

FROM ARIZONA TO ALL 50 STATES: MAPPING CRIME AND PROPERTY OFFENSES

FINAL PROJECT – INFO 526

July 2, 2025

By: Brooke Pacheco, Stacey O'Dell, Meredith Jean-Baptiste

INTRODUCTION

- Our team's combined expertise and interest in crime data led us to focus on this topic.
- We worked with two 2023 datasets:
 - Arizona violent crime incidents by FBI jurisdiction
 - Property crime rates across all U.S. states
- The data was sourced from the FBI's Uniform Crime Reporting (UCR) program via the Crime Data Explorer platform.
- The UCR program requires local, state, tribal, and federal agencies to submit standardized annual crime data to the FBI.
- The team focused specifically on the categories with highest crime rates within the Arizona dataset.
- In the national dataset, the focus was on property crimes only, which include offenses like arson, burglary, larceny, motor vehicle theft, and fraud.
- Given the high volume of property crimes, the team concentrated on analyzing total property crime rates per state and per capita.

RESEARCH QUESTION & HYPOTHESIS

DATASET 1

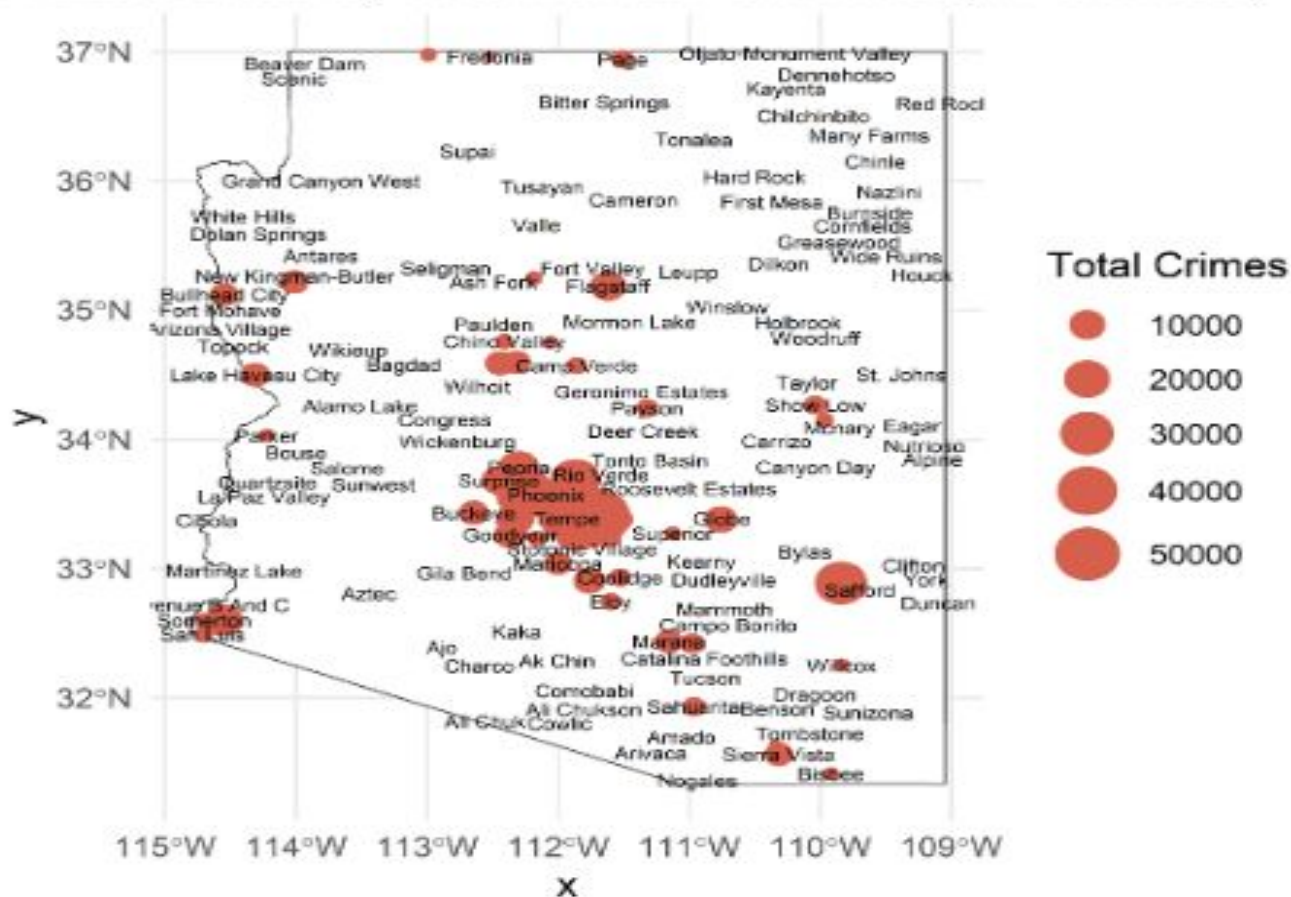
We seek to answer the following **research questions** from the first dataset:

1. Which jurisdictions in Arizona had the highest crime rates per capita in 2023, and which specific offenses drove those rates?
2. How do violent crime rates differ between urban and rural areas in Arizona?

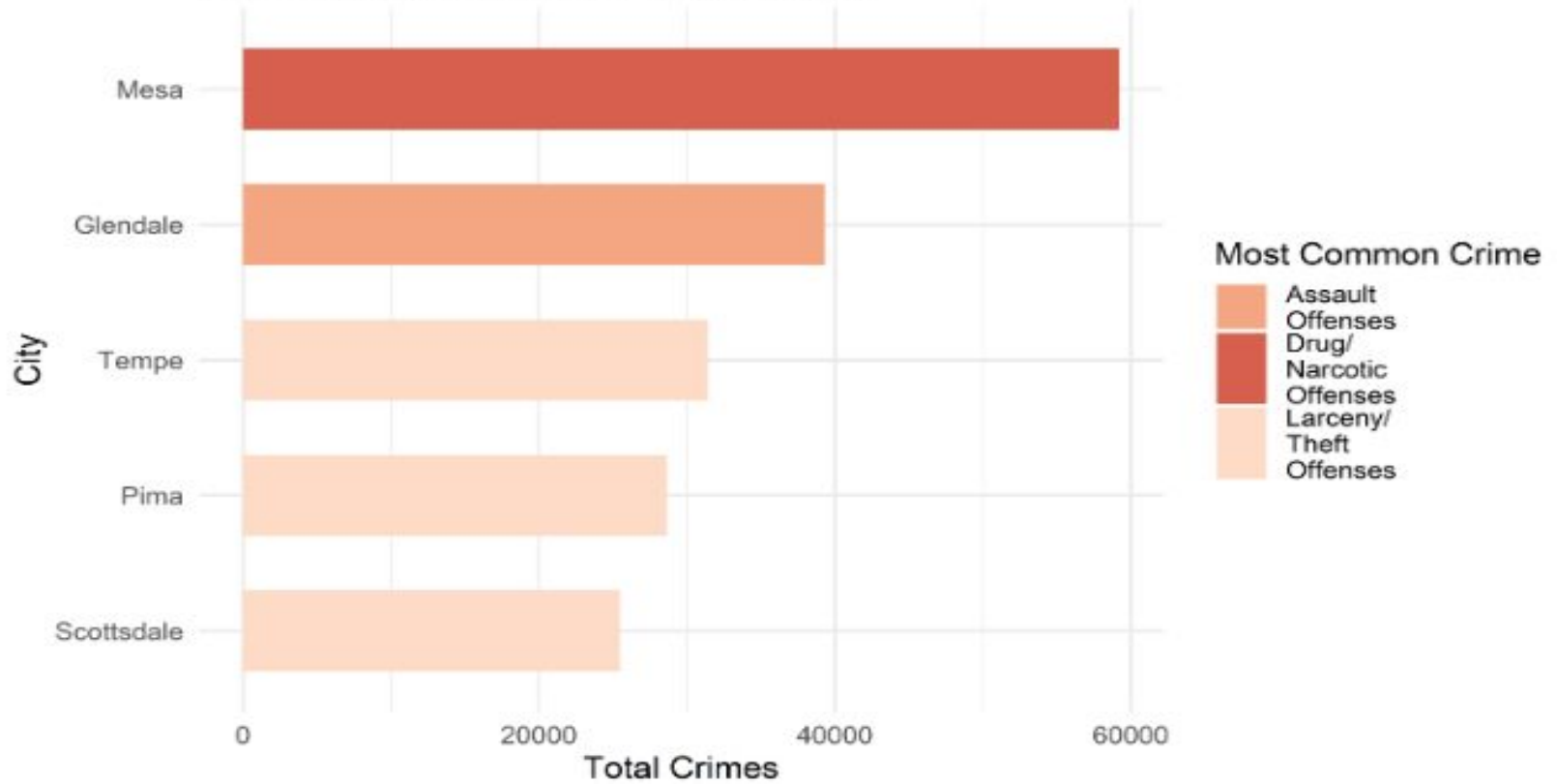
We **hypothesize** that:

1. Violent crime rates will be highest in cities with the greatest population density.
2. We also expect that more violent crimes will occur in densely populated areas.

Arizona Cities by Total Number of Crimes (All Offenses)



Top 5 Arizona Cities by Total Crimes



RESEARCH QUESTION & HYPOTHESIS

DATASET 2

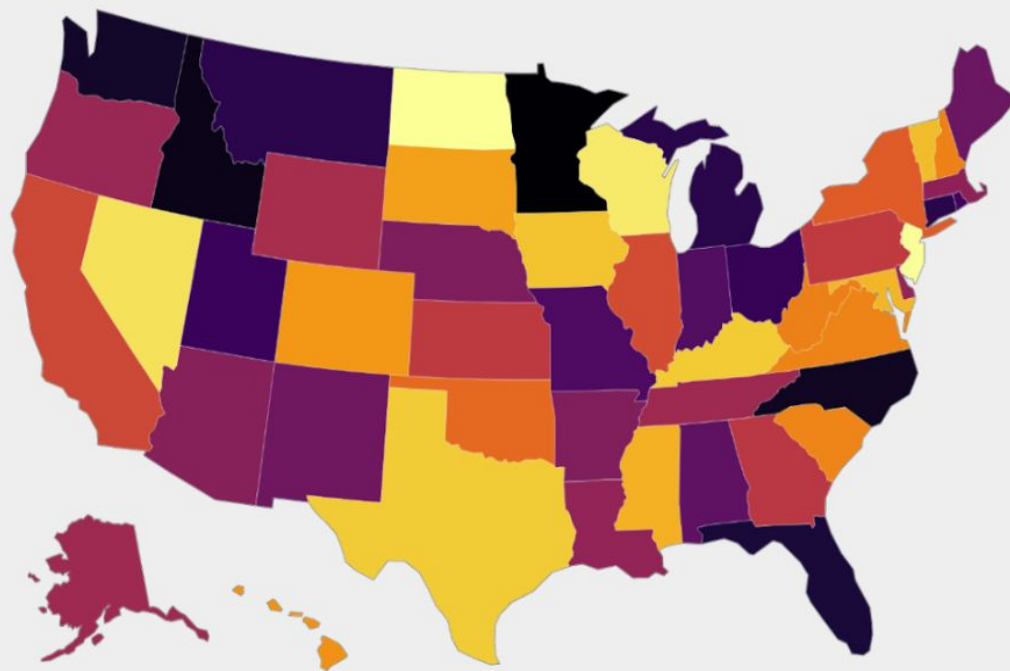
We seek to answer the following **research questions**:

1. Which states stand out as property-crime hot spots, and how do their per-capita rates compare to the national average?
2. Across the top ten states by property-crime volume, which subtype dominates, and how does its share fluctuate from state to state?

