

PROPERTY CRIME RATES BASED ON GEO REGIONS, POPULATIONS, AND RURAL V URBAN LOCATIONS.

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Introduction

Climate conditions have been found to correlate to crime rates (Harp, et.al. 2018). The climate conditions are different with different geographical location. Property crime may be affected by geographical regions due to weather aspects.

Crime rates have shown to congregate within areas of cities regardless of populations in these sections. It was also identified that crime rates do not scale with the populations of regions (Oliveira, et.al, 2017). In other words, populations don't affect the congregations of crime rates.

Areas of higher suicide and homicide rates show to correlate with less gun regulations. These regulations appear to lesson central and south in the united states (Kaufman, et.al., 2018). These regions are analyzed against property crime in this research.

Urban and rural intimate partner femicide showed significant differences when individual characteristics were controlled. A need for reducing the levels of intimate violence in rural regions was discovered (Beyer, et.al., 2013).

I hypothesize that the crime rates in the southwest will be statistically different than the crime rates of the geographical sections. For the populations, I hypothesize areas with larger populations will have higher property crime rates. Regarding rural v urban regions, I hypothesize that urban areas will have higher property crime rates.

Methods

Data of property crime rates were collected from Statista, who retrieved it from an FBI data base.



The property crime rates data were compared against geographical regions, population sizes, and urban v rural regions.



Box and whisker plots along with ANOVAs were conducted to analyze any statistical differences in the data sets.



Assuming a statistical difference appears, numerous Bonferroni t-tests were conducted to determine which data set is statistically different

