

CRIME ANALYSIS

AUSTIN, DALLAS, EL PASO, HOUSTON, & SAN ANTONIO

RESEARCH QUESTIONS

01

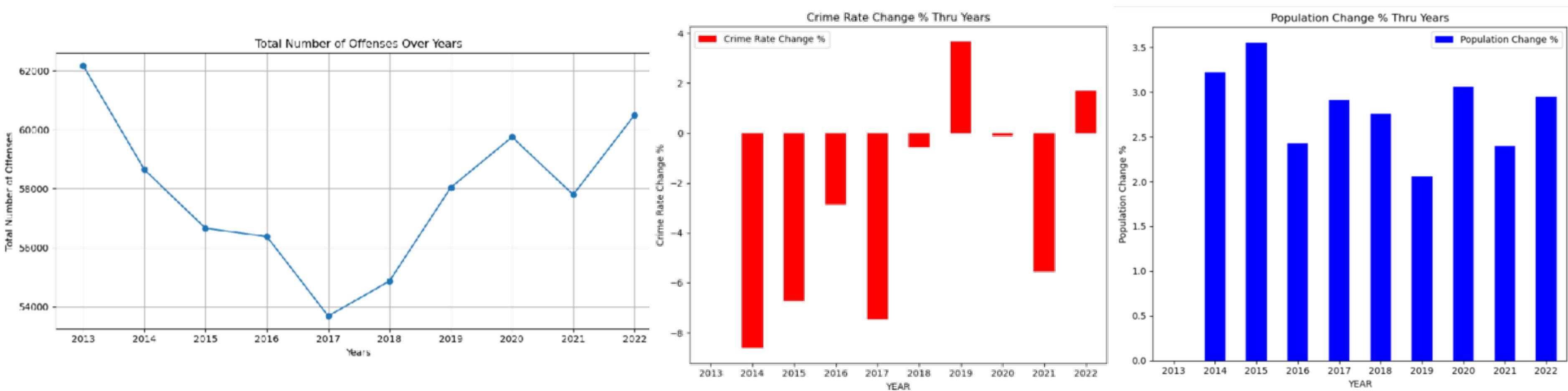
DOES OUTSIDE POPULATION INFLUX HAVE AN
IMPACT ON CRIME RATES?

02

WAS COVID STATISTICALLY
IMPACTFUL TO THE CRIME RATES IN
THE 5 MAJOR CITIES OF TEXAS AS
COMPARED TO NON-COVID YEARS?



AUSTIN



AUSTIN

Population

The number of population decrease in 2017 and continue to climb up in 2018.

The number of offenses

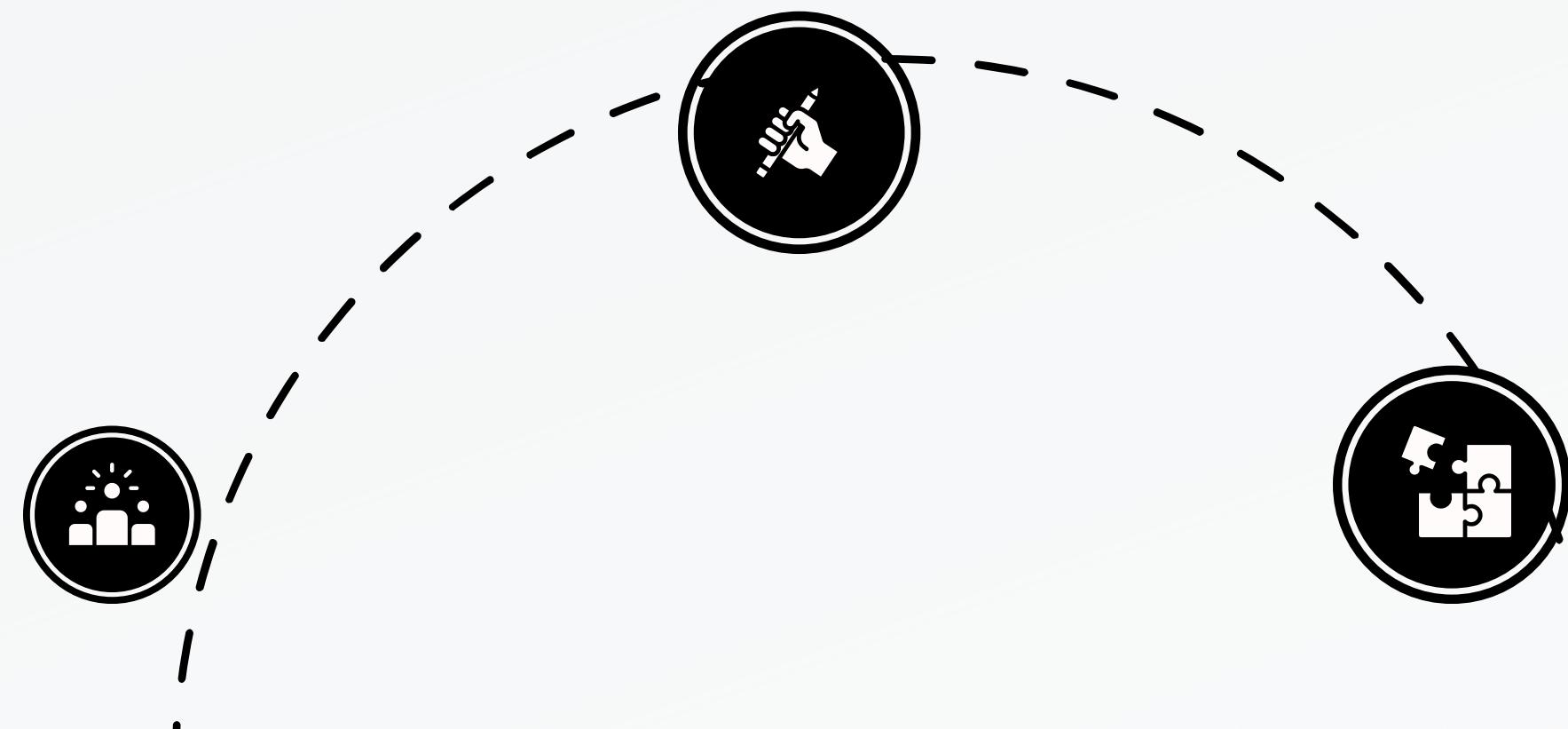
The number of offenses decreases in 2017 and climb back up in 2018. This is in reflection of the population data.

