

COVID-19 Impact on LA Crime Rates

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Motivation

The recent COVID-19 pandemic has significantly altered various aspects of life, including social distancing, economic uncertainties, and shifts in daily routines. Our group decided to see how these changes would affect details within crime, particularly in the Los Angeles area.

Our aim is to learn what was influenced, such as if crime count has changed over the years, certain crimes increased or decreased, were specific areas more affected than other, or if victims of a certain race were more targeted, in order to potentially relate these to socioeconomic factors, racism, and policies.

Dataset

We used data from data.lacity.org, which provide open data easily accessible to the public. They store various datasets such as public safety, transportation, housing, and more.

For LA crime rate, there were many comprehensive columns for analysis, such as offense date, area committed, sex, ethnicity, weapon used, and type of crime.

Datasets Used:

- Crime data from 2010 to 2019
 - https://data.lacity.org/Public-Safety/Crime-Data-from-2010-to-2019/63jg-8b9z/about_data
- Crime data from 2020 to Present (Early 2023)
 - https://data.lacity.org/Public-Safety/Crime-Data-from-2020-to-Present/2nrs-mtv8/about_data

Methodology

1. Data Collection and Cleaning

Used Pandas and NumPy libraries to select relevant columns to analyze, add datetime format columns, handle incorrect or outlying values, and prepare data for further analysis.

2. Data Analysis

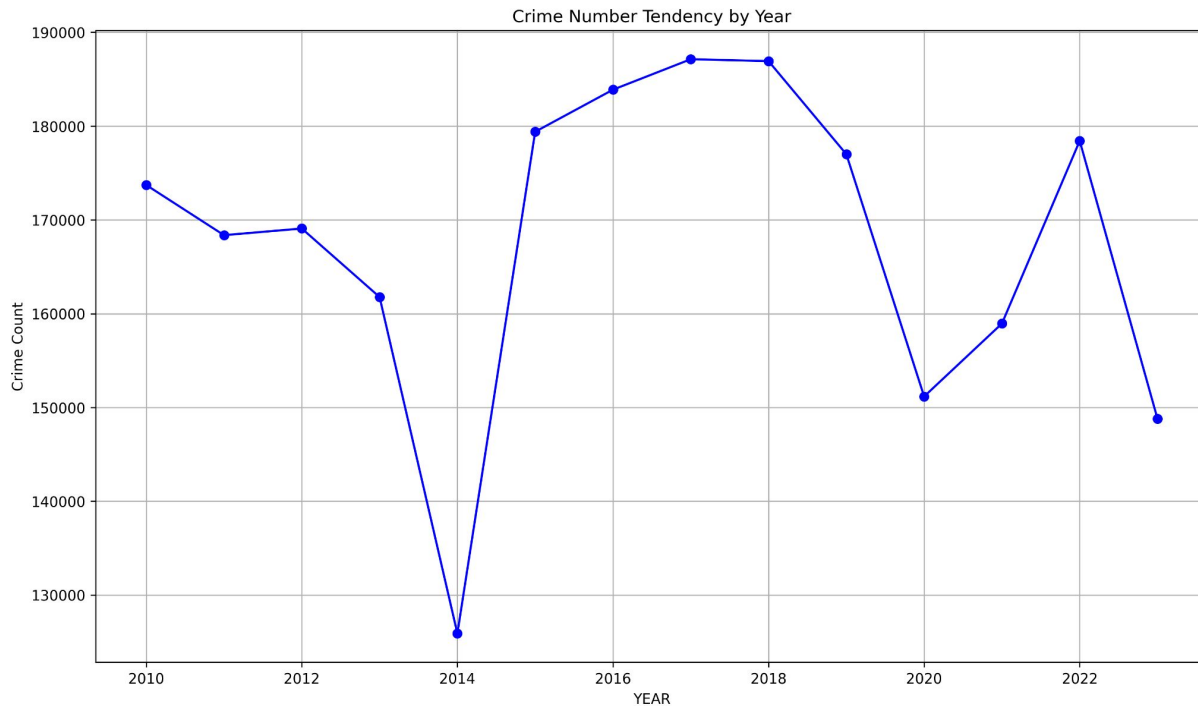
Plotted counts and percentage changes of the two datasets, in order to compare differences and similarities from the impact of COVID.

