How Crime relates with Income.

Haider Ali
Yujie Wu
Ovadia Sutton
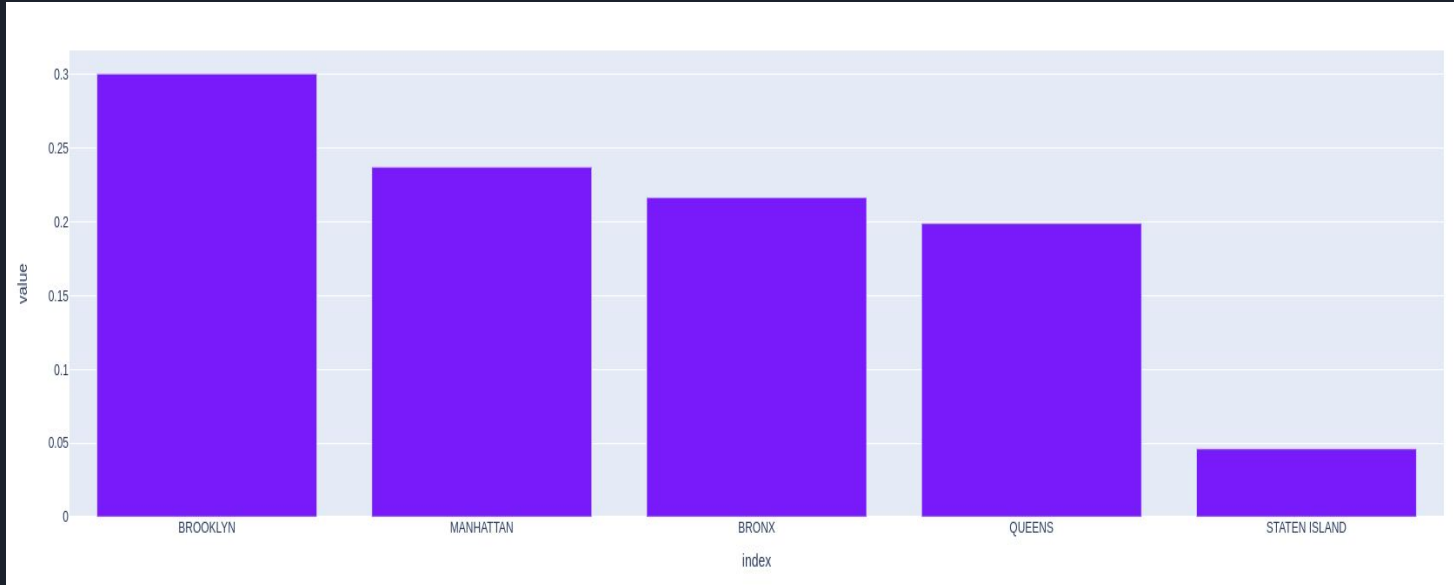
Motivation and Research Questions

- Crime rates in NYC are a big topic of discourse in political campaigns.
- We will look to better understand the relationship between the rise in crime rates and the economic well being of the relevant population.
- By understanding the nature of the types of crime that are prevalent in NYC and its correlation to specific demographics and income, policy makers will have more perspective as to how to think about responding to rising crime rates and provide assistance in the areas that need it most
- Data used: https://data.cityofnewyork.us/Public-Safety/NYPD-Complaint-Data-Historic/qgea-i56i
- https://data.cccnewyork.org/data/download#0,8/29

