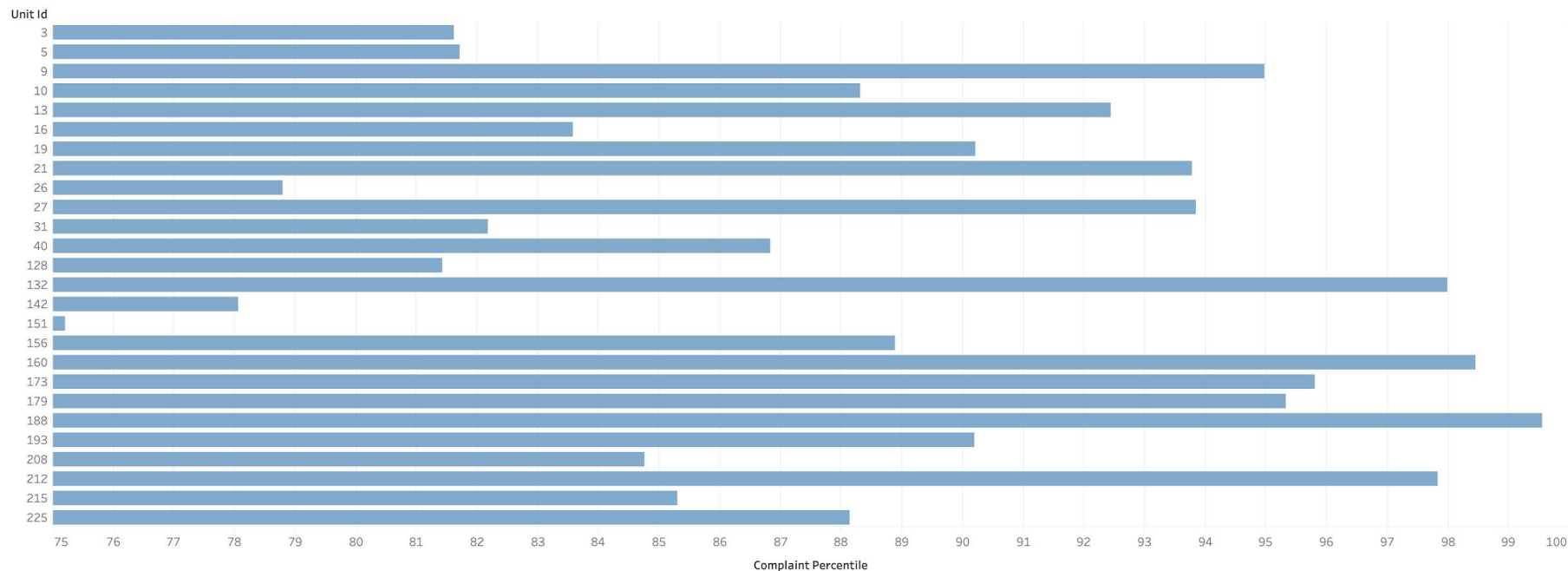
- Complaint percentile as an indicator of misconduct

Supervisors above the 75th complaint percentile



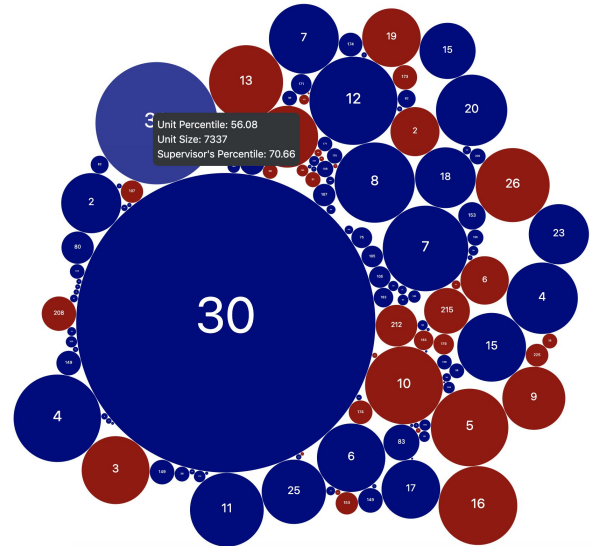
What do their units look like?

The complaint percentiles of units whose supervisors are above the 75th complaint percentile



Does a unit's size relate to its complaint percentile?

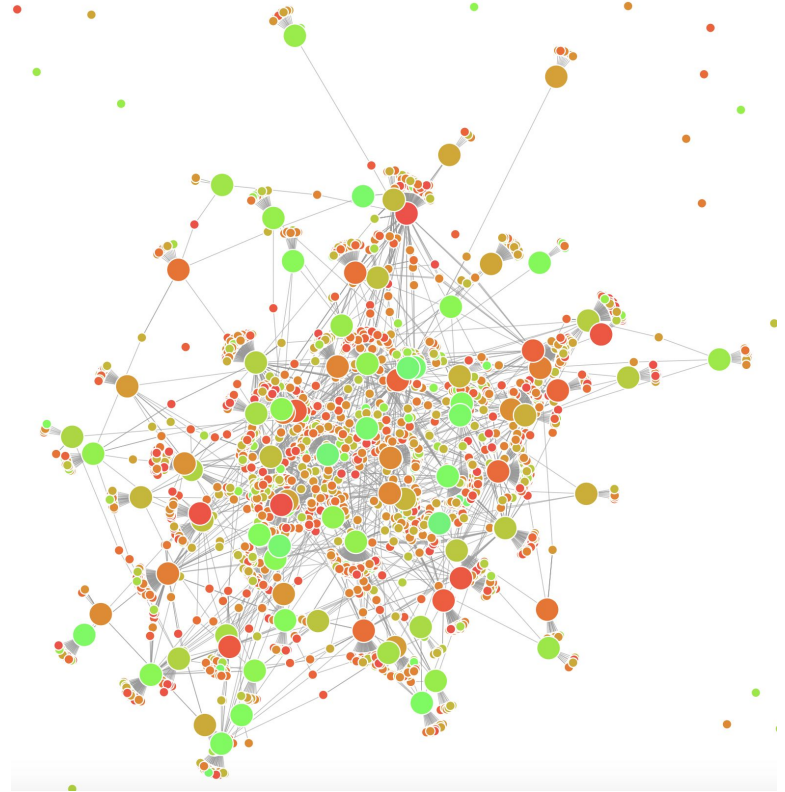
From the raw data and even after translating it into this visualization, we did not find conclusive evidence that size has any effect on complaint percentile.



