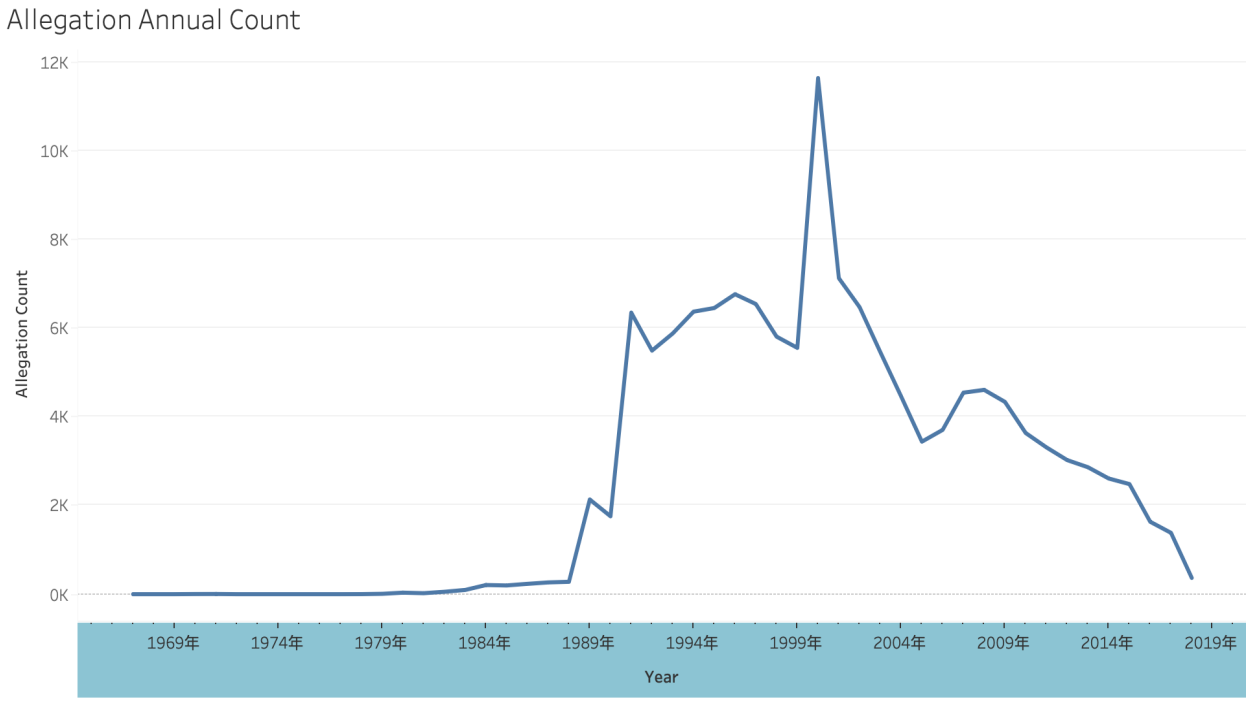
Checkpoint 2: Data Exploration

The Silent Foxes

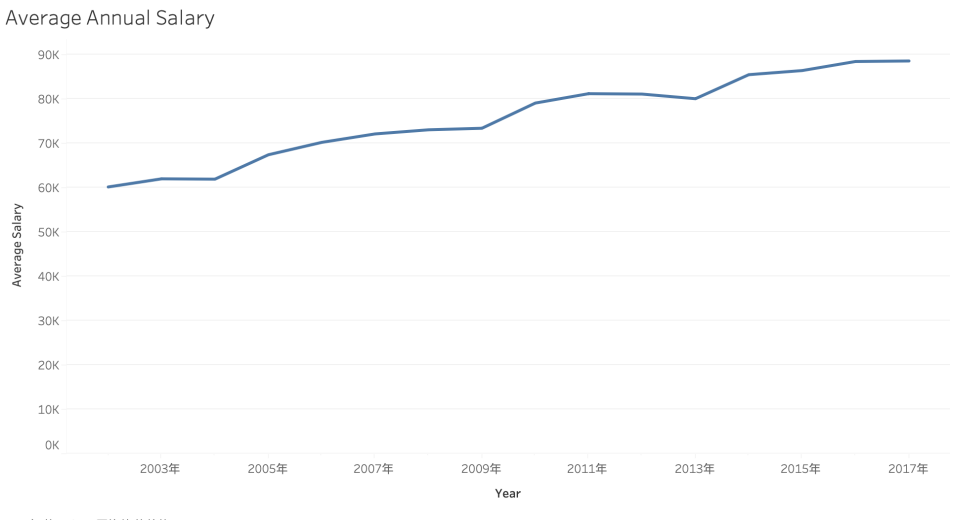
Our theme is to explore the relationship between the misconducts in police officers and their career development.

