



# Gender and Racial Representation in Law Enforcement as a Determinant on Community Health

Alex Toohey, Lydia Wong, Anya Danes; Advisors: Dr. Christopher Lowenstein, Dr. Xuechao Qian



## Abstract

In recent years, more and more research has been done into how law enforcement affects the community around it. This study investigates the relationship between the racial and gender composition of sheriffs, a powerful and often overlooked segment of law enforcement leadership, and different statistics regarding poverty, prison populations, and other community health indicators.

Our research project explores how the demographic profiles of sheriffs can be compared against these community health indicators and what that means for policing in the future.

## Introduction

Despite the importance of sheriffs as elected heads of county law enforcement, no comprehensive, systematic research has previously examined how their demographic characteristics relate to broader societal outcomes. To address this gap, we are developing the first national database of county sheriff elections (2005–2024), compiling detailed candidate information—including race and gender—alongside election results and contextual county data.

This novel dataset forms the foundation for analyses assessing links between sheriff diversity and key measures such as incarceration rates, community safety, and crime rates. Using statistical modeling, exploratory data analysis and machine learning approaches, we investigate patterns and potential associations between diverse law enforcement leadership and improved community outcomes. Our findings aim to inform policy reform, recruitment strategies, and broader efforts to enhance equity and representation within public institutions.

## Methods and Data Collection

Specifically, we worked on data collection for 5+ counties in 3 states: Pennsylvania, Illinois, and Florida. We collected data on demographic variables (race and ethnicity, pronoun, gender, age), as well as vote count data for the first and runner up candidates in the county elections.

This data collection was done systematically among the 3 student members, and we did not assume race, ethnicity, or pronoun unless explicitly stated in a news source, or strongly inferred through association membership and picture in some examples for race and ethnicity.

## Focus: Florida Counties Crime and Sheriff Ethnicity

Due to data constrictions on crime data, we are focusing on the state of Florida specifically to analyze the relationship between sheriff demographics and crime data. Only 6 out of the 45 County Sheriff Candidates were identified to be of a descent other than White. All of these 6 Sheriffs were Black or African American.

We analyze the crime rates in the years that had a Black or African American Sheriff candidate and the crime rates, and see that although average total arrests are lower in the years where there was a candidate of Black or African American descent this also corresponds with yearly decreasing total arrests rates. (Figure 3 and 4)

