# Did covid-19 impact crime in Los Angeles?

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# Agenda

1. Questions
2. Datasets and Data Cleaning Process
3. Data Visualization
4. Analytics Process
5. Conclusion

# Questions

1. How did covid-19 impact crime in Los Angeles? What other factors could lead to this impact?

→ **Regression**

1. Whether Asians were more likely to become victims after covid-19 in Los Angeles?

→ **Hypothesis**

# Answering the questions - Data driven approach

**Assumption 1:**

- Population, Income, Unemployment Rate, Location and Covid-19 may have impact on the crime in LA.

**Assumption 2:**

- Asians were more likely to become victims after covid-19 in Los Angeles.

# Ideal Experiment: Question 1

- We have two worlds: one with covid, one without covid
- Our variables are unemployment rate, population, median income, location, etc
- Controlling for these variables, is the crime rate different for the two worlds

# Ideal Experiment: Question 2

- We have two worlds: one with covid, one without covid
- Is the proportion of crimes against Asians different for the two worlds.

# Dataset

1. Los Angeles Crime Data 2010-2021

- Data source: Kaggle
- This dataset reflects incidents of crime in the City of Los Angeles from 2010 - 2019 as well as from 2020-2021 in two separate data sets
- This data is transcribed from original crime reports that are typed on paper and therefore there may be some inaccuracies within the data
- Address fields are only provided to the nearest hundred block in order to maintain privacy

| | DR_NO | DATE_RPTD | DATE_OCC | TIME_OCC | AREA_NAME | CRM_1_SEVERITY | VICT_AGE | VICT_SEX | PREMIS_DESC |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 1307355 | 2010-02-20 | 2010-02-20 | 2021-11-21 13:50:00 | Newton | 2 | 48 | M | SINGLE FAMILY DWELLING |
| 1 | 11401303 | 2010-09-13 | 2010-12-09 | 2021-11-21 00:45:00 | Pacific | 3 | 0 | M | STREET |
| 2 | 70309629 | 2010-09-08 | 2010-09-08 | 2021-11-21 15:15:00 | Newton | 1 | 0 | M | ALLEY |
| 3 | 90631215 | 2010-05-01 | 2010-05-01 | 2021-11-21 01:50:00 | Hollywood | 2 | 47 | F | STREET |
| 4 | 100100501 | 2010-03-01 | 2010-02-01 | 2021-11-21 21:00:00 | Central | 9 | 47 | F | ALLEY |

# Data Cleaning

## Step1. Los Angeles Crime Data 2010-2021

- Removed leading zeros and converted datetime fields to datetime datatype
- Segmented crimes according to severity based on crime code

```
## bucket
df["CRM_CD"] = pd.cut(df["CRM_CD"], [0, 100, 200, 300 ,400 ,500 ,600 ,700, 800, 900, 1000],
                      labels = [1,2,3,4,5,6,7,8,9,10], ordered = True)

## change dtype
df["CRM_CD"] = df["CRM_CD"].astype("int")

## subtract for severity
df["CRM_CD"] = 11 - df["CRM_CD"]
```

- Maintaining consistency between codes and descriptions

# Data Cleaning

Step2. Zip code from longitude/latitude

- The original data set consisted of coordinates
- Used reverse geocoding via a Google API
- Obtained zip code details for every set of coordinates
- Sample address returned from Google API Call:
    - 164 W Jefferson Blvd, Los Angeles, CA 90007, USA
- Using string formatting, we extract the zip code from this address
- Merged the zipcodes on the dataset in order to merge demographic data

# Data Cleaning

## Step3. Zip Code / Area

- Issue: Crimes committed in same zip codes handled by different police departments (areas)
- Solution: Find area of zip code with highest number of cases and use that as the area zip code belongs to

Before

| | zipcode | AREA_NAME | DR_NO |
|---|---|---|---|
| 85 | 90013.0 | Central | 32916 |
| 86 | 90013.0 | Hollenbeck | 276 |
| 87 | 90013.0 | Newton | 1101 |
| 88 | 90013.0 | Pacific | 1 |

After

| | zipcode | AREA_NAME | DR_NO |
|---|---|---|---|
| 67 | 90011.0 | Newton | 62307 |
| 73 | 90012.0 | Central | 25298 |
| 85 | 90013.0 | Central | 32916 |
| 90 | 90014.0 | Central | 19316 |

# Dataset

## 2. US Census

- Data source: United States Census Bureau
- The dataset includes Unemployment rate / Median household income / Population in each ZCTA zip code in LA county
- Years: 2011 - 2019, based on American Community Survey data
- 27 csv files total

| | GEO_ID | NAME | S1901_C01_001E | S1901_C01_001M | S1901_C01_002E | S1901_C01_002M | S1901_C01_003E | S1901_C01_003M | S1901_C01_004E | S1901_C01_004M |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | id | Geographic Area Name | Households!!Estimate!!Total | Households!!Margin of Error!!Total | Households!!Estimate!!Less than $10,000 | Households!!Margin of Error!!Less than $10,000 | Households!!Estimate!! 10, 000to14,999 | Households!!Margin of Error!!10, 000to 14,999 | Households!!Estimate!! 15, 000to24,999 | Households!!Margin of Error!!15, 000to 24,999 |
| 1 | 8600000US89010 | ZCTA5 89010 | 149 | 42 | 18.1 | 12.7 | 0.0 | 19.5 | 14.8 | 10.8 |
| 2 | 8600000US89019 | ZCTA5 89019 | 942 | 261 | 0.0 | 3.4 | 9.3 | 11.3 | 20.3 | 12.5 |
| 3 | 8600000US89060 | ZCTA5 89060 | 4354 | 357 | 7.2 | 3.4 | 8.3 | 3.2 | 16.4 | 4.8 |
| 4 | 8600000US89061 | ZCTA5 89061 | 1919 | 256 | 3.0 | 2.9 | 5.0 | 4.0 | 9.7 | 4.8 |