What is their influence?

Measuring influence by:

- Accusals data - officers that are named on accusals together
- Degree analysis and data visualization to identify clusters
- Pagerank to identify most influential supervisors



Most influential supervisors

id	complaint_percentile	unit	is_sup	pagerank
11332	18.7116	Juvenile Intervention Support Center (Jisc)	1	6.281494876
16127	16.2164	Technology And Records Group	1	6.281494876
23764	21.2946	Medical Section	1	6.281494876
14595	18.2301	Oemc - Detail Section	1	6.281494876
23543	82.1711	District Reinstatement Unit	1	3.577648432
30568	60.7428	Transit Security Unit	1	2.98695629
23836	51.4692	Bureau Of Organized Crime	1	2.98695629
7611	34.5917	Reproduction And Graphic Arts Section	1	2.812028556
13403	26.8274	Traffic Court Unit	1	2.812028556
7665	30.9809	Information Services Division	1	2.718745561

How much do they cost the department?

- How are we defining cost?
 - Cost is the total of fees_cost and payment in the settlements data
- Supervisors above the 75th percentile make up 49% of all supervisors named in settlements - 22 out of 45 supervisors total

How much do they cost the department?

- Of the 45 supervisors names in settlements, payment data was available for 30 of them
- The highest costing supervisor cost the department \$10, 326, 759

	supervisor_id ↕	unit_id ↕	description ↕	total_cost ↕
1	27415	36	Airport Law Enforcement Section – South	10326759
2	27797	160	Freedom Of Information Section	6887130
3	23492	174	Gang Enforcement – Area South	1710000
4	20271	157	Bureau Of Patrol – Area South	1695999
5	16617	21	District 020	1005500
6	21024	183	Gang Enforcement Division	870000
7	25306	153	Gang Investigation Division	750000
8	8026	26	District 025	449500
9	4620	4	District 003	372000
10	30254	36	Airport Law Enforcement Section – South	332500
11	27274	204	Central Investigations Division	271000
12	1193	174	Gang Enforcement – Area South	258500
13	14630	6	District 005	235000
14	28348	82	Human Resources Division	235000
15	2185	7	District 006	191000
16	1932	16	District 015	175000
17	22077	169	Court Section	96000
18	12628	151	Intelligence Section	85000
19	12479	212	Detective Area – South	85000
20	32313	149	Narcotics Division	80000
21	14192	86	Research And Development Division	70000
22	13303	27	Executive Officers Unit	70000
23	10170	10	District 009	66500
24	25661	42	Marine Operations Unit	49750
25	4131	55	Special Investigations Unit	39000
26	16870	38	Mounted Unit	26250
27	24044	82	Human Resources Division	23000
28	30180	8	District 007	21000
29	11756	126	General Support Division	18000
30	13273	173	Gang Enforcement – Area Central	2000

How does this compare to their subordinates?

Highest cost of supervisor: \$10, 326, 759

Highest average cost within one unit: \$5, 998, 333

Varies dramatically between units

	unit_id ↕	description ↕	total_cost ↕	avg_cost ↕	total_settlements ↕
1	133	Auto Pound Section	15025000	5008333.33333333333333	3
2	134	Police Documents Section	2000000	1000000	2
3	72	Legal Affairs Section	11868122	912932.461538461538	13
4	132	Evidence And Recovered Property Section	20949647	910854.217391304348	23
5	155	Asset Forfeiture Investigation Section	23536299	574056.073170731707	41
6	85	Inspection Division	6429424	401839	16
7	206	Major Accident Investigation Unit	10592083	320972.212121212121	33
8	208	Detective Area – Central	209321450	314769.097744360902	665
9	107	Bureau Of Patrol	24489198	260523.382978723404	94
10	35	Airport Law Enforcement Section – North	58495694	229394.878431372549	255

Conclusions

Our hypothesis was that supervisors with a history of misconduct would influence those they manage to be more likely to commit misconduct.

What we found:

- Supervisors above the 75th complaint percentile manage units with an average complaint percentile above 75
- Supervisors influence goes beyond just their unit
- Supervisors above the 75th complaint percentile cost the department a significant amount in settlement payments

Future research

- Compare settlement costs of supervisors to the average settlement costs of the units they oversee
- More analysis of the pagerank results as they were very different from our cluster analysis
- Use machine learning to predict how likely a supervisor is to commit misconduct again, future number of complaints against supervisors or units, and the costs of settlements
- Can we predict how an officer's promotion to a managerial position will affect allegations within the department based off of their history?
- Can lenient punishments within the police department for misconduct lead to further misconduct?