

Analysis of crime incidence and distribution in Los Angeles

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1 Introduction

Almost every week I will receive Crime Alerts from the USC Department of Public Safety, so I'm interested to know the crime incidence and distribution in LA. This dataset reflects incidents of crime in the City of Los Angeles dating back to 2020 provided by the Los Angeles Police Department.

In this project, the primary question we will answer is whether the number of crimes has decreased in Los Angeles from 2020 to 2021. Then explore which area of Los Angeles has the highest number of crimes in 2021. In addition, we will further explore what is the most common crime type in 2021, and which area occurred most.

2 Methods

2.1 Data source

This dataset is obtained from the Los Angeles Open Data website (<https://data.lacity.org/Public-Safety/Crime-Data-from-2020-to-Present/2nrs-mtv8>).

2.2 Data cleaning and wrangling

This original dataset collected data on crimes from January 1st, 2020 to October 10th, 2022. After reading in data, checking the dimensions, headers, and footers, and carefully checking for variable names and types. There are 581764 rows and 29 variables and no missing value in the key variables. There are 137 different crime and 21 areas in LA in the dataset. Transformed the character to date and extract the year from the occurrence date then created a variable called 'year', which refers to the year in which the crime occurred. For subsequent analysis, extracting data in 2020 and 2021 to a new dataset, and formed a sub-dataset that only includes data in 2020 and a sub-dataset that only includes data in 2021.

2.3 Data exploration

I created summary tables of descriptive analysis by summarized statistics of the variables that this project concerned about. Then I used bar charts to compare the total number of crime, and the number of crime in different areas in 2020 and 2021. I also used bar chart to show crime in each Los Angeles area in 2021, then used bar chart to show the top15 crime type in Los Angeles. I also generated a bar chart to show the number of vehicle stolen that occurred in each Los Angeles area, as well as a leaflet map shows the detailed locations of the vehicle stolen occurred.

3 Results

3.1 Summary tables of descriptive analysis:

Table 1: Total number of crime in LA

Year	Total number of crime
2020	198644
2021	208294

Table1 shows that there are 198644 crime in 2020 and 208294 crime in 2021 in Los Angeles. More total number of crime in 2021 than in 2020.

Table 2: Number of crime in different areas in LA

Area Name	Year		Total
	2020	2021	
77th Street	13232	13011	26243
Central	11558	13108	24666
Devonshire	7920	8421	16341
Foothill	7065	6991	14056
Harbor	8831	8816	17647
Hollenbeck	7780	7978	15758
Hollywood	10110	12025	22135
Mission	8420	8163	16583
N Hollywood	10106	10849	20955
Newton	9929	9855	19784
Northeast	8416	9285	17701
Olympic	9587	10741	20328
Pacific	11529	12837	24366
Rampart	8975	9396	18371
Southeast	10776	10375	21151
Southwest	11107	11324	22431
Topanga	8047	8509	16556
Van Nuys	8716	8632	17348
West LA	9266	9838	19104
West Valley	8033	8467	16500
Wilshire	9241	9673	18914

Table2 shows that there are 21 areas occurred crime and the number of crime in different areas in LA are close in 2020 and in 2021. Total number of crime in all areas had more than 14000 in 2020 and 2021, with 77th Street has the highest crime rate at 26243 and the Foothills has the lowest crime rate at 14056.