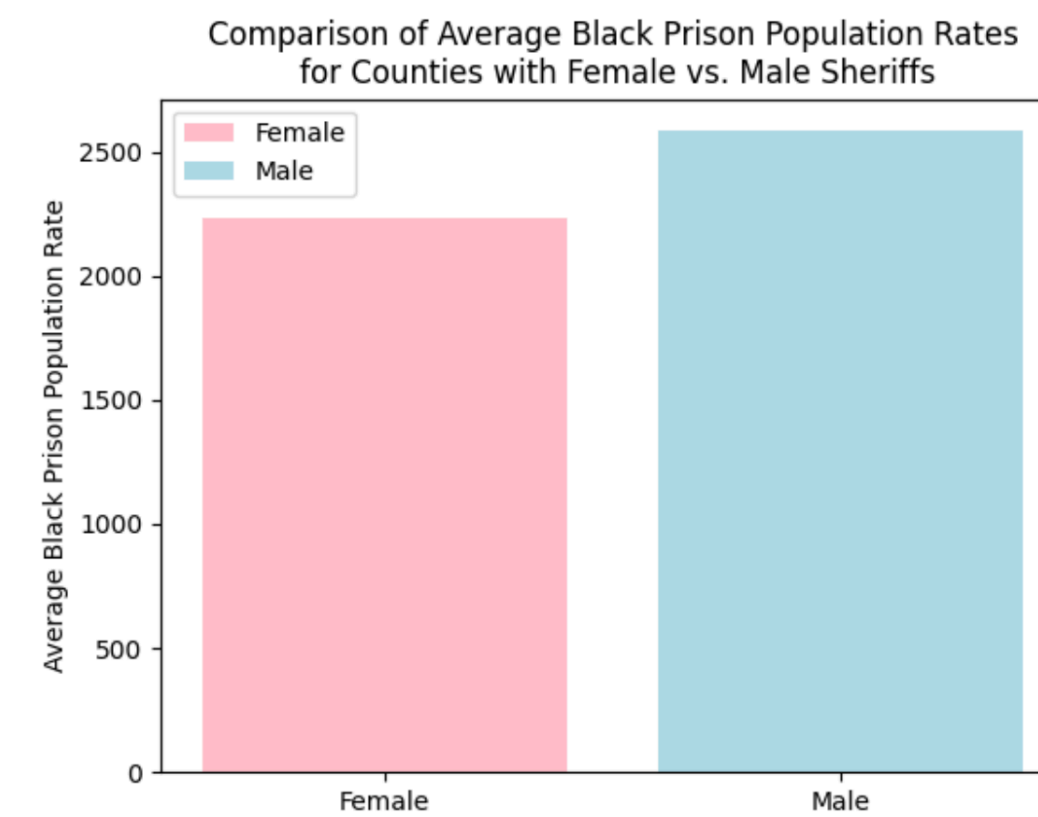


Figure 1



Figure 2

## Incarcerated Demographics by Sheriff Gender

These graphs (Figure 1 and Figure 2) visualize the differences between the incarcerated demographics of counties and years that have a male versus female sheriff, aggregating the average female and black prison population rates respectively (number of those specific population's people imprisoned per 100,000) in highly populated counties from the states of Pennsylvania, Florida, and Illinois.

They show there are clear distinctions between the demographic makeup of incarcerated populations when there is a male versus female sheriff in these counties, as female sheriffs were associated with a much lower prison population rate for female and black populations when compared to their male counterparts. However, it is also important to note that the number of male sheriffs far outnumber the female sheriffs, so more balanced data must be collected to make this analysis even more robust.

As such, while these results are promising, they highlight the need for caution and deeper analysis before drawing definitive conclusions about the direct impact of sheriff representation. Further research is necessary to explore the underlying causes of these associations. Future work should incorporate controlling for county-level socioeconomic and political variables, to see if these have comparable effects to the ones that female sheriffs have on prison populations.