Results

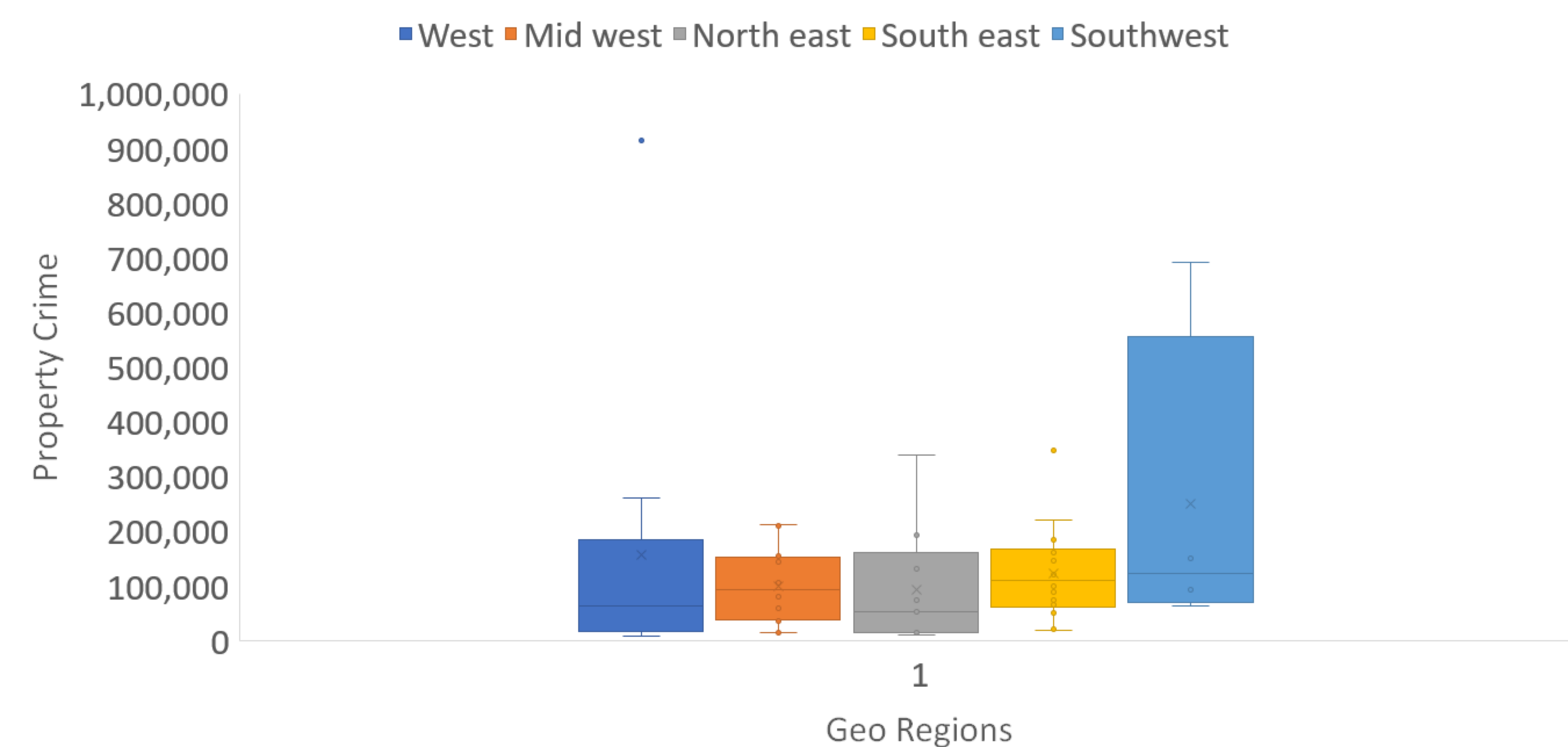


Figure 1: This image represents the box and whisker plot calculated on excel with the comparison of geographical regions compared to property crime rates. The geographical regions are color coordinated and in order of west, Midwest, northeast, southeast, and southwest. The ANOVA conducted on this data presented a p-value of 0.517. When the p-value is greater than the alpha of 0.05 there is no statistically significant difference in the data sets.

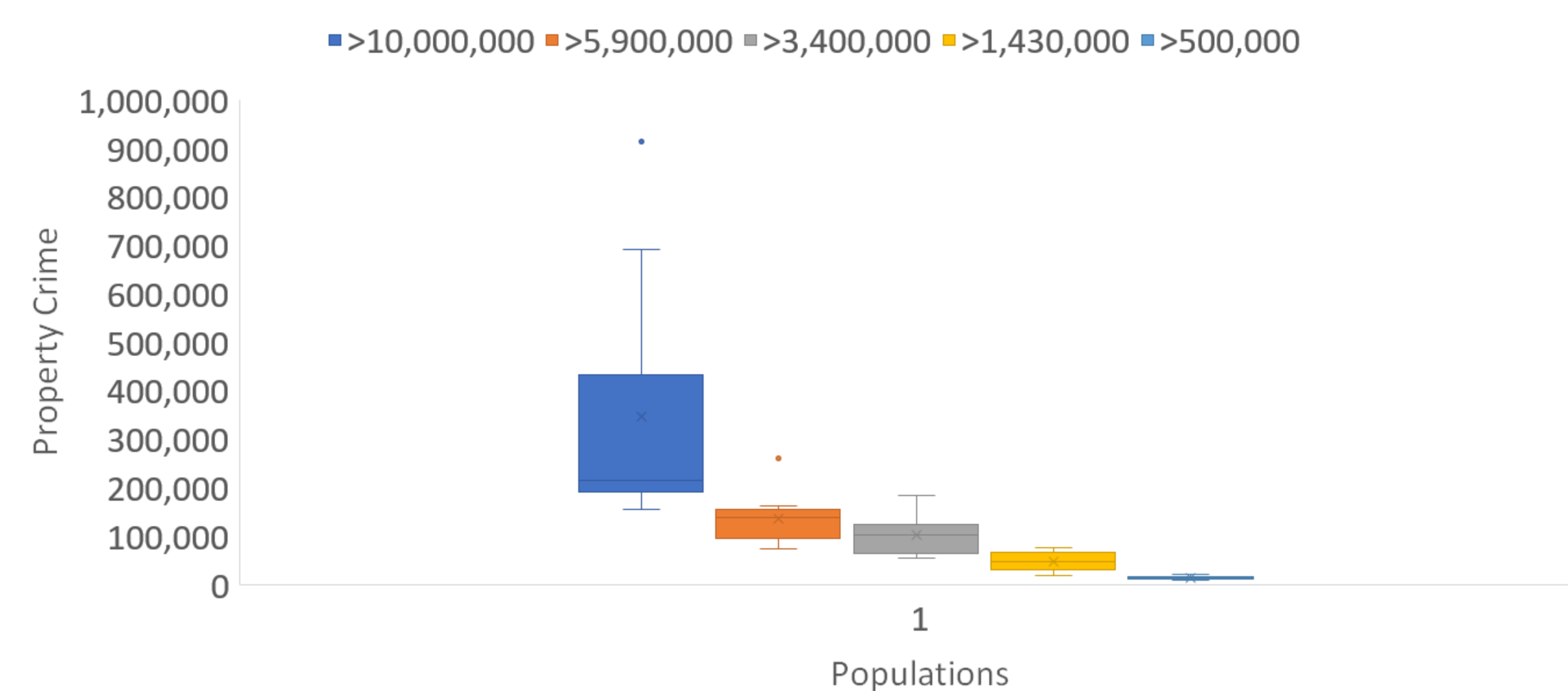


Figure 2: This image represents the graphical comparison of population sizes to property crime rates. The populations of each state are divided into 5 categories of decreasing population sizes. The ANOVA conducted for this data resulted in a p-value of 0.00000857 (8.57E-7). This means there is a statistically significant difference in this data. The t-tests that followed showed that most comparisons have a statistically significant difference. Out of the 10 t-tests conducted, the >10,000,000 compared to >5,900,000, the >10,000,000 compared to >3,400,000, and the >5,900,000 compared to >3,400,000 were the only comparisons without a statistically significant difference