3.2 Figures

3.2.1 Crime in Los Angeles by year.

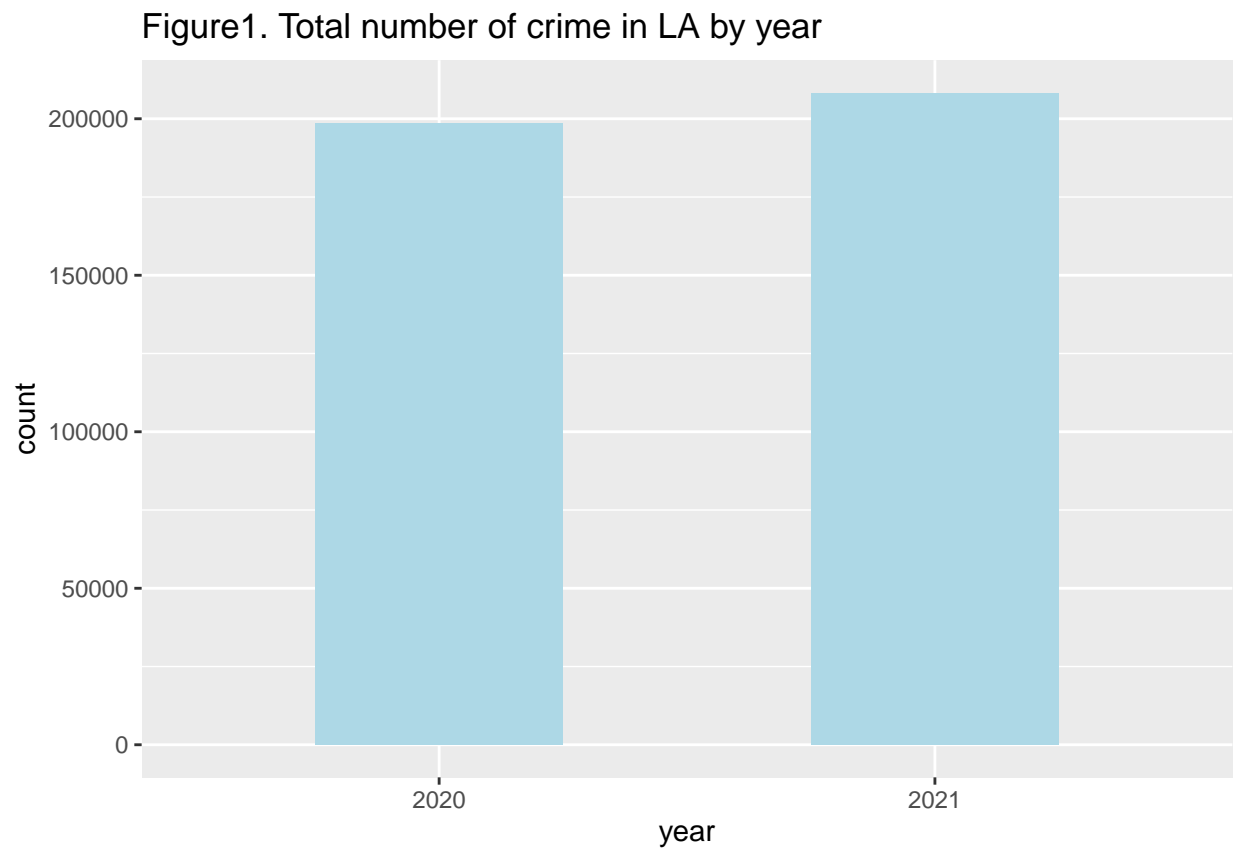


Figure 1 shows that there are 198644 crimes in 2020 and 208294 crimes in 2021 in Los Angeles. The total number of crimes in 2021 is more than in 2020 but the difference is small.