Figure 3

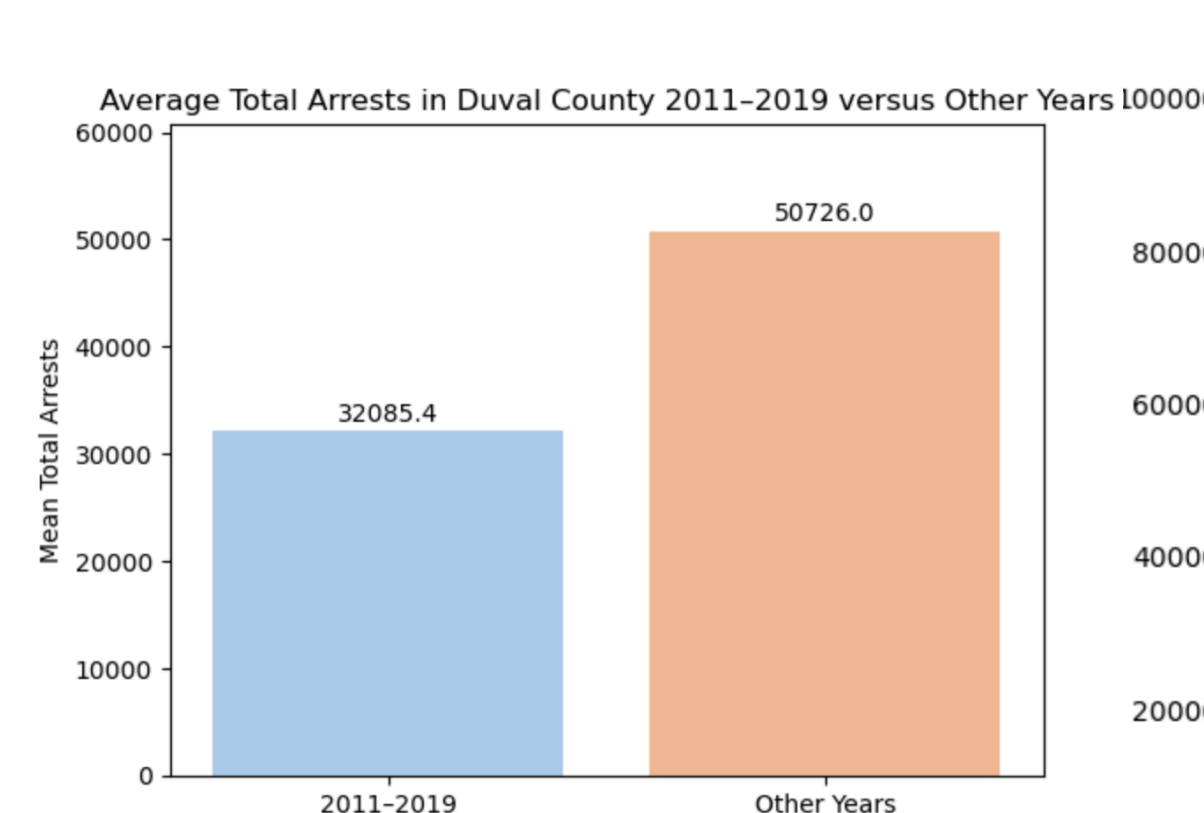
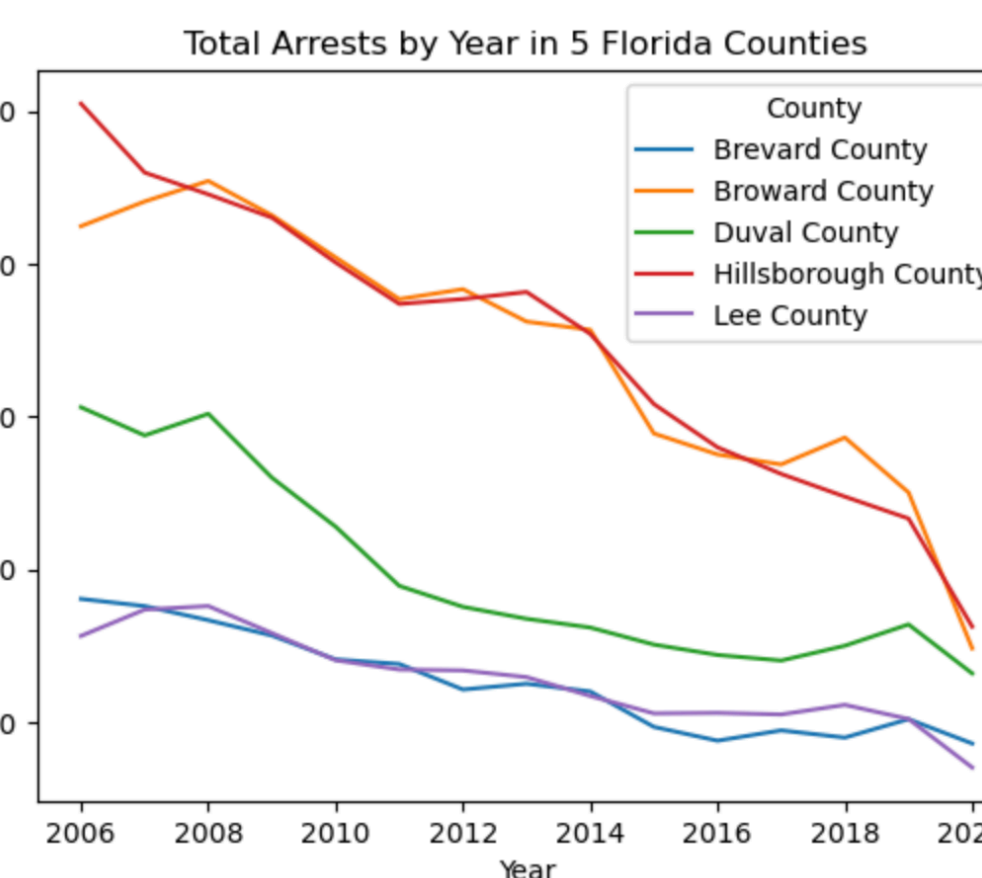


