Distribution Agreement

In presenting this thesis as a partial fulfillment of the requirements for a degree from Emory University, I hereby grant to Emory University and its agents the non-exclusive license to archive, make accessible, and display my thesis in whole or in part in all forms of media, now or hereafter now, including display on the World Wide Web. I understand that I may select some access restrictions as part of the online submission of this thesis. I retain all ownership rights to the copyright of the thesis. I also retain the right to use in future works (such as articles or books) all or part of this thesis.

Shivam Saran April 10, 2023

Jailbirds: A Machine-Learning Approach to Measuring Racial and Ethnic Disparities in Bail Setting

by

Shivam Saran

Adam Glynn
Adviser

Quantitative Theory & Methods

Adam Glynn

Adviser

Emily Burchfield

Committee Member

Sam Cherribi

Committee Member

2023

Jailbirds: A Machine-Learning Approach to Measuring Racial and Ethnic Disparities in Bail Setting

By

Shivam Saran

Adam Glynn

Adviser

An abstract of
a thesis submitted to the Faculty of Emory College of Arts and Sciences
of Emory University in partial fulfillment
of the requirements of the degree of
Bachelor of Science with Honors

Quantitative Theory & Methods

2023

Abstract

Jailbirds: A Machine-Learning Approach to Measuring Racial and Ethnic Disparities in Bail Setting

By Shivam Saran

In the United States, nearly half a million individuals are held in prisons for crimes which they have not yet been convicted for, simply due to an inability afford bail. While the overwhelming body of literature surrounding racial and ethnic bias in bail setting finds that minority defendants suffer harsher bail outcomes than non-minority defendants, the most recent literature suggests otherwise. This thesis analyzes data provided by the New York Division of Criminal Justice Services in order to (1) explain such inconsistencies in recent literature as well as (2) develop a better grasp of how race and ethnicity affect bail outcomes. To further investigate racial and ethnic disparities in the context of bail setting, this thesis introduces a novel machine-learning method: an unpooled alternative outcome model which predicts bail outcomes for defendants, had they been of another race or ethnicity. Estimates from the analysis show that, for both racial and ethnic minorities, the probability of having monetary bail assigned would be lower for minority defendants had they been non-minority.

Jailbirds: A Machine-Learning Approach to Measuring Racial and Ethnic Disparities in Bail Setting

By

Shivam Saran

Adam Glynn

Adviser

A thesis submitted to the Faculty of Emory College of Arts and Sciences
of Emory University in partial fulfillment
of the requirements of the degree of
Bachelor of Science with Honors

Quantitative Theory & Methods

2023

Acknowledgements

First and foremost, I would like to thank Professor Adam Glynn for his continued support throughout this project. His knowledge on statistical methods helped guide my thesis from inception to completion, and left me with invaluable insights. The meetings and conversations I shared with Professor Glynn reaffirmed my desire to explore the intersection between data science and law, and for that, I am deeply grateful. I would also like to thank Dr. Emily Burchfield and Dr. Sam Cherribi, for their vitally important feedback and encouragement, not just during the run of this project but throughout the entirety of my time in college. Last but not least, I would like to thank my brothers; without them, this wouldn't have been possible.

Contents

Tables

Jailbirds: A Machine-Learning Approach to Measuring Racial and Ethnic Disparities in Bail Setting

Shivam Saran

April 2023

1 Introduction

"The man who must wait in jail before trial often will lose his job. He will lose his freedom to help prepare his own defense. And he will lose his self-respect. He is treated, in almost every jurisdiction, just like the convicted criminal. Even though he may finally be found innocent and released, he is tagged, nonetheless, as a jailbird."[1]

When then Attorney General Robert F. Kennedy spoke these words to the Senate Judiciary Committee in 1964, he warned the country of the dangers of excessive bail. Nearly 6 decades, and many failed attempts at reform, later, little has been done to address these dangers. Bail, which was originally intended to serve as an assurance for pretrial defendants to appear before court, has transformed into a weapon used by the criminal justice system to keep hundreds of thousands of Americans locked behind bars.