3. Data Visualization

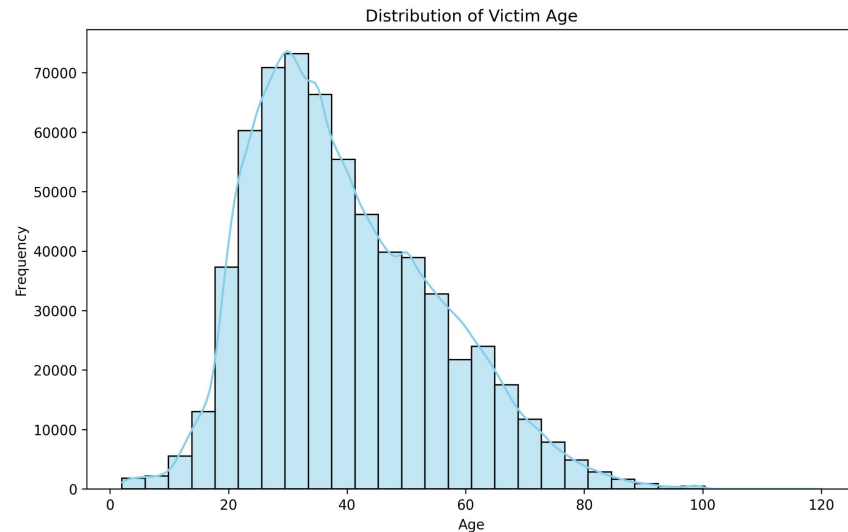
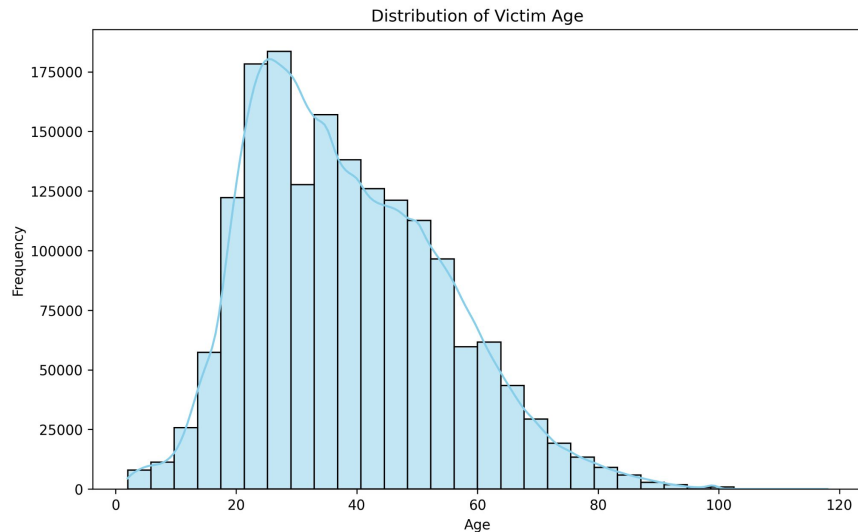
Used Matplotlib and Seaborn for attractive and intuitive data visualization, to help come to conclusions and find potential factors that would answer our questions.

Crime Counts over the Years

- Noticeable plummet immediately following 2020
- Increases to usual crime count levels prior to COVID



