



The Crime Compass

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Introduction

The Crime Compass

Navigating Crime Data to Reveal Patterns and Insight

Presented By :

Randall Nelson

Greg Knowles

Delaram Dadfarnia

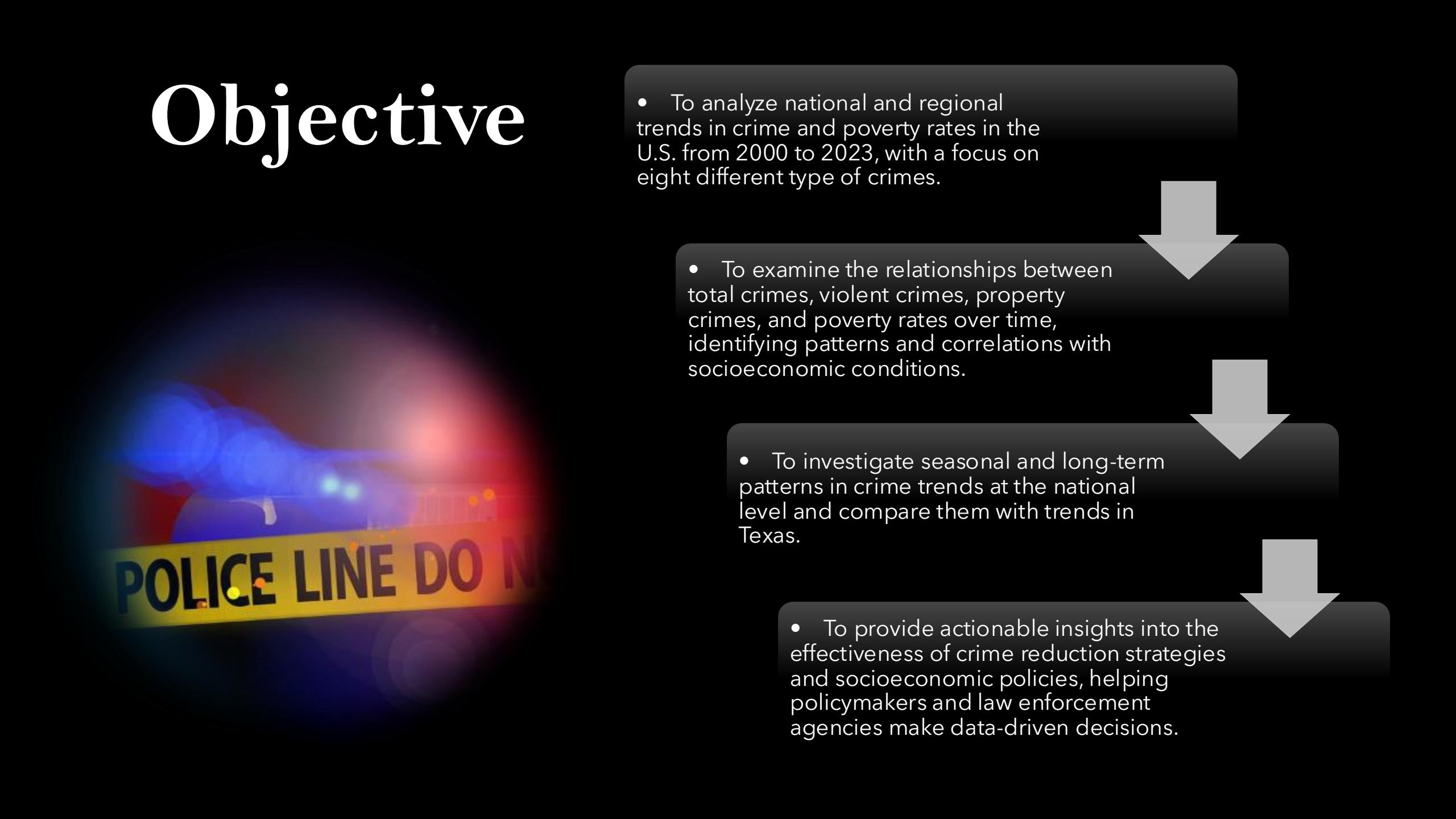
Date: January 16, 2025

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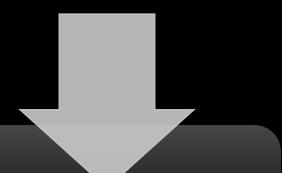
Objective



POLICE LINE DO NOT CROSS

- To analyze national and regional trends in crime and poverty rates in the U.S. from 2000 to 2023, with a focus on eight different type of crimes.

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- To examine the relationships between total crimes, violent crimes, property crimes, and poverty rates over time, identifying patterns and correlations with socioeconomic conditions.

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- To investigate seasonal and long-term patterns in crime trends at the national level and compare them with trends in Texas.

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- To provide actionable insights into the effectiveness of crime reduction strategies and socioeconomic policies, helping policymakers and law enforcement agencies make data-driven decisions.

Methodology

Data Collection: Source of data is from the FBI CDE (Crime Data Explorer); Time Period: 2000-2023; Geographic Scope: National, state-specific

Data Preparation: Extract data from the FBI CDE API in JSON and downloaded CSV files; Cleaned and formatted data to remove inconsistencies and ensure accuracy; Aggregated data by crime type, year, and region for easier analysis.

Analysis tools: Python, Pandas, API, Matplotlib and PowerPoint For presenting visualizations and findings.

Metrics Analyzed: Total crimes, violent crimes, property crimes, and poverty rates. Seasonal patterns and long-term trends. Comparison of crime rates between all states such as Texas and the U.S. average.

Visualization: Created time-series graphs to highlight crime trends and patterns; Compared national and state-specific trends to identify similarities and differences.