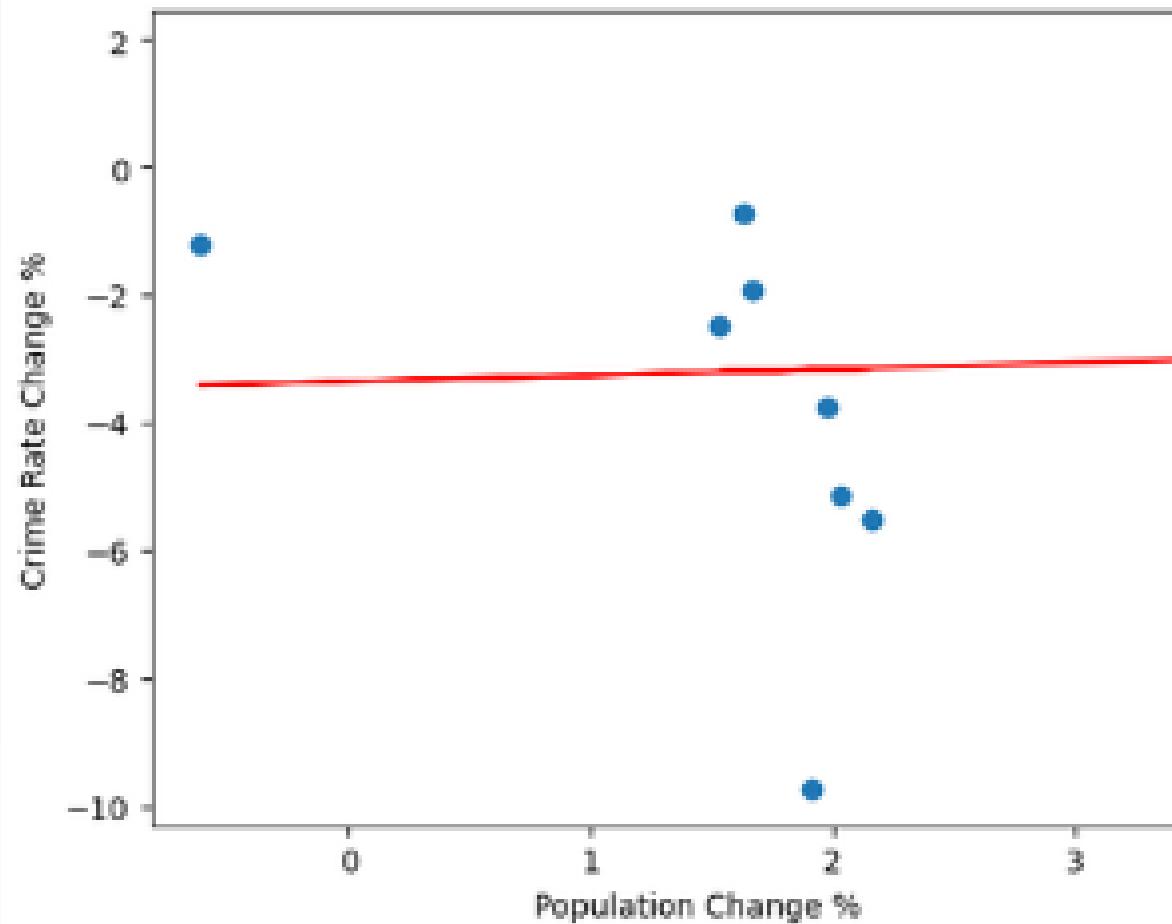
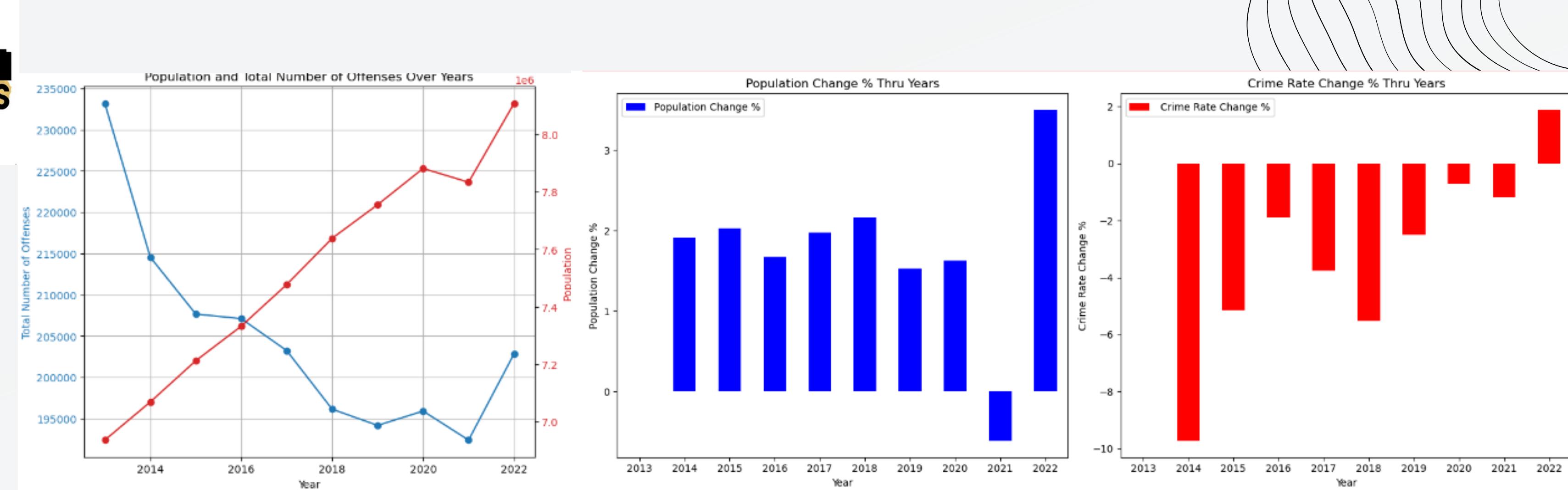
Covid vs non-covid years

