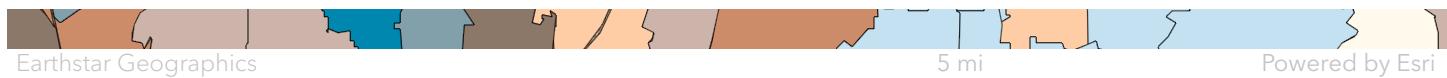




Final Group Project

CIS - 3350.01 Group 6

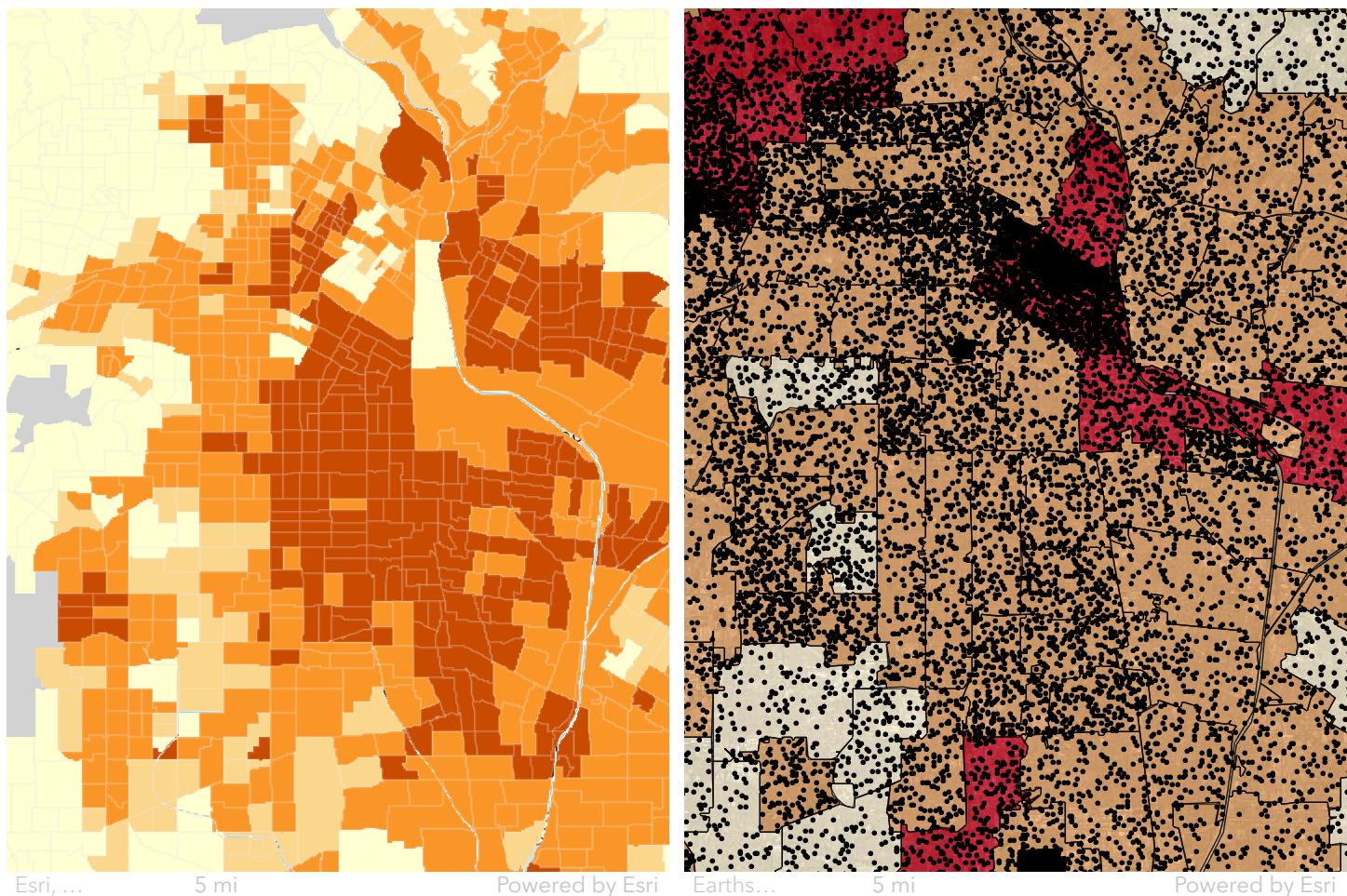
Team Members: Richard Hernandez-Thorn, Samy Benjelloun, Andy Diep, Justin Burrola, Tristan Phan
May 5, 2024



Research Question: How do education rates and spending affect crime in the Los Angeles area?