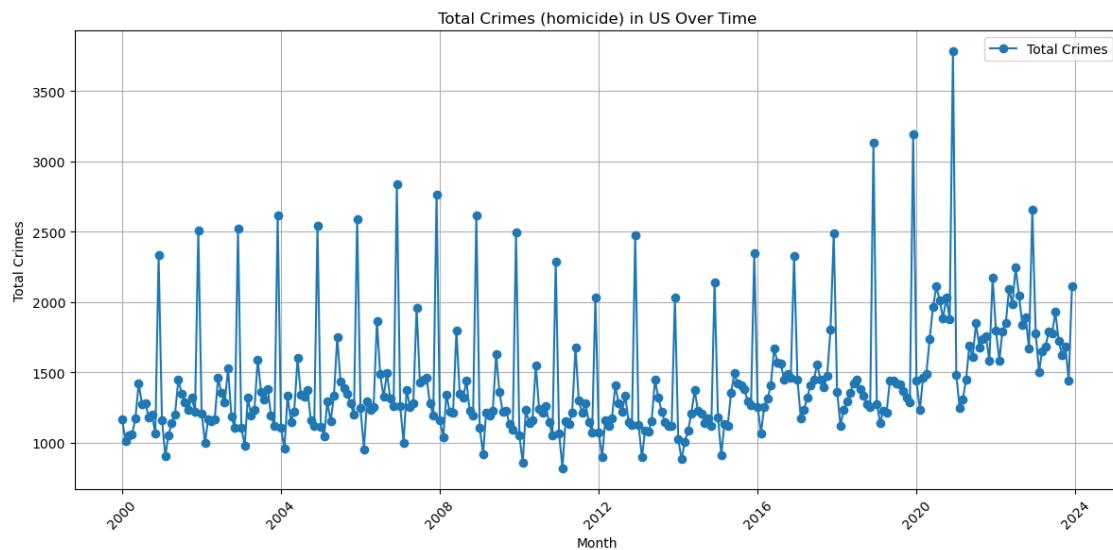
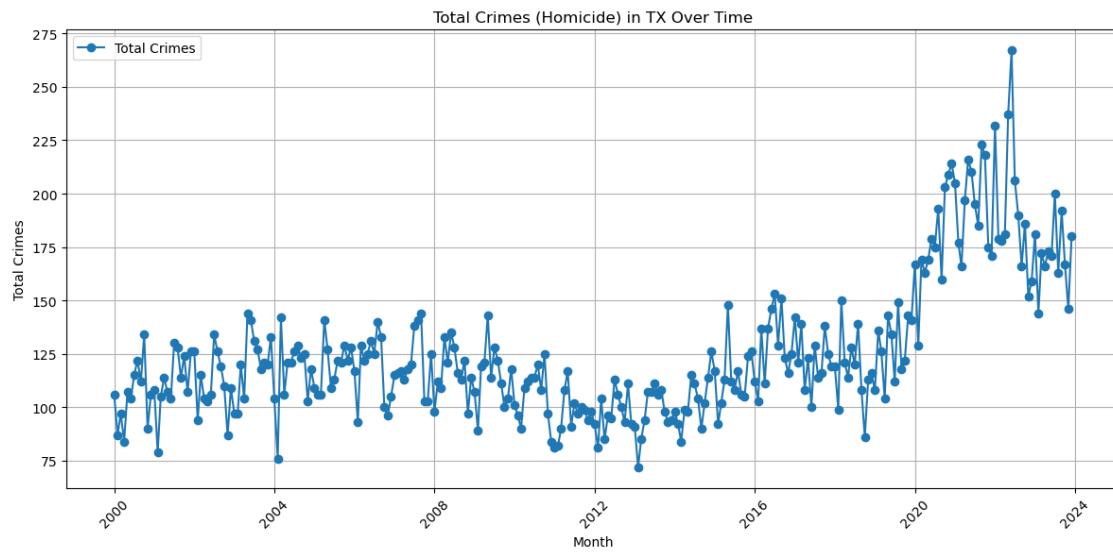
Interpretation: Analyzed correlations between crime rates and socioeconomic factors (e.g., poverty rate); Generated insights into the effectiveness of crime reduction strategies.

Types Of Crime Identifies

- Homicide
- Rape
- Robbery
- Aggravated-assault
- Arson
- Burglary
- Larceny
- Motor vehicle theft



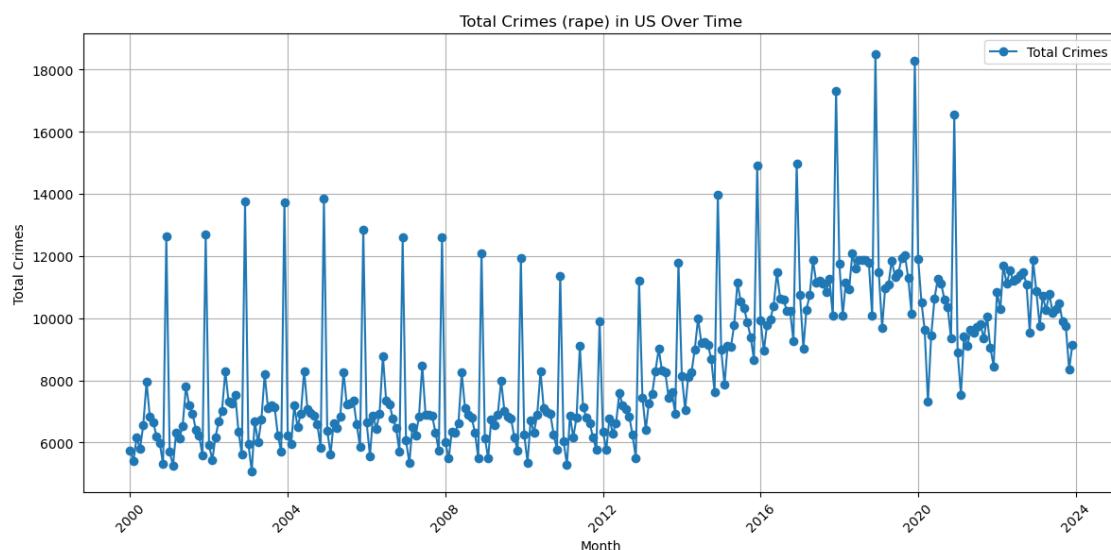
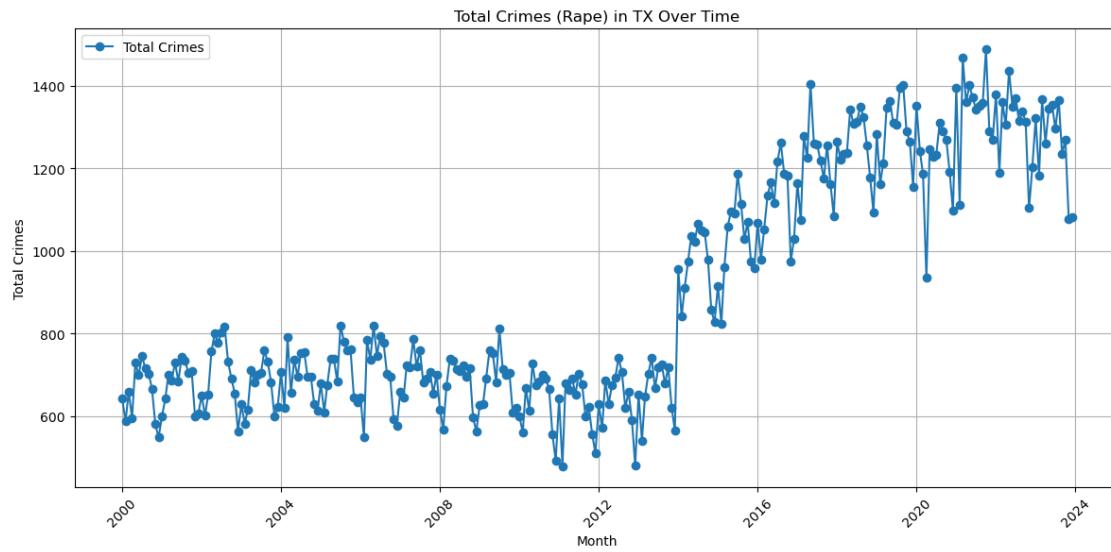
Homicide