Challenges we encountered

- Data resource
- Size of Crime data
- Normalization and Standardization of Data
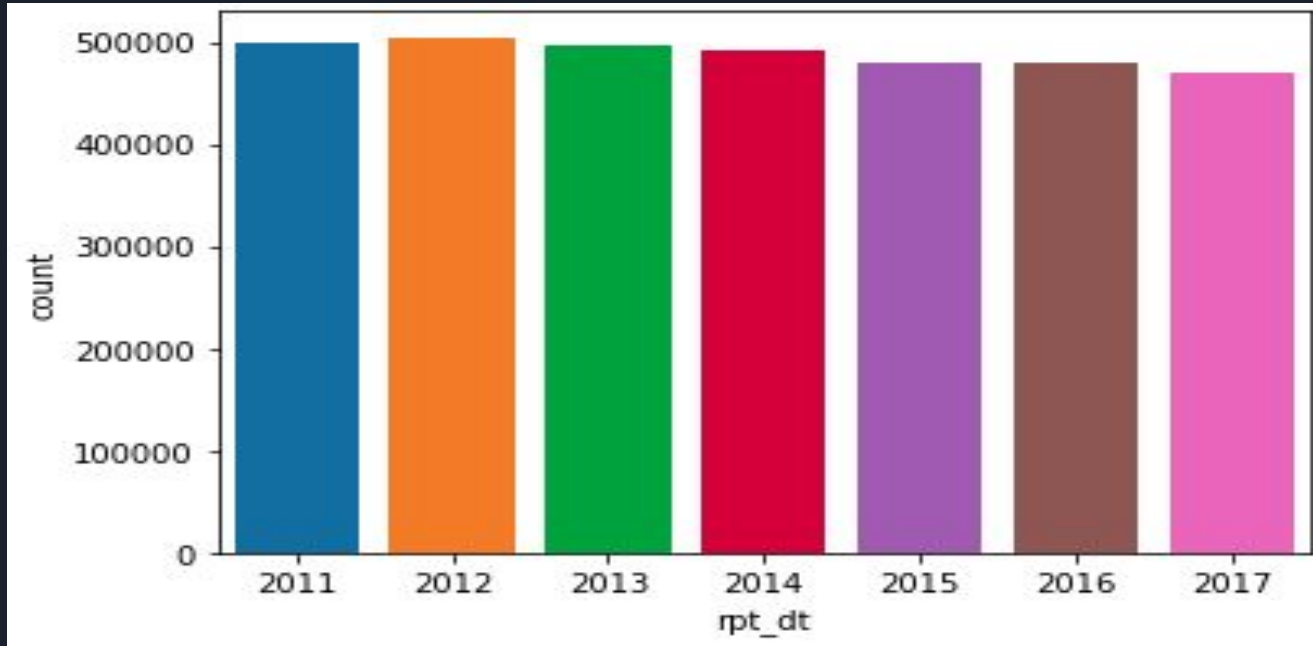- Figuring out how to match the crime data with the income data

Crime distribution according to boroughs.