Victim Age Distribution - before and after COVID



- Noticeable increase in victims aged **late twenties to early thirties**

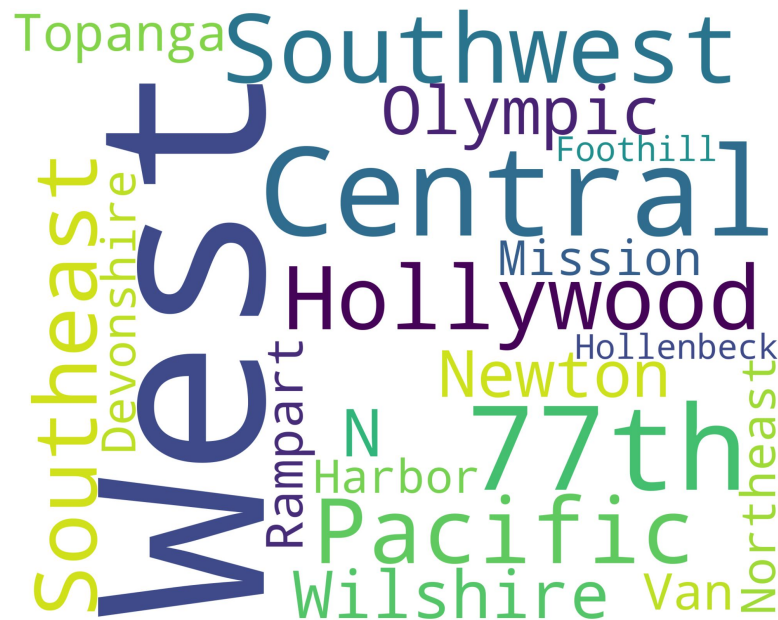
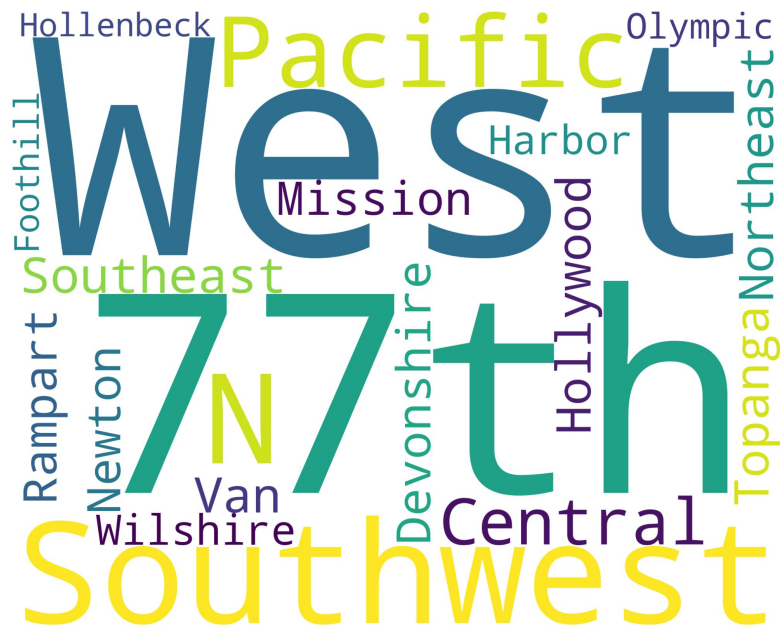
Homicide Counts

Map showing Homicide Counts by neighborhood in Los Angeles and surrounding areas. The map uses a color-coded system to represent the number of homicides, with darker shades of red indicating higher counts. Major highways and landmarks are visible.