We **hypothesize** that :

1. States with large urban centers will register property-crime rates per 100,000 residents that exceed the national average of roughly 2,330, while more rural states will fall below this benchmark.
2. Within the top ten states by total property crimes, larceny/theft will consistently account for the majority of offenses—at least 60%—but the proportion of vehicle theft and vandalism will vary enough to highlight regional vulnerabilities.

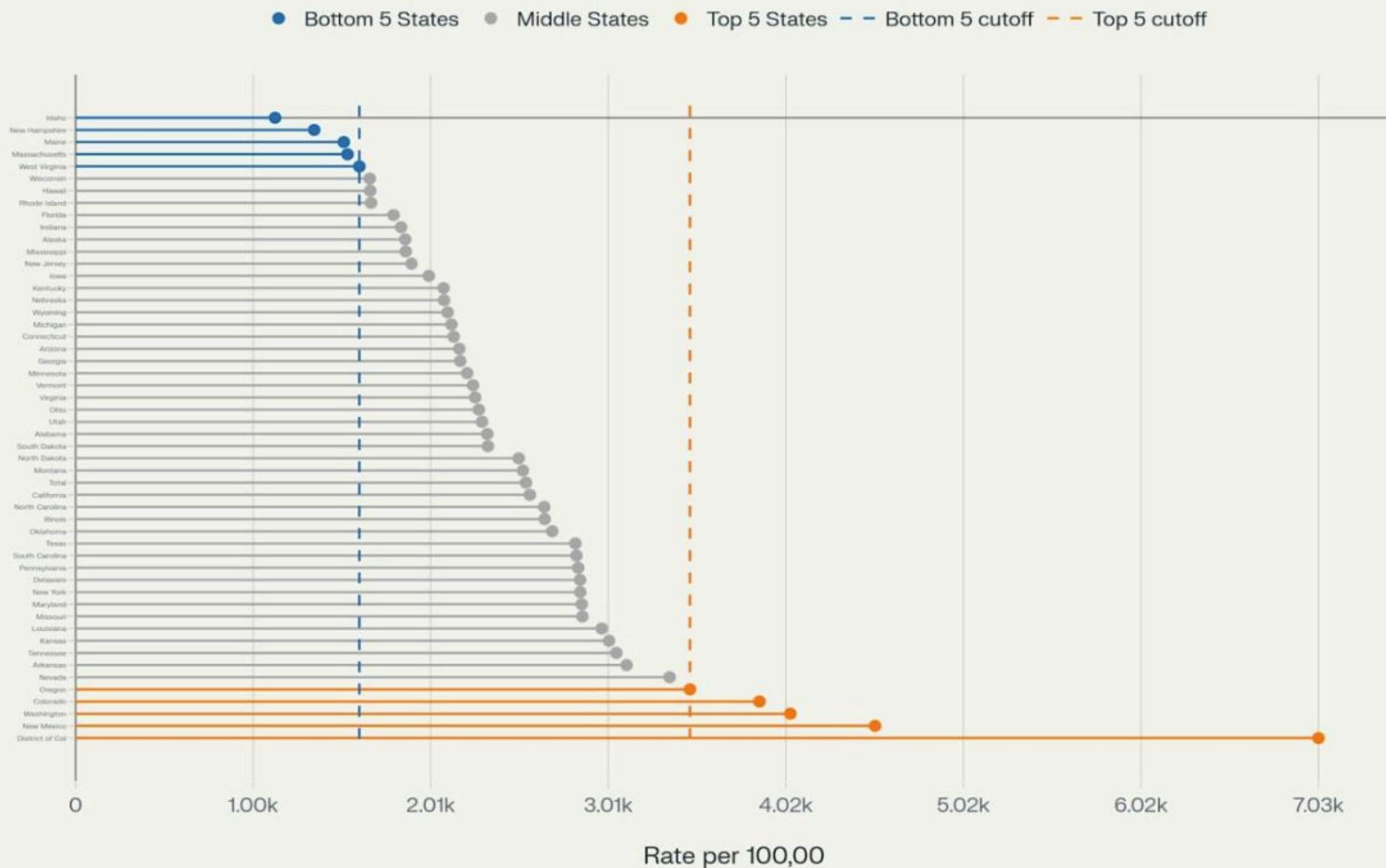
Property Crimes per 100k by State 2023



Rate per 100k

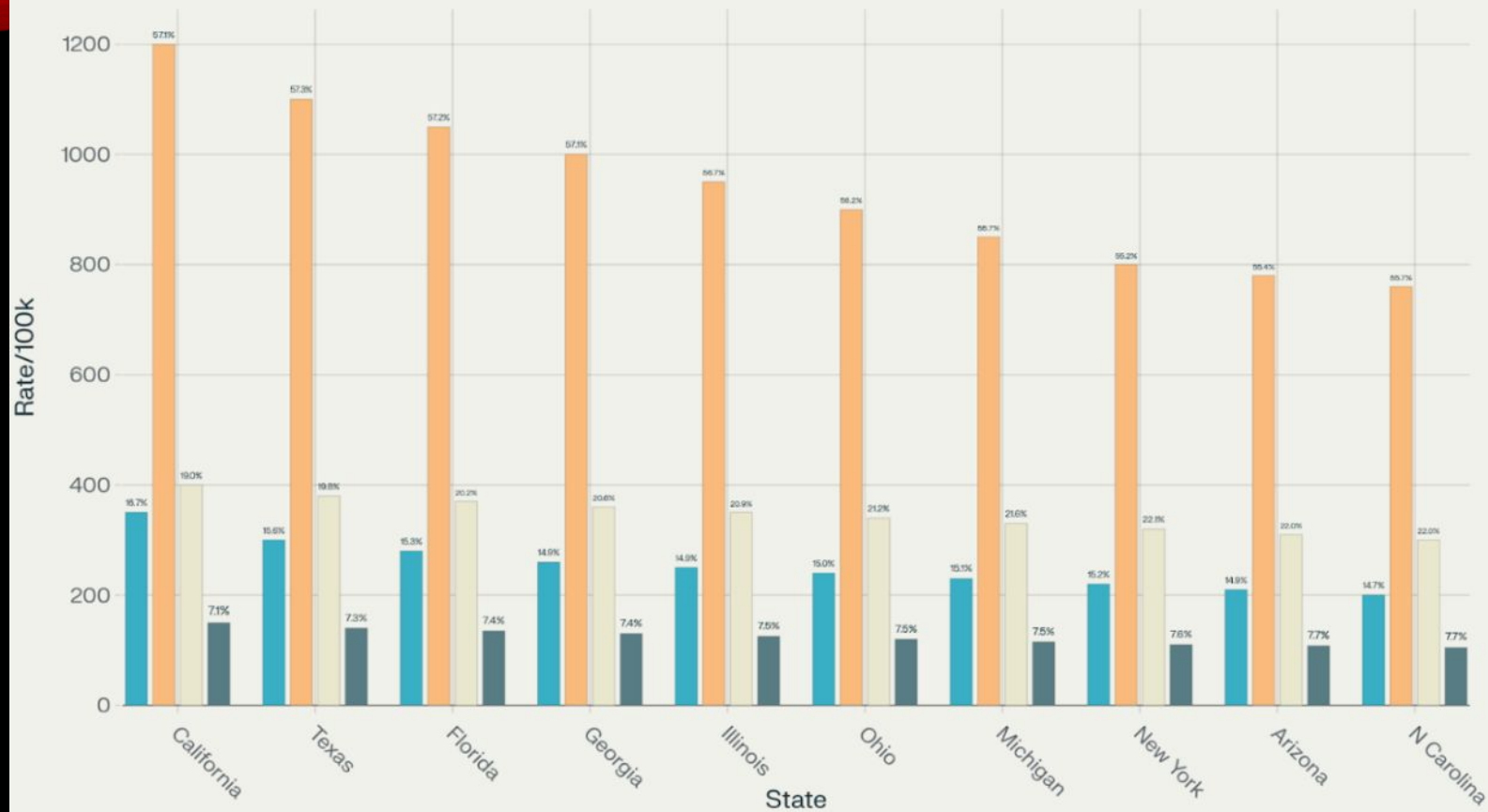


Property Crimes per 100K for State 2023



Property Crimes by Type Top-10 States

Crime Type Burglary Larceny/Theft Vehicle Theft Vandalism



ANALYSIS – DATASET 1

RQ1: Which cities recorded the highest per-capita crime rates in 2023, and which specific offenses drove those rates?

- The bar plot highlights Mesa, Glendale, Tempe, Pima, and Scottsdale as the cities with the highest total crime counts in Arizona.
- Mesa leads with nearly 60,000 reported offenses, with Drug and Narcotic Offenses as the most common crime category.
- Glendale follows with almost 40,000 crimes, driven primarily by Assault Offenses.
- Tempe, Pima, and Scottsdale each reported around 30,000 offenses, with Larceny and Theft Offenses being the most prevalent.

RQ2: How do violent crime rates in Arizona compare between urban and rural areas?

- The geospatial map shows major cities like Phoenix, Mesa, and Glendale report the highest total crime counts, as expected.