Observations:
- Brooklyn, and Manhattan are the dangerous boroughs as per crime rate.
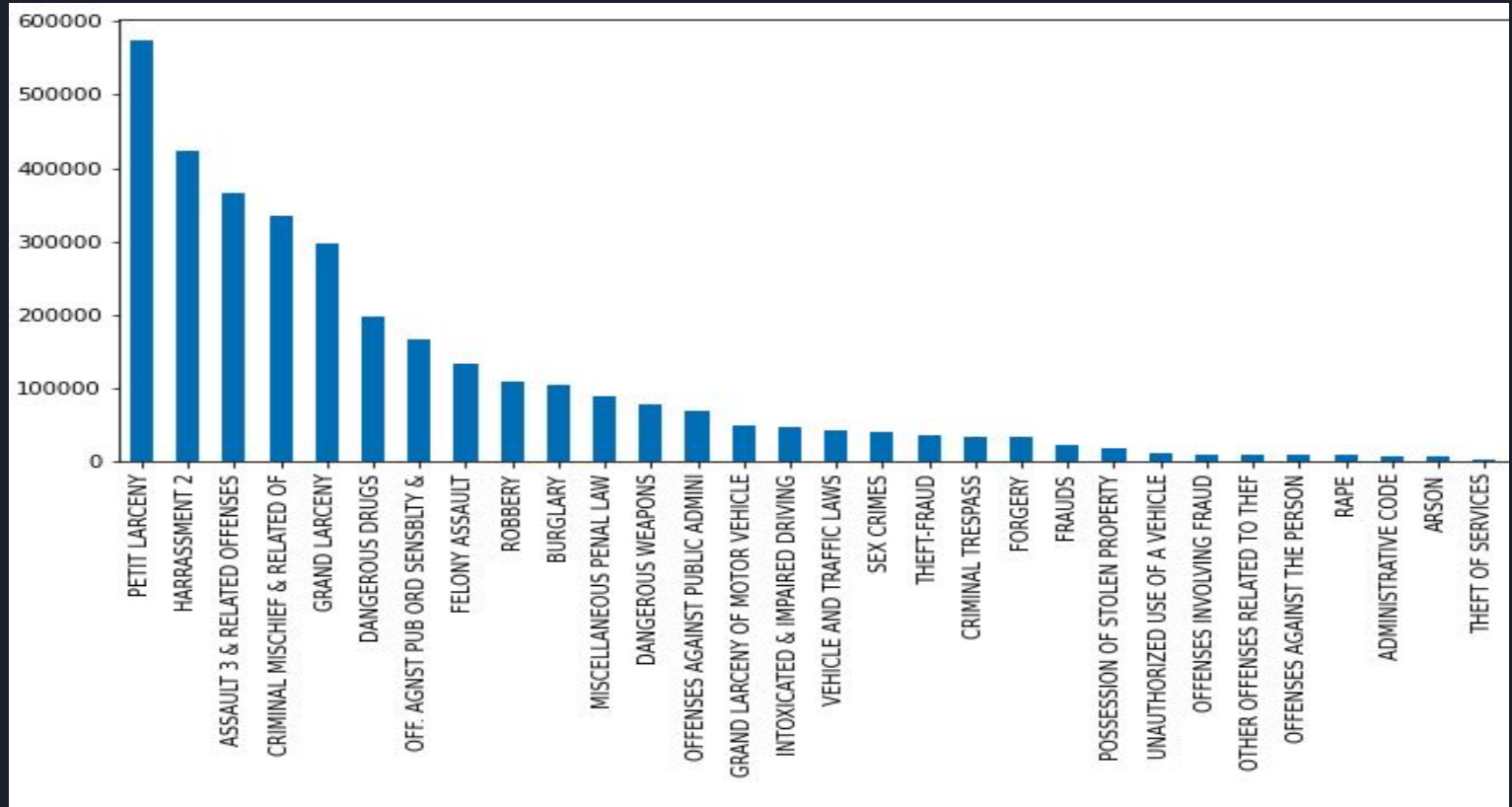- Staten Island is the safest borough in NYC.