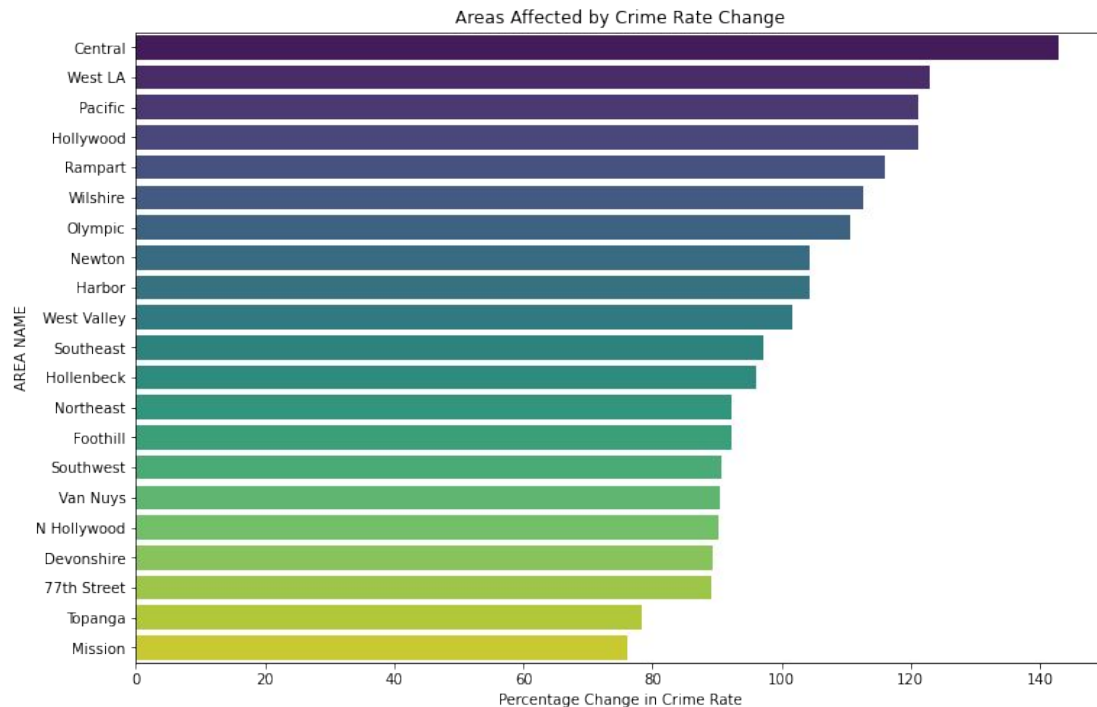
Neighborhoods shown include: Beverly Hills, Culver City, Inglewood, Compton, and many others. The map also displays major roads like I-5, I-10, and I-405.