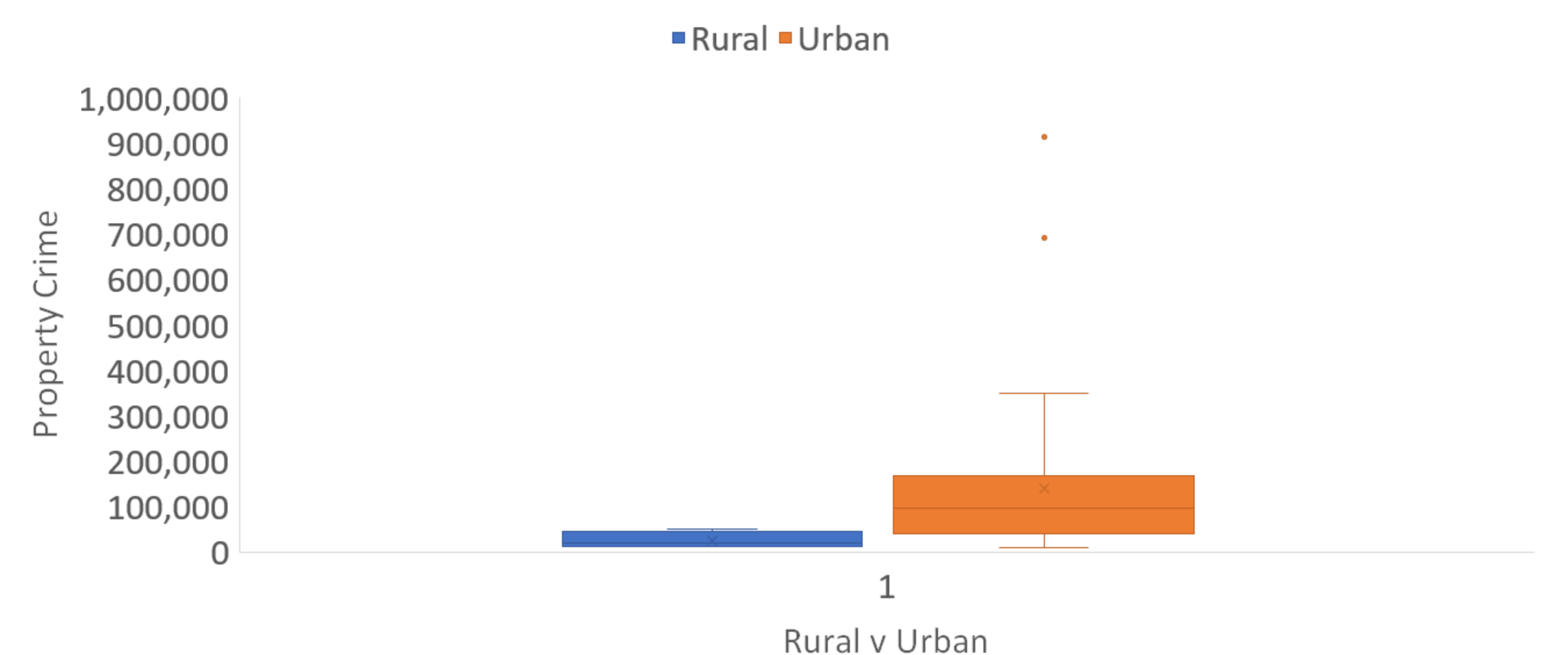


Figure 3: This image represents the box and whisker plot comparing rural and urban locations to property crime rates in the united states. The left box represents the rural locations while the right box represents the urban locations. The ANOVA for the rural v urban regions resulted in a p-value of 0.18 meaning there is no statistically significant difference in these data points.

Conclusions

Population values have a statistically significant difference between data sets regarding property crime rates.

I can conclude that the property crimes are not significantly affected by geographical regions or rural v urban locations.

The t- tests that followed the ANOVA of population data showed 7/10 comparisons hold statistically significant differences.

The 3 larger population groups show no statistically significant difference between them but do show significant difference toward the two smaller population groups. Also, the 2 smaller population groups show statistically significant differences between each other and all other data sets.

My hypothesis was supported with the larger population sizes having statistically significant differences compared to the smaller population sizes. However, my hypothesis regarding rural v urban locations and geographical regions was not supported.

The limitations of this research include: this research only involves 3 potential influences of property crime rates, and the data only encompassed one year.

Future research of this concept can be demonstrated by expanding the years of property crime rates or adding potential influences of property crimes.

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