Question 1: Is there a correlation between the salary of the officer and the number of complaints?

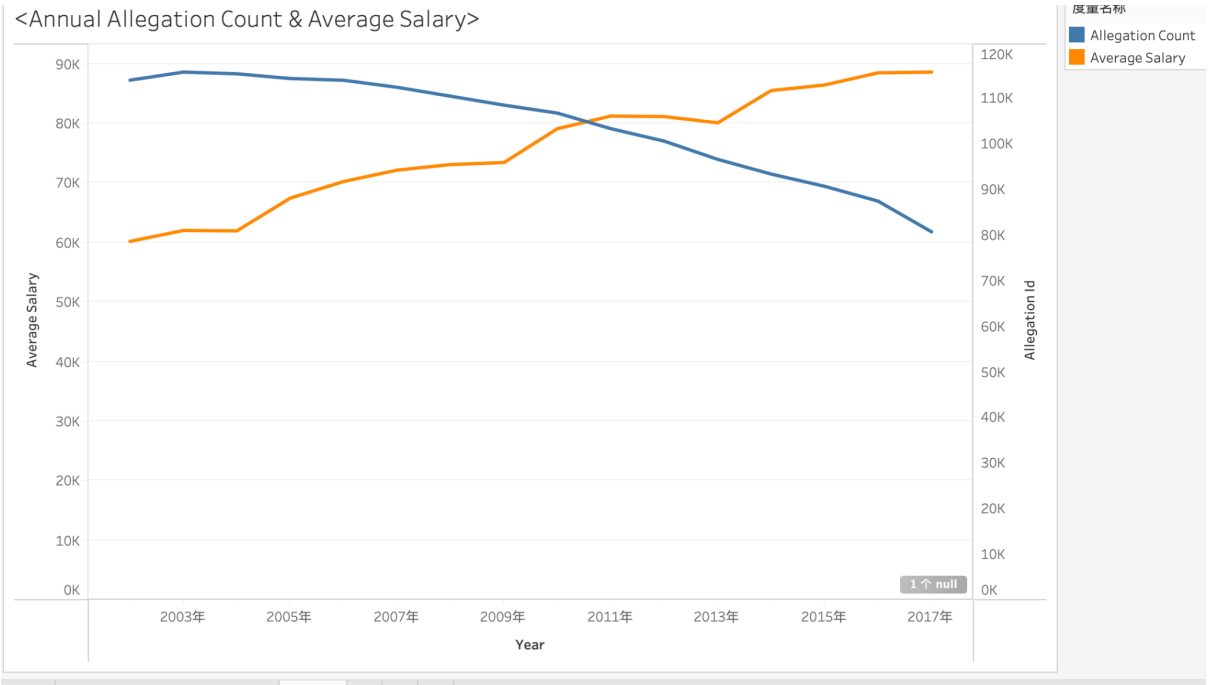
The trend of annual allegation count over years. We can see the number of allegations shows a trend like a quadratic function, peaking in 2002, and then gradually reflecting a downward trend. We also notice that there is a sudden rise in the number of allegations around 1990. Since there is no other evidence related to officers' careers before this year, we cannot conclude why this trend is shown. One guess is that the database may contains more data about record of allegations after 1990, and we take the annual count for allegations, instead an average number of allegations received by each officer, so the number of annual allegations after this year is much greater than the years before.