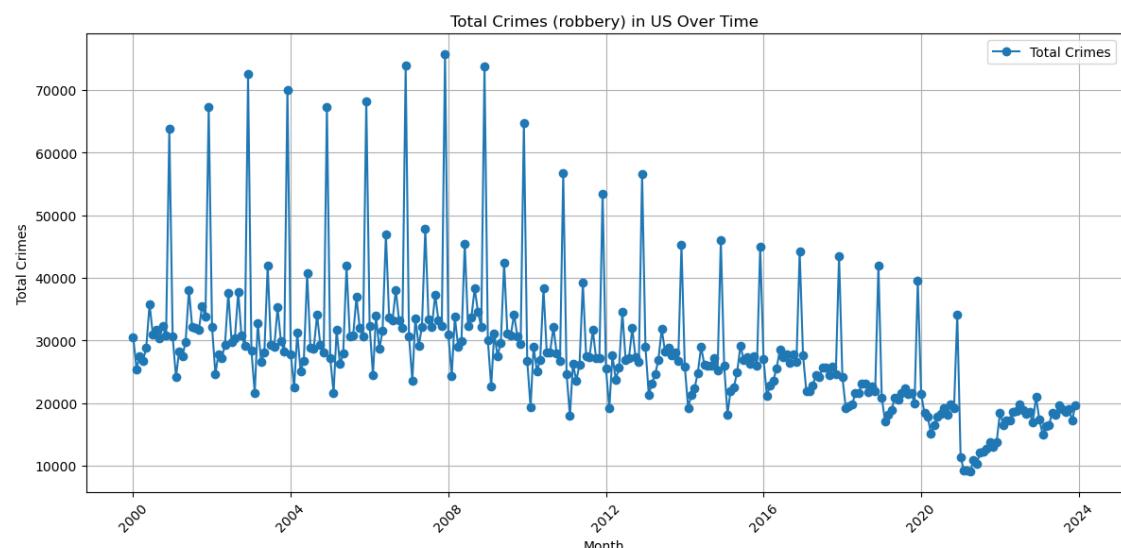
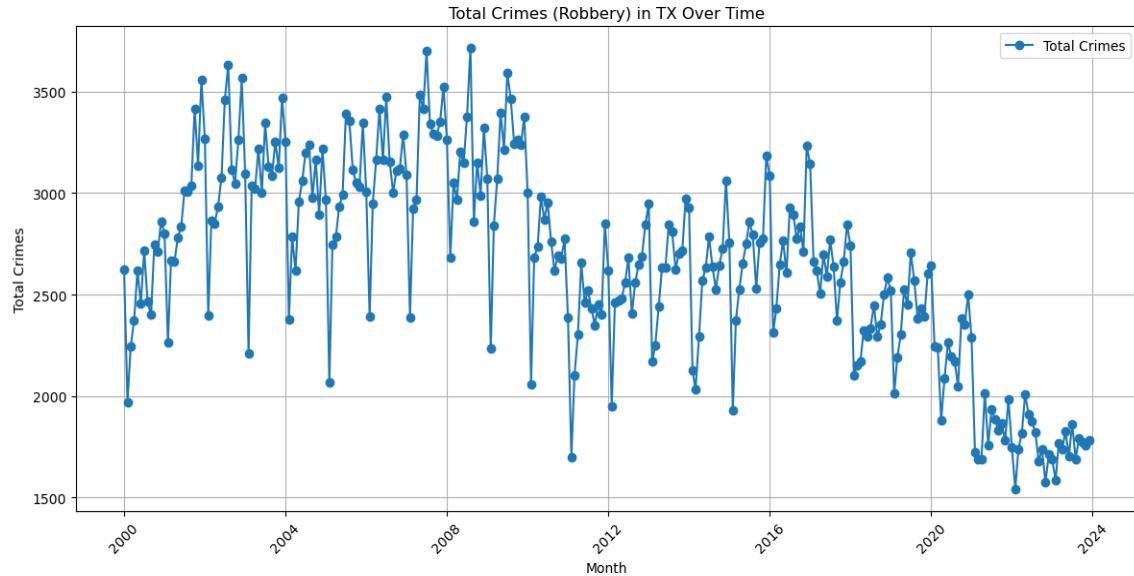
Homicides in TX and the US, stay stagnant but then see an increase from 2020-2022, leveling off towards the start of 2024. TX sees steady rises from 2012-2020, followed by the spike.

Reasons for the increase? Civil unrest that was sparked by the murder of George Floyd in tandem with COVID-19 could play a role in the uptick.

Rape



Rape remains steady through about 2014 for both TX and the US, but we see a dramatic increase from 2014 - 2024. We see a peak of 18000+ in the US around 2019, 2020. TX goes from 600 cases to 1500 peaking in 2021. Why the increase? Centered around cultural events, the #MeToo movement leads to more reported incidents. Steady migration into TX can explain the shift in TX as well. Population increase, volume of incidents arise.



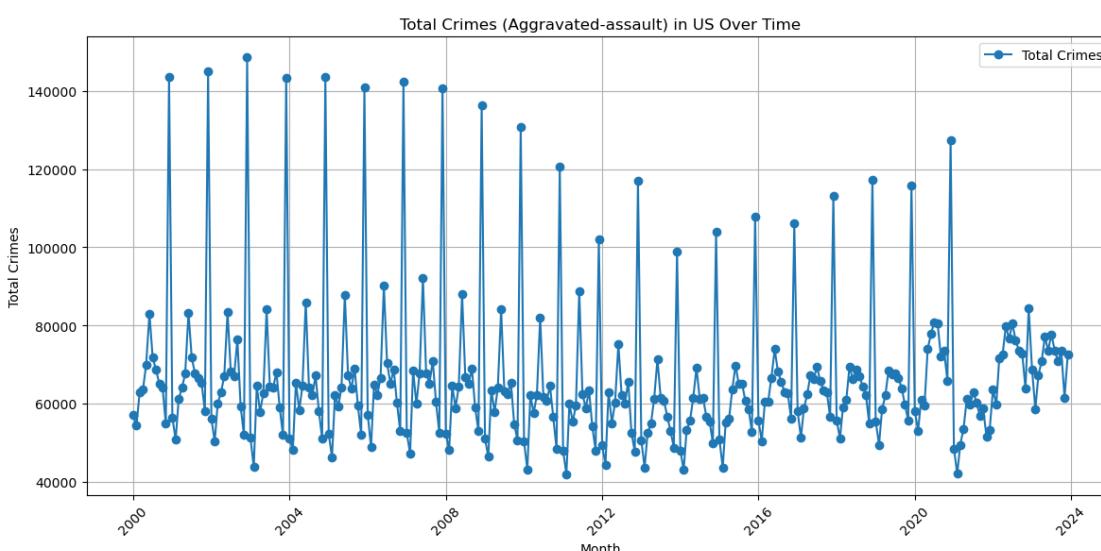
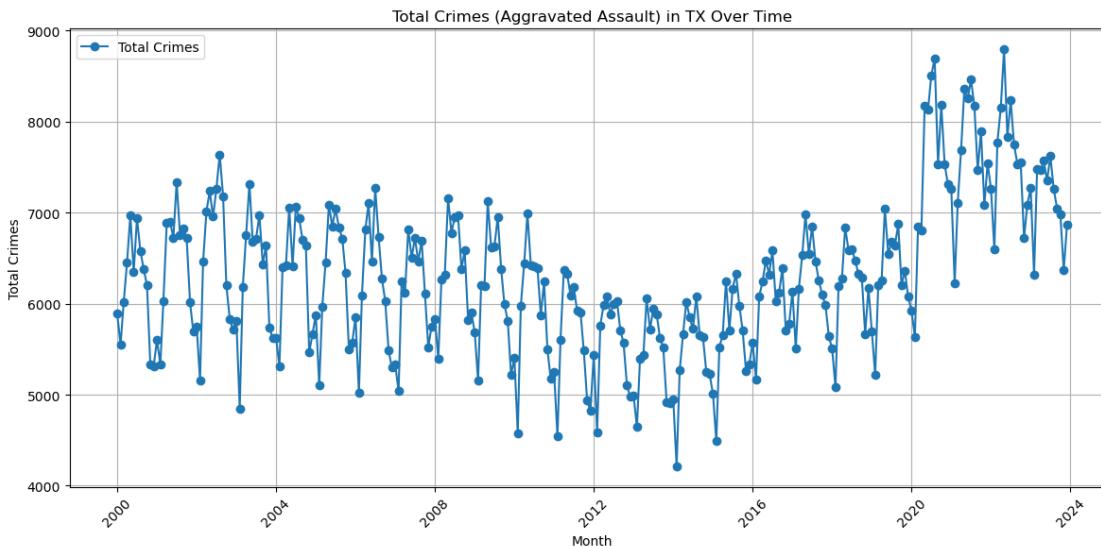
Robbery

In this case, with robbery being a violent crime, we see peaks around the beginning of the great recession, but then a steady fall after its end. With lows at the 2023-2024 range.

