

Researcher: Matthew Biller

Presentation Title: Crime in Los Angeles – An analysis from 2010 to 2023

Research Focus: Crime

School: University of Colorado – Boulder

Presentation Type: Research Paper

Abstract:

Crime in Los Angeles – An analysis from 2010 to 2023

An In-Depth Analysis Using Data Mining Tools

Matthew Biller, University of Colorado

Crime is a universal act that all countries, cities, and neighborhoods are subject to, and Los Angeles, California is no exception to that. Car theft, spousal abuse, burglary, home invasion, and identify theft are just a few of the numerous types of crimes that are committed in Los Angeles every day. From 2010 to 2023, criminal reports from the Los Angeles County Police Department were digitized and published online, creating a warehouse of 2.8 million records available to the public. While criminal activity is continually on-going, the types of criminal activity have drastically changed from the mid 2000s until now. This research paper showcases the changes in the types of criminal activity spanning the thirteen-year time period, utilizing data mining tools and practices to derive changes, patterns, and any interesting results that come from the collection of criminal reports. Analyses were conducted using Python and supporting data analysis packages to transform and analyze the data in a format digestible to users. A distinct analysis was also conducted to consider any unique impacts the COVID-19 pandemic had on the year 2020. Surrounding years were also included in this distinct analysis as a comparison to the year 2020 and the interesting findings that it holds. Results from both the entire investigation, as well as the investigation specific to COVID-19 returned interesting findings. Theft was continually one of the most popular crimes for Los Angeles, with varying types of theft increasing by up to 95%. Police stations also saw continually changing rates in criminal activity, twenty-one different police stations were analyzed and their total number of crimes, as well as a percent change analysis were conducted.

Crime in Los Angeles

An Analysis from 2010 to 2023

Matthew Biller
University of Colorado

Introduction

With a population of 3.85 million people, Los Angeles, California is a vibrant and unique city. Home to numerous communities and neighborhoods, LA offers a home for almost anyone, bringing communities and nationalities together from across the world.

However, the City of Angels also has a dark side. With a crime rate of thirty-six per one-thousand residents, Los Angeles has the highest crime rate in the United States compared to communities of any size [1].

This research project, covering the timeframe of 2010 to 2023, is a study conducted to analyze all documented crimes that occurred. Knowledge was uncovered on the various types, frequency, and location of crimes occurring within this thirteen-year timeframe to determine and showcase interesting information concluded from the research.

What knowledge was being looked for?

To generate interesting conclusions from the data mined on historic crime in LA, interesting questions were first asked:

- What crimes occurred the most between 2010 and 2023?
- Was there a change in the type of crime that occurred the most frequently over a period of time? Every two years? Every five years?
- What areas in Los Angeles had the most criminal activity?

Answering these questions required determining if any interesting patterns could be found in the crime data, which also led to a greater understanding of criminal patterns as a whole.

Another interesting topic that has been included in this research project is COVID-19 and the impact of a global pandemic on crime in Los Angeles:

- Did COVID-19 change the frequency of any crimes?
- Did the crime rate in Los Angeles become higher? Lower?

While this data was analyzed as a whole, there was also be a focus on the timeframe of 2019–2022, with special consideration for 2020, to determine if COVID-19 had any significant impacts on crime in Los Angeles.

Key Takeaways

The most important takeaways for this project were:

- Determining if any interesting information, patterns, statistical evaluations, or connections were concluded from the Los Angeles crime data.
- Showcasing crime rates based on location
- Understanding if COVID-19 impacted crime and created any unique findings
- Developing a greater understanding of criminal patterns in major cities.

Related Work:

DataLA:

An interesting study from the data team of Karen Bass, Mayor of Los Angeles, was found using the same dataset to explore crime trends in Los Angeles from 2010 to 2019. The study takes a dive into the crime rates per year for the specified timeframe, focusing on crimes per ten-thousand residents.

An interesting thing to note is that this study has a primary focus on the demographics of victims, focusing on the change in crime rates with respect to the ethnicity of victims, and the patterns that emerged over the nine-year period.

This study also mentions COVID-19 and a general acknowledgment that COVID-19 may have impacted the crime rates of 2020 and 2021, however COVID-19 was only briefly mentioned in this regard. [2]

CAP Index:

CRIMECAST, a company that has developed a crime index scoring system called CAP, published their findings for the city of Los Angeles on the changes of crime rate at the beginning of COVID-19.