# Data Cleaning

## Step1. Census Data

- Choose specific columns from data set:
  - Households!!Estimate!!Median income (dollars)
  - Percent!!EMPLOYMENT STATUS!!Percent Unemployed
  - Estimate!!SEX AND AGE!!Total population
- Added year for year file
- 2010/2020/2021: Estimated using average percentage for each zipcode from the 9 years
- Extracted zip code from original format
- Combine population/unemployment rate/income into one

| | Year | zipcode | Total population | Unemployment_rate | Median household income |
|---|---|---|---|---|---|
| 0 | 2021 | 90001 | 65097.0 | 12.752946 | 43479.587251 |
| 1 | 2021 | 90002 | 57906.0 | 14.563990 | 39262.055882 |
| 2 | 2021 | 90003 | 79074.0 | 15.484133 | 38708.277385 |
| 3 | 2021 | 90004 | 71737.0 | 11.570812 | 50607.463793 |
| 4 | 2021 | 90005 | 45200.0 | 11.673085 | 39496.138261 |

# Data Cleaning

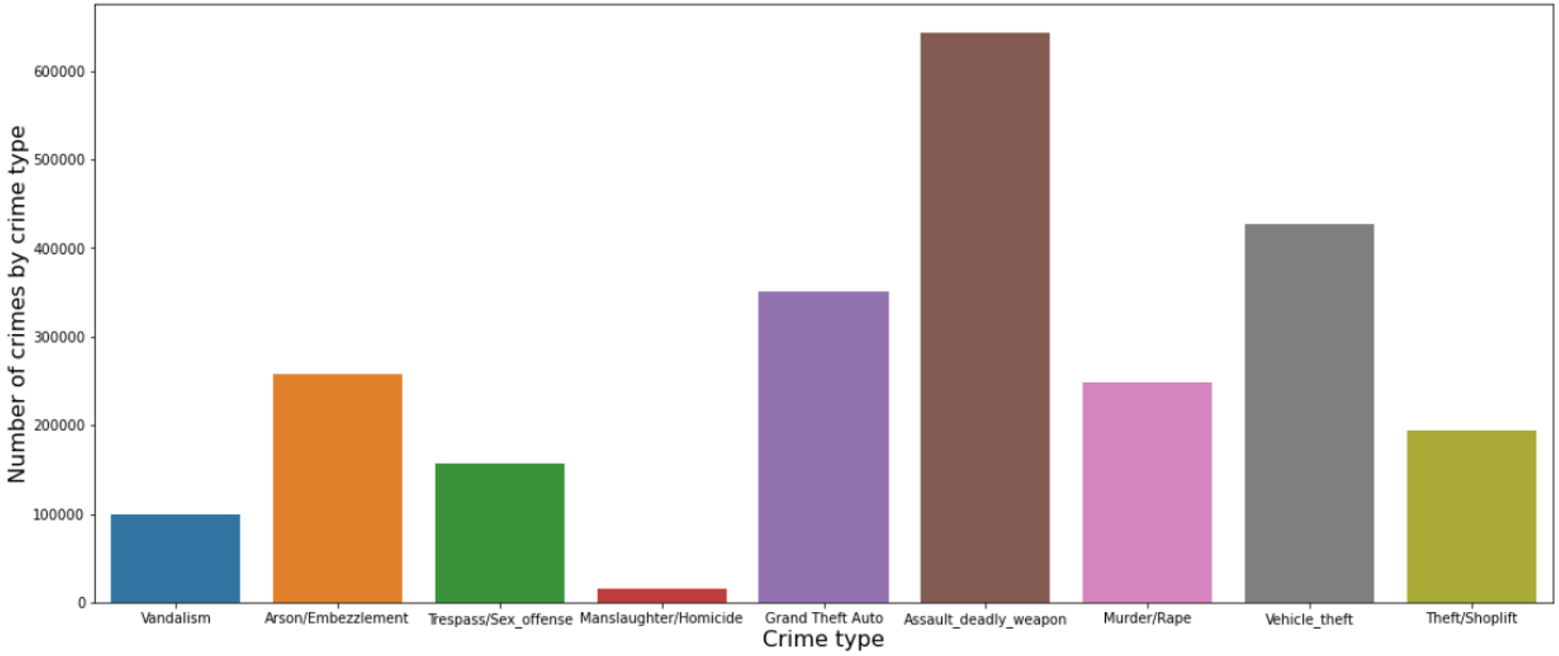
## Step2. Connect crime with census data

- Census data left join zip/area dataframe
- Remove zip codes from census that did not have crime data
- Group by area and year
  - Population: Sum
  - Unemployment rate / Income: Average
  - Crime: From crime dataset, find average monthly number of crimes (2021 divide by 5)
- Combine into one dataframe

| | AREA_NAME | Year | Population | Unemployment_rate | Median_household_income | Crimes_per_month |
|---|---|---|---|---|---|---|
| 0 | 77th Street | 2010 | 614727.0 | 15.898552 | 34668.071950 | 1203.333333 |
| 1 | 77th Street | 2011 | 532941.0 | 12.154545 | 42531.909091 | 1187.333333 |
| 2 | 77th Street | 2012 | 532445.0 | 12.490909 | 42105.818182 | 1186.916667 |
| 3 | 77th Street | 2013 | 536127.0 | 13.745455 | 41582.090909 | 1145.083333 |
| 4 | 77th Street | 2014 | 539384.0 | 13.481818 | 40561.181818 | 1170.833333 |

# Data Visualization - Descriptive Statistics

1. Number of Crimes by Crime Type




→ Assault with deadly weapons are the most common crimes, followed by vehicle theft