Area of Interest: California, focusing on Los Angeles

This map compares the relationship of crime as it relates to the number of bachelors degrees in a given zip code.



In this visualization, we compare the population of 25 and older who do not have higher than a high school education. I've split the data into 4 groups. Lower is better, more color means a higher percentage of those who have not completed high school.

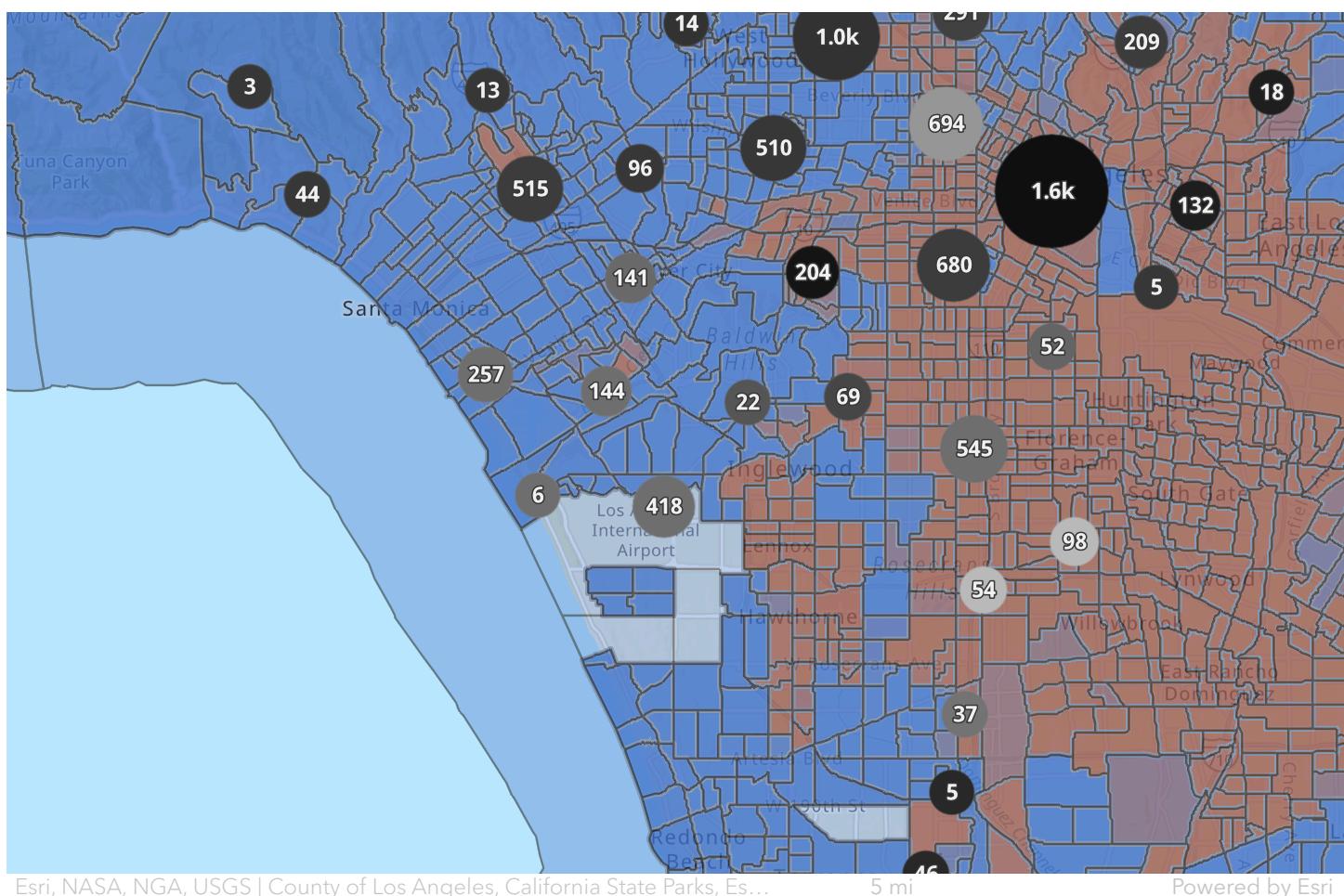
11% is the national average for less than a high school education.