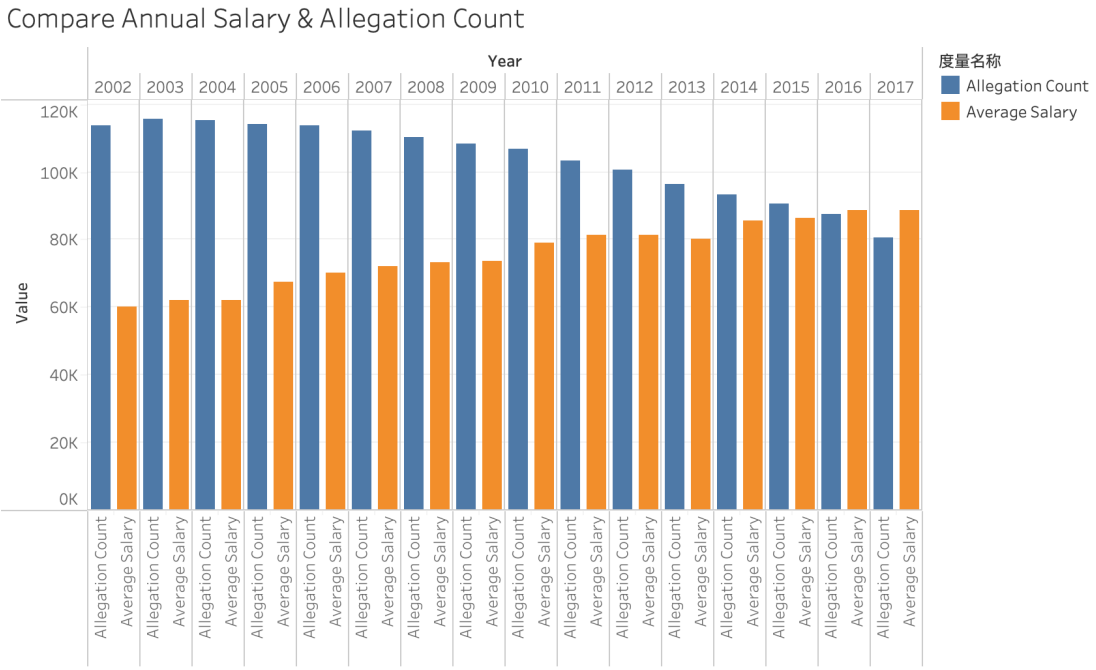
The trend of annual average salary over years. It shows that the annual salary of officers is an upward trend, which may correlate with a downward trend of the number of allegations we found in previous figures.



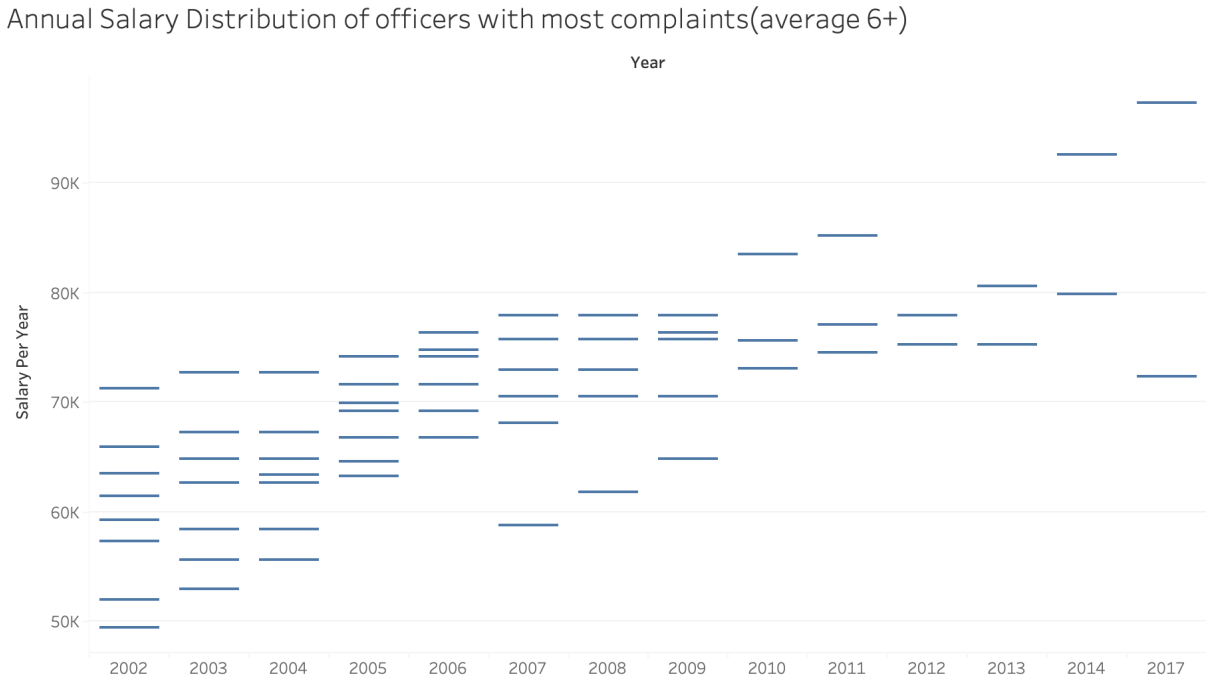
Since the records of salary in the database starts from 2002 to 2017, we also create a double-line chart to compare the trend of annual salary with the allegation count over years in a clearer way. We can say that while the average salary of officers is increasing, the number of allegations received by officers is decreasing.



Compare these two, we also have this Side by Side Bar Chart.