# Data Visualization - Descriptive Statistics

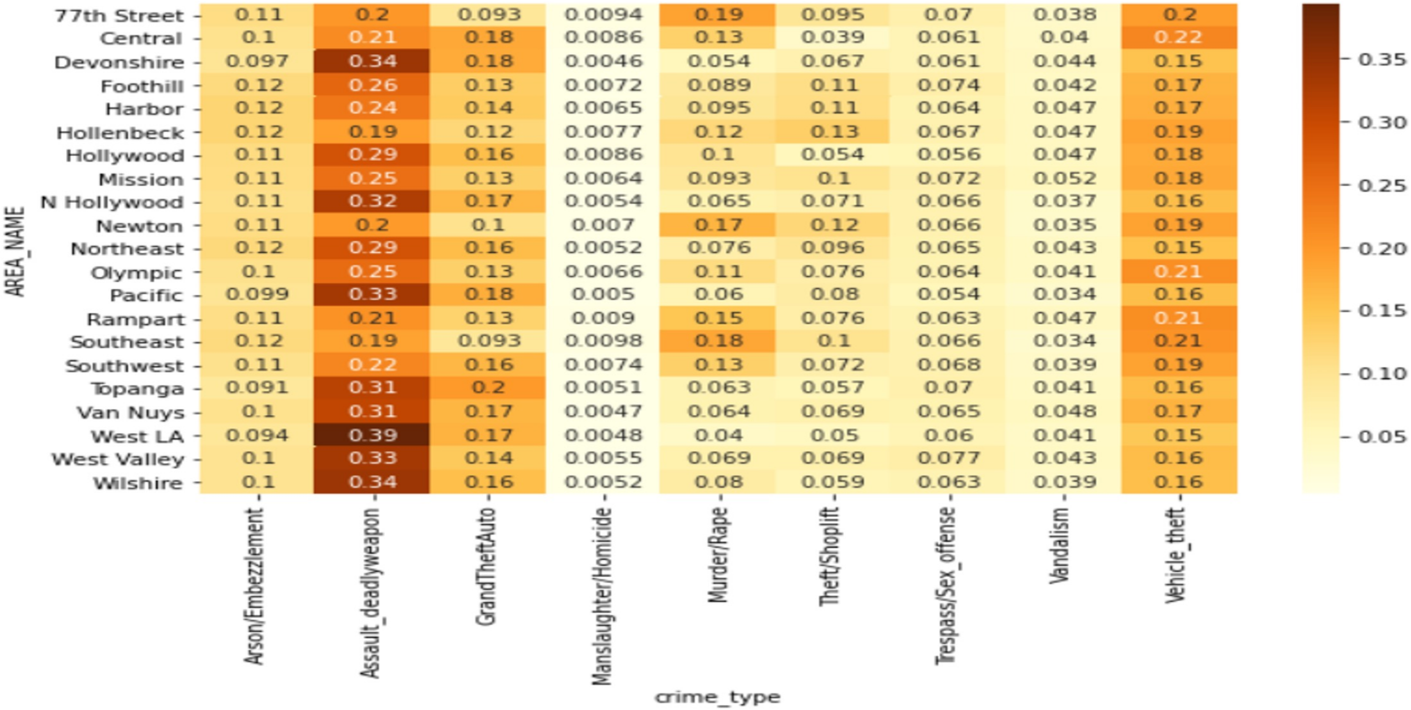
2. Proportion of Crime by Area Name and Crime Type

| crime_type<br>AREA_NAME | Arson/Embezzlement | Assault_deadlyweapon | GrandTheftAuto | Manslaughter/Homicide | Murder/Rape | Theft/Shoplift | Trespass/Sex_offense | Vandalism | Vehicle_theft |
|---|---|---|---|---|---|---|---|---|---|
| 77th Street | 11.12% | 20.09% | 9.35% | 0.94% | 18.72% | 9.47% | 7.01% | 3.80% | 19.50% |
| Central | 10.38% | 21.49% | 18.12% | 0.86% | 13.05% | 3.91% | 6.05% | 3.98% | 22.15% |
| Devonshire | 9.72% | 34.18% | 17.87% | 0.46% | 5.43% | 6.71% | 6.05% | 4.44% | 15.15% |
| Foothill | 11.57% | 25.97% | 13.48% | 0.72% | 8.86% | 10.87% | 7.38% | 4.21% | 16.95% |
| Harbor | 12.39% | 23.99% | 13.85% | 0.65% | 9.46% | 11.11% | 6.44% | 4.70% | 17.42% |
| Hollenbeck | 12.38% | 19.22% | 12.13% | 0.77% | 11.96% | 13.30% | 6.75% | 4.70% | 18.78% |
| Hollywood | 11.30% | 28.64% | 15.51% | 0.86% | 10.02% | 5.43% | 5.64% | 4.69% | 17.91% |
| Mission | 11.11% | 24.89% | 13.16% | 0.64% | 9.29% | 10.31% | 7.16% | 5.23% | 18.20% |
| N Hollywood | 10.78% | 32.48% | 16.51% | 0.54% | 6.53% | 7.15% | 6.60% | 3.69% | 15.71% |
| Newton | 11.14% | 19.87% | 10.45% | 0.70% | 16.72% | 12.07% | 6.59% | 3.53% | 18.92% |
| Northeast | 11.71% | 28.66% | 15.84% | 0.52% | 7.55% | 9.59% | 6.45% | 4.33% | 15.33% |
| Olympic | 10.50% | 25.31% | 13.18% | 0.66% | 11.25% | 7.59% | 6.36% | 4.12% | 21.03% |
| Pacific | 9.87% | 33.39% | 17.60% | 0.50% | 6.00% | 7.99% | 5.44% | 3.42% | 15.78% |
| Rampart | 11.04% | 20.75% | 12.79% | 0.90% | 14.73% | 7.64% | 6.29% | 4.66% | 21.21% |
| Southeast | 11.58% | 18.89% | 9.33% | 0.98% | 18.24% | 10.31% | 6.59% | 3.44% | 20.64% |
| Southwest | 10.63% | 22.14% | 16.47% | 0.74% | 13.17% | 7.22% | 6.76% | 3.92% | 18.95% |
| Topanga | 9.11% | 31.40% | 19.90% | 0.51% | 6.30% | 5.68% | 7.04% | 4.13% | 15.92% |
| Van Nuys | 10.43% | 30.76% | 16.68% | 0.47% | 6.41% | 6.91% | 6.51% | 4.81% | 17.03% |
| West LA | 9.40% | 39.37% | 17.15% | 0.48% | 4.03% | 4.98% | 6.00% | 4.08% | 14.52% |
| West Valley | 10.15% | 33.42% | 14.28% | 0.55% | 6.86% | 6.89% | 7.73% | 4.26% | 15.85% |
| Wilshire | 10.09% | 34.05% | 15.55% | 0.52% | 8.03% | 5.88% | 6.31% | 3.93% | 15.64% |

For each area in LA, deadly weapon assault(red) is the most common crime type, followed by vehicle theft(orange)