Legend: Leaflet | © OpenStreetMap contributors

Most Crime Affected Areas - before and after



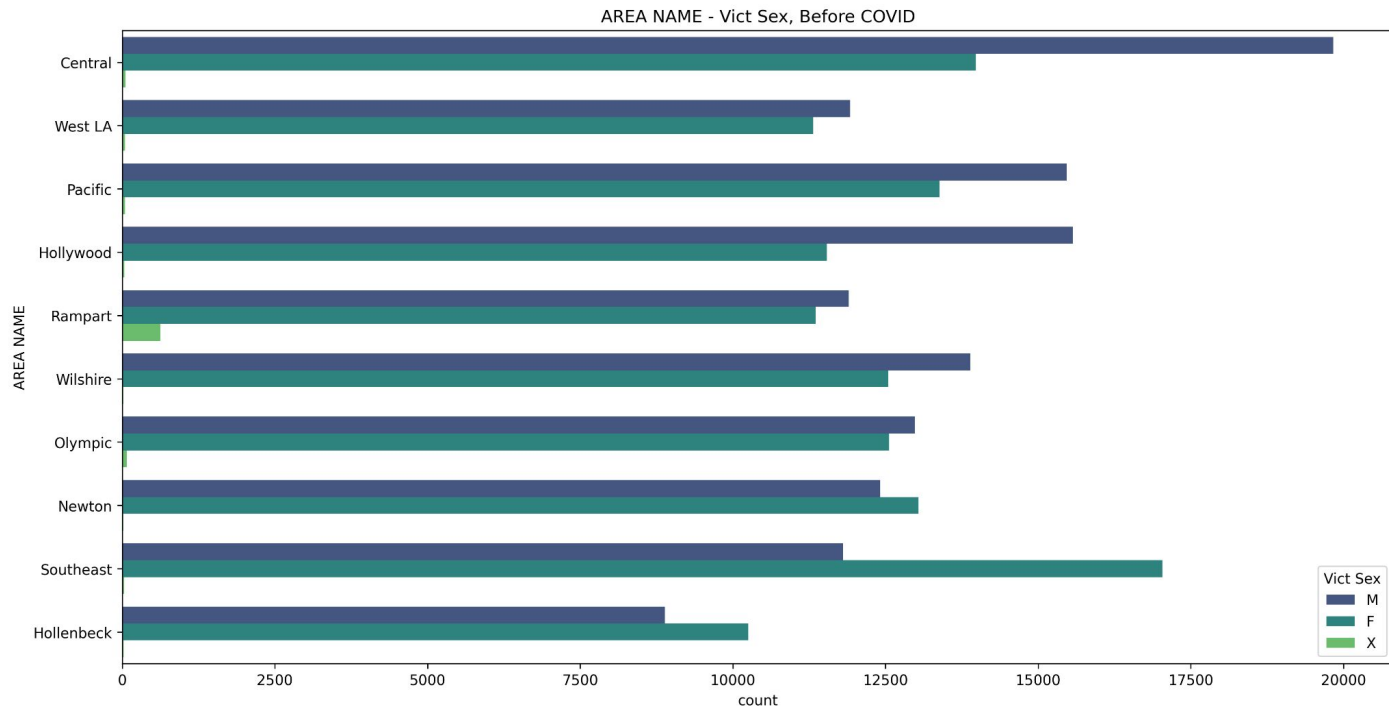
Areas Affected - Percent Change



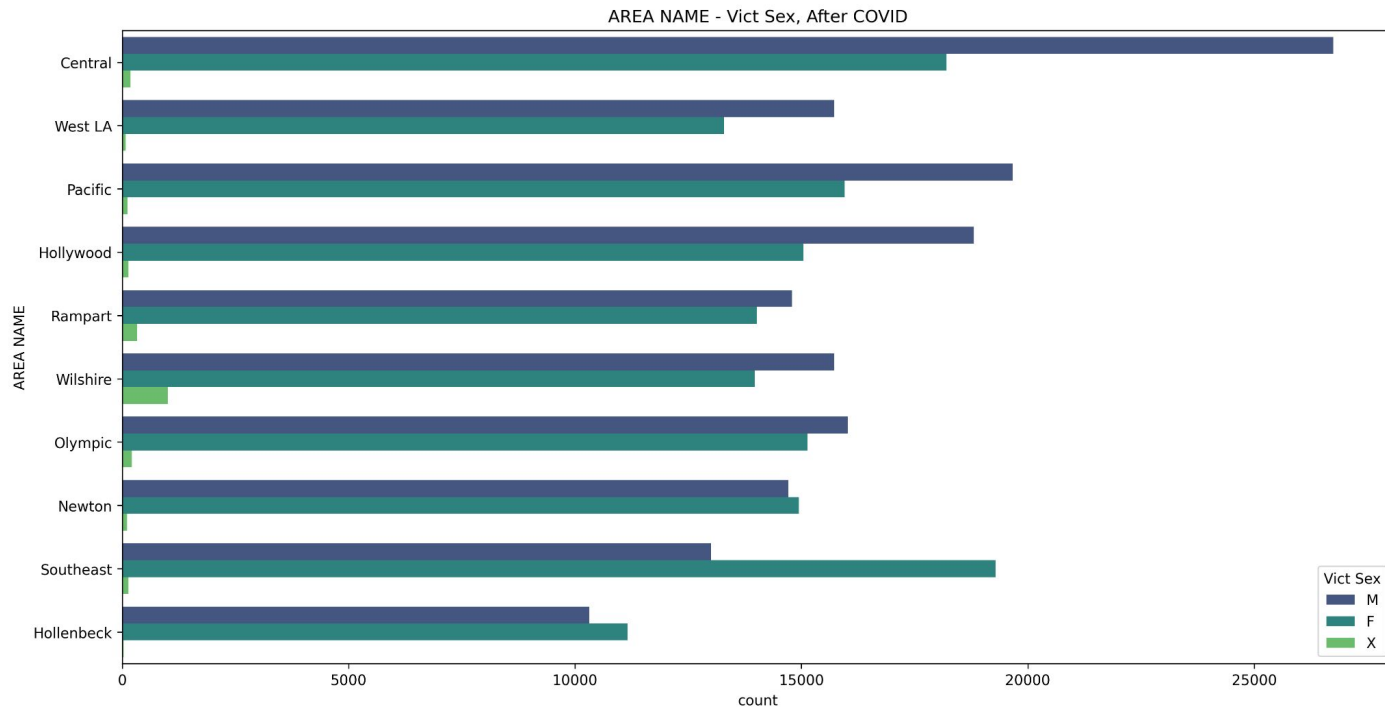
- Crime **increased** in upper half areas of the graph

