



The Relationship Between Contraband Found During Traffic Stops and the Time of Year in CT



Jared Lindstrom, Applied Data Analysis, Wesleyan University

Introduction

- “Environmental conditions” suitable for unlawful acts, such as nice weather and temperature, can influence different patterns in crime (Delgado, Sánchez-Delgado, 2023).
- Household larceny and burglary victimization rates tended to be higher in the summer than other times of the year in the year 2014 (Lauritsen, Ph.D., White Ph.D., 2014).
- In 2022, there were 3.1 million traffic stops in CT (Central Connecticut State University, Zaldonis, 2023).

Research Questions

- Is contraband more likely to be found during traffic stops around the holidays/popular vacation times?
- How does this relationship change when gender is included as a third variable?

Methods

Measures

- In the analysis, the variables that were used were the time of year (coded to corresponding number values by month, ex. January = 1, February = 2, March = 3, etc.), whether the vehicle was searched or not, whether or not contraband was found during the search of the vehicle, and subject sex.
- The information that we see in the data set was collected by questions asked and observations made by the police officers while conducting the stop.

Sample

- Data was collected from all traffic stops in Connecticut in 2022 (3.1 million traffic stops).

Results

Bivariate

- The month of January had the most contraband found, followed closely by February, March, and December.
- After completing a Chi-square test, none of the obtained p-values were less than 0.05. Therefore, there was no significant association between month and contraband found.

Multivariate

- After completing a logistic regression while including a third variable of subject sex and changing the variable of “ContrabandFound” to “VehicleSearched” my results were as follows: April (p = 0.02), May (p = 0.034), July (p = 0.004), August (p = 0.003), September (p = 0.04), and subject sex (p < 0.05). I also made the discovery that male’s vehicles were much more likely to be searched than female’s vehicles.
- The odds of vehicle searched are expected to decrease by a factor of “X” for each month and sex are as follows:

April: X = -0.276
 May: X = -0.267
 July: X = -0.3695
 August: X = -0.368
 September: X = -0.264

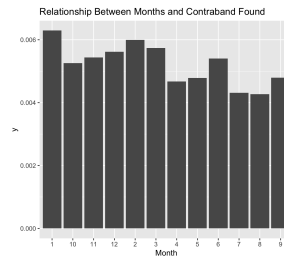


Figure 1: The Relationship Between Months and Contraband Found (Note: Months are out of order)

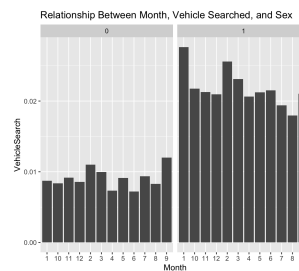


Figure 2: Relationship Between Month, Vehicle Searched, and Sex (Note: Months are out of order, Male = 1, and Female = 0)

Discussion

- The month of January had the most contraband found, followed closely by February, March, and December. However, there was no significant association between month and contraband found.
- Although it is likely that males’ vehicles are more likely to be searched than females’, future research is needed to determine whether sex has an effect on whether or not contraband is more likely to be found during a traffic stop.

References

Delgado, Sánchez-Delgado. (May, 2023). *The effect of seasonality in predicting the level of crime. A spatial perspective*. National Library of Medicine. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10231786/>

Lauritsen, Ph.D, White, Ph.D. (June, 2014). *Seasonal Patterns in Criminal Victimization Trends*. Bureau of Justice Statistics. <https://bjs.ojp.gov/library/publications/seasonal-patterns-criminal-victimization-trends>

Zaldonis. (Updated: August, 2023). *Traffic Stops - Racial Profiling Prohibition Project*. CT Open Data. https://data.ct.gov/Public-Safety/Traffic-Stops-Racial-Profiles-Prohibition-Project/nahi-zqrt/about_data