This indicates where education spending and focus can be improved.

Using this property crime index, we can clearly see there are concentrations of crime in certain areas and not others.

We can see large concentrations of crime in Los Angeles city, Marina Del Rey, Venice Beach, Gardena, and Pasadena.

Next let's look at education levels in those areas.



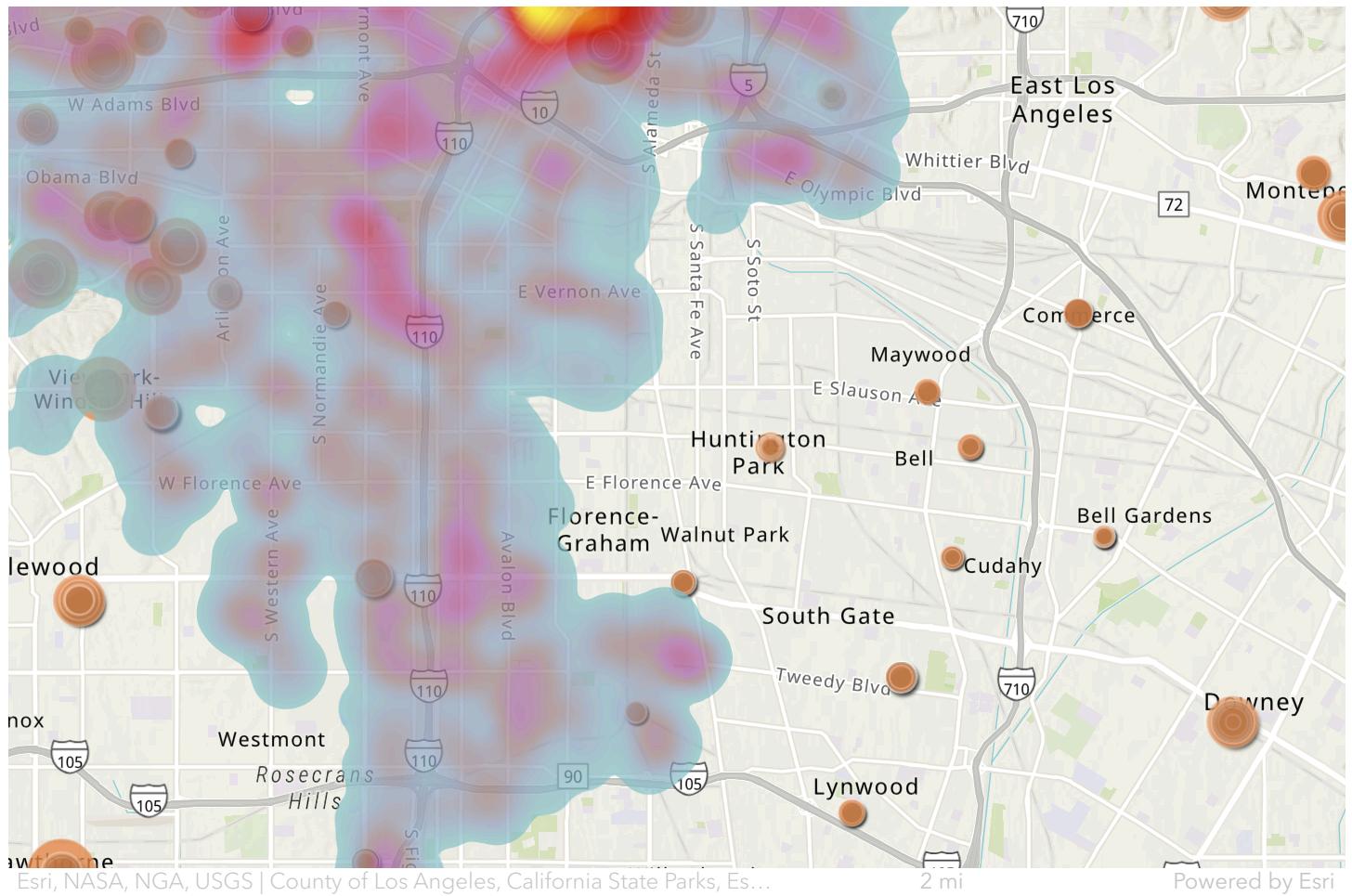
Esri, NASA, NGA, USGS | County of Los Angeles, California State Parks, Es...