- Crime **decreased** in lower half areas

Crime Affected Areas, Sex Distribution - before COVID

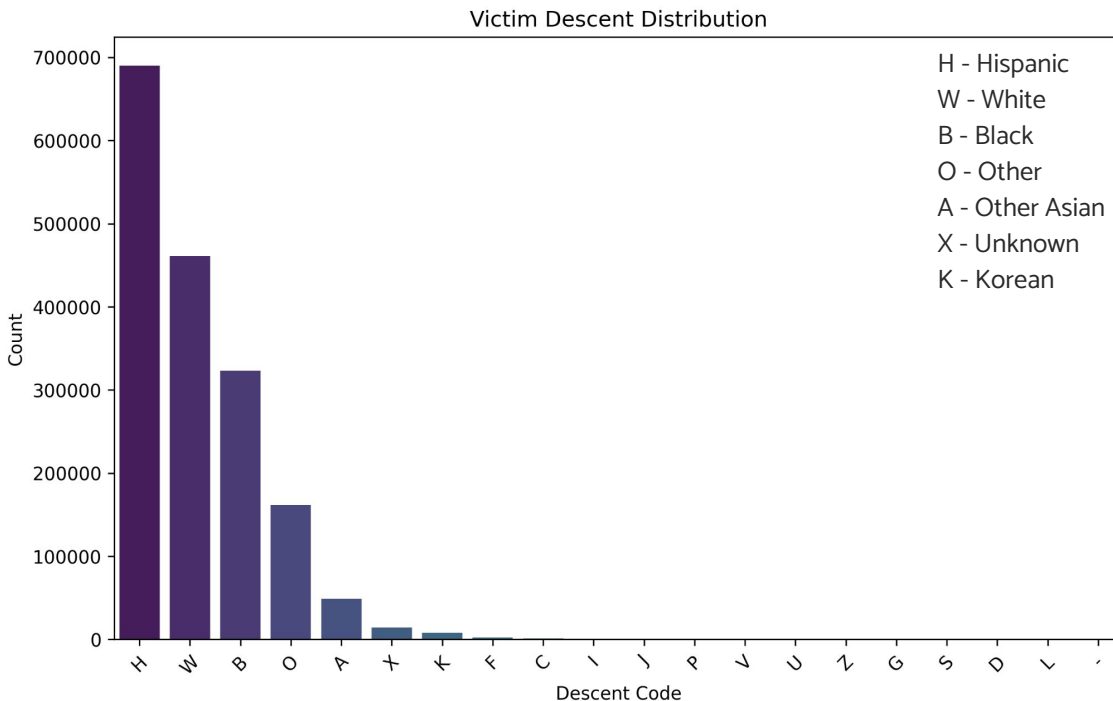


Crime Affected Areas, Sex Distribution - after COVID



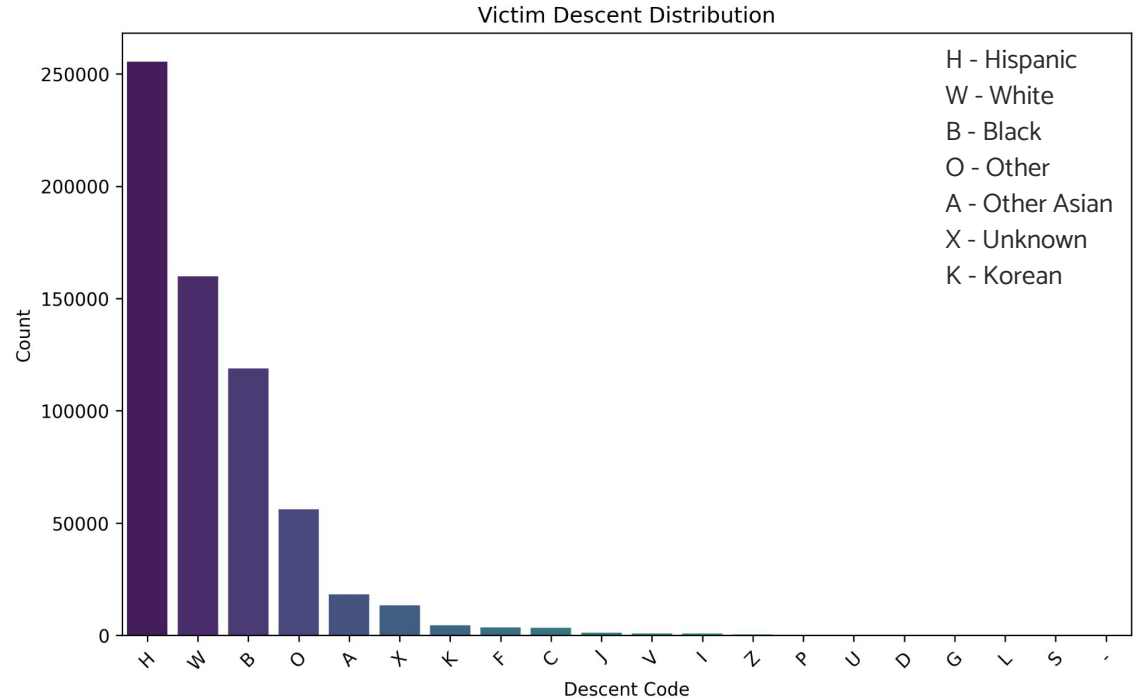
Victim Descent Distribution - before COVID