The cause? With a decreased reliance on cash, robberies for valuables like money have less opportunities. Economic growth and stability from 2012-2020 have contributed to the fall as well, with the opportunity for a desperation crime being less likely. Advances in technology and hiring in Law Enforcement should also a positive factors.

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Credit: Paul Bradbury

Aggravated Assault

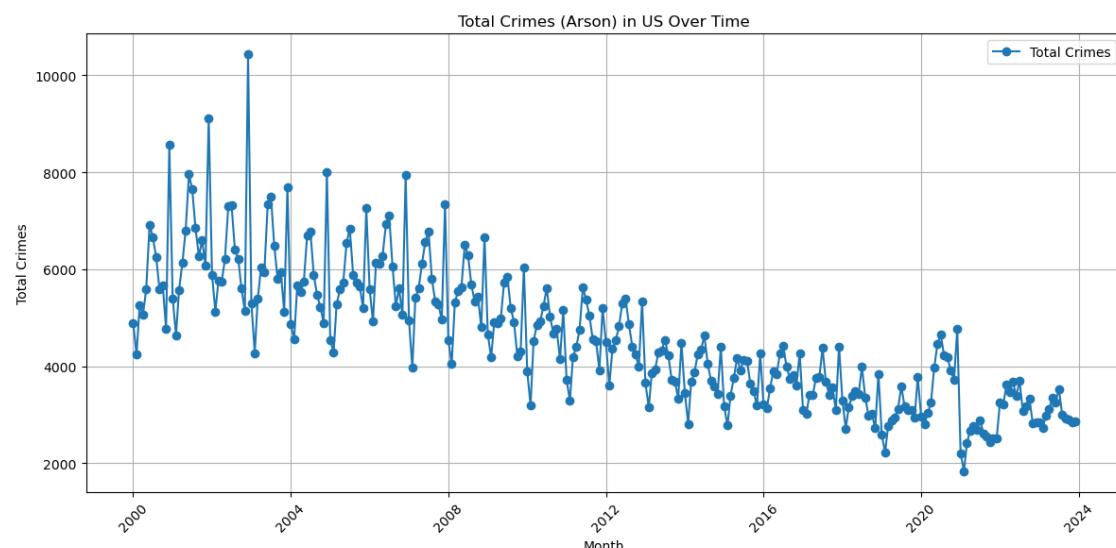
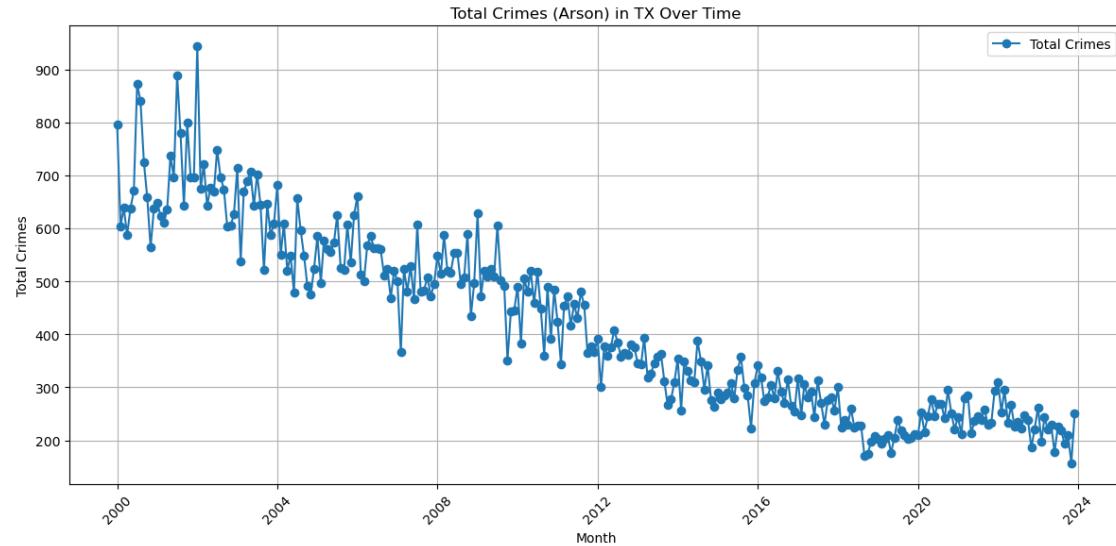


Here we have two divergent paths. In Texas we see a dramatic increase in assaults, and in the US, we see an occasional spike but generally stays in the 60,000 - 80,000 cases range.

So why the shift in Texas?
Texas does have some of the relaxed gun laws in the US, as well as domestic violence raising sharply with the backdrop of COVID-19.

In addition, social unrest coupled with changes in drug use impact the overall counts of assaults.

Arson



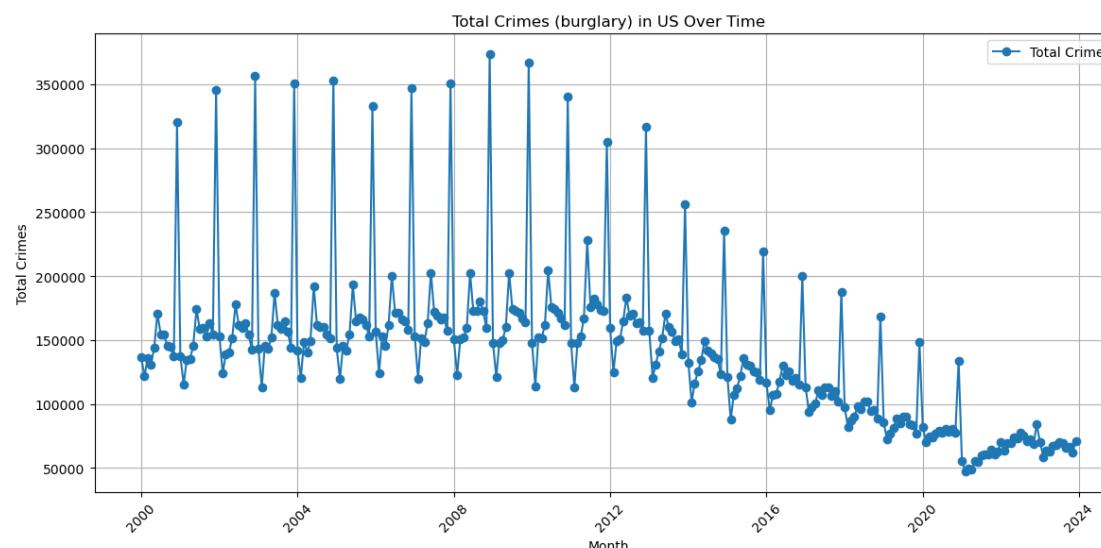
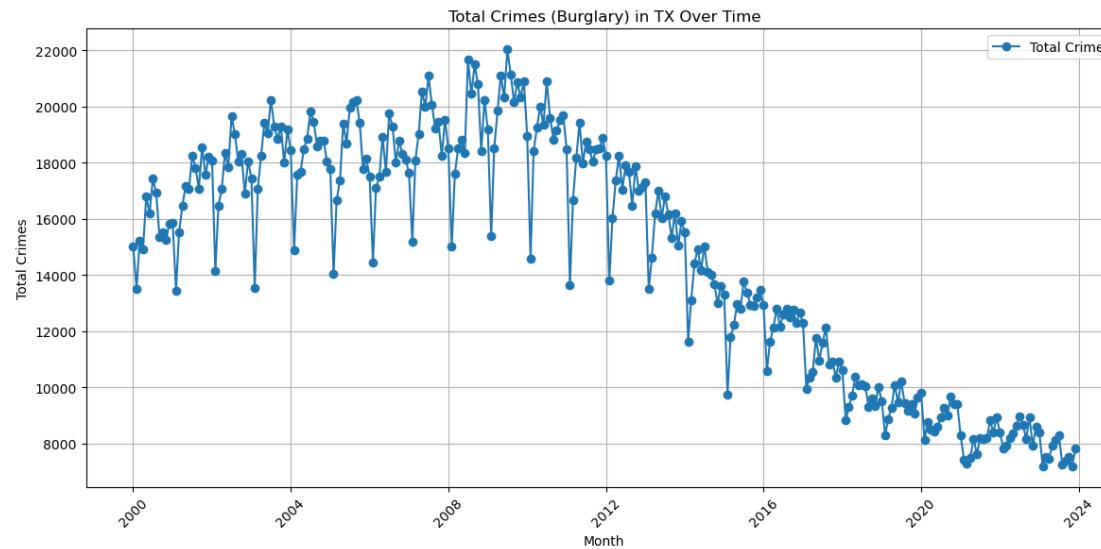
Arson, has had steady decline of all our measured crimes. TX goes from 900 to under 200 cases. The US in total goes from 10000 to as low 1900.

