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Data Science Seminar Project
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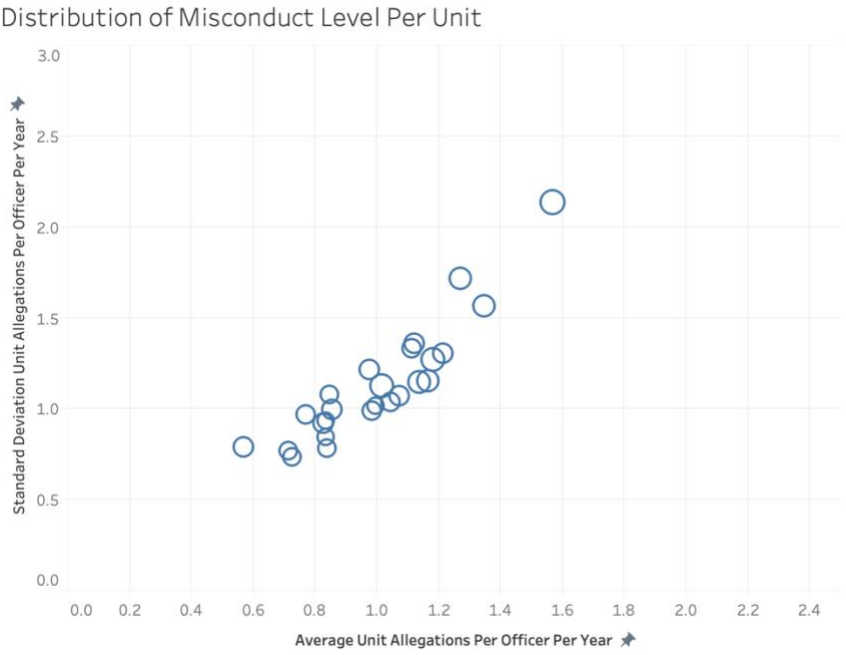
Checkpoint 2

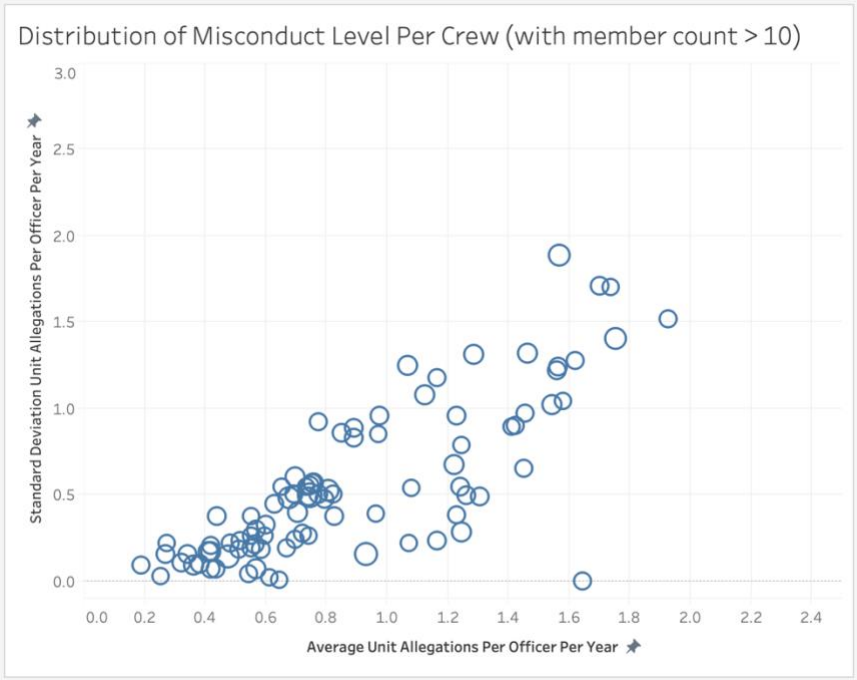
In this analysis we focus on understanding the distribution of the level of police misconduct across different groups of officers with the aim of better understanding whether there are peer effects that influence an officers' level of misconduct. In our relational analysis we aimed to find the mean and standard deviation of the level of misconduct as measured by the number of allegations per year per person in a groups. We analyze distribution at the level of crews and units.

Part 1 - Bubble Chart - Compare mean and variance of level of misconduct across different units with size of bubble corresponding to the size of the unit in number of police.

First we look at the distribution of the level of misconduct across the 25 units. The axis represents the mean and standard deviation of the level of misconduct with the size of the bubbles corresponding to the number of officers within a unit. Understandably, for units with a higher level of misconduct, the spread of level of misconduct is also higher. The 25 units seem to follow this trend without any outliers.



Now when we look at the level of crews, groups of officers who tend to work together and have a higher number of co-accusals, we see a more spread out, but flatter distribution. This means, for a higher average level of misconduct, the spread is relatively less than in the case of units. That is, this suggests more officers behave similarly.



Part 2 - Heat Map - For officer attributes including age, race, and gender show the mean and variance of the distribution of levels of misconduct

For this part, we aim to see how the distribution of misconduct varies across different officer attributes. The size of each square and darkness represents the average and standard deviation of level of misconduct. There is no obvious trend here aside from the observation that the highest average level of misconduct is attributed to officers born around 1965. female officers tend to have a narrower and flatter distribution than male officers.