- Notably, smaller cities such as Safford and Camp Verde also recorded significant crime totals relative to their size.
- While violent crime is generally more concentrated in large urban areas, certain rural and suburban areas in Arizona also experience notable crime rates, warranting attention when analyzing crime distribution across different types of communities.

ANALYSIS – DATASET 2

RO3: *Which states stand out as property-crime hot spots, and how do their per-capita rates compare to the national average?*

- Can be visualized from the **choropleth map** of **property-crime rates per 100,000** population, this question zeroes in on the **lightest**-shaded states—the ones surpassing 2,500 incidents per 100,000 residents—and contrasts them with the national mean of roughly 2,330 per 100,000.
- By pinpointing these outliers, we can see states such as: Texas, Nevada, Illinois, New Jersey, and North Dakota register the highest burden of property offenses.
- Interestingly some of these are urban corridors while others are economically stressed rural pockets. In the **Cleveland dot plot**, we see the bottom, middle and top five jurisdictions.
- Namely lowest rates were found in Idaho, NH, Maine, Massachusetts, and West Virginia while the highest were found in Oregon, Colorado, Washington, New Mexico and DC.

RO4: *Across the top ten states by property-crime volume, which subtype dominates, and how does its share fluctuate from state to state?*

- Can be visualized in the **grouped bar chart** breakdown of Burglary, Larceny/Theft, Vehicle Theft, and Vandalism rates.
- We observe that **larceny/theft** consistently accounts for 60–70% of property crimes and that California was highest in overall volume (*note that it is not highest per capita*).
- The top ten states are: CA, Texas, Florida, Georgia, Illinois, Ohio, Michigan, NY, Arizona and N. Carolina.

CONCLUSION

- Our findings show that Mesa of Arizona has the highest crime rate, and that drug and narcotic crimes were the most prevalent in the state.
- We observed that Texas, Nevada, Illinois, New Jersey, and North Dakota have the highest rates of property crimes per capita nationally.
- As predicted, states such as Texas, Illinois and NJ with large urban centers registered property-crime rates per 100,000 residents that exceeded the national average of roughly 2,330
- More rural states fell below this benchmark with the exception of ND and Nevada. We also found that, although larceny/theft dominates overall property-crime volumes and is highest in California, it was not among the highest per capita.
- Other states showed elevated shares of auto theft or vandalism which could be tied to local economic, infrastructural, or environmental factors.
- We found, as expected, highly urbanized jurisdictions to emerge as clear property-crime hot spots, reflecting the greater opportunity structures and higher population density found in major metropolitan areas both in Arizona and nationally.