# Data Visualization - Descriptive Statistics

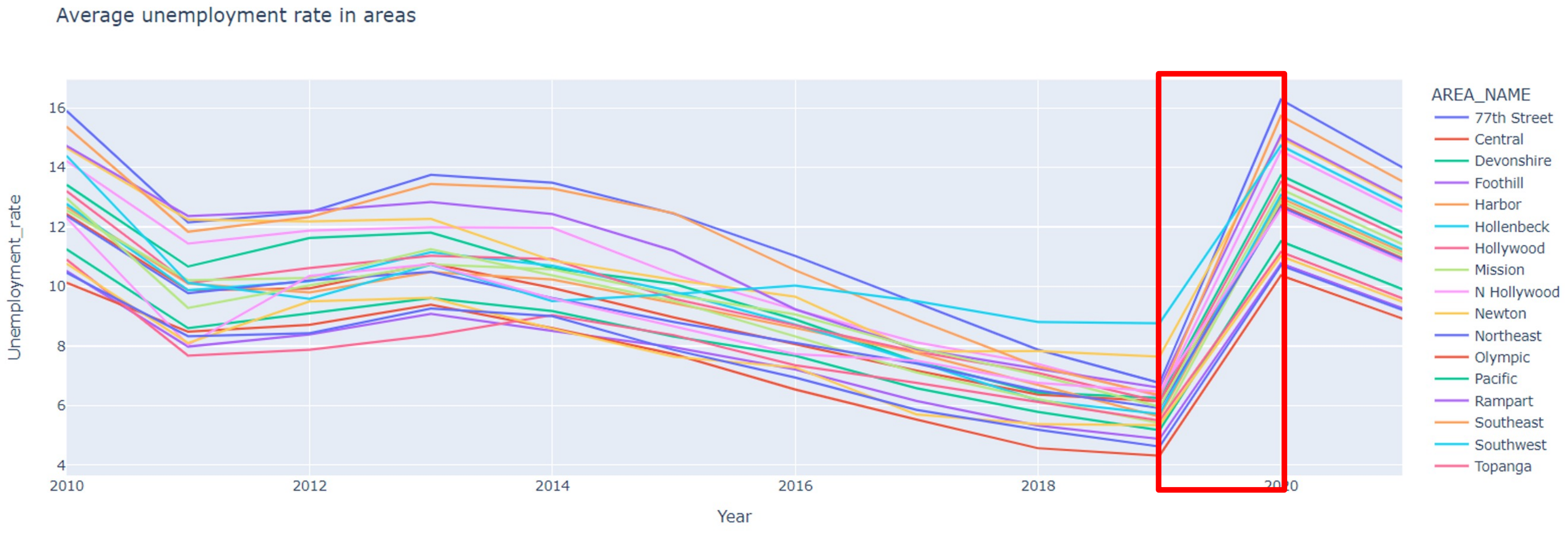
3. Heat Map for Crime Type by Area Name




→ Previous slide's information in a heatmap to highlight which areas are particularly dangerous(darker the worse)

# Data Visualization - Descriptive Statistics

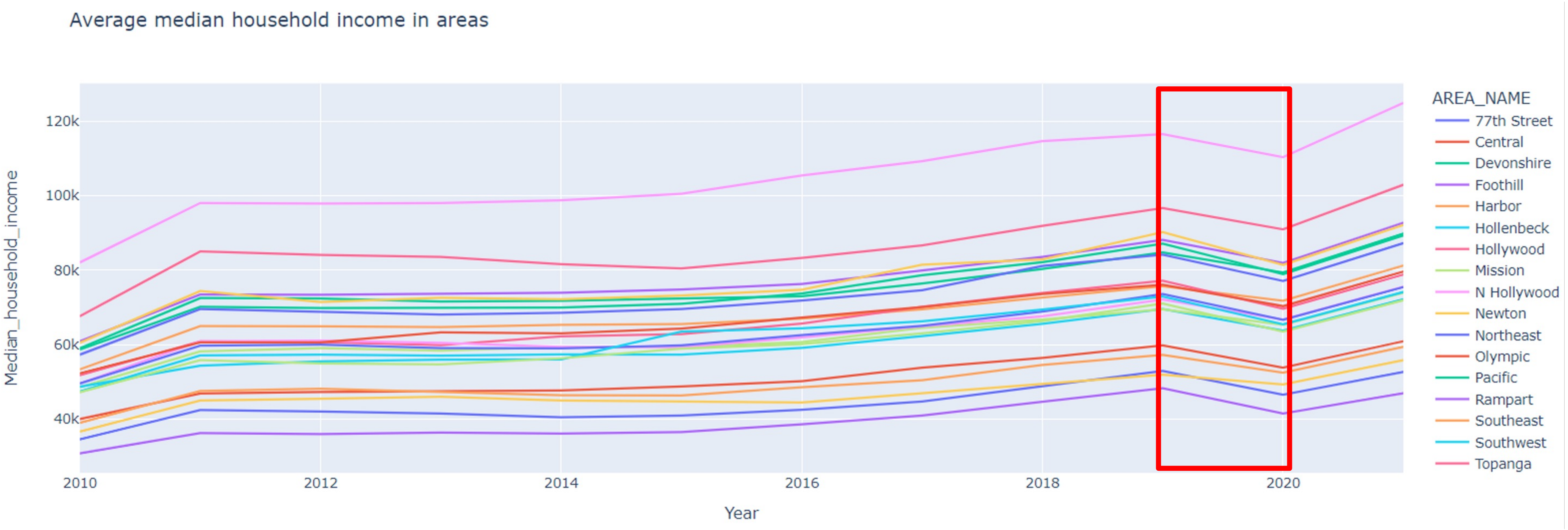
4. Average Unemployment Rate in LA Areas




For the last 11 years, we see the unemployment rate drop on a consistent basis, until 2020 during covid where there was a significant spike in all areas, followed by a drop in 2021.