3.2.2 Crime in different areas in LA by year.

Figure2. Number of crime in different areas in LA by year

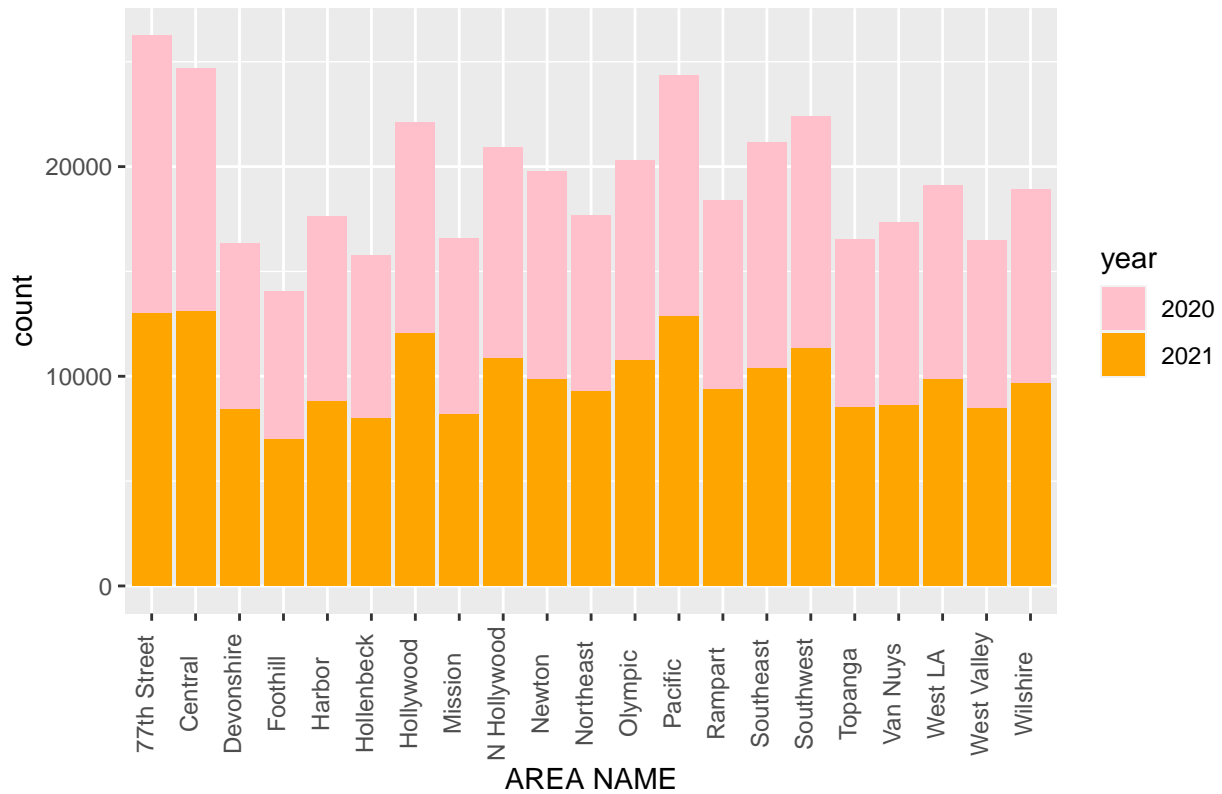


Figure 2 shows the number of crimes in different areas in LA is close in 2020 and 2021. For example, in 77th Street, there are 13232 crimes in 2020 and 13011 crimes in 2021. We can also find that 77th Street, Central, and Pacific are the three most dangerous areas.