Where's the fire?

Advances in security and fire prevention systems act as a powerful deterrent.

Economic stability has helped to reduce the need for crime and tighter investigations for fraud has eliminated more fire based insurance claims.

Burglary

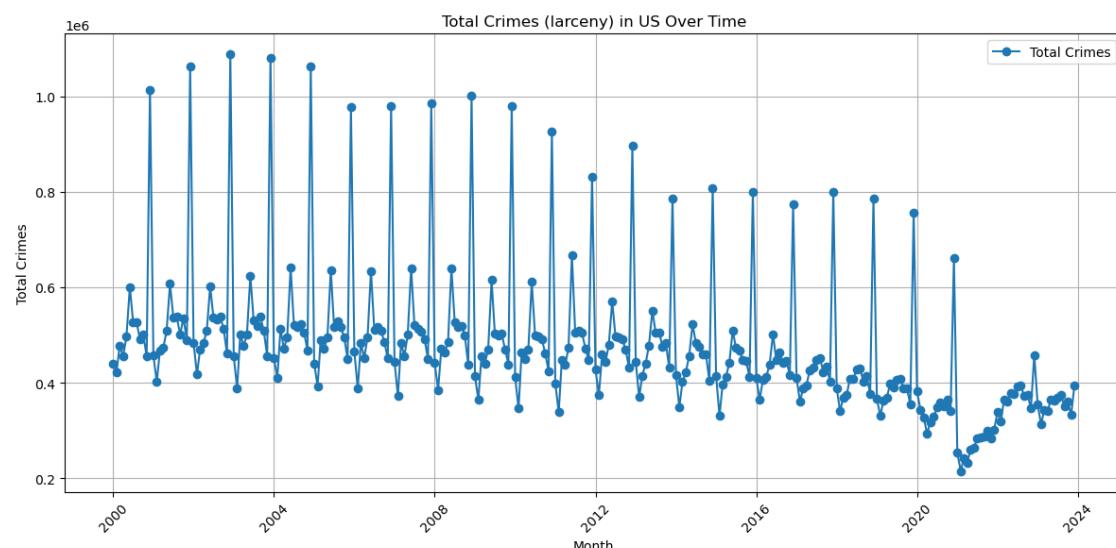
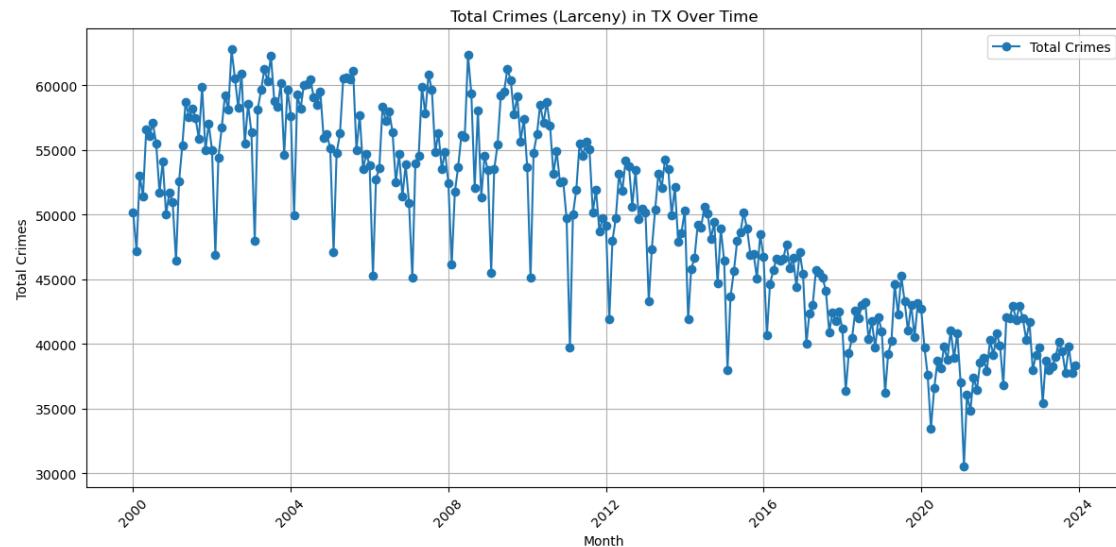


Burglary has also seen a dramatic shift downward in both the US and TX. From about 2009, we've seen it fall nearly 50% from the state and federal level?

Why is this? With the crisis, and recent pandemic, more people are at home, making burglaries less likely.

Advances in technology have deterred potential offenders.