T-statistic : -1.78

P-value: 0.128

There is no significant difference between the means of the two groups being compared.





```
0]: #Create two separate dataframes for covid and non-covid years
covid_years=[2020,2021]
crime_rate_covid_df=crime_rate_df[crime_rate_df["Year"].isin(covid_years)]
mean_crime_rate_covid = crime_rate_covid_df["Crime Rate per 100,000"].mean()
mean_crime_rate_covid

0]: 2470.76

1]: crime_rate_non_covid_df=crime_rate_df[~crime_rate_df["Year"].isin(covid_years)]
mean_crime_rate_non_covid = crime_rate_non_covid_df["Crime Rate per 100,000"].mean()
mean_crime_rate_non_covid

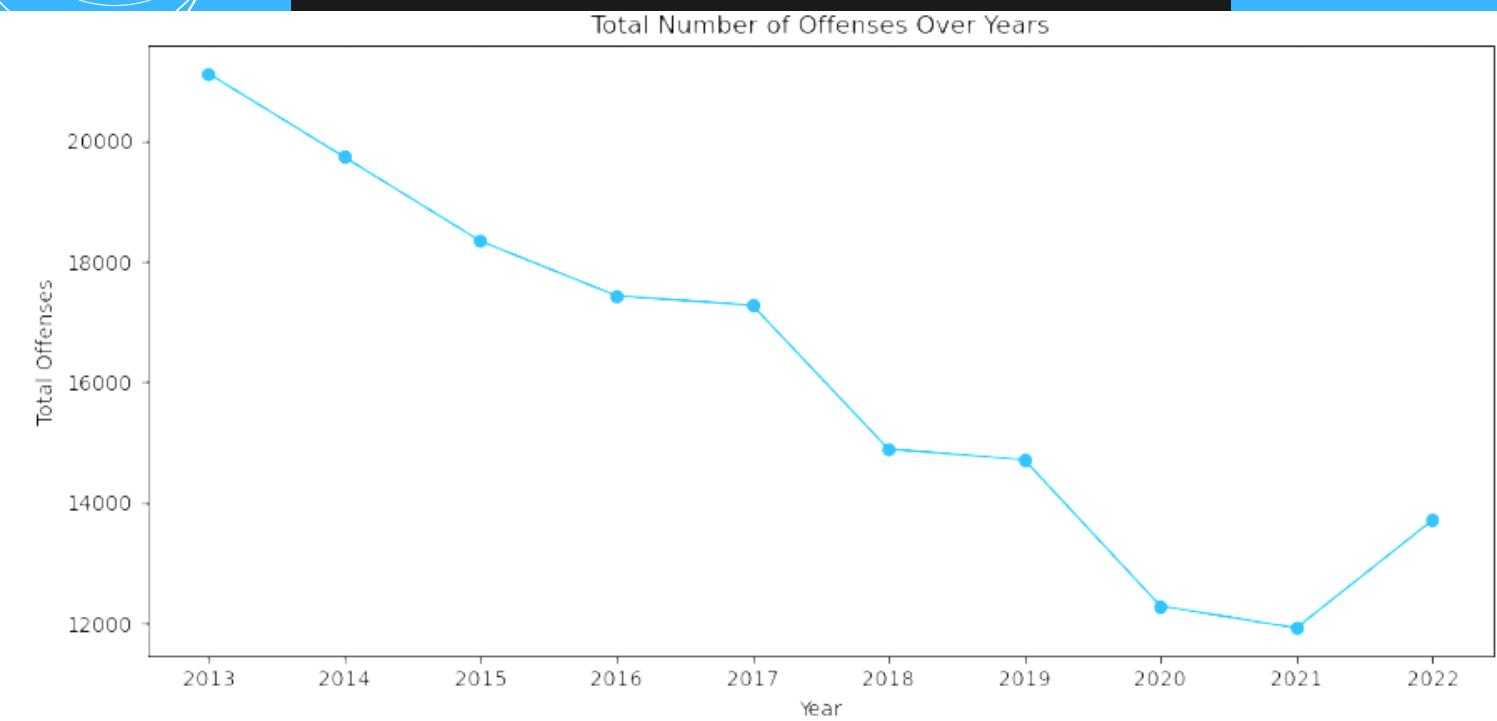
1]: 2799.04

2]: # Running t-test on two independent population on null hypothesis
t_stat, p_value=stats.ttest_ind(crime_rate_covid_df["Crime Rate per 100,000"],crime_rate_non_covid_df["Crime Rate per 100,000"], equal_var=False)
print("T-statistic:", t_stat)
print("P-value:", p_value)

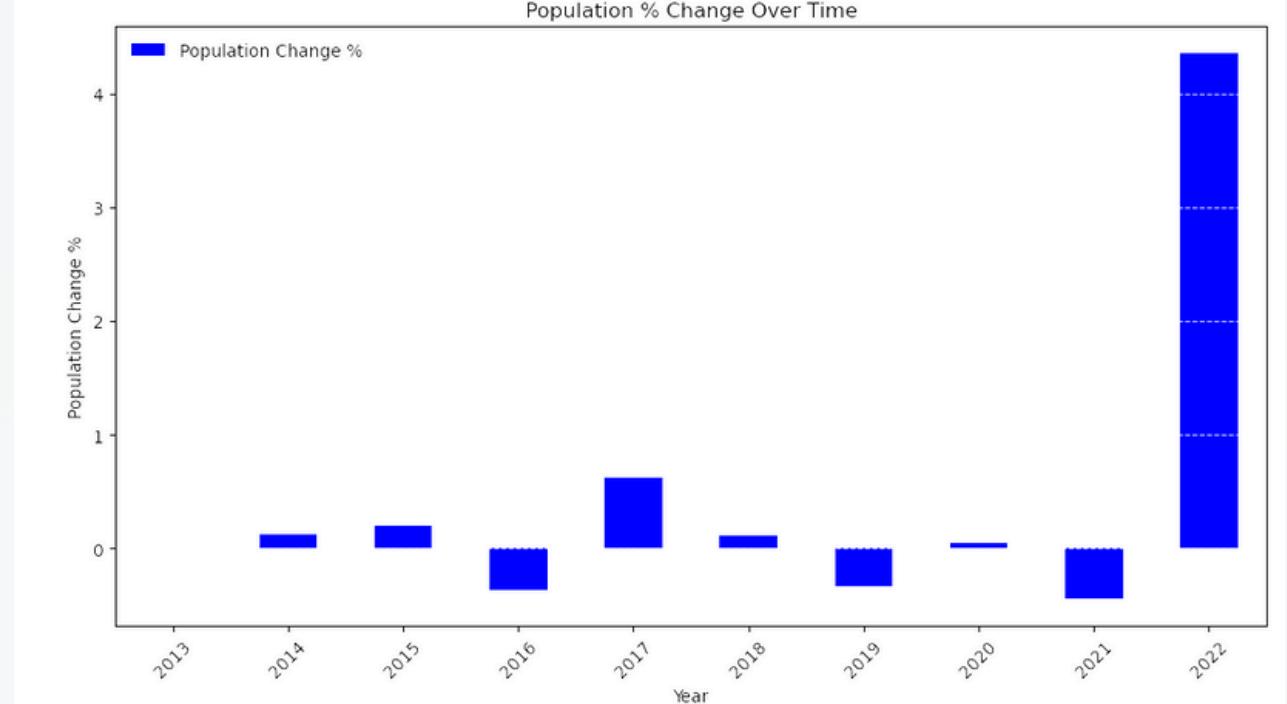
T-statistic: -3.099953683858075
P-value: 0.016536768509962736
```