3.2.3 Crime in different areas in LA in 2021.

Figure3. Number of crimes in different areas in LA in 2021

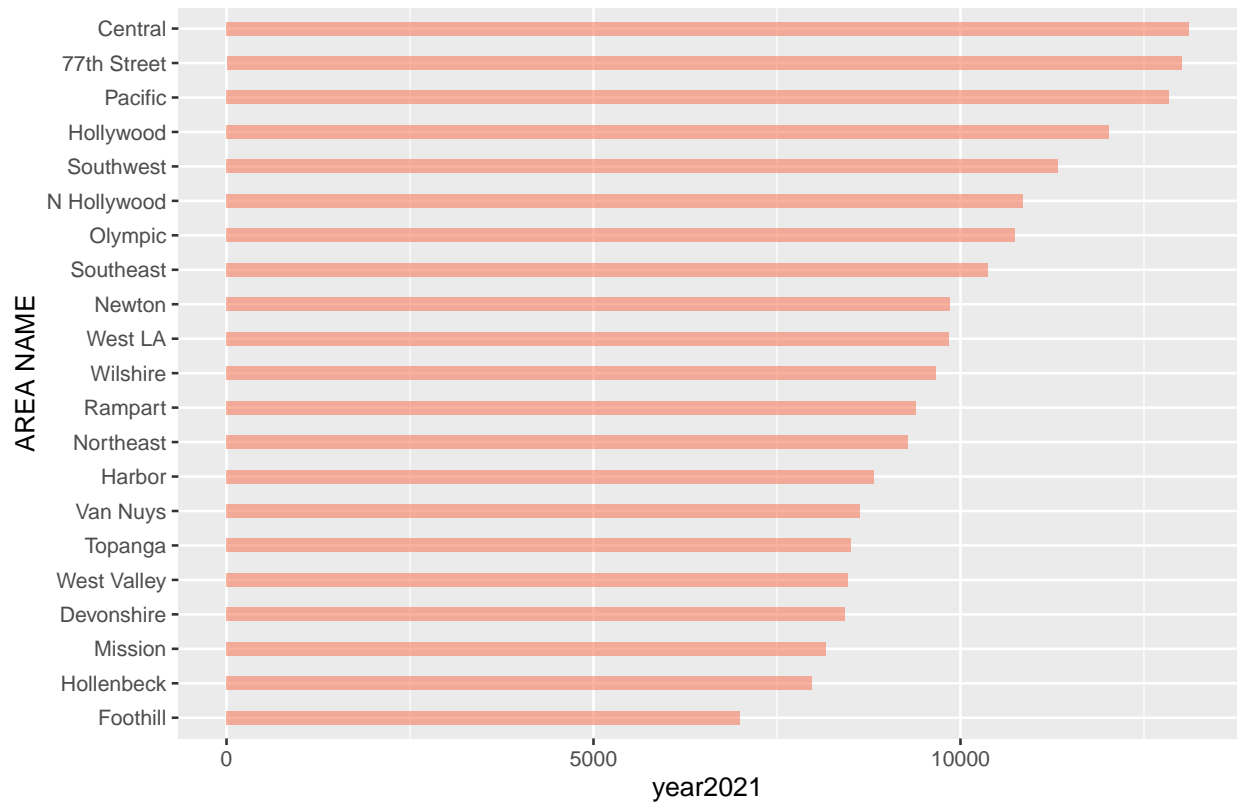


Figure 3 shows that Central, 77th Street, and Pacific also are the three most dangerous areas in 2021. There are 13108 crimes in Central, 13011 crimes in 77th Street, and 12837 crimes in Pacific.