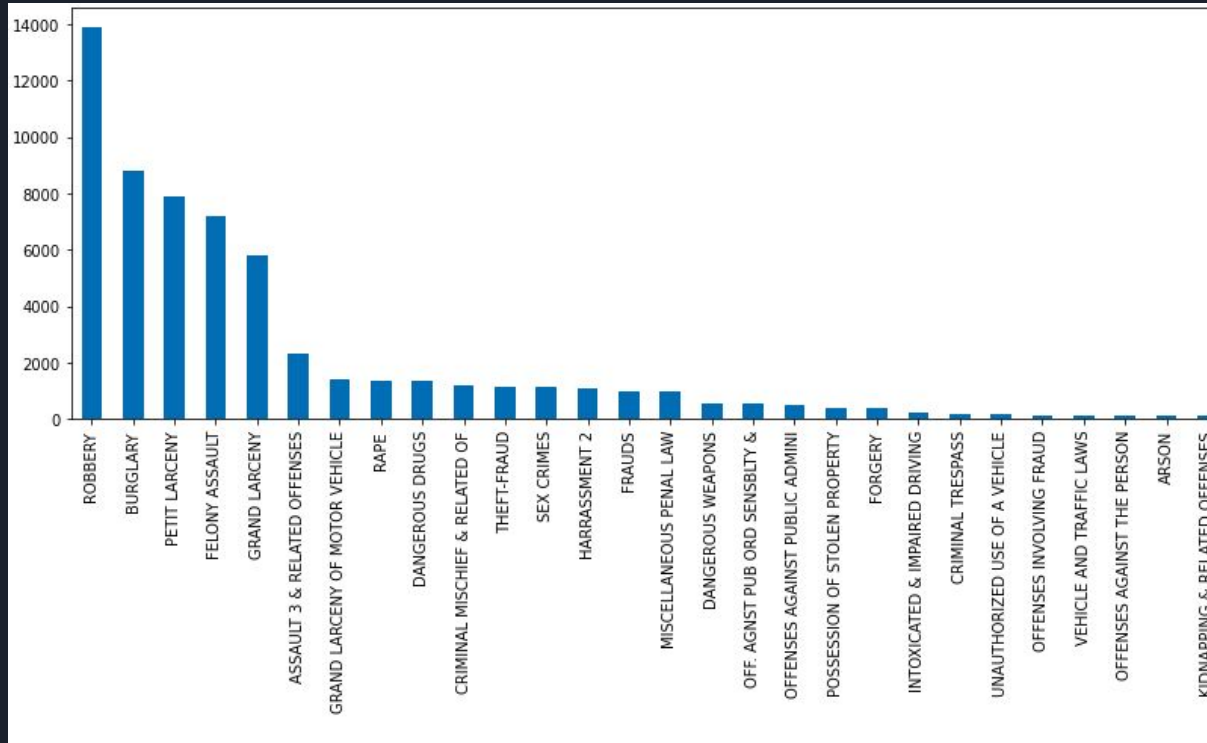# Crime according to years

Observations:
- Crime is decreasing as the year increase.
- There is not much of the difference in the drop of the crime, which means crime is still a big problem.
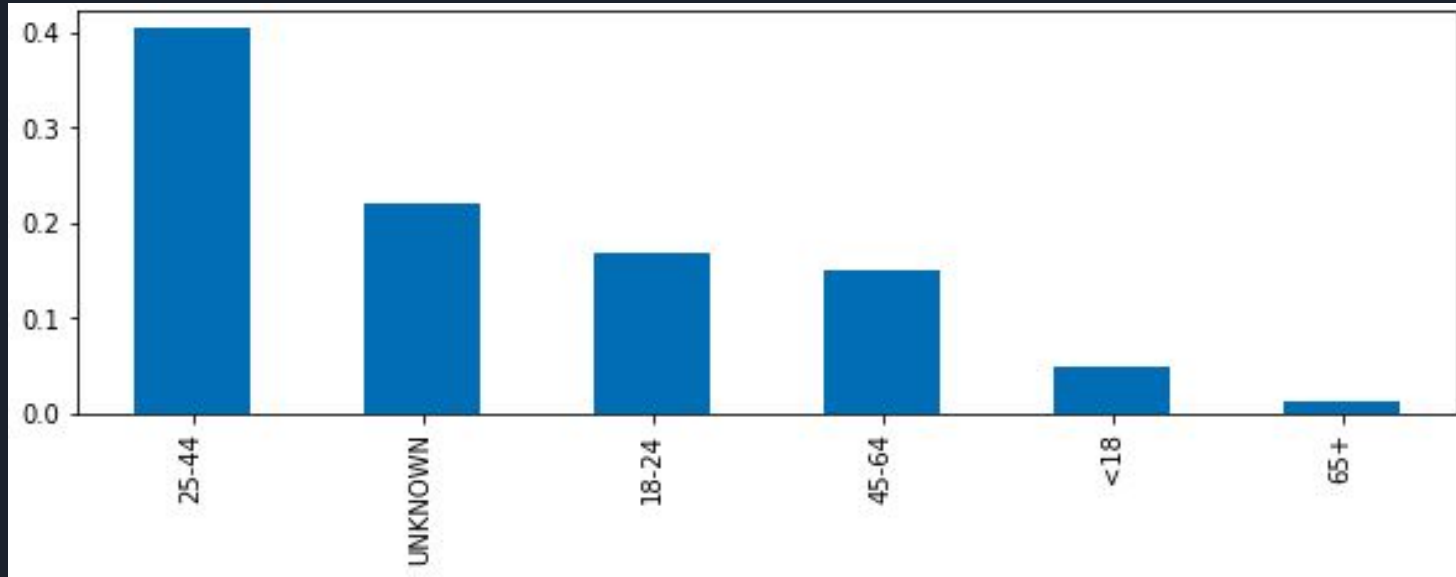
Most successful crimes

Petit Larceny (property related crime), and Harassment are the most occured and successful.

Mostly failed crimes

- Robbery is often caught red handed compared to Harassment and Petit Larceny crime which are highest crimes in NYC.

Suspect sex age group

Most of crime suspects are between the age of 25 and 44.

