JUSTFAIR North Carolina
UNCOVERING BIAS

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Advised by the Institute for the Quantitative Study of Inclusion, Diversity, and Equity (QSIDE).

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EXECUTIVE SUMMARY

The U.S. has a longstanding history of race-based discrimination in the criminal justice system, depicted by the disproportionate makeup of African American prisoners as opposed to the general populace. Investigating this bias in criminal courts requires a robust data-oriented approach on historical court records.

Through the lens of this study, we investigate different decisions made in criminal courts of North Carolina, and evaluate to what extent the personal biases of public officials about race, gender, and socioeconomic factors are producing different decision-making outcomes.

We scrutinize sentencing and prosecutorial processes, supplemented with racial discrepancies in who is charged with crime, for each county in North Carolina. We observe the geographical patterns that emerge from this analysis, to increase accountability for judicial officials in each district, and increase awareness about the importance of decision-making being accessible to the public.

BACKGROUND

With the long-standing systematic bias in the judicial system, many previous studies have attempted to identify the reasons behind racial disparities within the justice system. For instance, John Pfaff suggested that Black and Latino people might be commiting more crime or are easier to catch while commiting crimes (2017). Additionally, the over-policing of neighborhoods of color, resulting from systematic bias, may also be a contributing factor.

As a recent initiative in this field, the JUSTFAIR project, presented by the Institute for the Quantitative Study of Inclusion, Diversity, and Equity (QSIDE), has built a database of criminal sentencing decisions. Through this initiative, JUSTFAIR has uncovered evidence suggesting that racial biases in federal court decisions may be a primary factor in the race discrepancies seen in criminal charge and incarceration rates (Ciocanel et al., 2020). This research paper represents a subsequent effort by JUSTFAIR to investigate the systematic bias using a data-oriented approach and expand its focus to the state-level context of North Carolina.

Black Americans comprise only 13% of the U.S. population but constitute 40% of those incarcerated

THE QUESTIONS

01 - How can racial bias manifest in the judicial process of our local district courts?

By scrutinizing sentencing and prosecutorial processes, supplemented with racial discrepancies in who is charged with crime, we can investigate racial bias in major procedures in the judicial system.
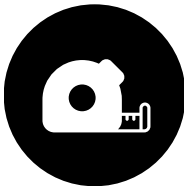
02 - What metrics can we use to measure racial bias in data as the closest reflection of the phenomenon?

To quantify an abstract concept like bias, we need to define concrete metrics to help us measure racial bias in data throughout our analysis.

03 - How does decision-making vary across independent district courts in North Carolina?

Analyzing data at aggregated level may conceal actual differences at a more granular level. Breaking data down to county/district level in the analysis would help us better observe geographical patterns and increase the accountability for judicial officials in each district.

THE DESIGN

The primary dataset used for the analysis was obtained from the Automated Criminal & Infractions System (ACIS), which contains case information as recorded by all criminal court clerks' offices in North Carolina. The information available in the dataset dictates the types of analyses that can be made with enough robustness to draw conclusions about bias as a plausible cause of disparities in decision outcomes. Therefore, this study focuses on major procedures in the judicial process: **Prosecution**, **Sentencing**, and supplemented with **System Admission** to conclude the analysis.

Prosecution

Whose charges are dropped?

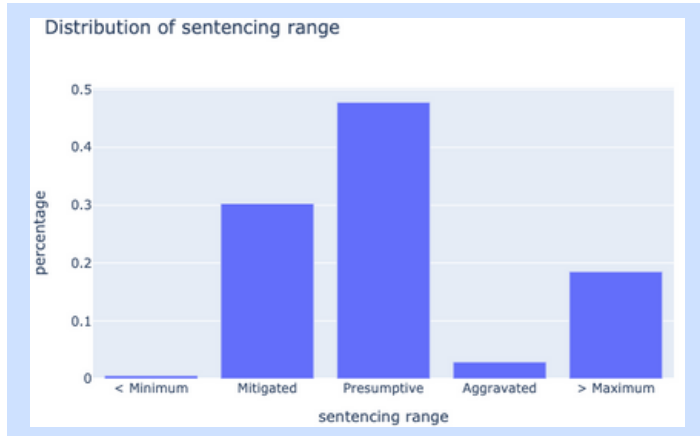## System Admission

Who is arrested?