EL PASO

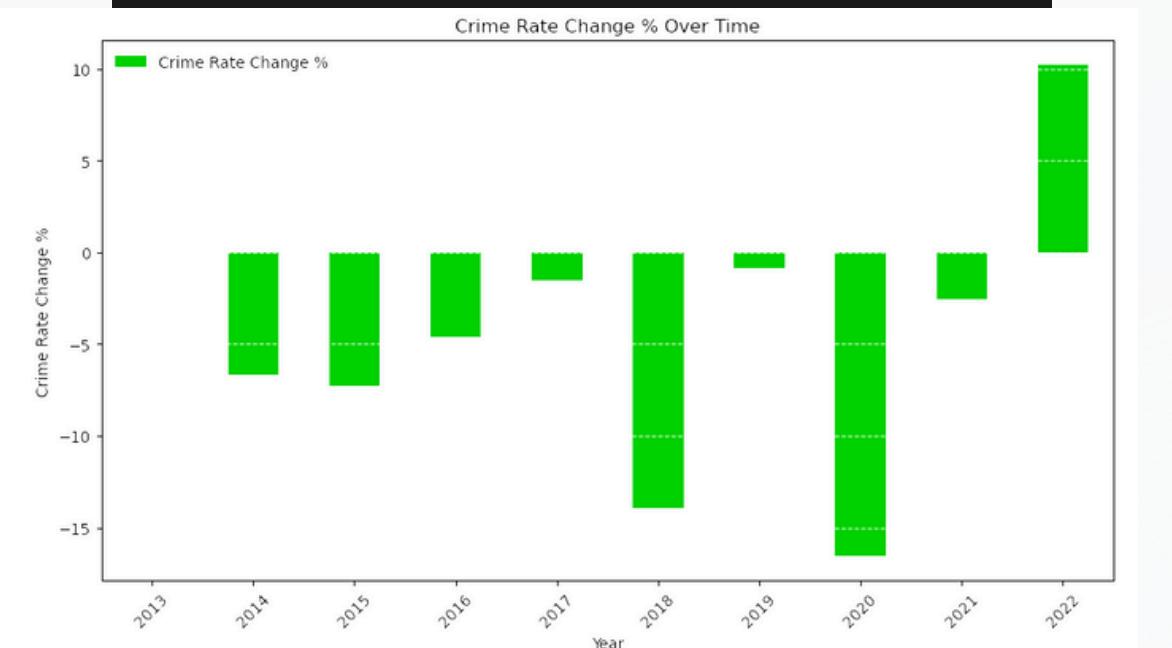
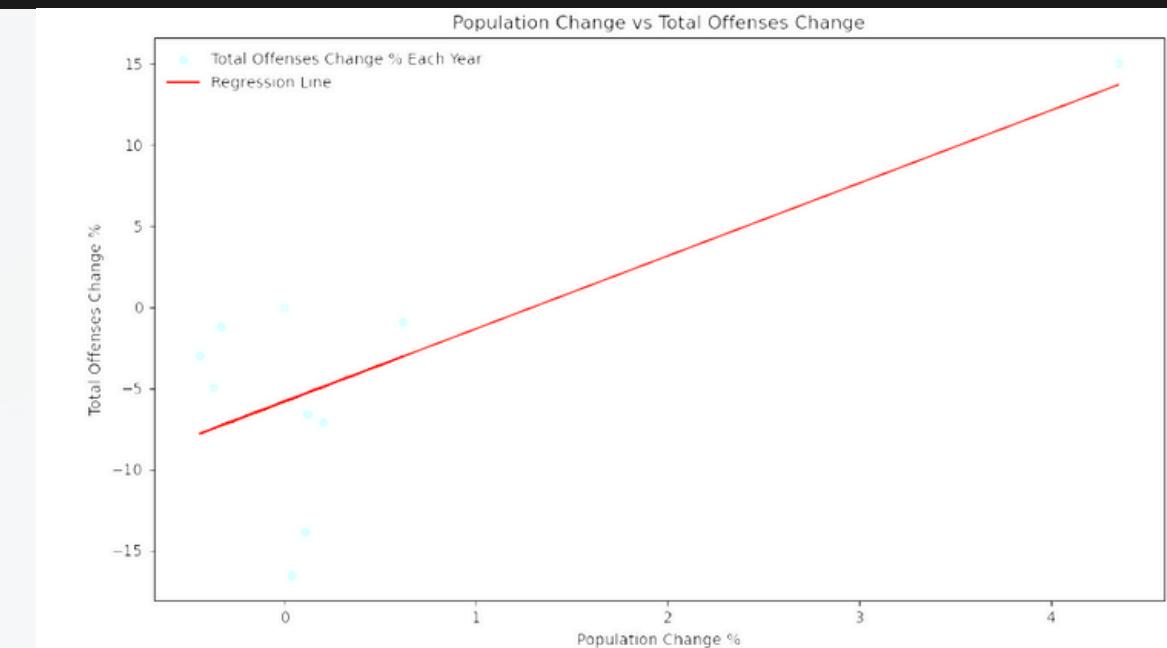
overall crime