Figure 4

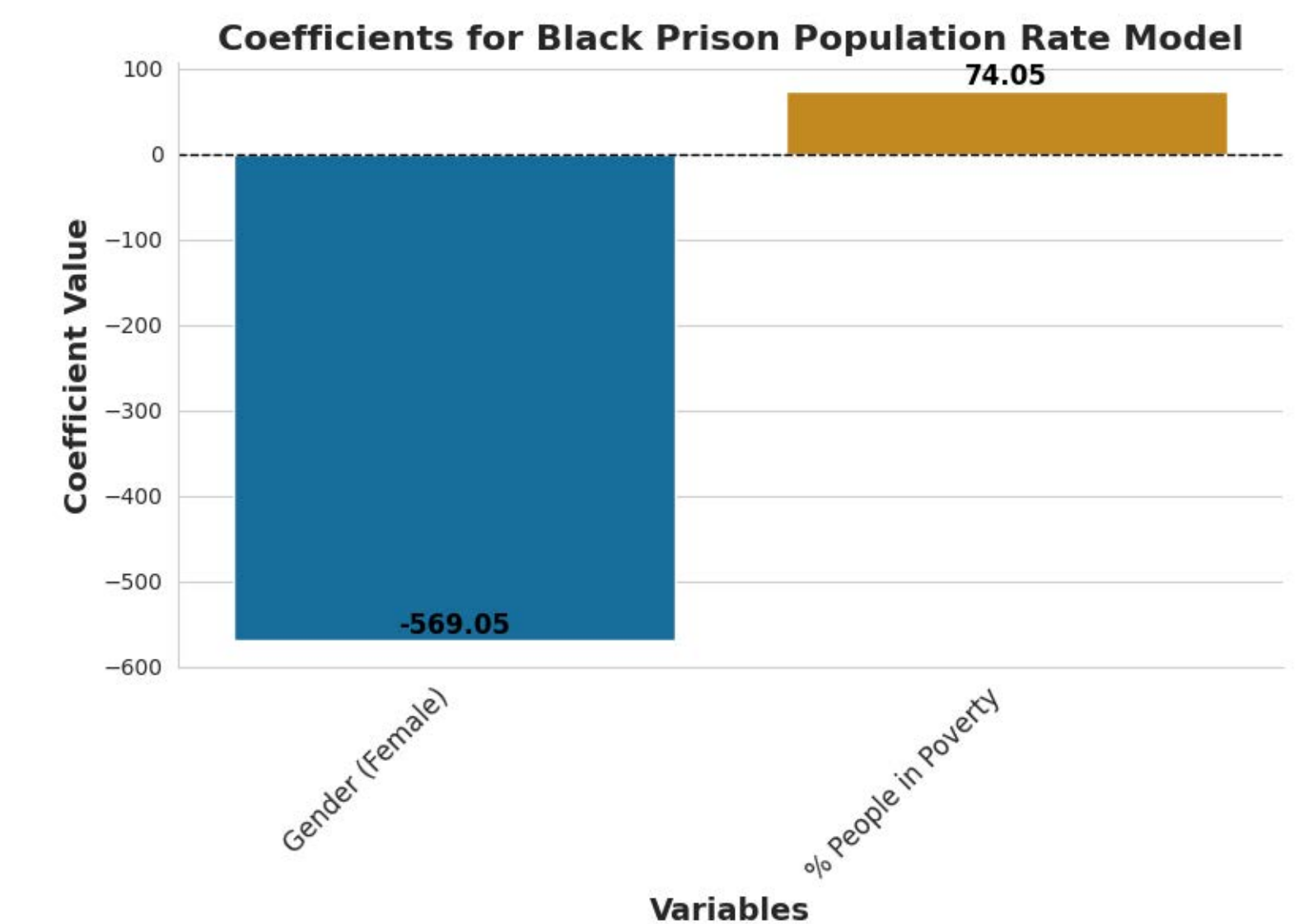


## Modeling Gender as a Variable

Figure 5 depicts the coefficients of a linear regression model, utilizing gender of the sheriff and various county control variables, such as percent of people in poverty shown here, to predict the black prison population rate based on the data from the counties we collected. In this simplified model coefficient visualization below, we can see that a higher percentage of people in poverty, one of our control variables, corresponds with a higher black prison population rate.

More importantly for our analysis, we also see based on these coefficients that when all other county control variables, such as percentage of people in poverty, are held constant, the sheriff's gender being female results in a significant decrease in the predicted black prison population rate, further solidifying the finding that female sheriffs are generally associated with lower black prison population rates than their male counterparts.

Figure 5



## Conclusion

In conclusion, this study discusses a relationship between the race and gender of sheriffs and prison and crime outcomes within U.S. counties as well as other factors. Specifically, counties led by female sheriffs tend to report lower incarceration rates among female and Black prison populations. These findings suggest that representational diversity in law enforcement leadership may play an important role in fostering more equitable criminal justice outcomes. However, while the data indicates a strong association, it does not establish causality. It is equally plausible that counties more likely to elect female sheriffs also exhibit social, political, or cultural characteristics—such as progressive policy environments or higher levels of community engagement—that independently contribute to more favorable prison outcomes.

Secondly, focusing on crimes rates requires context and additional data for research. Focusing on these variables may lead to greater insights into community health and the impacts of diverse leadership in a state and community.