- Victim ethnicities correlate to LA ethnicity distribution
- Hispanics, whites, and blacks being the majority minorities



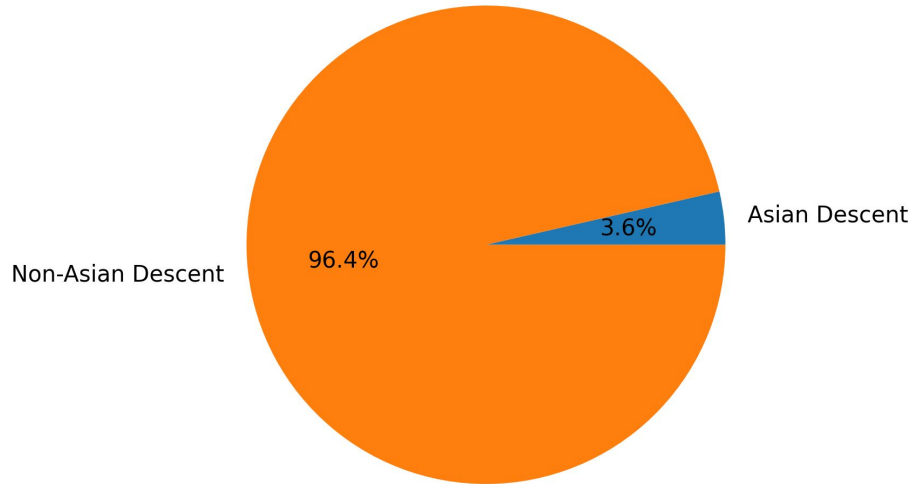
Victim Descent Distribution - after COVID

- Left-skew decrease
- Asian minorities such as Korean, Filipino, and Chinese became a victim more frequently