population change

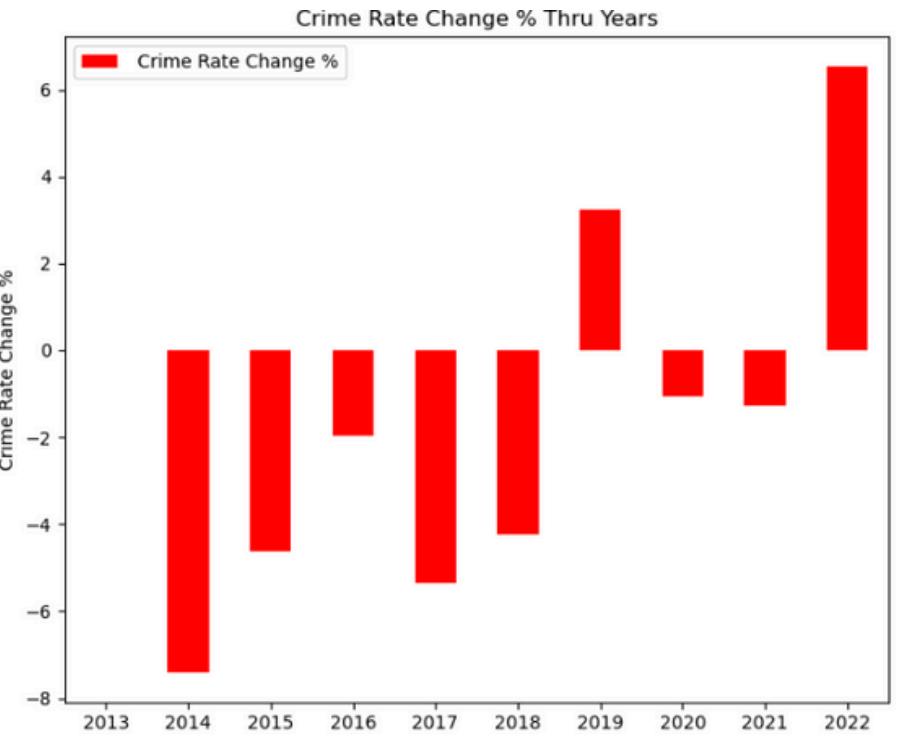
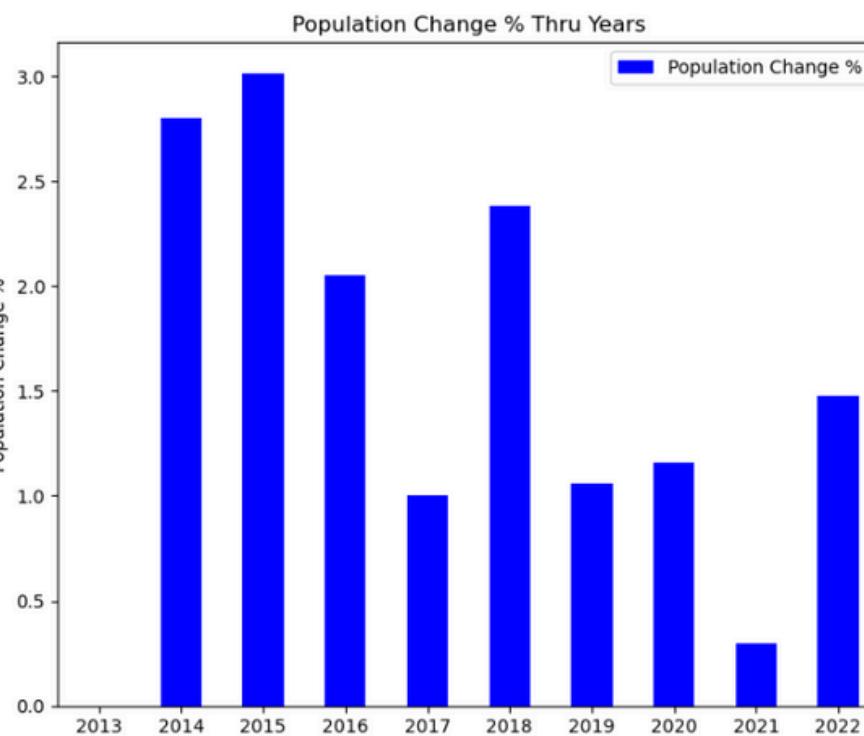
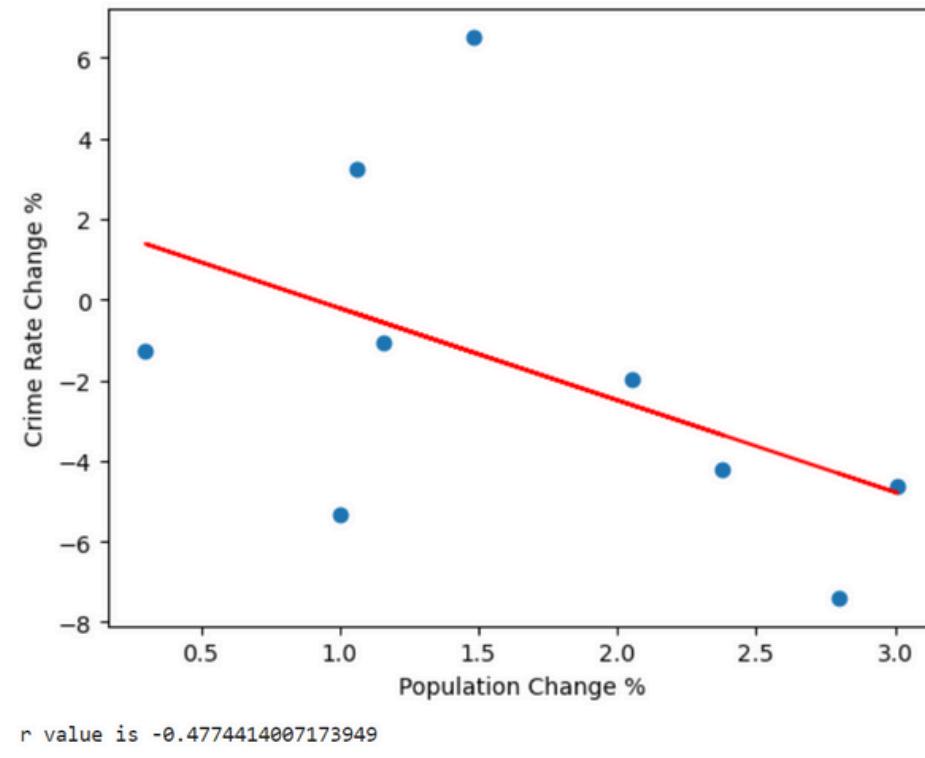