While the scope of their study is limited to only retail theft and to March of 2020, detailed percentages of various crime types in relation to retail theft are noted, with a week-by-week breakdown of percentage change. A general summary is also included as to why COVID-19 may have caused these changes in crime rates related to retail theft. [3]

Differences in Research:

While the DataLA study does use the same dataset, key differences include only using the 2010–2019 dataset with no use of the newer 2020–2023 dataset. Some comparisons to the changes in crime rates were made between DataLA and this research, mainly to cross-reference percent changes year-over-year. This research also includes demographics of victims, which was not a factor in this research project.

Although the CRIMECAST analysis does look into COVID-19 and its' impact on crime rates in Los

Angeles, the findings are centralized around retail crime and within the first four weeks of COVID-19, March 2020. This project dives deeper into the various crime types and spans a multi-year period for a greater analysis.

Data Set:

Title: "LA Crime Data"

Type: CSV

Provided By: Kaggle ([link](#))

With ~2.7 million entries, this dataset provides incidents of crime between 2010 to 2023 in Los Angeles, CA. All data entries were transcribed from original crime reports. The dataset provides twenty-eight different attributes that include items such as date, location, type of crime, type of weapon, severity, victim information, etc.

Tools:

Python was the codebase used for the data preprocessing and data analysis. Packages *CSV* and *Pandas* were included from the Python libraries for preprocessing and manipulating the data.

Python was also utilized to perform the statistical analysis on certain attributes in the dataset. Applying for-loops and the ability to access variables by indexing, crimes were able to be separated and organized from the whole dataset by accessing specific attribute names.

Desired attributes such as year, type of crime, and location were transformed into lists and dictionaries, both innate Python attributes which allowed for the statistical analyses to be conducted.

Main Techniques Applied

Data Cleaning:

With ~2.8 million entries divided between two comma-separated value (CSV) files, preprocessing took a considerable amount of time and computational effort, but a master CSV sheet was generated, containing all of the usable data.

Due to size, the master CSV was unable to be opened in anything but a generic text editor, such as Notepad. While this made viewing the data more difficult, it was still possible to visually see which attributes needed to be kept and which needed to be eliminated within the master sheet. Of the twenty-eight original attributes, fifteen of them were ignored in the master sheet, with most of those attributes being coded letters specific for information pertaining to law enforcement, or empty areas for extended crime descriptions that weren't included in police reports. These attributes weren't necessary for this project and generated more data than necessary, allowing for them to be removed from the master sheet without diluting any necessary information for analysis or final reporting.

Another aspect to preprocessing the data were including appropriate latitude and longitude values for data entries that didn't have an included location. To properly do this, a sample mean of latitude and longitude were taken from the 'Area' that the cell belonged too.

For example, an attribute within the master CSV was labeled 'Area Name', with names such as "Newton", "Pacific", and "Hollywood" (all pertaining to police station names). Data entries were divided based on their area name, and an average Lat/Lon was calculated for each 'Area Name'. If a cell didn't contain its' own locational data, the mean location for that specific area was applied to that cell.

Data Grouping:

The data was organized into manageable groups to conduct analyses. The crimes were binned based on

years. With this research project spanning a thirteen-year time period, the data were binned into two-year groupings: 2010/11, 2012/13, 2014/15, 2016/17, 2018/19, 2020/21, 2022/23. Having two-year bins allowed for the data to be broken down enough to see if interesting findings could be concluded in smaller timeframes, as well as creating an easier analysis for processing and analyzing the data as a whole. Additionally, the data were also binned into five and four-year groupings: 2010/14, 2015/19, 2020/23, allowing for a higher level analysis to be conducted.

The organization and binning of this data was done by creating lists in Python. Setting conditions within a for-loop to check a specific column of the master sheet, and store data entries into their appropriate lists based on the year that the crime occurred. Those lists were then converted into *DataFrames* using the *Pandas* package, *DataFrames* are two-dimensional data structures that contain row and column information, with the column information included from the master data sheet. Finally, each *DataFrame* was iterated through to create dictionaries, these dictionaries stored the type of crimes and the number of times each crime occurred for every year bin.

Percent Change Analysis:

With entries being divided into years and totals being returned for each type of crime committed, a percent change analysis was conducted for each type of crime. While simple, conducting a percent change analysis across the year bins, focusing on the change in types of crime, yielded interesting results.

```
def percentage_change(x, y):  
    return ((y - x) / x) * 100
```

Screenshot from Python code used for this project. Percent Change formula used for all analyses.