Raw Income Data

	Location	Income Level	TimeFrame	DataFormat	Data	Fips
0	Battery Park/Tribeca	$100,000 to $199,999	2005	Number	8039.72359	101
1	Greenwich Village	$100,000 to $199,999	2005	Number	11868.27641	102
2	Lower East Side	$100,000 to $199,999	2005	Number	6951.00000	103
3	Chelsea/Clinton	$100,000 to $199,999	2005	Number	10347.29257	104
4	Midtown Business District	$100,000 to $199,999	2005	Number	5178.70743	105
...	...	...	...	...	...	...
15595	Brooklyn	Under $15,000	2019	Percent	0.13490	36047
15596	Manhattan	Under $15,000	2019	Percent	0.13616	36061
15597	Queens	Under $15,000	2019	Percent	0.09335	36081
15598	Staten Island	Under $15,000	2019	Percent	0.07199	36085
15599	New York City	Under $15,000	2019	Percent	0.13735	3651000

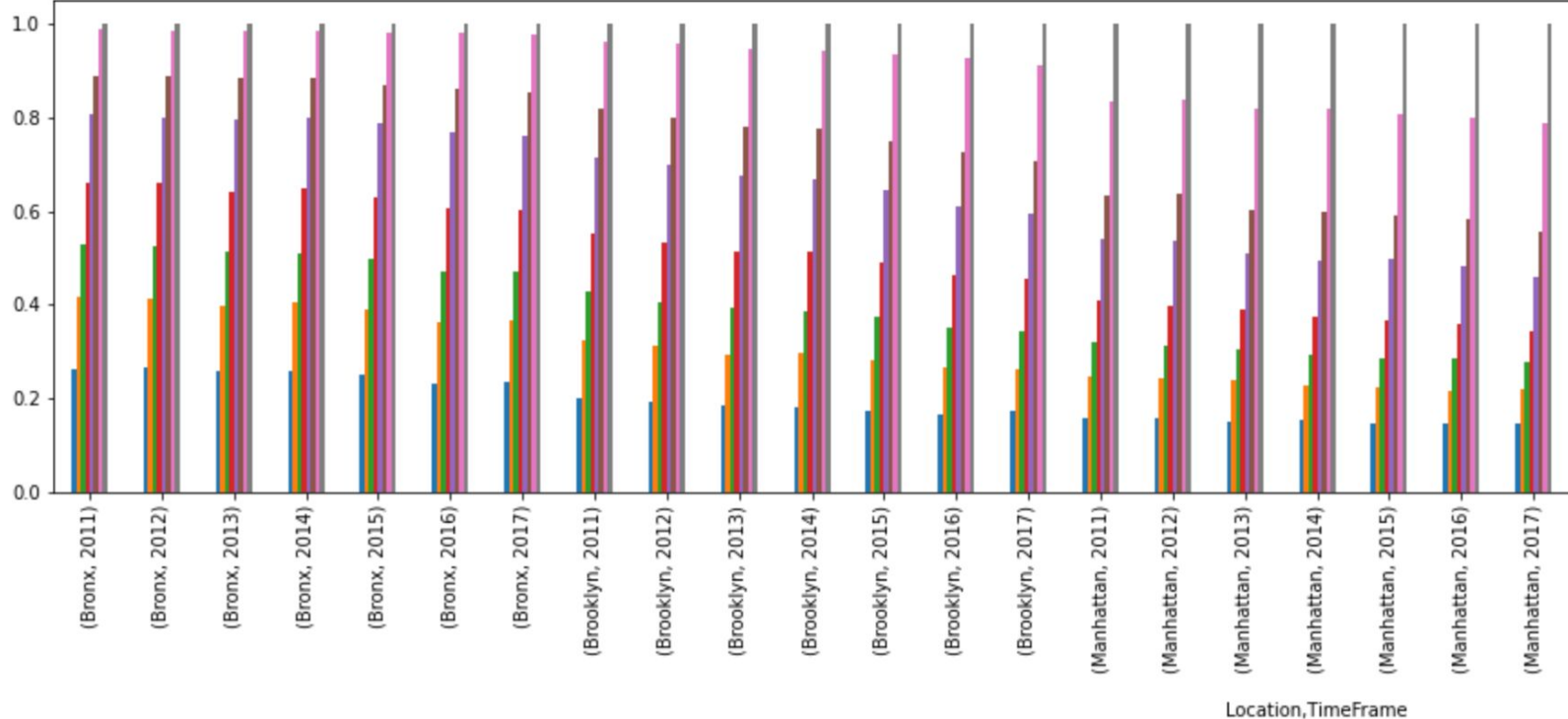# Problems With Raw Income Data

- Value counts are all the same

- Number and percent values are combined so data column summary is not valuable

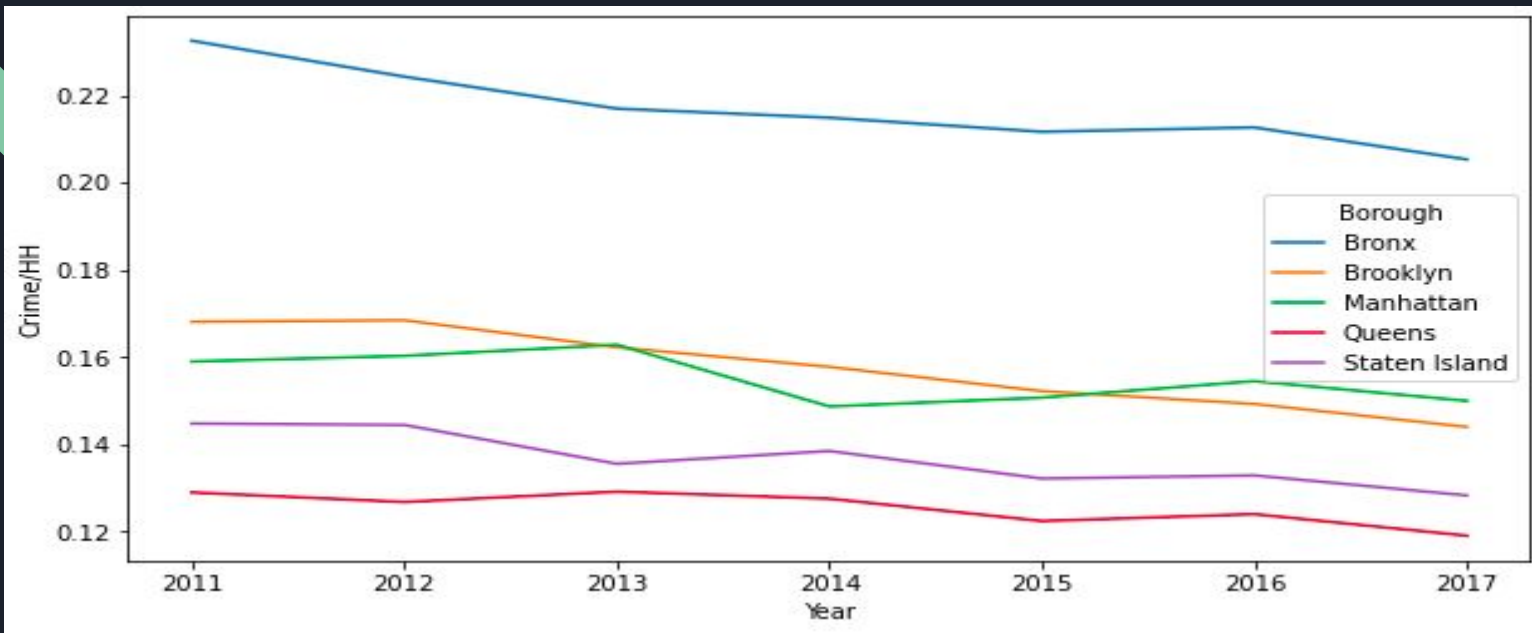- Need to filter based on what crime data