5 mi

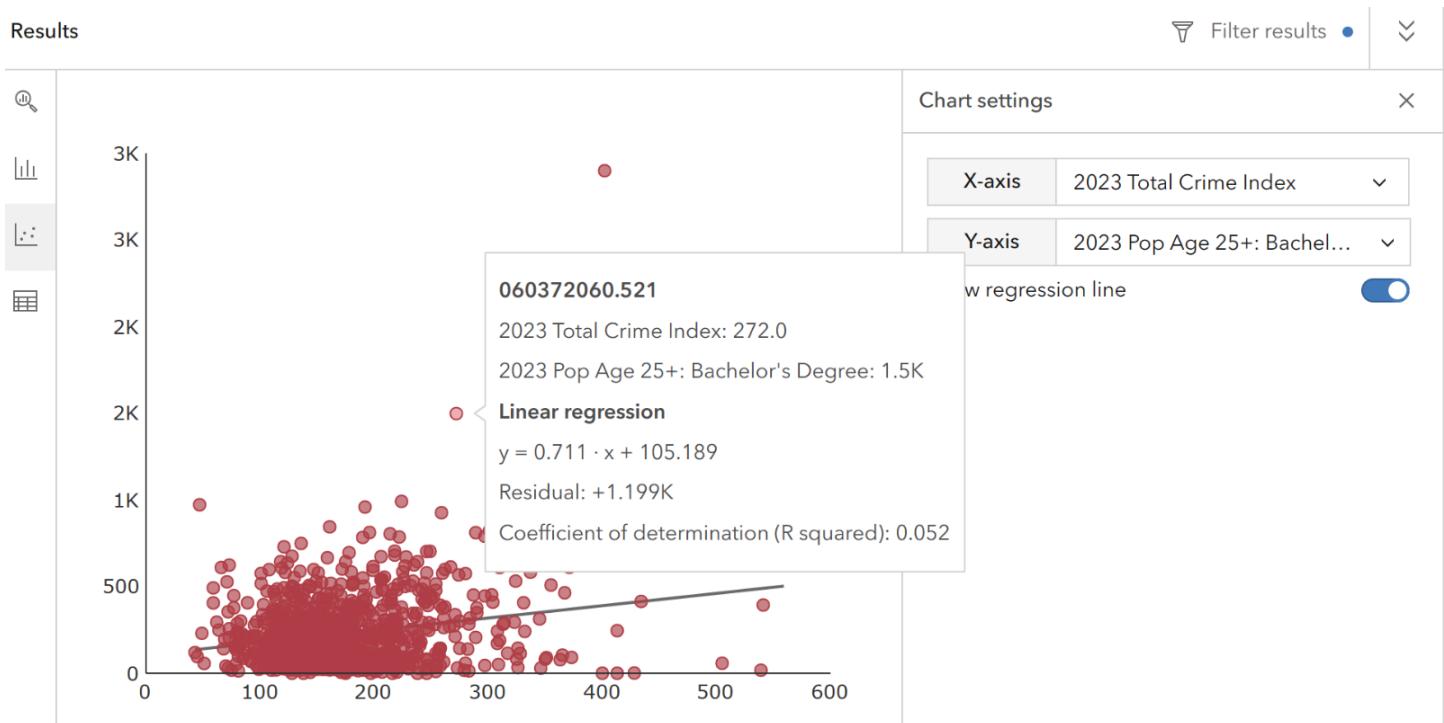
Powered by Esri

This visualization shows clusters of crime hotspots as the top layer. We can also see the layer below showing percentage rates of education attainment, the red shade representing less than a High School Diploma and the blue shade representing a Bachelor's or higher. For this sample size of 2022 theft crime

clusters, we see that the majority of higher rates do lie in pockets of lower education areas.



Utilized ArcGIS Business Analyst to gather Crime, and Education data for this map. After saving and importing the data into a Jupyter Notebook, I leveraged Python to change the render size and color of the feature layers. The field name used for crime is the “2023 Total Crime Index,” and for education, I used the “2023 Population age 25+ Bachelor's Degree.” In the visualization, darker the polygon feature indicates areas with more crime. On the other hand the bigger the points, the more educated people there are in that specific area. We can observe that there isn't a clear relationship between crime and education in the area of Los Angeles and after using linear regression in ArcGIS Business Analyst there is a 5.2% relationship.