Sentencing

Who gets sentenced to longer times in prison?
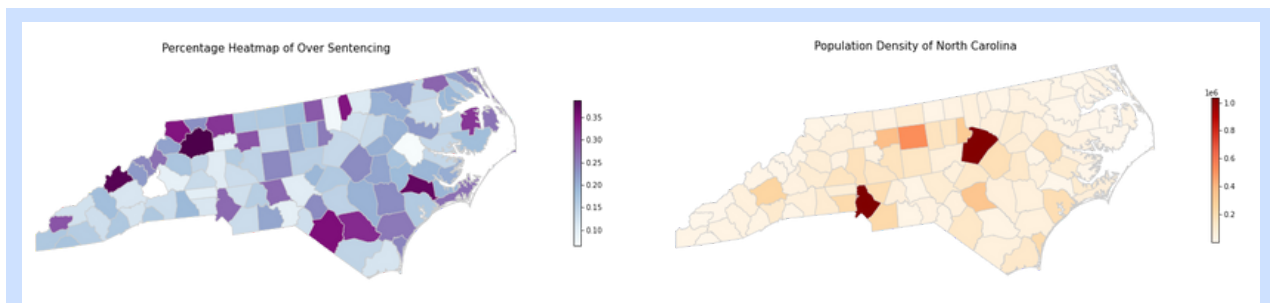
THE FINDINGS

Sentencing Analysis

- **Over-punitive System**

By comparing actual sentencing length with sentencing ranges based on punishment charts, 81% of the offense cases fell within the suggested sentencing range. The distribution of the five sentencing ranges on the left shows a significant portion of cases that fall into the over-sentencing range (~20%). This disproportionately higher percentage of cases in the over-sentencing range first suggests that the system looks more over-punitive than not, which is consistent with our literature review.

- **Geographical variations exist**

It's also worth mentioning that there exist geographical variations across counties after we further segmented the data at county level. Figure below shows the percentage of cases that fall into the over-sentencing range at the county level and the geographical variations can be observed clearly in this plot. Comparing to the population density map in North Carolina, we can observe the difference between the rural and urban areas - darker areas in the percentage of sentencing range map generally correspond to the lighter areas in the population density map, which suggests that the rural areas are more likely to be over-punitive than not.

THE FINDINGS

Sentencing Analysis

- **Rural areas exhibit more significant racial bias in over-sentencing range**

Plotting the normalized percentage differences between black defendants and white defendants in the over-sentencing range on the map, the result indicates a similar pattern - there are geographic variations across counties and rural areas exhibit more significant racial bias overall.

Percentage Difference between black & white in Over Sentencing
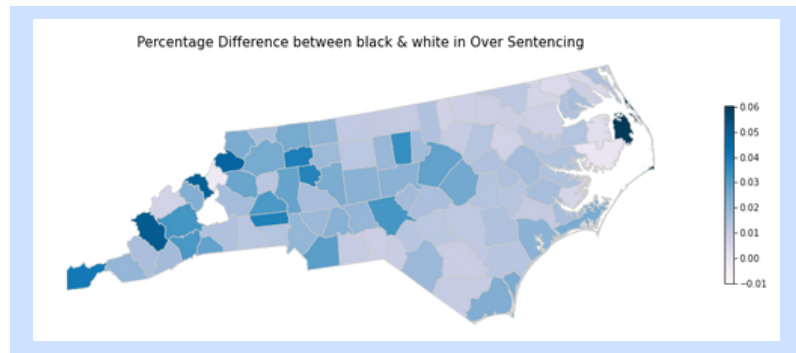
- **Racial bias is not statistically significant at the aggregated level overall**

However, when comparing racial distributions across other sentencing ranges, we did not observe racial bias as significantly as in the over-sentencing range and our original expectation, at least at the aggregated level. It could be the case of geographical variations that we've convinced from the analysis on the over-sentencing range, but more importantly, it's more likely to be the case that the data we are using for sentencing analysis has already omitted the racial bias that happened earlier in the judicial process, which pointed us to other perspectives in the judicial system for the investigation of racial bias from a broader horizon.
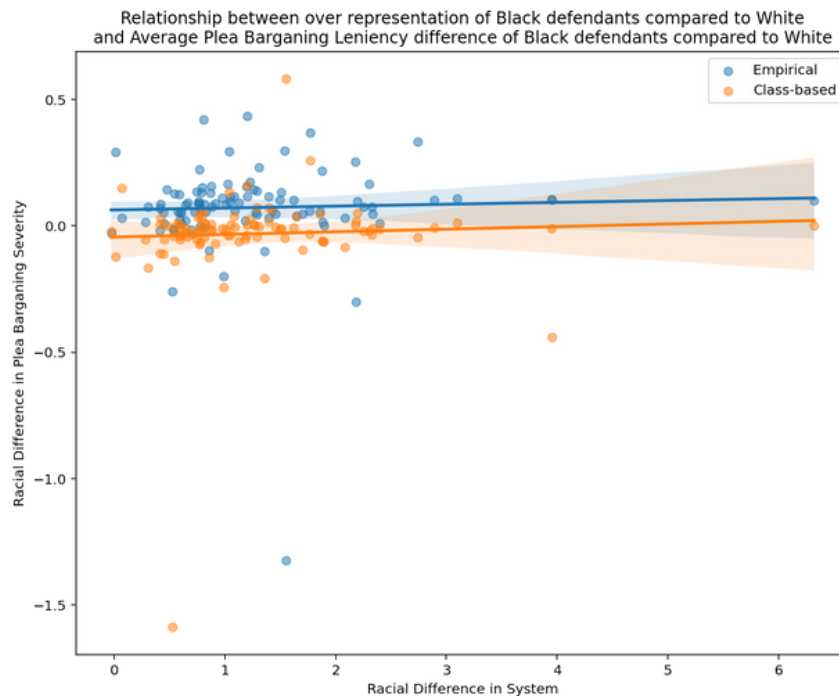
THE FINDINGS