Engineering the Income Data

- Filter to years 2011 - 2017
- Filter to borough data
- Ignore Fips column - not relevant to our research
- Pivot from long to wide
- Separate number and percent data to separate data frame
- Order income in ascending order
- Sum total number of households (will be used to compute a crime rate total volume of crimes per household)
- Use cumulative sum on percent table so we can view percent of households that make less than x - This will be our key description of income
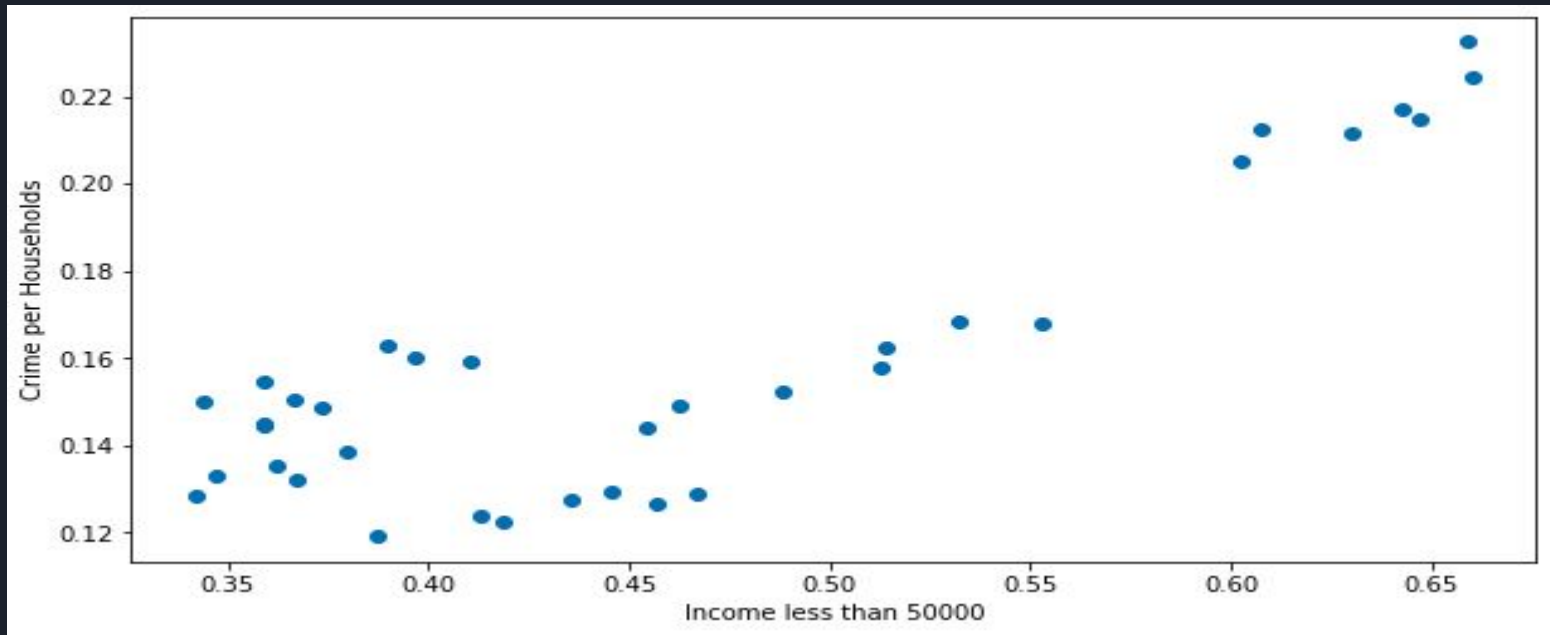
Cumulative Income

Crime as per Households according to Years

Crime VS Income

Inferences:
- Crime increase as the Income per household

Conclusion

    Eventually, we can draw some conclusions safely.First of all, for the economy of New York, it is obviously that people are richer and richer. The proportion of household who earn 100,000 dollar to more than 200,000 doubled in 2011 to 2017. However, the proportion of household who earn under 50,000 is still about 40 percent.

    Secondly, for the crime in New York, Petit Larceny is the highest type of crime in New York city, which falls under property related to crimes. Besides, it is also mostly successful compared to failed. Brooklyn and Manhattan is the most dangerous district and Staten Island is the safest district. The crime decrease slightly with years going.

Finally, taken what we have discussed, the crime has a strong relative to the proportion of people whose family earn under 50,000 dollar, which means there is a strong relative between poverty and crime. Usually, the more poor area is, the more dangerous area is. From our perspective, the reason of this phenomenon are as follows. First of all, most of poor family can not afford tuition of a university, which means they seldom get a high paid job, and that will be a vicious cycle. The more poor people are, the less of possibility to get a good job, and people will be more and more poor. What's more, drug and guns abusement are also big problem, which makes some children of poor family have to stray to commit a crime. However, what we talked above is just a inference without experiment and if someone want to go deeper, it will need others effort, but which is not our purpose.