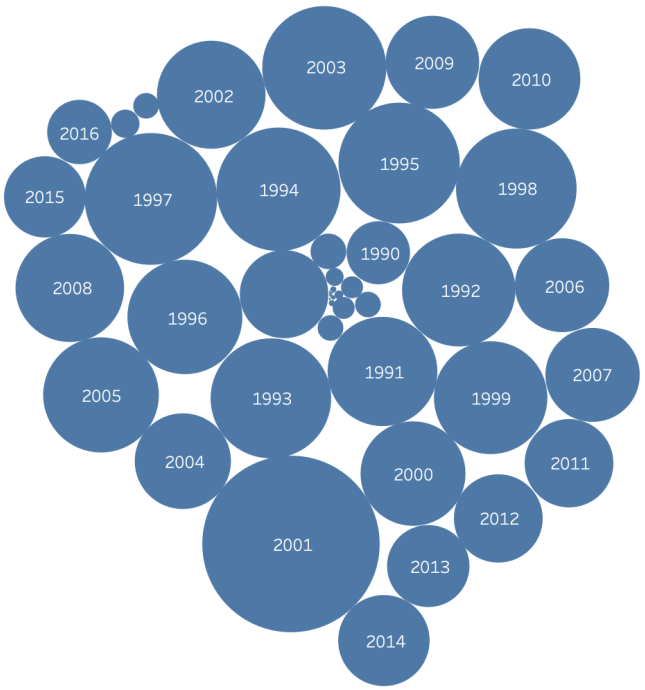
This is the annual salary distribution of officers with the most complaints, which means the number of complaints they have is over 6, based on finds from checkpoint 1.



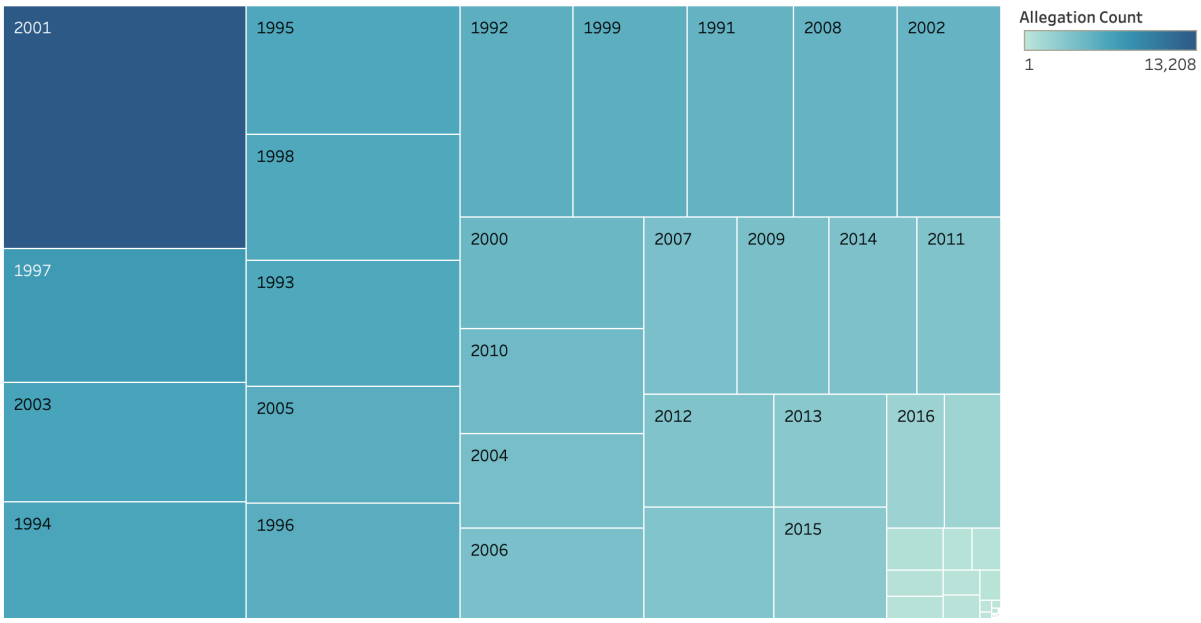
Question 2: Is there a correlation between the number of allegations received before an officer's first settlement case and number of allegations received after?

We regard the end date of an allegation as its settlement. Here is its bubble diagram and heatmap of settlement count over years.