Results:

Results have been divided into three sections to showcase all interesting information: an initial crime break down, a crime analysis, and a look into crime and COVID-19.

Besides the deeper investigation of COVID-19, all crimes were evaluated in two-year and five-year blocks to reduce computation and analysis time while still ensuring that data could be observed at a detailed level. The year-groups are as follows:

Two-Year: 2010/2011, 2012/2013, 2014/15, 2016/2017, 2018/2019, 2020/2021, 2022/23

Five-Year: 2010/2014, 2015/2019/ 2020/2023

Due to the large amount of data that were processed and reported for this report, only the top-five crimes and locations are included per each year bin. **For a full break down on the total counts of each crime, changes in locations, and a percent change analysis, [a full PDF document can be found here](#).**

Crime Break Down:

2010/2011: 2010/11 returned **132** unique crimes with **410,021** total records for all of Los Angeles. With the top five crimes being:

- Battery – Simple Assault: 40,437
- Burglary from Vehicle: 33,594
- Burglary: 32,007
- Vehicle – Stolen: 31,853
- Theft of Identity: 26,708

The top five police stations with the most criminal activity were:

- 77th Street: 28,698
- Southwest: 26,585
- Southeast: 22,129
- N Hollywood: 22,054
- Pacific: 21,470

2012/2013: 2012/13 returned **130** unique crimes with **394,310** total records for all of Los Angeles. With the top five crimes being:

- Battery – Simple Assault: 38,757
- Theft Plain – Petty (\$950 & Under): 32,213
- Burglary from Vehicle: 31,429
- Burglary: 29,593
- Vehicle – Stolen: 28,775

The top five police stations with the most criminal activity were:

- 77th Street: 28,046
- Southwest: 25,839
- N Hollywood: 22,242
- Mission: 20,882
- Southeast: 20,782

2014/2015: 2014/15 returned **134** unique crimes with **411,269** total records for all of Los Angeles. With the top five crimes being:

- Battery – Simple Assault: 36,018
- Theft Plain – Petty (\$950 & Under): 31,511
- Vehicle – Stolen: 29,772
- Burglary: 28,815
- Theft of Identity: 27,975

The top five police stations with the most criminal activity were:

- 77th Street: 28,725
- Southwest: 26,908
- Pacific: 22,484
- N Hollywood: 22,205
- Southeast: 21,673

2016/2017: 2016/17 returned **138** unique crimes with **456,912** total records for all of Los Angeles. With the top five crimes being:

- Vehicle – Stolen: 37,112
- Battery – Simple Assault: 37,024
- Theft Plain – Petty (\$950 & Under): 31,511
- Burglary from Vehicle: 34,834
- Burglary: 29,817

The top five police stations with the most criminal activity were:

- 77th Street: 30,958
- Southwest: 28,496
- N Hollywood: 24,491
- Pacific: 23,863
- Southeast: 23,380

2018/2019: 2018/19 returned **139** unique crimes with **447,285** total records for all of Los Angeles. With the top five crimes being:

- Battery – Simple Assault: 38,333
- Burglary from Vehicle: 34,767
- Vehicle – Stolen: 32,391
- Theft Plain – Petty (\$950 & Under): 30,840
- Burglary: 27,499

The top five police stations with the most criminal activity were:

- 77th Street: 29,177
- Southwest: 27,872
- Central: 26,789
- Pacific: 24,432
- Southeast: 23,702

2020/2021: 2020/21 returned **135** unique crimes with **408,892** total records for all of Los Angeles. With the top five crimes being:

- Vehicle – Stolen: 44,422
- Battery – Simple Assault: 32,514
- Vandalism – Felony (\$400 & Over, All Church Vandalisms): 26,593
- Burglary from Vehicle: 26,182
- Burglary: 25,039

The top five police stations with the most criminal activity were:

- 77th Street: 26,331
- Central: 24,706
- Pacific: 24,432
- Southwest: 22,496
- Hollywood: 22,190

2022/2023: 2020/21 returned **134** unique crimes with **299,992** (smaller due to 2023 records only being recorded until March, prior to this research) total records for all of Los Angeles. With the top five crimes being:

- Vehicle – Stolen: 31,637
- Theft of Identity – 26,537
- Battery – Simple Assault: 23,337
- Burglary: 18,146
- Burglary from Vehicle: 17,966

The top five police stations with the most criminal activity were:

- 77th Street: 26,331
- Central: 24,706
- Pacific: 24,432
- Southwest: 22,496
- Hollywood: 22,190

Five-Year Groupings:

2010/2014: 2010/14 returned **137** unique crimes with **999,959** total records for all of Los Angeles. With the top five crimes being:

- Battery – Simple Assault: 97,610
- Burglary from Vehicle: 78,103
- Burglary: 75,564
- Vehicle – Stolen: 74,328
- Theft Plain – Petty (\$950 & Under): 73,748

The top five police stations with the most criminal activity were:

- 77th Street: 70,809
- Southwest: 65,420
- N Hollywood: 54,691
- Southeast: 53,472
- Pacific: 52,646

2015/2019: 2015/19 returned **141** unique crimes with **1,119,838** total records for all of Los Angeles. With the top five crimes being:

- Battery – Simple Assault: 92,959

- Vehicle – Stolen: 85,575
- Burglary from Vehicle: 84,081
- Theft Plain – Petty (\$950 & Under): 76,162
- Burglary: 72,167

The top five police stations with the most criminal activity were:

- 77th Street: 74,795
- Southwest: 70,280
- Central: 60,043
- Pacific: 60,023
- N Hollywood: 59,463

2020/2023: 2020/23 returned **138** unique crimes with **708,084** (smaller due to 2023 records only being recorded until March, prior to this research) total records for all of Los Angeles. With the top five crimes being:

- Vehicle – Stolen: 76,059
- Battery – Simple Assault: 55,851
- Theft of Identity: 46,061
- Burglary from Vehicle: 44,184
- Vandalism – Felony (\$400 & Over, All Church Vandalisms): 43,562

The top five police stations with the most criminal activity were:

- Central: 47,443
- 77th Street: 44,877
- Pacific: 40,958
- Southwest: 39,763
- Hollywood: 37,947

Percent Change Analysis:

2010/11 – 2012/13:

- Battery – Simple Assault: -4.155%
- Burglary from Vehicle: -6.445%
- Burglary: -7.542%
- Vehicle – Stolen: -9.663%
- Theft of Identity: 4.403%

The top five police stations with the most criminal activity and their percent changes were:

- 77th Street: -2.272%
- Southwest: -2.806%
- N Hollywood: 0.852%
- Mission: -1.052%
- Southeast: -6.088%

2012/13 – 2014/15:

- Battery – Simple Assault: -7.067%
- Theft Plain – Petty (\$950 & Under): -2.179%
- Vehicle – Stolen: 3.465%
- Burglary: -2.63%
- Theft of Identity: 0.326%

The top five police stations with the most criminal activity and their percent changes were:

- 77th Street: 2.421%
- Southwest: 4.137%
- Pacific: 10.107%
- N Hollywood: -0.166%
- Southeast: 4.296%

2014/15 – 2016/17:

- Vehicle – Stolen: 24.654%
- Battery – Simple Assault: 2.793%
- Theft Plain – Petty (\$950 & Under): -6.185%
- Burglary from Vehicle: 26.393%
- Burglary: 3.477%

The top five police stations with the most criminal activity and their percent changes were:

- 77th Street: 7.774%
- Southwest: 5.902%
- N Hollywood: 10.295%
- Pacific: 6.133%
- Southeast: 7.876%

2016/17 – 2018/19:

- Vehicle – Stolen: -12.721%
- Battery – Simple Assault: 3.535%
- Theft Plain – Petty (\$950 & Under): 4.323%
- Burglary from Vehicle: -0.192%
- Burglary: -7.774%

The top five police stations with the most criminal activity and their percent changes were:

- 77th Street: -5.753%
- Southwest: -2.189%
- N Hollywood: -5.426%
- Pacific: 2.384%
- Southeast: 1.377%

2018/19 – 2020/21:

- Vehicle – Stolen: 37.143%
- Battery – Simple Assault: -15.18%
- Vandalism – Felony (\$400 & Over, All Church Vandalisms): 3.684%
- Burglary from Vehicle: -24.693%
- Burglary: -8.946%

The top five police stations with the most criminal activity and their percent changes were:

- 77th Street: -9.754%
- Central: -7.775%
- N Hollywood: -9.274%
- Southwest: 22,496
- Hollywood: 22,190

2020/21 – 2022/23:

Numbers are not fully accurate due to 2023 only containing data through March 2023:

- Vehicle – Stolen: -28.781%
- Theft of Identity – 35.919%
- Battery – Simple Assault: -28.224%
- Burglary: -27.529%
- Burglary from Vehicle: -31.380%

