

Part 2

1. 1 and 2. We can see that blocks where homicides are reported have a high average black population and unemployment rate, and a low median household income compared to blocks where battery is reported.
3. In the table of average demographics of block groups by type of crime, you can see that between 2017 and 2018 the demographics of population, employment and household income for blocks with reports of battery changes very little. Blocks with reports of homicide change does change – the average white percentage increases by more than a percentage point, and the average Hispanic population decreases by two percentage points. The average household income of the blocks decreases slightly as well.
4. Blocks with deceptive practice reports have a higher white population and lower black population than blocks with sex offense reports, and a higher household median income. These demographics change little between 2017 and 2018.

Part 3

1. The top 5 types of crimes are theft, battery, criminal damage, assault, and deceptive practice. Theft, battery, and assault increased slightly between 2017 and 2018, and criminal damage and deceptive practice decreased slightly. The bar chart plots percent change for each of the 32 types of crimes between 2017 and 2018. Most reported crimes fluctuate by less than .5 percentage points, with the exception of concealed carry license violations and other narcotic violations. Concealed carry violations increased by more than a percent, and other narcotic violations decreases by .9%. The last table shows that overall, crimes didn't change by much between 2017 and 2018, only falling by .67%. There are obvious seasonal trends in the data by month and year. Crimes reported drop significantly in the winter and rise in the summer in both 2017 and 2018.

2.

According to my analysis of ward 43 comparing the time periods of July 2017 to July 2018, these statistics are incorrect. In the table above we can see that:

- Robberies have decreased by 25%
- Batteries decreased by 12.7%
- Burglaries did not change
- Motor vehicle theft increased by 27.7%
- And total crimes increased by 13.04%

B. Could they be misleading or would you agree with the conclusions he's drawing? Why or why not?

It seems that the alderman's statistics are wrong for the types of crimes he cited. He is however correct that total crime increased over the same time period from 2017 to 2018, though I cannot speak to the change prior to that. He also seems to be comparing a month to a week - in my analysis I have compared a month to a month, but that could explain our differences - he may have compared a month in 2017 to a heavy week of crime in 2018.

There are types of crimes that have increased, including assaults, theft, criminal trespassing, and other offenses. These are something that the alderman could have addressed on his website.

3. As you know, there will be a new mayor in Chicago very soon. Based on these summary statistics, provide 5 key findings to the new mayor's office about crime in Chicago and what they should focus on in order to deal with crime in Chicago.

- Crime in Chicago is extremely seasonal, and the mayor should focus on how to adjust to much higher crime in the summer months compared to the winter months.
- The most crime is actually reported in the downtown area and the north area
- More violent crimes like battery are more often reported in neighborhoods in the South and West
- Areas with higher unemployment rates also have higher rates of reporting violent crimes such as battery
- Some crimes like battery seem to be taking place in the same type of locations between 2017 and 2018, but homicide locations seem to be shifting over the two years slightly.

4. What are some of the key caveats of your recommendations and limitations of the analysis that you just did?

- a. Theft, Battery and Criminal damage are most likely in the community area (Armour Square), of the address 211 S Michigan Ave. The probabilities respectively are 28.17% for theft, 18.2% for battery, and 9.5% for criminal damage.
- b. Did not finish – partial work on Jupyter notebook
- c. 100/260 chance of coming from Garfield, 160/260 chance of coming from Uptown. Which is a 38% chance of coming from Garfield, and a 61% chance of coming from Uptown.
It is $(61-38)/38 = 60\%$ more likely to come from Uptown.