Larceny



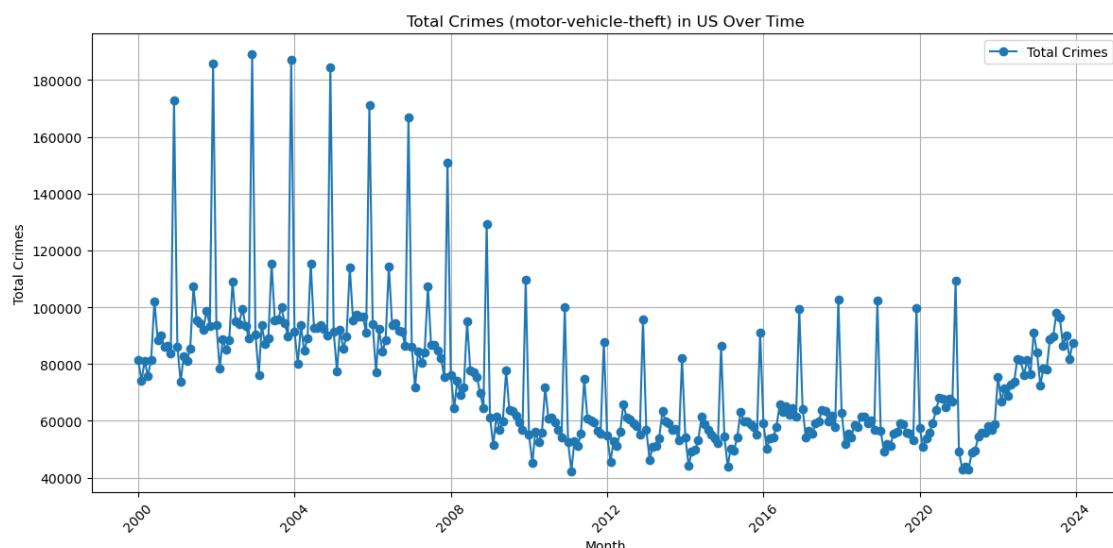
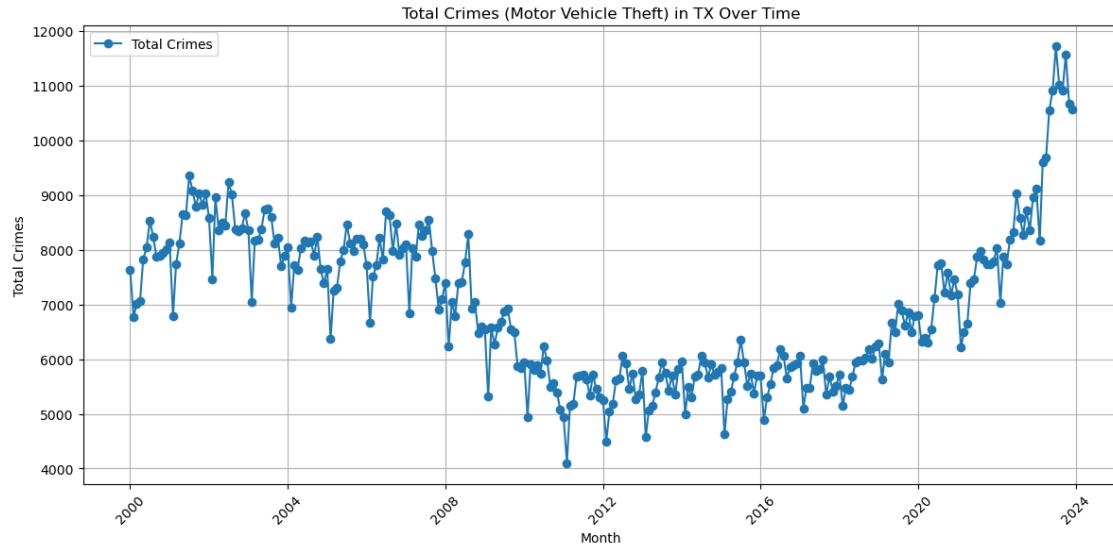
Continuing the recent trend with Arson and Burglary, Larceny has continuously fallen.

With advancements in technology that help add anti theft measures, as well as more focus on a cashless economy, this has helped.

Crime shifting - instead of physically taking, criminals are now changing to cyber based crimes.

Shifting to a more digital age reduces the occurrences!

Motor Vehicle Theft



We see a divergence here as well!
The US remains flat, while TX increases.

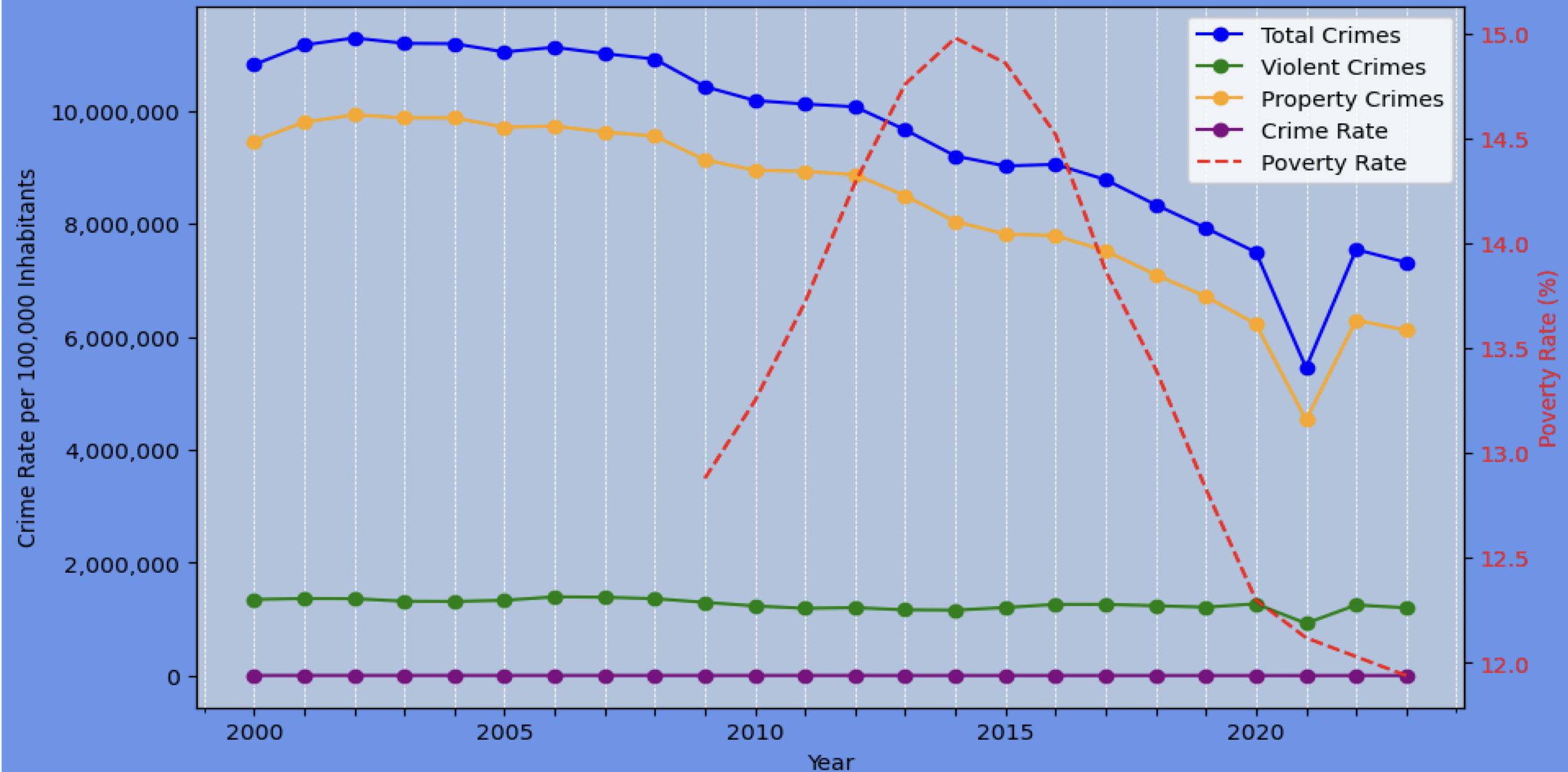
Reasons for this could include:
Migrations in crime, as alluded to in the previous slide,
criminals are adapting to new crimes that can
prove more lucrative.
Trafficking also goes hand in hand with stolen
vehicles as they are used to move
goods, services, or people.

Lastly, areas like Austin, Dallas, San Antonio, and
Houston have seen vast population increases, which
has only increased probability of stolen vehicles.