Fully understanding how the role of bail has deviated so far from its original purpose requires a knowledge of the history of bail in the United States. The first federal codification of bail in the United States, The Judiciary Act of 1789, ruled that bail shall be admitted for all criminal arrests, except those which were deemed punishable by death.[2] Since the start of bail in America, concerns about its excessiveness have been present. These concerns were addressed shortly after The Judiciary Act of 1789 through the ratification of the Eighth Amendment in 1791, which stated: "Excessive bail shall not be required, nor excessive fines imposed, nor cruel and unusual punishments inflicted."[3] These two important pieces of legislation laid the early founda-

[1] U.S. Department of Justice Library. "Testimony by Attorney General Robert F. Kennedy on Bail Legislation before the Subcommittees on Constitutional Rights and Improvements in Judicial Machinery of the Senate Judiciary Committee," August 4, 1964. https://www.justice.gov/sites/default/files/ag/legacy/2011/01/20/08-04-1964.pdf.

[2] Judiciary Act of 1789, 1st Congress, ch. 20, 1 Stat. 73. See https://www.waed.uscourts.gov/9ctimeline/1Stat73.pdf

[3] U.S. Const. amend. VIII (ratified 1791). See https://constitution.congress.gov/constitution/amendment-8/

tion for pretrial justice among defendants in the United States. The notion of prohibiting excessive bail was built on the idea that bail did not serve as a punishment, but rather a safe measure to ensure no accused individual would flee while awaiting trial. According to the Pretrial Services Resource Center within the Department of Justice, this key component of both the Constitution's Eighth Amendment and the Judiciary Act of 1789 could be described as such: "Bail is meant to assure the appearance of the accused at the trial."[4] For judicial courts across the country, a reasonable bail was to be set in accordance with such assurance.

Nearly a century later came the birth of the commercial bondsman.[5] The bail bondsman served as a means for a defendant to pay their bond when they couldn't otherwise afford it themselves. In exchange, the bondsman would pocket a percentage fee. The proliferation of the bail bondsman industry went hand-in-hand with the continuous rise of average bail amounts in America. The number of defendants faced with higher bail amounts increased for the greater part of the 20th century, while bail bond agents capitalized on the profits.[6] The matter of excessively high bail was legally addressed in 1951, when Stack v. Boyle appeared before the supreme court, a case in which 12 defendants were arrested on charges of conspiring to violate the Smith Act[7] and subsequently, had bail set at $50,000 each by a federal dis-

[4]Kennedy, Spurgeon, Henry Alan, John Clark, and Jolanta Juszkiewicz. "Pretrial Release and Supervision Program: Training Supplement." National Criminal Justice Reference Service: Pretrial Services Resource Center, January 1997. https://www.ojp.gov/ncjrs/virtual-library/abstracts/pretrial-release-and-supervision-program-training-supplement

[5]Seibler, John Michael, and Jason Snead. "The History of Cash Bail ." Legal Memorandum. The Heritage Foundation, August 2017. https://www.heritage.org/sites/default/files/2017-08/LM-213.pdf.

[6]Schnacke, T., Jones, M., and Brooker, C. (2010). The History of Bail and Pretrial Release. Pretrial Justice Institute. https://cdpsdocs.state.co.us/ccjj/Committees/BailSub/Handouts/HistoryofBail-Pre-TrialRelease-PJI_2010.pdf

[7]The Alien Registration Act of 1940, commonly referred to as The Smith Act, made it a criminal offense to "advocate, abet, advise, or teach" the violent destruction of the U.S. government; Alien Registration Act of 1940, 76th Congress, 3rd session, Public Law

trict court.[8] With the district court setting bail for each defendant at an amount much higher than that observed in similar crimes, without any compelling reason to do so, the Court ruled that the government's actions were, indeed, in violation of the Eighth Amendment.[9] The Court argued: "[t]o infer from the fact of indictment alone a need for bail in an unusually high amount is an arbitrary act," holding that bail ought to be set in agreeance with "statutory and constitutional standards."[10] However, these standards remained largely ambiguous until the Bail Reform Act of 1966.[11] Until then, there had been no clear set of criteria for federal judges to adhere to when determining bail outcomes for pretrial inmates. The Bail Reform Act of 1966 changed this by instituting a number of alternatives to monetary bail for the release of defendants, including organizational custody[12], travel restrictions[13], a deposit bond option[14], and most notably, release on one's own recognizance.[15] *Only if these non-financial release options were insufficient*

76-760, ch. 439, 54 Stat. 670, 18 U.S.C. § 2385.