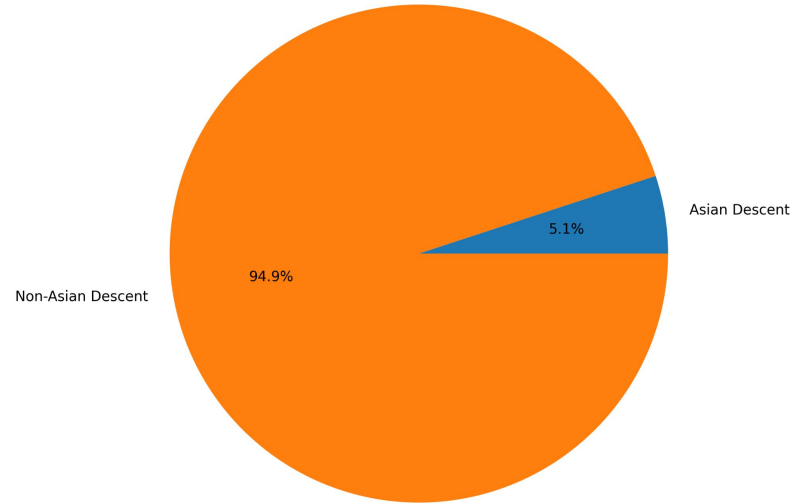


Crime against Asian Descent - Percentages

Before COVID

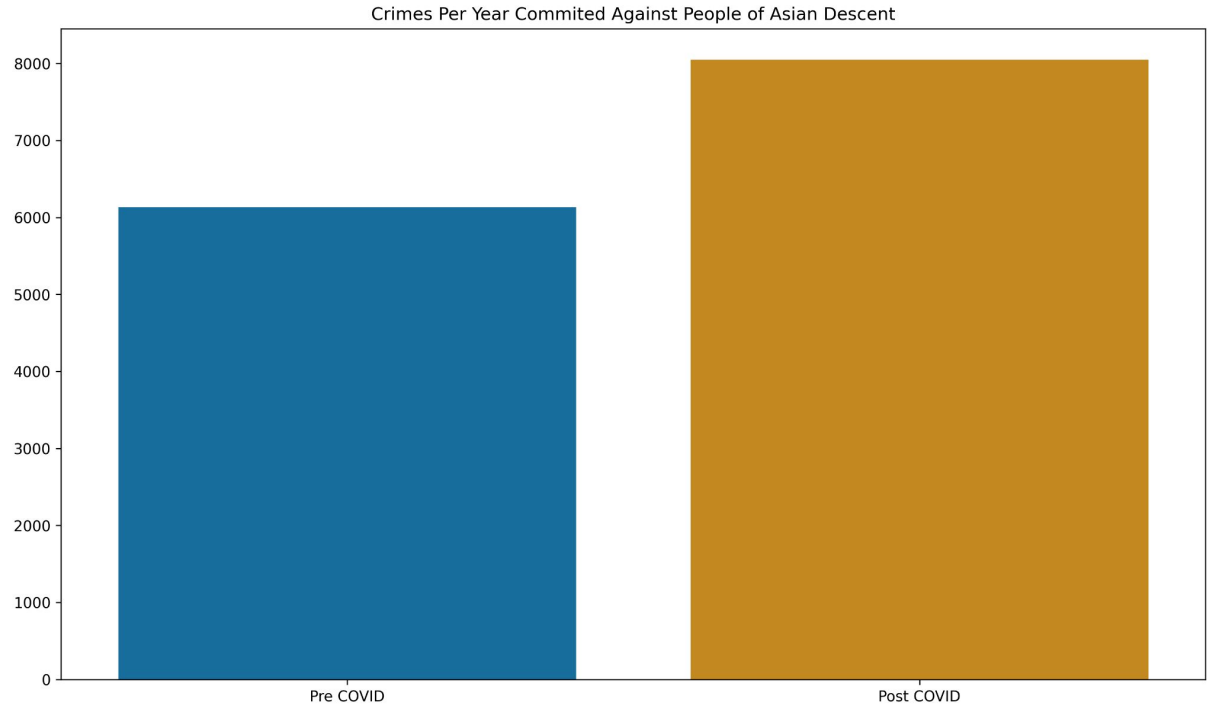


After COVID



Crime against Asian Descent - Counts

- Around a 40% increase for crimes against asians
- Increase in around 2,000 cases each year since 2020



Conclusions

Overall not a large change in crime behaviors trends, but some key takeaways are:

Government Shutdown:

Starting 2020, there was a drastic decrease in crime counts. This can be explained due to the mandatory government lockdown, however after restrictions started lifting and the community became more complacent, crime counts gradually returned to normal levels.

Crime Displacement:

Central had the most crime rate increase, along with other popular areas such as Hollywood and West LA. Dense population, tourism, and inflation can easily give rise to economic hardship and turmoil.

Shift in Victim Ethnicity:

Crimes against people of asian descent increased quite drastically, both in case counts and relative to usual distribution. This increase can possibly be attributed to xenophobia, or stereotypes of COVID-19 that surround asians, influence by media, policymakers, and the community itself.

Little Change in Crime Type, Victim Sex

We found that before and after COVID, top crime premises and weapons did not change, as well as within each area, victim sex did not differ much either.



Thank You