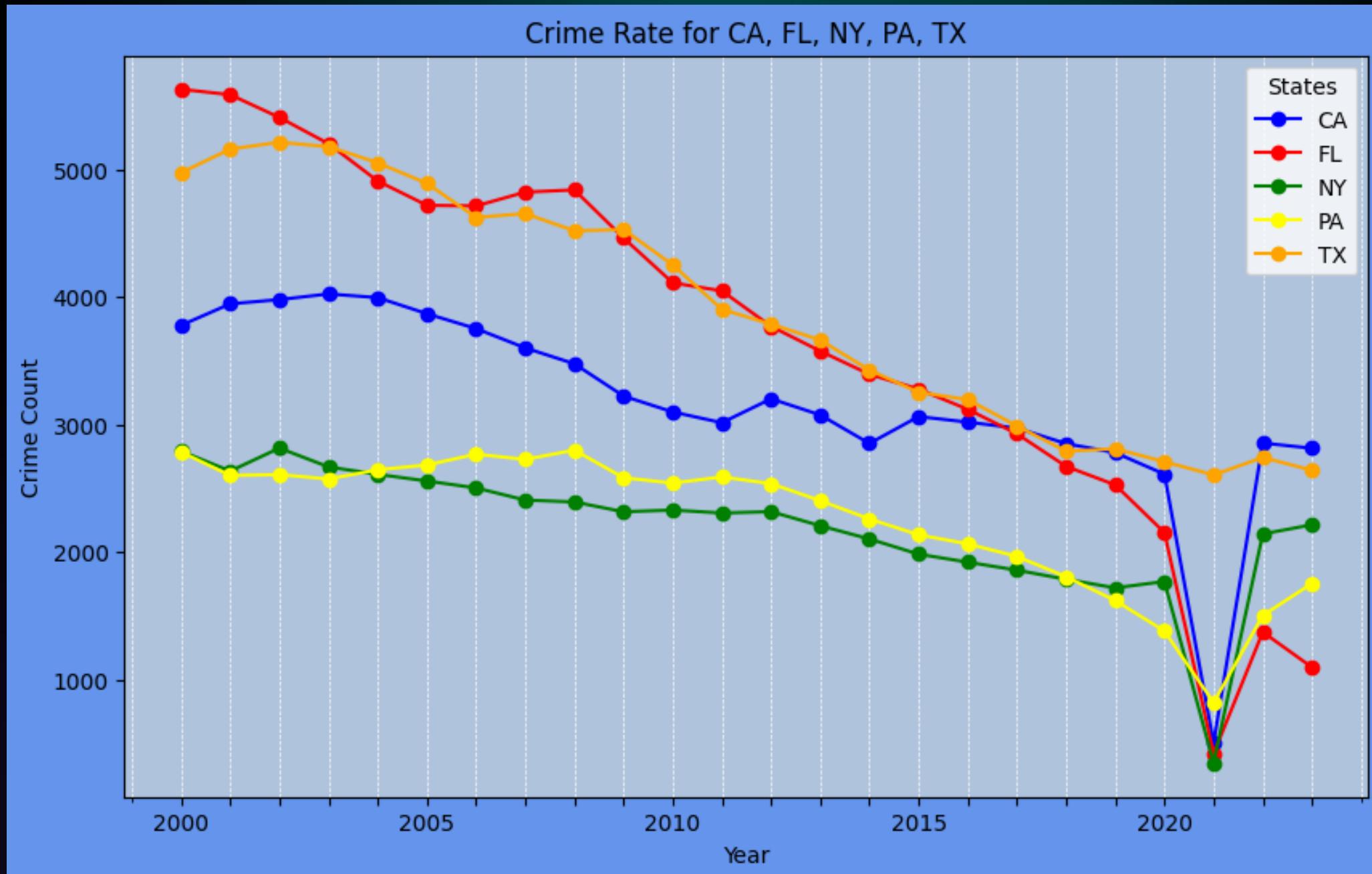
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The trends of violent, property and total crimes in the US over the last 20+ years