3.2.4 The top 15 crime types in LA in 2021.

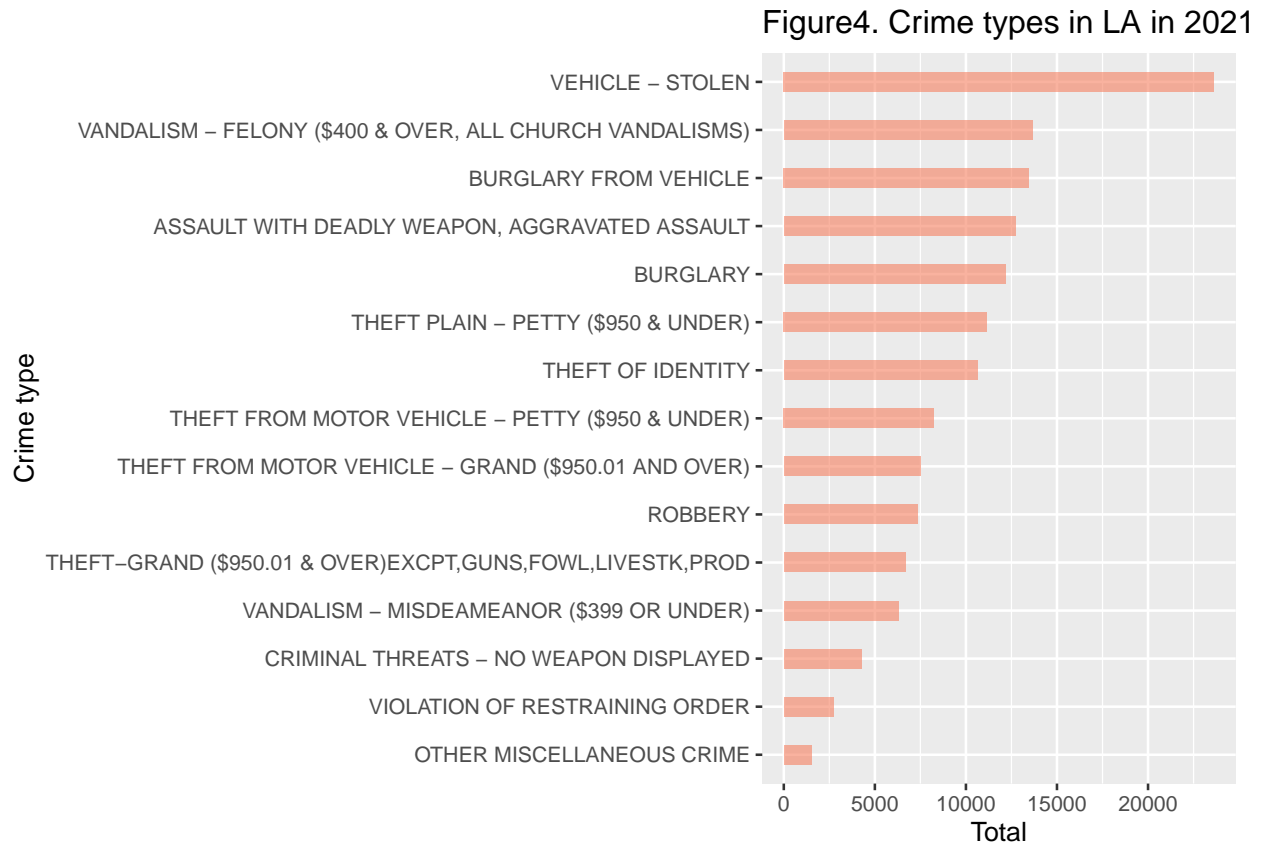


Figure 4 shows that the most common crime type is vehicle stolen in 2021, there are 23632 vehicles stolen which is much more than other crime types.