# Data Visualization - Descriptive Statistics

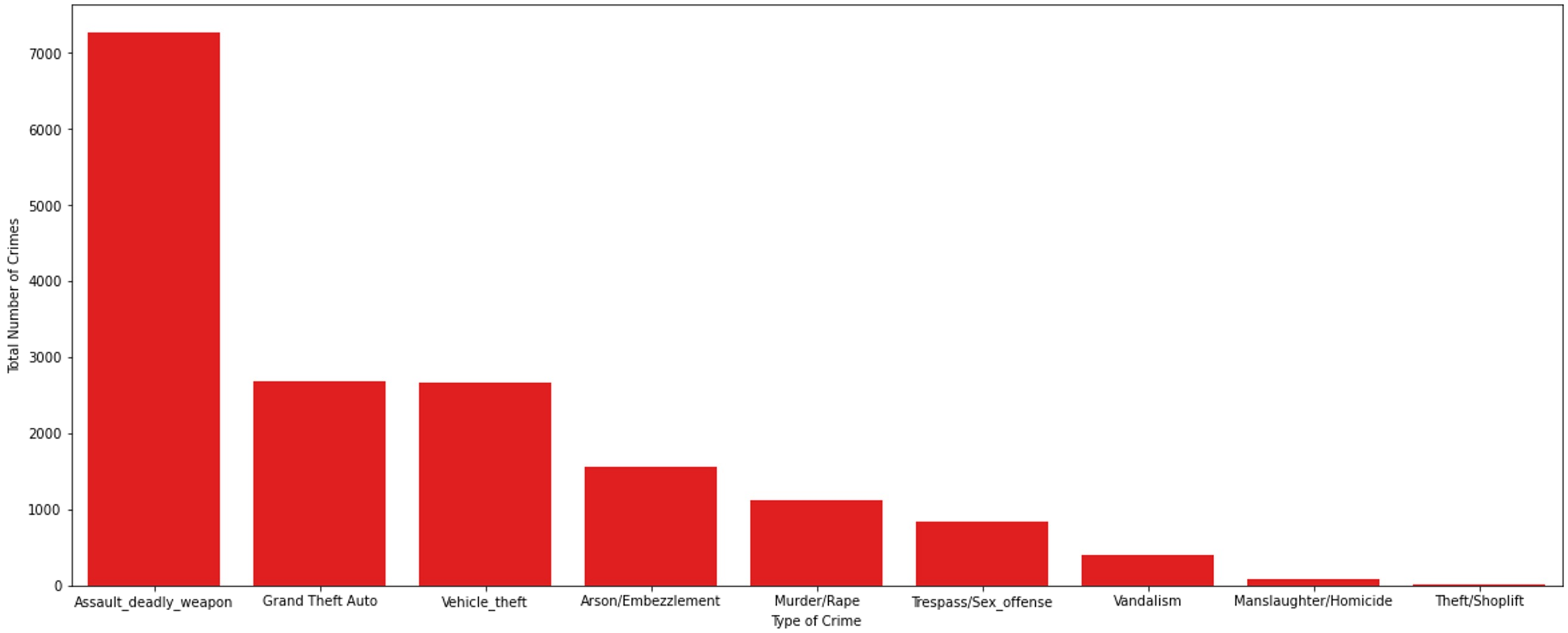
5. Average Median Household Income in LA Areas




→ For the last 11 years, we see the median household income rise on a consistent basis, until 2020 during covid where there was a big drop in all areas, followed by a sharp increase in 2021.

# Data Visualization - Descriptive Statistics

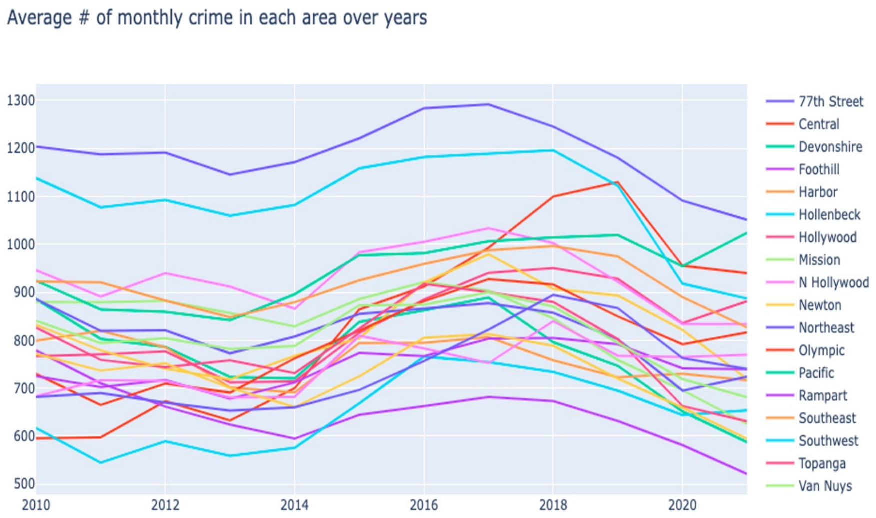
6. Most crimes involving Asian victims are assault with deadly weapons

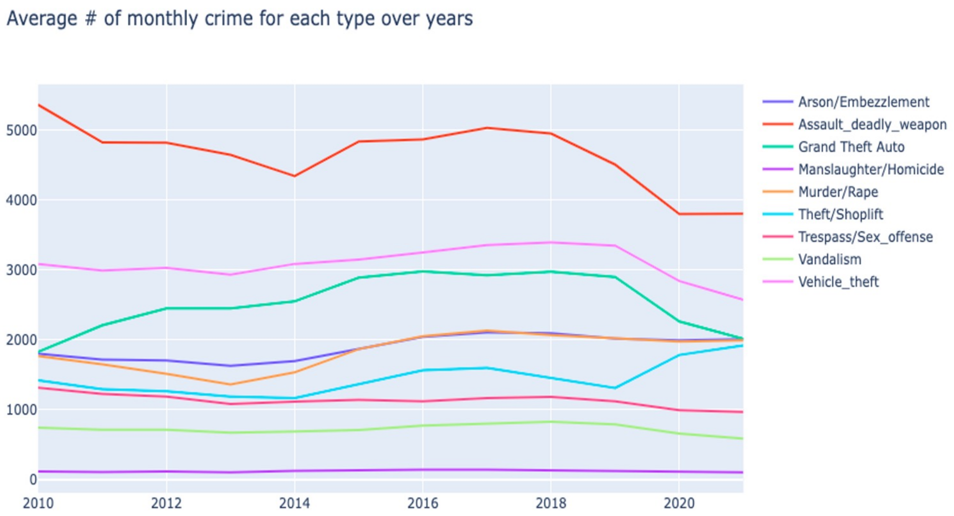



The chart above shows total number of crimes against Asians by crime type. Over the last 11 years, there have been more than 7000 deadly weapon assault cases against Asian community.