population change vs offenses change





HOUSTON



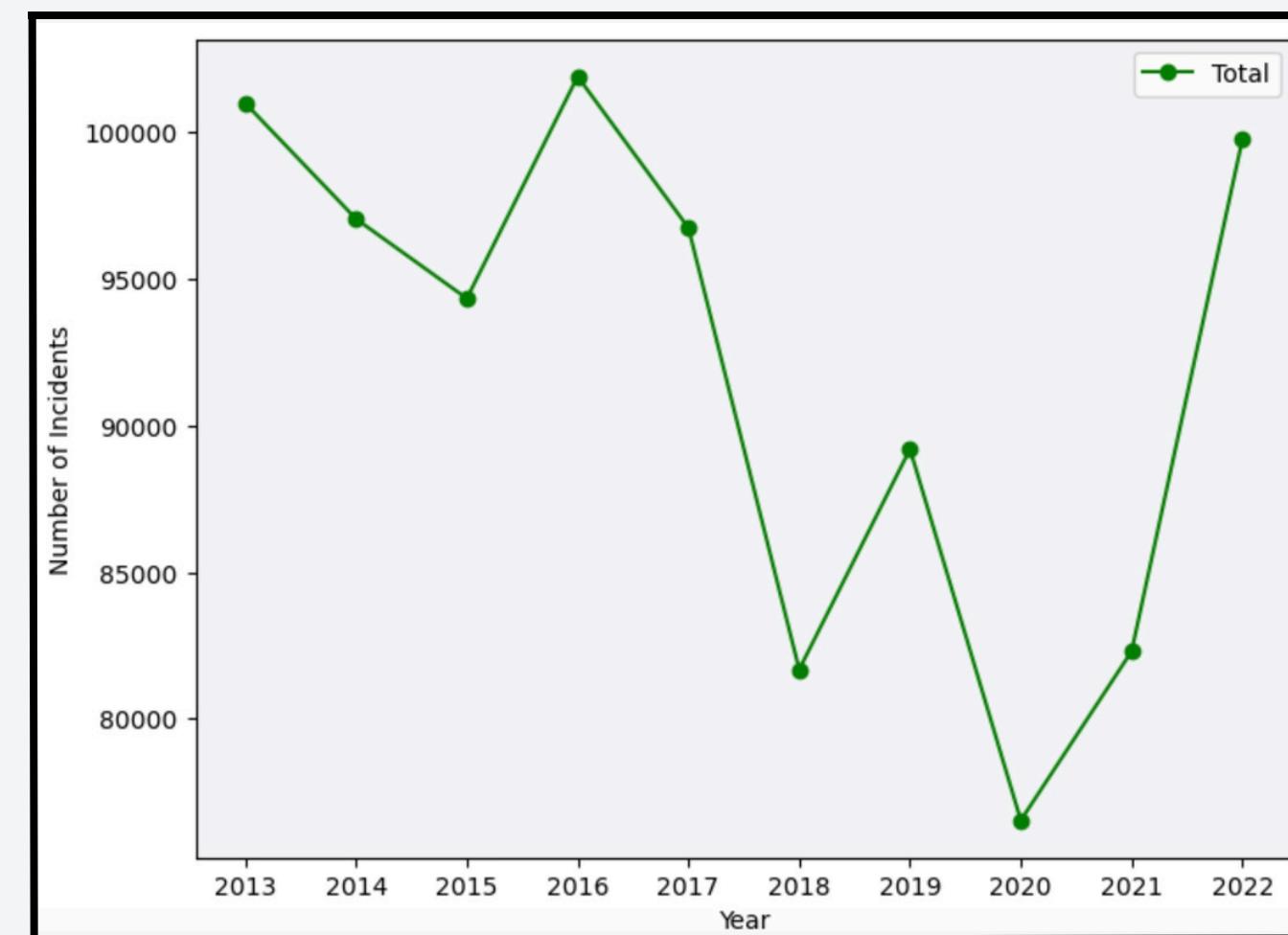
```
# Running t-test on two independent population on null hypothesis
t_stat, p_value=stats.ttest_ind(crime_rate_covid_df["Crime Rate per 100,000"], crime_rate_non_covid_df["Crime Rate per 100,000"])
print("T-statistic:", t_stat)
print("P-value:", p_value)
```

```
T-statistic: -2.7689656008955725
P-value: 0.025864955805063674
```