3.2.5 The number of vehicles stolen occurred in different areas in 2021.

Figure5. Vehicle stolen in each Los Angeles area in 2021

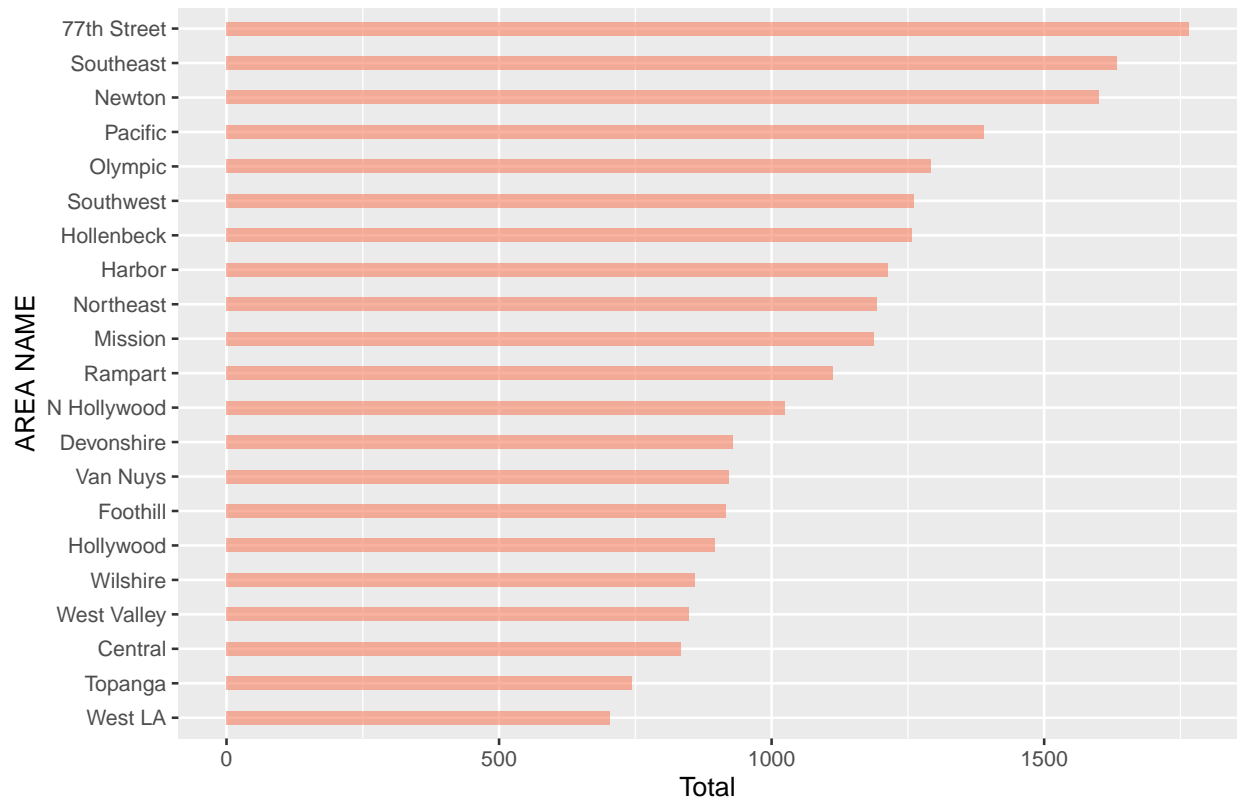
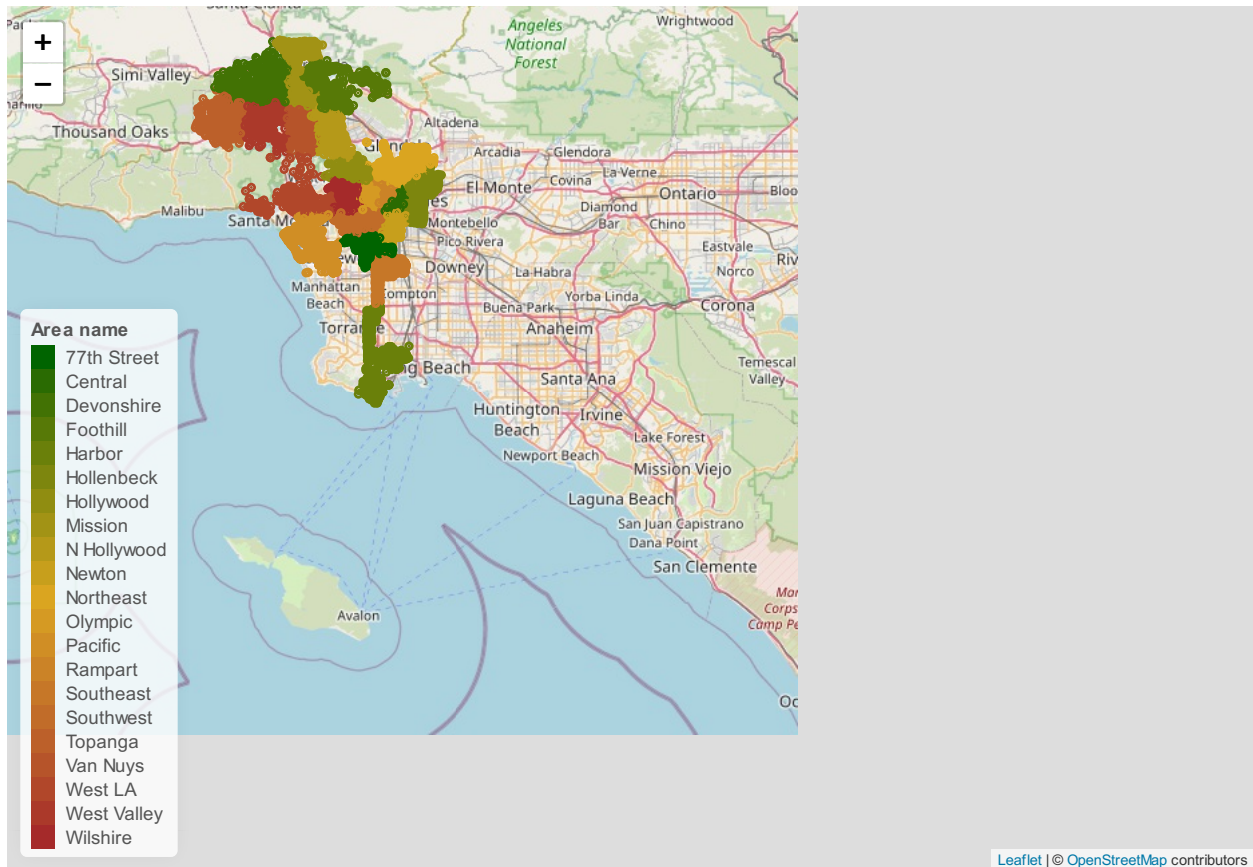


Figure 5 shows that the most vehicle stolen events occurred on 77th Street in 2021. There are 1765 vehicles stolen in this area.

3.2.6 The detail locations of the vehicle stolen occurred in 2021



This map shows the detail locations of the vehicle stolen occurred in 2021.

4 Conclusion and Summary

From 2020 to 2021, although the number of crimes in 21 different areas in Los Angeles has not changed obviously, overall, the crime in Los Angeles has not decreased but increased. In 2021, 77th Street, Central, and Pacific of Los Angeles have the most crime occurred, and so do 2020. In 2021, the most common crime type was vehicle stolen, with the most occurring on 77th Street.