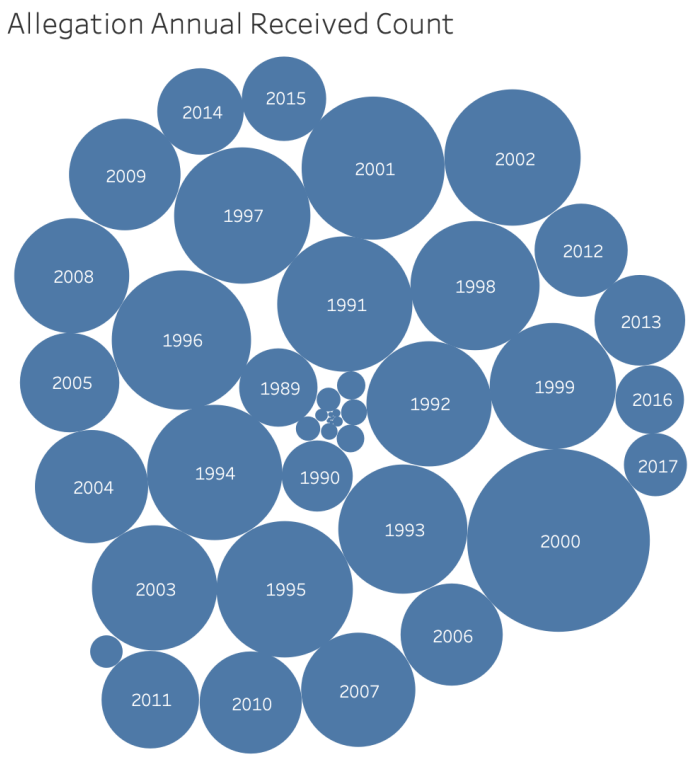
Allegation Annual Settlement Count

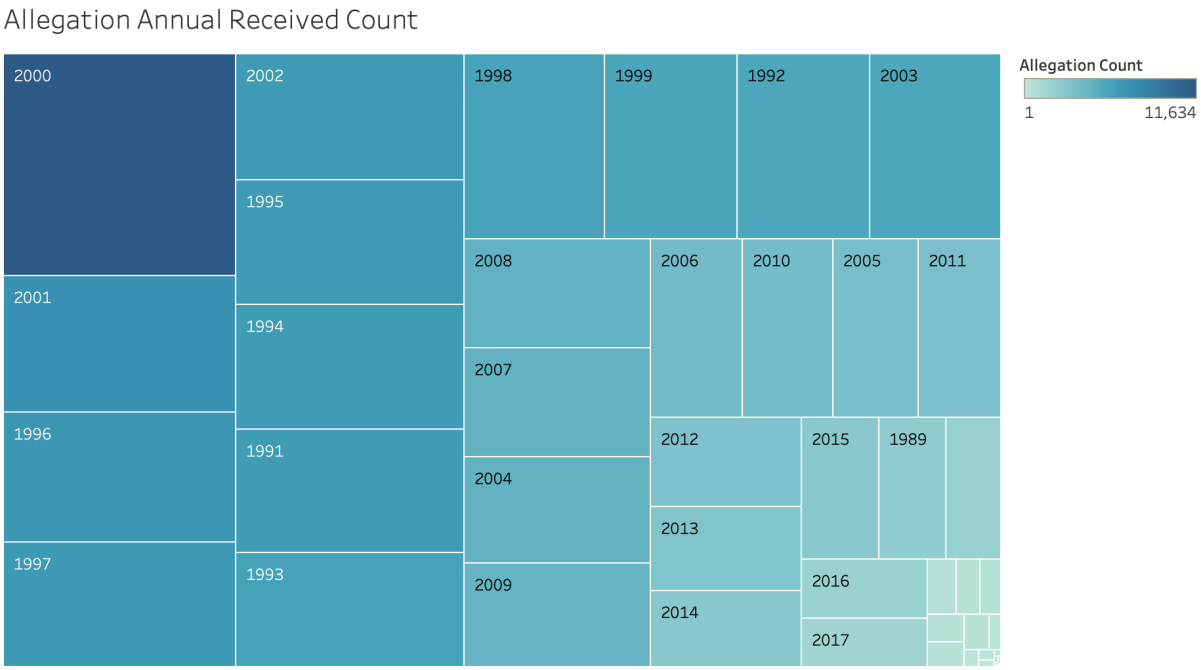


Allegation Annual Settlement Count



We regard the start date of allegation as the received time. Here is its bubble diagram and heatmap of received allegation count over years.





Compare the bubble sizes and color of heatmap, we can find that the number of allegations received after officers' settlement cases is lower than the number of allegations received before. For example, the bubble represents the year 2000

and 2001 have an inverse size trend(before and after) between the two bubble maps.

The settlement indeed influenced the number of allegations an officer received and officers cared more about how many allegations they received.