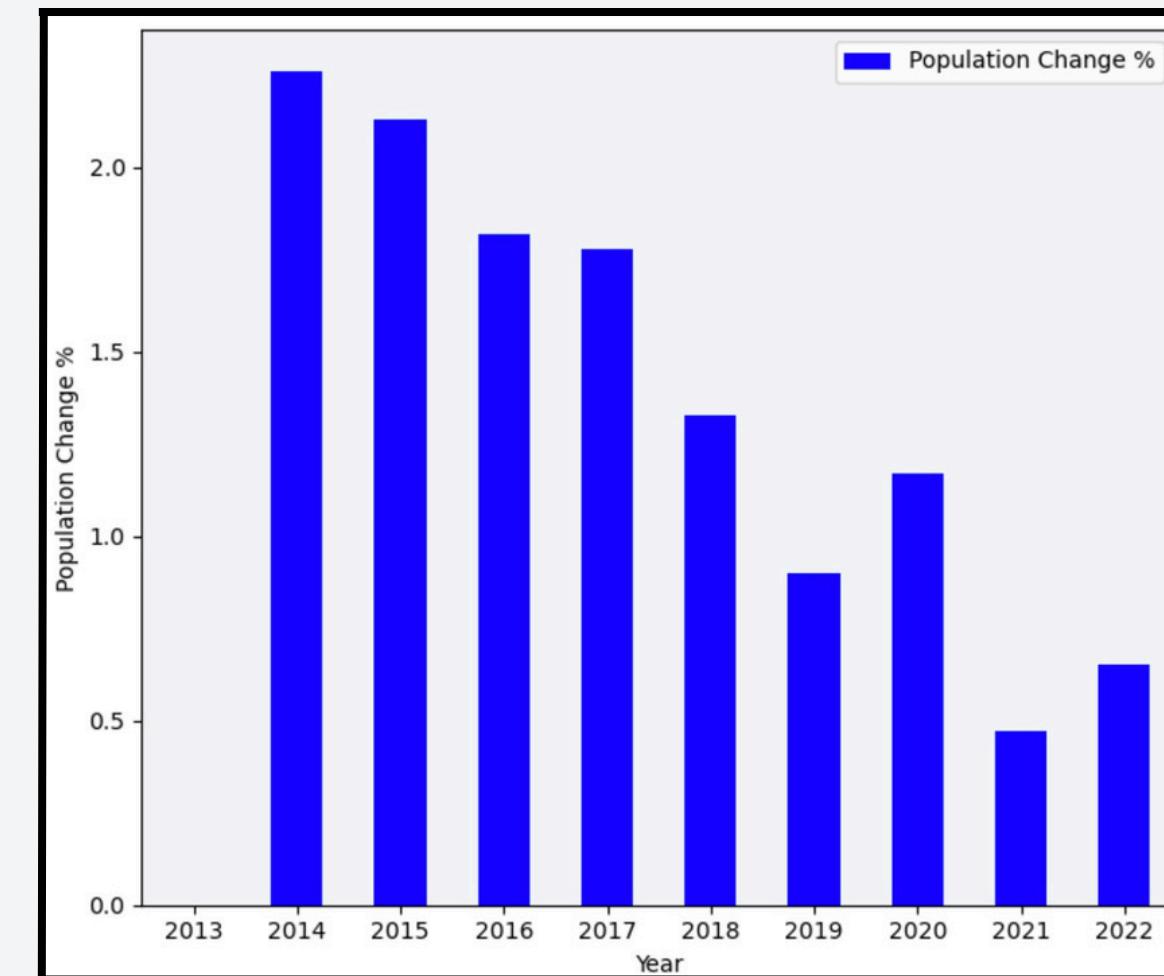
SAN ANTONIO

- highest total crime in 2016, lowest in 2020
- population continuously increased
- highest crime rate in 2020, lowest in 2018
- notable spikes in total crime and crime rates in 2019 and 2022

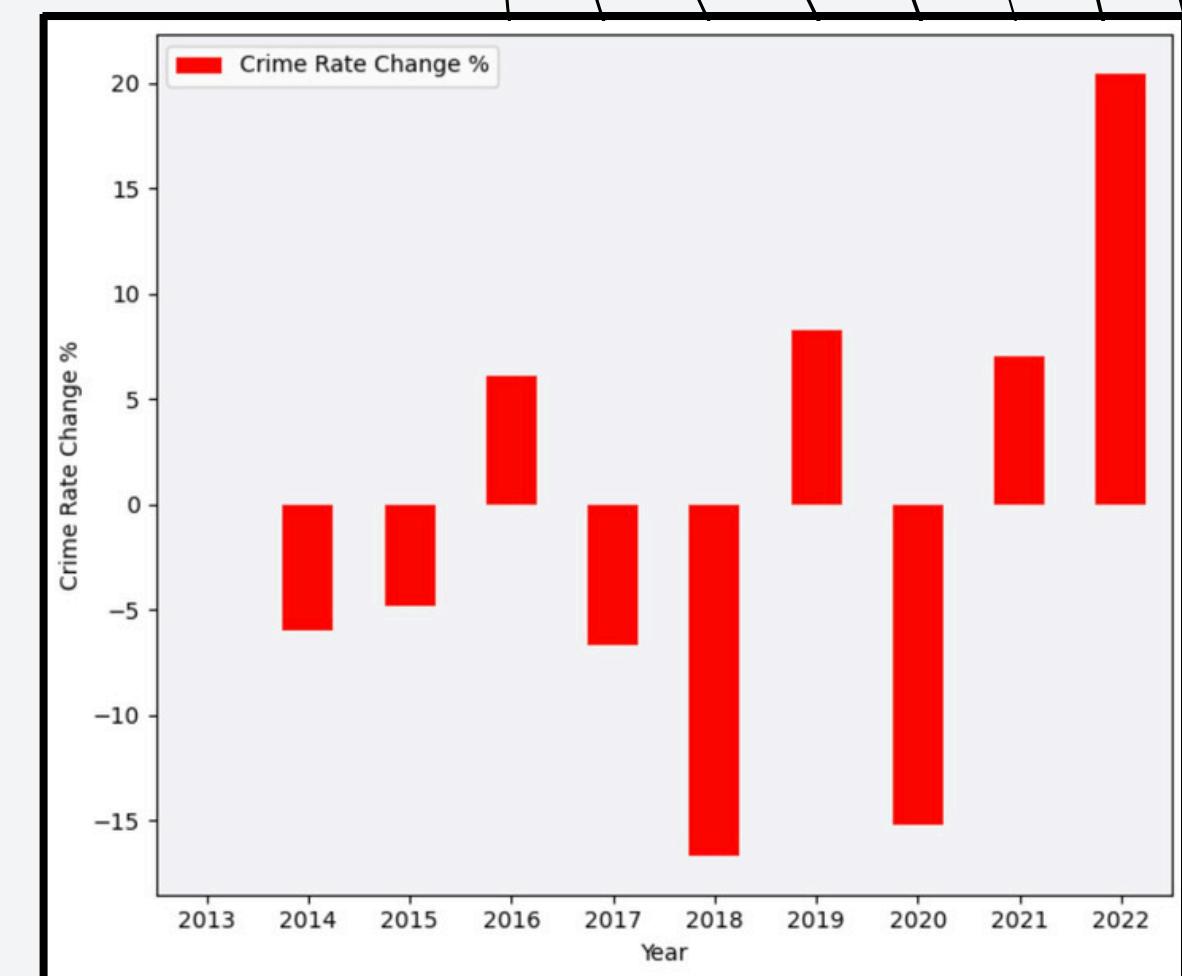
overall crime



population change



crime rate change



CONCLUSION

01

02

POPULATION AND CRIME RATE

No consistency was found through the five cities to indicate a positive or negative correlation between population and crime rate

IMPACT OF COVID-19

covid had a statistically significant impact on crime through all cities

THANK'S FOR LISTENING

We will be happy to answer any questions