Five-Year Percent Changes:**2010/14 – 2015/19:**

- Battery – Simple Assault: -4.765%
- Burglary from Vehicle: 7.666%
- Burglary: -4.495%
- Vehicle – Stolen: 15.13%
- Theft Plain – Petty (\$950 & Under): 3.273%

The top five police stations with the most criminal activity and their percent changes were:

- 77th Street: 5.629%
- Southwest: 7.429%
- Central: 56.399%
- Pacific: 14.012%
- N Hollywood: 8.725%

2015/19 – 2020/23:

- Vehicle – Stolen: -11.12%
- Battery – Simple Assault: -39.918%
- Theft of Identity: -25.104%
- Burglary from Vehicle: -47.493%
- Vandalism – Felony (\$400 & Over, All Church Vandalisms): -30.810%

The top five police stations with the most criminal activity and their percent changes were:

- 77th Street: -40.0%
- Southwest: -43.422%
- Central: -20.985%
- Pacific: -31.763%
- N Hollywood: -40.481%

Interesting Findings:

While not unexpected, the most frequent criminal activities had little change over time in the amount of occurrences. Given Los Angeles' large size and dense population, city-based crimes such as theft and assault could be expected to continually be the most popular crimes.

However, from the percent change analysis, a few crimes stood out as interesting findings:

Vehicle Theft was the crime that showed one of the most dramatic changes in occurrences spanning several years. From 2014/15 to 2016/17, vehicle theft rose nearly 25% with 37,122 counts for the year 2016/17. Burglary from a vehicle also saw a dramatic increase during these years, increasing by 26%. While decreasing 12% in 2018/19, vehicle theft had another dramatic increase between the years of 2018/19 and 2020/21, with a spike of 37% and a total of 44,422 counts.

While not continually a top five crime but consistently in the top ten, **Theft of Identity** also demonstrated interesting attributes. From 2020/21 to 2022/23, identity theft saw a 35% increase. More discussion is continued on identity theft in the results specific to COVID-19.

A final interesting crime was **Vandalism – Felony (\$400 & Over, All Church Vandalisms)**. This crime saw an increase of 3.6% between the years 2018/19 and 2020/21. While not a large increase, 2020/21 reported 26,593 counts of All Church Vandalism. This crime was not ranked high prior to these years, making this crime interesting due to its' specificity and noticeable increase.

COVID-19 Break Down:

2019: 2019 returned **137** unique crimes with **218,088** total records for all of Los Angeles. With the top five crimes being:

- Battery – Simple Assault: 18,943
- Burglary from Vehicle: 16,660
- Theft Plain – Petty: 15,362
- Vehicle – Stolen: 15,348
- Vandalism – Felony (\$400 and Over, All Church Vandalisms): 12,842

The top five police stations with the most criminal activity were:

- 77th Street: 14,207
- Central: 13,528
- Southwest: 13,499
- Pacific: 12,247
- Southeast: 11,730

2020: 2020 returned **129** unique crimes with **199,120** total records for all of Los Angeles. With the top five crimes being:

- Vehicle – Stolen: 20,762
- Battery – Simple Assault: 16,327
- Vandalism – Felony (\$400 and Over, All Church Vandalisms): 12,922
- Burglary: 12,833
- Burglary from Vehicle: 12,707

The top five police stations with the most criminal activity were:

- 77th Street: 13,282
- Central: 11,575
- Pacific: 11,547
- Southwest: 11,137
- Southeast: 10,805

2021: 2021 returned **133** unique crimes with **208,972** total records for all of Los Angeles. With the top five crimes being:

- Vehicle – Stolen: 23,660
- Battery – Simple Assault: 16,187
- Vandalism – Felony (\$400 and Over, All Church Vandalisms): 13,617
- Burglary from Vehicle: 13,475
- Assault with Deadly Weapon, Aggravated Assault: 12,731

The top five police stations with the most criminal activity were:

- Central: 13,131
- 77th Street: 13,049
- Pacific: 12,885
- Hollywood: 12,060
- Southwest: 11,359

2022: 2022 returned **134** unique crimes with **232,880** total records for all of Los Angeles. With the top five crimes being:

- Vehicle – Stolen: 24,684
- Theft of Identity: 21,296
- Battery – Simple Assault: 18,041
- Burglary from Vehicle: 14,200
- Burglary: 14,010

The top five police stations with the most criminal activity were:

- Central: 17,593
- 77th Street: 14,463
- Southwest: 13,312
- Pacific: 12,927
- Hollywood: 12,445

Percent Changes:

2019 - 2020:

- Vehicle – Stolen: 35.275%
- Battery – Simple Assault: -13.809%
- Vandalism – Felony (\$400 and Over, All Church Vandalisms): 0.623%
- Burglary: 1.599%
- Burglary from Vehicle: -23.727%

The top five police stations with the most criminal activity and their percent changes were:

- 77th Street: -6.512%
- Central: -14.777%
- Pacific: -5.716%
- Southwest: -17.498%
- Southeast: -7.886%

2020 – 2021:

- Vehicle – Stolen: 13.958%
- Battery – Simple Assault: -0.857%
- Vandalism – Felony (\$400 and Over, All Church Vandalisms): 5.796%
- Burglary from Vehicle: 6.044%
- Assault with Deadly Weapon, Aggravated Assault: 10.473%

The top five police stations with the most criminal activity and their percent changes were:

- Central: 13.442%
- 77th Street: -1.754%
- Pacific: 11.587%
- Hollywood: 19.052%
- Southwest: 1.993%

2021 – 2022:

- Vehicle – Stolen: 4.328%
- Theft of Identity: 95.001%
- Battery – Simple Assault: 11.453%
- Burglary from Vehicle: 5.380%
- Burglary: 14.779%

The top five police stations with the most criminal activity and their percent changes were:

- Central: 33.981%
- 77th Street: 10.836%
- Pacific: 0.326%
- Hollywood: 3.192%
- Southwest: 17.193%

Interesting Findings:

Breaking down the years individually between 2019 and 2022 served a beneficial purpose to finding interesting information from the data:

Vehicle Theft displayed a growth of 35% between 2019 and 2020, and another increase of almost 14% between 2020 and 2021. With consideration to COVID-19, the possibility of car theft had the potential to be greater. As commuting generally decreased at the beginning of the COVID-19 pandemic, cars were no longer being driven as frequently. It's possible that car thieves were able to determine which cars were no longer being driven or cared for as frequently, increasing their chances of being stolen due to a greater lack of awareness from car owners.

Battery – Simple Assault saw a decrease of almost 14% between 2019 and 2020. With the encouragement to stay indoors during the COVID-19 pandemic, a decrease in battery could be expected if these crimes were generally occurring outdoors or in public areas.

Finally, **Theft of Identity** demonstrated a dramatic increase of 95% between 2021 and 2022. While not listed in the results shown above, 2021 returned 10,921 counts of identity theft. According to the Los Angeles County District Attorney's Office, Identity Theft is defined as:

“When someone uses your name, Social Security number or other personal information to get credit cards or loans or access to your financial accounts. As more and more people carry mobile phones, tablets and other devices that contain volumes of personal information, the opportunities for ID theft have ballooned.” [4]

While there is no indicated timeframe of “ballooning” from the District Attorney's Office, a ballooning could be expected during the COVID-19 pandemic era. The increased use of technology during this

timeframe may have allowed for more technologically advanced methods to be developed for identity theft.

Applications:

This exploration of crime analysis in Los Angeles, CA resulted in the understanding that many of the same crimes occurred over the thirteen-year period: Vehicle theft, identity theft, battery, burglary, vandalism, and assault were continually the highest occurring crimes. This understanding could be utilized to implement more preventative measures in an attempt to reduce the rate of these crimes. Preventative measures could come in the form of public information and awareness, or increased resources such as greater means of theft prevention.

Focusing on the COVID-19 pandemic, it's been determined that vehicle theft and identity theft were major crimes that occurred between 2020 and 2022. More preventative measures could also be put in place for these crimes specifically. The public could be informed on greater safety measures to take to prevent car theft. Moreover, greater online resources could be available to help decrease the rate of identity theft, such as a free or cheap-to-use identity theft tracking software.

REFERENCES

- [1] Neighborhood Scout, Los Angeles, CA Crime Rate ([link](#))
- [2] DataLA, 2022 A Data-Driven Exploration of Crime Trends in Los Angeles. Medium.com. [Link](#)
- [3] CAP Index, 2020. COVID-19 & Crime - CAP's Perspective on crime & Loss in the Age of COVID-19. CAPINDEX. [Link](#)
- [4] Identity Theft, Los Angeles, CA. Los Angeles County District Attorney's Office ([link](#))

[Link to GitHub](#)