# Analytics Process

Q1. How did covid-19 impact crime in Los Angeles? What other factors could lead to this impact?



# Analytics Process

Q1. How does covid-19 impact crime in Los Angeles? What other factors could lead to this impact?

**Linear Regression Model:**

- log(Average # of monthly crimes each year in each area) = b0 + b1*Covid + b2*log(Population) + b3*log(Unemployment Rate) + Area Dummies

- log(Median household income) does not have impact on # of crime significantly and is therefore removed from the model

# Analytics Process

**Linear Regression Result:**

- The population and unemployment rate have an impact on the number of crime significantly.
- Certain locations also significantly affect crime.
- After the pandemic, the average number of monthly crimes decreases by 10.4% compared to pre-covid periods.

OLS Regression Results

| | | | |
|---|---|---|---|
| Dep. Variable: | ln_Crimes_per_month | R-squared: | 0.777 |
| Model: | OLS | Adj. R-squared: | 0.754 |
| Method: | Least Squares | F-statistic: | 34.47 |
| Date: | Thu, 02 Dec 2021 | Prob (F-statistic): | 2.47e-61 |
| Time: | 13:42:09 | Log-Likelihood: | 268.98 |
| No. Observations: | 252 | AIC: | -490.0 |
| Df Residuals: | 228 | BIC: | -405.2 |
| Df Model: | 23 | | |
| Covariance Type: | nonrobust | | |

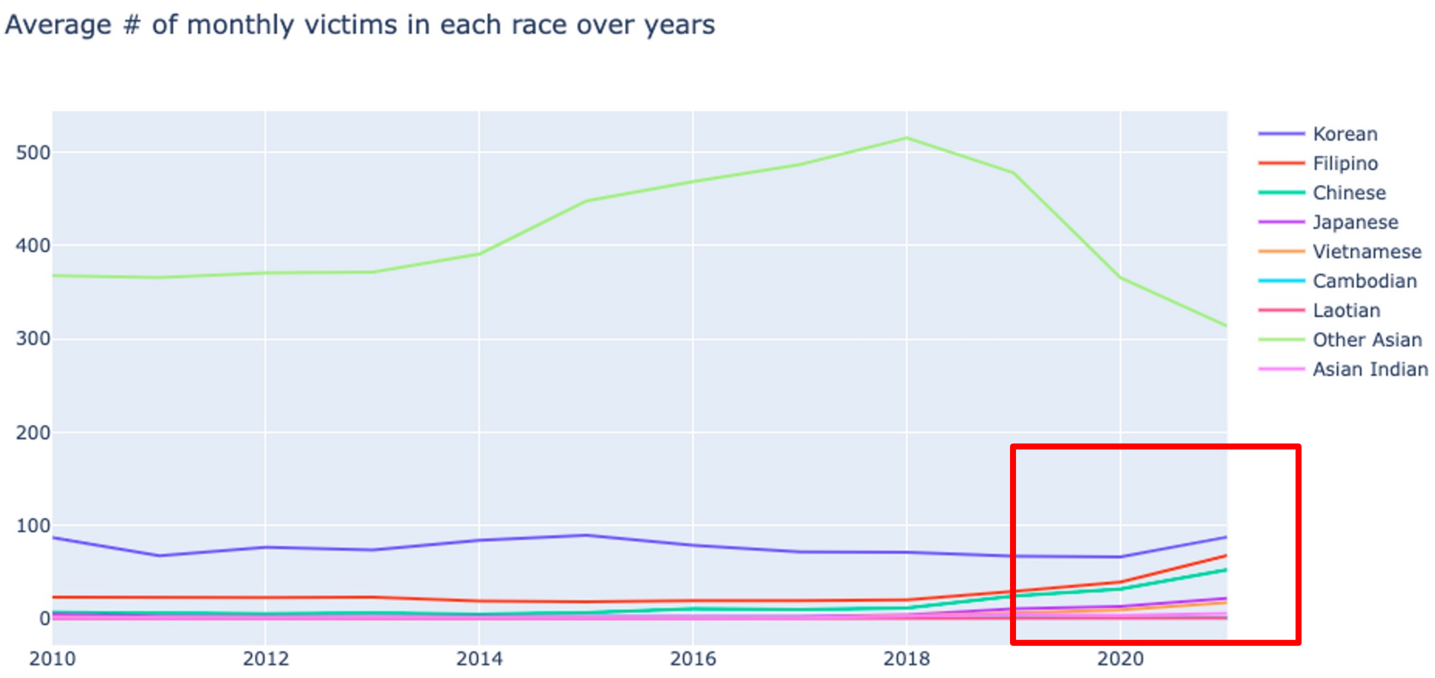
| | coef | std err | t | P>\|t\| | [0.025 | 0.975] |
|---|---|---|---|---|---|---|
| Intercept | -0.8141 | 2.133 | -0.382 | 0.703 | -5.018 | 3.390 |
| Covid | -0.1099 | 0.025 | -4.467 | 0.000 | -0.158 | -0.061 |
| ln_Population | 0.6360 | 0.162 | 3.914 | 0.000 | 0.316 | 0.956 |
| ln_Unemployment_rate | -0.2083 | 0.026 | -7.882 | 0.000 | -0.260 | -0.156 |
| Central | -0.6519 | 0.071 | -9.231 | 0.000 | -0.791 | -0.513 |
| Devonshire | -0.1854 | 0.080 | -2.314 | 0.022 | -0.343 | -0.028 |
| Foothill | -0.5625 | 0.049 | -11.529 | 0.000 | -0.659 | -0.466 |
| Harbor | -0.8706 | 0.104 | -8.350 | 0.000 | -1.076 | -0.665 |
| Hollenbeck | -0.6721 | 0.037 | -18.337 | 0.000 | -0.744 | -0.600 |
| Hollywood | 0.2912 | 0.179 | 1.626 | 0.105 | -0.062 | 0.644 |
| Mission | -0.2127 | 0.061 | -3.467 | 0.001 | -0.334 | -0.092 |
| N_Hollywood | -0.0071 | 0.075 | -0.094 | 0.925 | -0.155 | 0.141 |
| Newton | 0.2239 | 0.160 | 1.403 | 0.162 | -0.090 | 0.538 |
| Northeast | -0.4520 | 0.037 | -12.197 | 0.000 | -0.525 | -0.379 |
| Olympic | -0.2888 | 0.063 | -4.586 | 0.000 | -0.413 | -0.165 |
| Pacific | -0.5044 | 0.066 | -7.686 | 0.000 | -0.634 | -0.375 |
| Rampart | 0.3197 | 0.207 | 1.543 | 0.124 | -0.089 | 0.728 |
| Southeast | -0.1058 | 0.054 | -1.956 | 0.052 | -0.212 | 0.001 |
| Southwest | 0.2394 | 0.095 | 2.511 | 0.013 | 0.052 | 0.427 |
| Topanga | -0.0935 | 0.107 | -0.876 | 0.382 | -0.304 | 0.117 |
| Van_Nuys | 0.2926 | 0.186 | 1.574 | 0.117 | -0.074 | 0.659 |
| West_LA | -0.2018 | 0.087 | -2.317 | 0.021 | -0.373 | -0.030 |
| West_Valley | 0.0470 | 0.160 | 0.293 | 0.770 | -0.269 | 0.363 |
| Wilshire | 0.1132 | 0.174 | 0.650 | 0.516 | -0.230 | 0.456 |