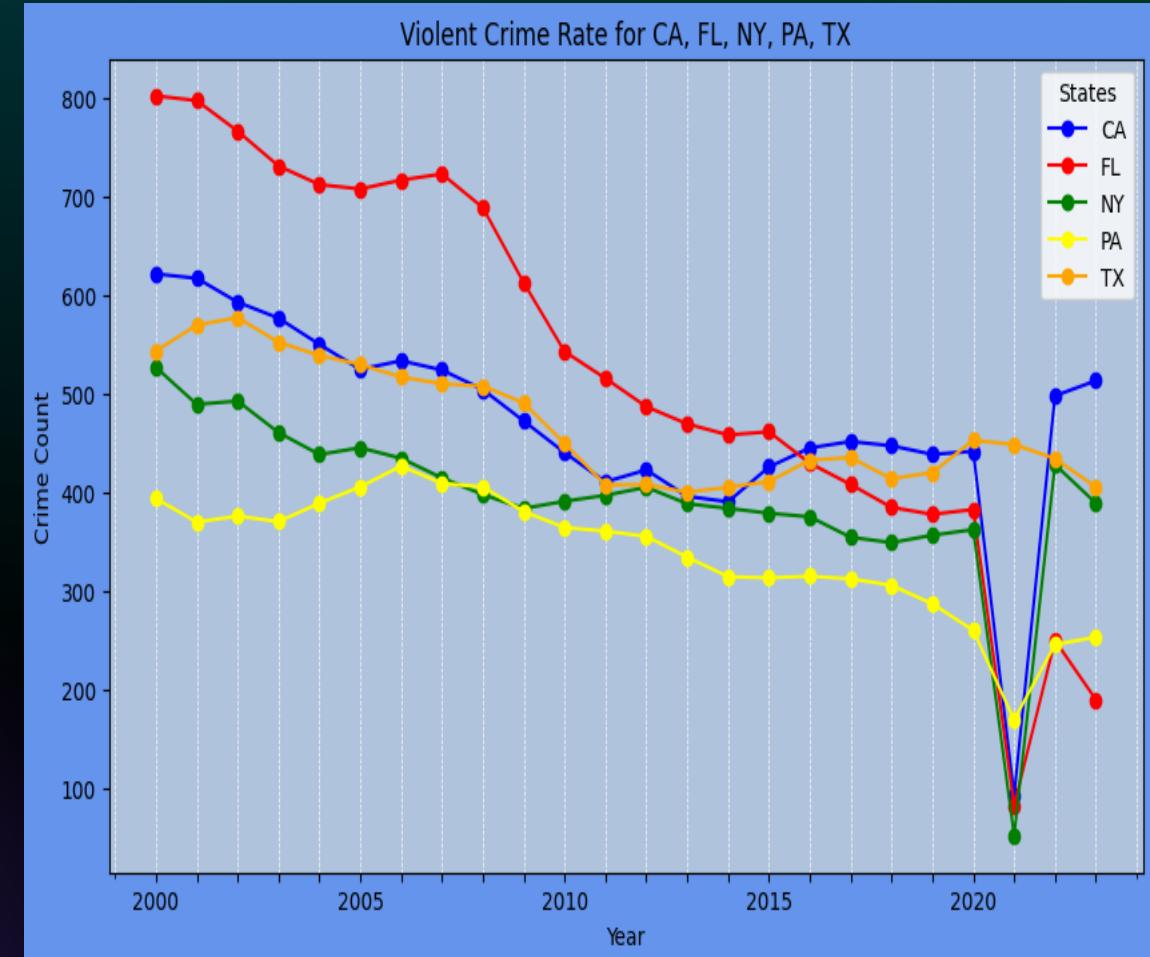
National Crime and Poverty Data



The comparison of five most populated states and total crime rate



The comparison property crime vs violent crime for CA,FL, NY, PA, TX



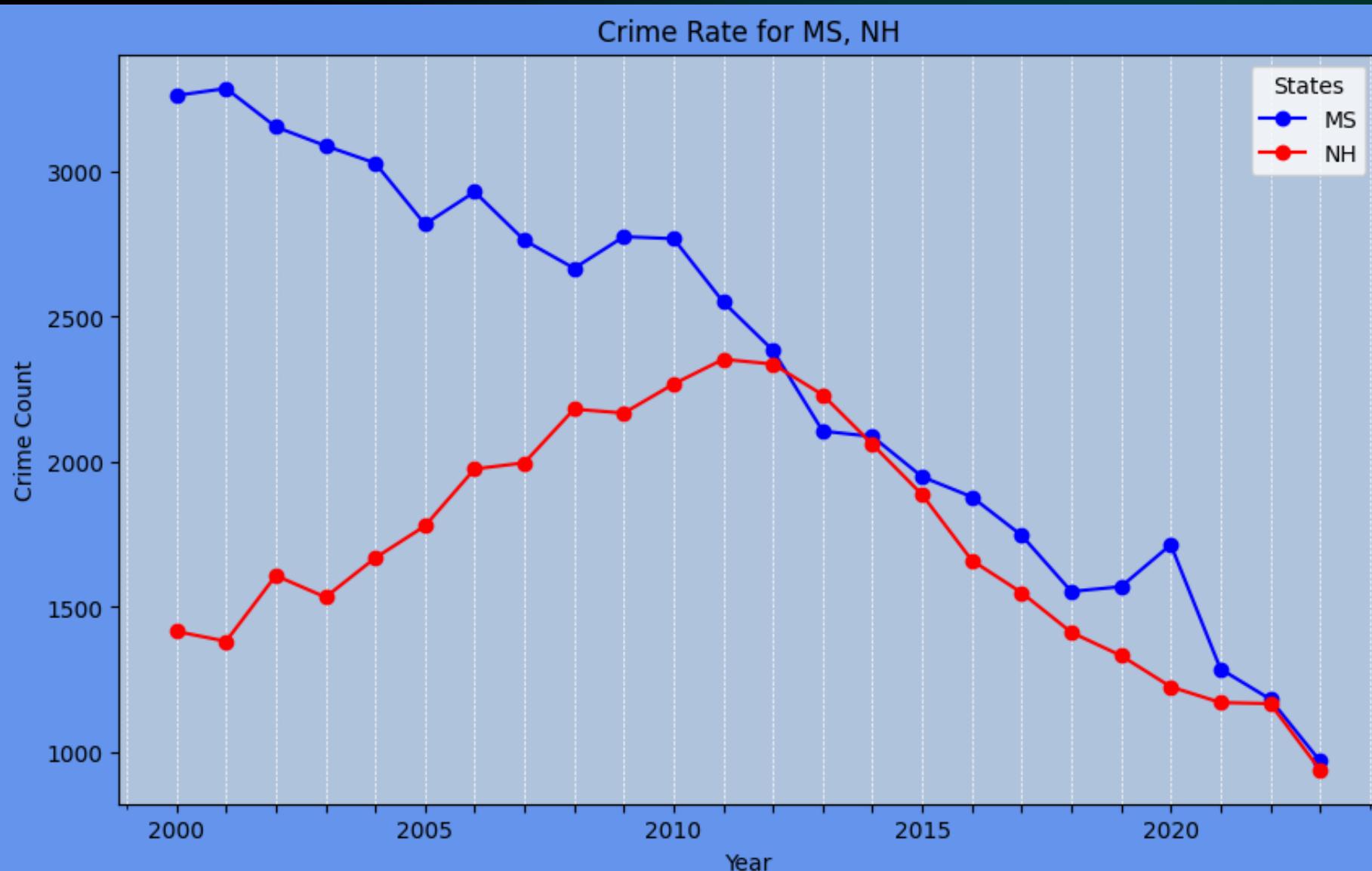


Conclusion

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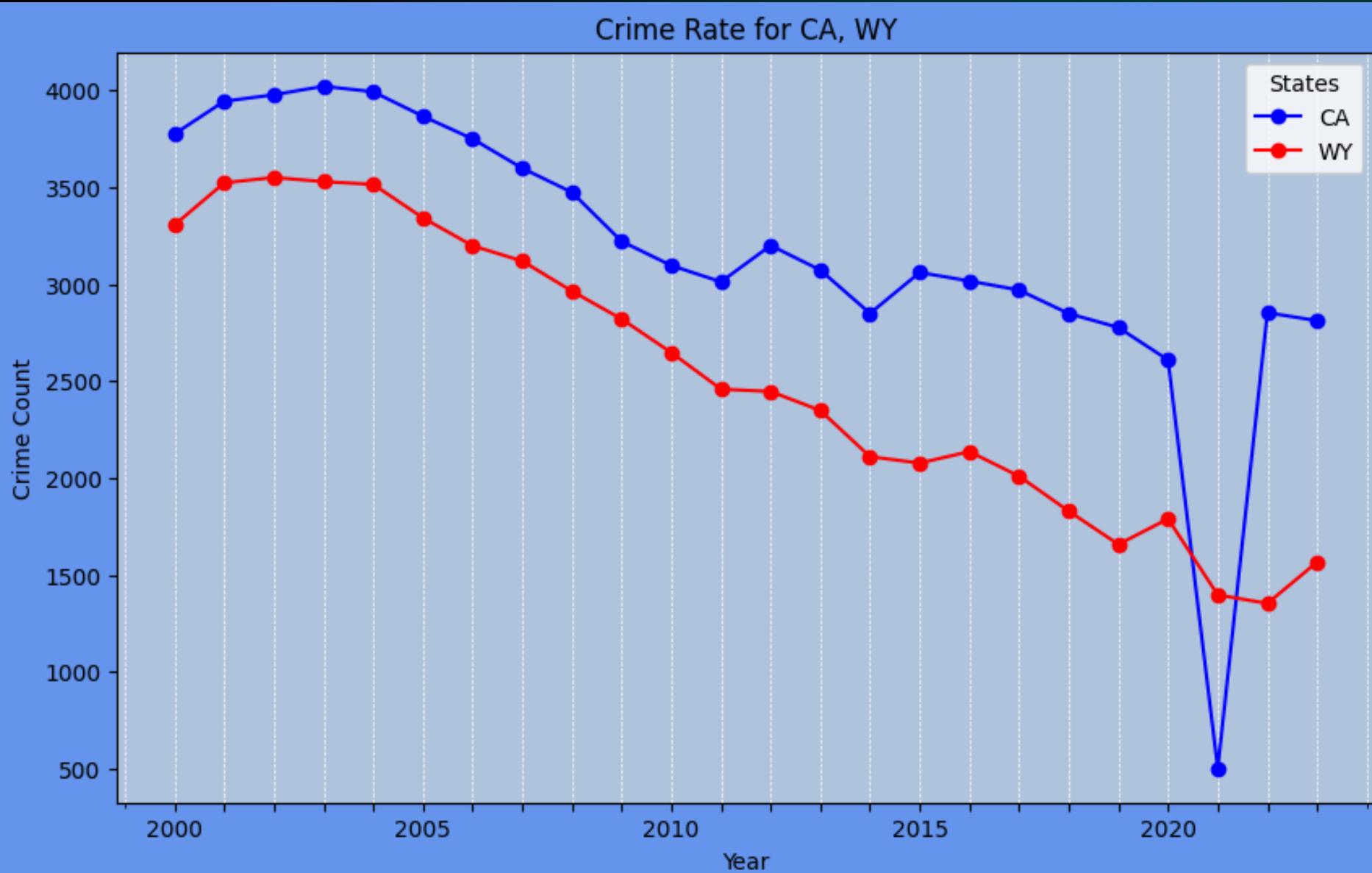
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Does poverty rate correlate with higher crime rate?



- Mississippi has the highest poverty rate in the US with a poverty rate of 18%-20%, and New Hampshire has the lowest with poverty rate of around 7%-8%.
- Despite Mississippi 's higher poverty rate, its crime rate shows a general decline over time.

Do higher populations equal higher crime rates?



- CA is the highest population state (39 million people) and WY is the lowest population state in the US.

Recommendation