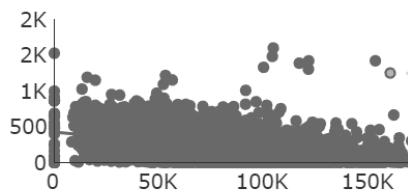
An r^2 value of 0.052 means that only about 5.2% of the variability in crime can be explained by the variability in education level in the specific model. This suggests that there is a weak relationship between education and crime rate. While there may be a weak relationship between education and crime

rate in this specific data, other factors not included in the model could also be influencing crime rates. Additionally, the strength of the relationship can vary depending on the specific dataset and context being studied, such as other states or countries.



Relationship

x-axis: 2023 Median Disposable Income
y-axis: 2023 Robbery Index



060590320.661

2023 Median Disposable Income: \$160.5K

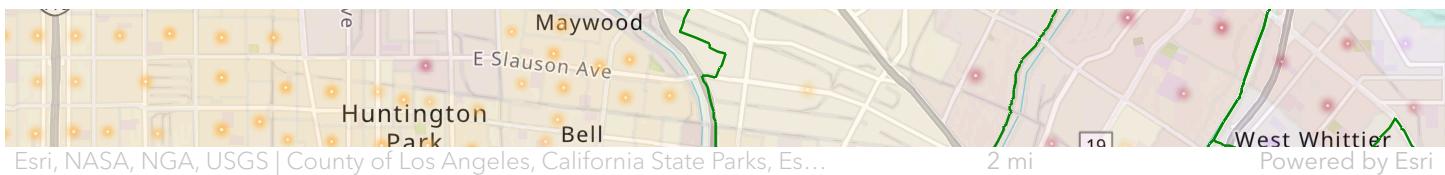
2023 Robbery Index: 1.3K

Linear regression

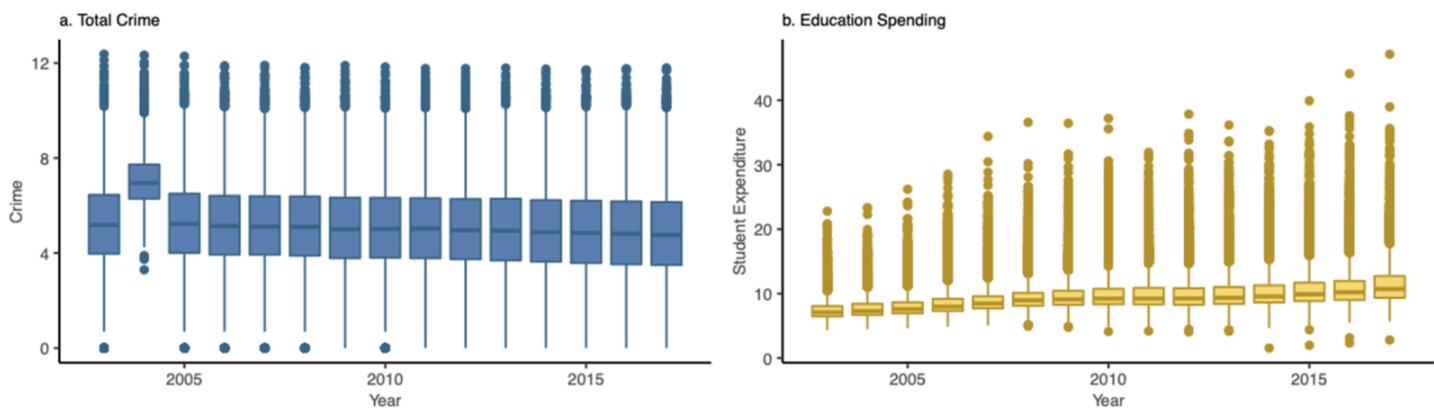
$y = -0.003 \cdot x + 426.846$

Residual: +1.269K

Coefficient of determination (R squared): 0.213



Los Angeles does not lack schools, and has a plethora of schools of all varieties. There are plenty of schools that students can attend.



The school funding adequacy gap is defined as the average gap in dollars between actual and required spending per pupil among public school districts.

School funding adequacy gap: **-\$963**

Source