| | | | |
|---|---|---|---|
| Omnibus: | 16.219 | Durbin-Watson: | 0.898 |
| Prob(Omnibus): | 0.000 | Jarque-Bera (JB): | 22.812 |
| Skew: | -0.447 | Prob(JB): | 1.11e-05 |
| Kurtosis: | 4.171 | Cond. No. | 5.21e+03 |

Notes:
[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.
[2] The condition number is large, 5.21e+03. This might indicate that there are strong multicollinearity or other numerical problems.

# Analytics Process

Q2. Whether Asians were more likely to become victims after covid-19 in Los Angeles?



# Analytics Process

Q2. Whether Asian are more likely to become victims after covid-19 in Los Angeles?

## Two sample t hypothesis test:

- Goal: To check whether the proportion of Asians victims (Chinese, Korean, Japanese, Filipino, Vietnamese, Cambodian, Laotian, Other Asian, Asian Indian) among all victims increases after covid-19 in LA.

- H0: The average proportion of Asian victims among all victims before covid-19 (mu0) is the same as the average proportion after covid-19 (mu1). mu0 - mu1 = 0

- Ha: The average proportion of Asian victims among all victims after covid-19 (mu1) is larger than the average proportion before covid-19 (mu0). mu0 - mu1 < 0

# Analytics Process

## Hypothesis Result:

- Test Statistics = -2.54
- Threshold: t(df = 9, 0.05) = −1.833
- Since -2.54 < Threshold, we can reject the null hypothesis.
- Inference: The average proportion of Asian victims among all victims after covid-19 is larger than the average proportion before covid-19.

The proportion of victims by race over years

| CRIME_YEAR | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VICTIM_RACE | | | | | | | | | | | | |
| Other Asian | 0.021112 | 0.021878 | 0.022084 | 0.023137 | 0.024009 | 0.024950 | 0.024950 | 0.025284 | 0.027038 | 0.026387 | 0.022285 | 0.019646 |
| Black | 0.162156 | 0.162203 | 0.166347 | 0.165829 | 0.168260 | 0.157521 | 0.151506 | 0.149697 | 0.153695 | 0.151229 | 0.142602 | 0.143362 |
| Chinese | 0.000387 | 0.000334 | 0.000298 | 0.000369 | 0.000271 | 0.000339 | 0.000550 | 0.000506 | 0.000586 | 0.001329 | 0.001916 | 0.003283 |
| Cambodian | 0.000019 | 0.000020 | 0.000005 | 0.000010 | 0.000010 | 0.000000 | 0.000009 | 0.000004 | 0.000017 | 0.000018 | 0.000030 | 0.000050 |
| Filipino | 0.001310 | 0.001325 | 0.001335 | 0.001412 | 0.001156 | 0.000998 | 0.001020 | 0.000991 | 0.001049 | 0.001610 | 0.002373 | 0.004235 |
| Guamanian | 0.000019 | 0.000040 | 0.000025 | 0.000016 | 0.000056 | 0.000060 | 0.000049 | 0.000052 | 0.000044 | 0.000037 | 0.000076 | 0.000088 |
| Hispanic/Latin/Mexican | 0.351275 | 0.352468 | 0.348238 | 0.345770 | 0.350645 | 0.344815 | 0.342798 | 0.337637 | 0.330280 | 0.330514 | 0.308179 | 0.302548 |
| American Indian/Alaskan Native | 0.000363 | 0.000379 | 0.000352 | 0.000457 | 0.000368 | 0.000469 | 0.000532 | 0.000424 | 0.000446 | 0.000672 | 0.000488 | 0.000839 |
| Japanese | 0.000258 | 0.000154 | 0.000124 | 0.000125 | 0.000153 | 0.000139 | 0.000124 | 0.000104 | 0.000205 | 0.000580 | 0.000793 | 0.001341 |
| Korean | 0.004967 | 0.004031 | 0.004556 | 0.004590 | 0.005136 | 0.004971 | 0.004179 | 0.003710 | 0.003728 | 0.003684 | 0.004015 | 0.005475 |
| Laotian | 0.000000 | 0.000015 | 0.000000 | 0.000016 | 0.000005 | 0.000005 | 0.000009 | 0.000000 | 0.000009 | 0.000028 | 0.000025 | 0.000038 |
| Pacific Islander | 0.000206 | 0.000154 | 0.000139 | 0.000145 | 0.000153 | 0.000246 | 0.000191 | 0.000139 | 0.000118 | 0.000138 | 0.000183 | 0.000175 |
| Samoan | 0.000038 | 0.000010 | 0.000020 | 0.000010 | 0.000000 | 0.000005 | 0.000022 | 0.000017 | 0.000013 | 0.000009 | 0.000041 | 0.000075 |
| Hawaiian | 0.000067 | 0.000100 | 0.000124 | 0.000047 | 0.000092 | 0.000186 | 0.000031 | 0.000095 | 0.000079 | 0.000083 | 0.000091 | 0.000213 |
| Vietnamese | 0.000086 | 0.000055 | 0.000060 | 0.000073 | 0.000031 | 0.000046 | 0.000062 | 0.000039 | 0.000157 | 0.000345 | 0.000559 | 0.001065 |
| White | 0.257258 | 0.255021 | 0.256968 | 0.251288 | 0.242773 | 0.244573 | 0.232913 | 0.227582 | 0.227236 | 0.223030 | 0.212977 | 0.212725 |
| Unknown | 0.200425 | 0.201794 | 0.199300 | 0.206645 | 0.206854 | 0.220644 | 0.241032 | 0.253688 | 0.255192 | 0.260055 | 0.303168 | 0.304516 |
| Asian Indian | 0.000053 | 0.000020 | 0.000025 | 0.000062 | 0.000026 | 0.000032 | 0.000022 | 0.000030 | 0.000109 | 0.000253 | 0.000198 | 0.000326 |