Prosecution Analysis

- **No clear racial disparities are revealed at the aggregated level, but can be seen at the county level**

  The results obtained from the prosecution analysis alone do not describe a system where, at the aggregate state level, there are clear disparities based on race and gender. However, this type of disparities is seen at the county level, similar to the behavior observed in sentencing severity for black compared to white defendants. More specifically, changes in plea bargain deals vary across counties.

- **Weak positive correlation between the over-representation of Black/White individuals in the courts and the discrepancy in plea bargain leniency between Black and White defendants**

Relationship between over representation of Black defendants compared to White and Average Plea Bargaining Leniency difference of Black defendants compared to White

Upon examining the average differences in the leniency of plea bargains granted to Black versus White defendants, it became clear that counties with a greater tendency to be punitive towards Black defendants also tended to have higher rates of Black over-representation in criminal cases. The plot shown on the left demonstrates a weak but positive correlation between the over-representation of Black/White in courts, and White versus Black in leniency of deals.

THE FINDINGS

System Admissions Analysis

- **Black individuals are overrepresented in North Carolina criminal justice system**

Our analysis revealed that Black individuals are overrepresented in the North Carolina criminal justice system, comprising approximately 33% of defendants despite representing only 20% of the population. While socioeconomic status may contribute to higher crime rates among Black individuals, our findings suggest that racial bias within the judicial system may also be a significant factor.

Times for Black People More Likely to be in Involved in Case
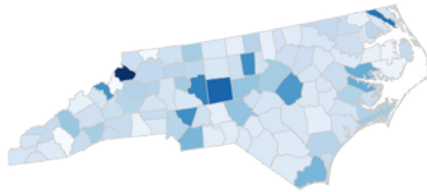
- **Geographical variations exist as well**

The metric shown on the left also varies by county.
We found that Black individuals are 2.7 times more likely to appear in the case system than white individuals on average in North Carolina.

- **Positive correlation between counties that are more punitive towards Black defendants and those where Black individuals are overrepresented in criminal cases**

Finally, the plot on the right shows the correlation between the normalized over-representation of Black defendants and the normalized proportion of over-sentencing of black defendants, by county, where we can observe a clear positive correlation between the two. These results disqualify many alternative explanations for the disparities observed that are not related to race-based biases influencing decision-making.
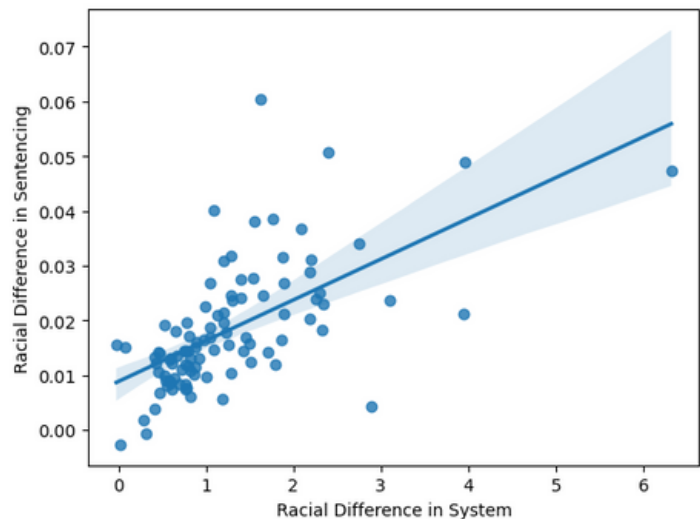
CONCLUSION

The findings from this study support some claims that are seen often in this field's literature.

District courts are more often over-punitive than they are not, and assign longer sentences than recommended by North Carolina's guidelines.

Plea-bargain negotiations are hard to track and highly variable across benches. We observed a higher leniency for White defendants compared to Black and Hispanic as well as a higher drop for woman compared to men.

Counties show vastly varied behaviors on sentencing, prosecution, and over-representations in the system for people of color. However, counties with disproportionally severe decisions regarding bail bonds, plea bargaining, and sentencing of minority groups, when compared to White defendants, are also more likely to demonstrate higher levels of overrepresentation of minorities, particularly Black populations, as cases.

Awareness and accountability of officials' actions through such studies, paves the way for progress. In order to move towards a more just society, data-oriented approaches must be continued and encouraged to understand the judicial system better.

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