# Conclusion

## Q1: How does covid-19 impact crime in Los Angeles? What other factors could lead to this impact?

- The population, unemployment rate  and locations have an impact on the number of crime significantly
- The average monthly rate of crime decreases after the outbreak of covid-19

## Q2: Whether Asian are more likely to become victims after covid-19 in Los Angeles?

- Among all crimes, the proportion of the asian victims increases after the outbreak of covid-19

# Reference


1. Kaggle: https://www.kaggle.com/sumaiaparveenshupti/los-angeles-crime-data-20102020?select=Crime_Data_from_2010_to_2019.csv
2. United States Census Bureau: https://data.census.gov/cedsci/
    a. Household median income: https://data.census.gov/cedsci/table?q=income&g=0400000US06%248600000&tid=ACSST5Y2019.S1901&hidePreview=true
    b. Unemployment: https://data.census.gov/cedsci/table?q=unemployment&g=0400000US06%248600000&tid=ACSST5Y2019.S2301&hidePreview=true
    c. Population: https://data.census.gov/cedsci/table?q=demographic&g=0400000US06%248600000&tid=ACSDP5Y2019.DP05&hidePreview=true
3. Google API Call: https://maps.googleapis.com/maps/api/geocode/json?latlng=34.0197,-118.2749&key

# Thanks for Listening!

# Appendix

## Proportion of Victim by Race Over Years

| | VICTIM_RACE |
|---|---|
| Hispanic/Latin/Mexican | 33.887% |
| White | 23.798% |
| Unknown | 23.482% |
| Black | 15.665% |
| Other Asian | 2.386% |
| Korean | 0.435% |
| Filipino | 0.141% |
| Chinese | 0.071% |
| American Indian/Alaskan Native | 0.046% |
| Japanese | 0.029% |
| Vietnamese | 0.017% |
| Pacific Islander | 0.017% |
| Hawaiian | 0.009% |
| Asian Indian | 0.008% |
| Guamanian | 0.004% |
| Samoan | 0.002% |
| Cambodian | 0.001% |
| Laotian | 0.001% |

| CRIME_YEAR | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VICTIM_RACE | | | | | | | | | | | | |
| Other Asian | 2.11% | 2.19% | 2.21% | 2.31% | 2.40% | 2.50% | 2.50% | 2.53% | 2.70% | 2.64% | 2.23% | 1.96% |
| Black | 16.22% | 16.22% | 16.63% | 16.58% | 16.83% | 15.75% | 15.15% | 14.97% | 15.37% | 15.12% | 14.26% | 14.34% |
| Chinese | 0.04% | 0.03% | 0.03% | 0.04% | 0.03% | 0.03% | 0.06% | 0.05% | 0.06% | 0.13% | 0.19% | 0.33% |
| Cambodian | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.01% |
| Filipino | 0.13% | 0.13% | 0.13% | 0.14% | 0.12% | 0.10% | 0.10% | 0.10% | 0.10% | 0.16% | 0.24% | 0.42% |
| Guamanian | 0.00% | 0.00% | 0.00% | 0.00% | 0.01% | 0.01% | 0.00% | 0.01% | 0.00% | 0.00% | 0.01% | 0.01% |
| Hispanic/Latin/Mexican | 35.13% | 35.25% | 34.82% | 34.58% | 35.06% | 34.48% | 34.28% | 33.76% | 33.03% | 33.05% | 30.82% | 30.25% |
| American Indian/Alaskan Native | 0.04% | 0.04% | 0.04% | 0.05% | 0.04% | 0.05% | 0.05% | 0.04% | 0.04% | 0.07% | 0.05% | 0.08% |
| Japanese | 0.03% | 0.02% | 0.01% | 0.01% | 0.02% | 0.01% | 0.01% | 0.01% | 0.02% | 0.06% | 0.08% | 0.13% |
| Korean | 0.50% | 0.40% | 0.46% | 0.46% | 0.51% | 0.50% | 0.42% | 0.37% | 0.37% | 0.37% | 0.40% | 0.55% |
| Laotian | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| Pacific Islander | 0.02% | 0.02% | 0.01% | 0.01% | 0.02% | 0.02% | 0.02% | 0.01% | 0.01% | 0.01% | 0.02% | 0.02% |
| Samoan | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.01% |
| Hawaiian | 0.01% | 0.01% | 0.01% | 0.00% | 0.01% | 0.02% | 0.00% | 0.01% | 0.01% | 0.01% | 0.01% | 0.02% |
| Vietnamese | 0.01% | 0.01% | 0.01% | 0.01% | 0.00% | 0.00% | 0.01% | 0.00% | 0.02% | 0.03% | 0.06% | 0.11% |
| White | 25.73% | 25.50% | 25.70% | 25.13% | 24.28% | 24.46% | 23.29% | 22.76% | 22.72% | 22.30% | 21.30% | 21.27% |
| Unknown | 20.04% | 20.18% | 19.93% | 20.66% | 20.69% | 22.06% | 24.10% | 25.37% | 25.52% | 26.01% | 30.32% | 30.45% |
| Asian Indian | 0.01% | 0.00% | 0.00% | 0.01% | 0.00% | 0.00% | 0.00% | 0.00% | 0.01% | 0.03% | 0.02% | 0.03% |

Total for last 11 years, 34% of victims of crime in LA are Hispanic, followed by 24% White and 16% Black community. Over the years, it may seem like crimes against Black, Hispanic and White community have fallen, but do note the Unknown column. It seems that victim race records have not been kept as well as they were 10 years ago.

# Appendix

## Population Density by LA Zipcodes