[8]Stack v. Boyle, 342 U.S. 1 (1951)

[9]Justia Law. "Stack v. Boyle, 342 U.S. 1(1951)," https://supreme.justia.com/cases/federal/us/342/1/

[10]Wiseman, Samuel R. "Pretrial Detention and the Right to Be Monitored." The Yale Law Journal 123, no. 5 (March 2014). https://www.yalelawjournal.org/essay/pretrial-detention-and-the-right-to-be-monitored

[11]Bail Reform Act of 1966, 89th Congress, Public Law 89-465, 18 U.S. Code § 3142. See https://www.congress.gov/bill/89th-congress/senate-bill/1357/titles.

[12]to "place the person in the custody of a designated person or organization agreeing to supervise him," according to the Bail Reform Act of 1966. See: http://uscode.house.gov/statutes/pl/89/465.pdf

[13]to "place restrictions on the travel, association, or place of abode of the person during the period of release" Ibid.

[14]to "require the execution of an appearance bond in a specified amount and the deposit in the registry of the court, in cash or other security as directed, of a sum not to exceed 10 per centum of the amount of the bond, such deposit to be returned upon the performance of the conditions of release" Ibid.

[15]"Any person charged with an offense, other than an offense punishable by death, shall, at his appearance before a judicial officer, be ordered released pending trial on his personal recognizance or upon the execution of an unsecured appearance bond in an amount specified by the judicial officer" Ibid.

in ensuring court appearance could the Court impose money bail.[16]

The Bail Reform Act of 1966 was by every definition progressive, making it much easier for defendants to be granted their freedom while awaiting trial. Its impact, however, was short-lasting. For the latter half of the 1960s and throughout the 1970s, public concern about crimes committed by released pretrial defendants began to rise.[17] While several efforts were made to address this concern, including the Fugitive Investigative Strike Team (FIST) operative[18] and the passage of the Pretrial Services Act of 1982[19], none were as transformative to the United States criminal justice system as The Bail Reform Act of 1984.[20] Along with its passage, came the birth of the modern preventative state. For the first time, a defendant's *dangerousness* was taken into consideration during the bail determination process.[21] Whereas The Bail Reform Act of 1966 instructed judges to place an emphasis primarily on flight risk[22] when setting bail, The Bail Reform Act of 1984 forced judges to factor in the threat that a defendant may pose to society if released. While such

[16]VanNostrand, Marie, and Gena Keebler. "Our Journey Toward Pretrial Justice." Federal Probation Journal, United States Courts 71, no. 2 (September 2007): 35–46. https://www.uscourts.gov/sites/default/files/71_2_6_0.pdf.

[17]Lay, Donald P. and De La Hunt, Jill (1985) "The Bail Reform Act of 1984: A Discussion," William Mitchell Law Review: Vol. 11: Iss. 4, Article 2. http://open.mitchellhamline.edu/wmlr/vol11/iss4/2.

[18]In the 1980's, the United States Marshals Service launched Fugitive Investigative Strike Teams (FIST) in an attempt to capture violent fugitives who had gone into hiding to avoid arrest or persecution. This included those defendants who were in violation of their bail assignment with law enforcement agencies.

[19]Congress.gov. "S.923 - 97th Congress (1981-1982): Pretrial Services Act of 1982." September 27, 1982. https://www.congress.gov/bill/97th-congress/senate-bill/923.

[20]Congress.gov. "S.215 - 98th Congress (1983-1984): Bail Reform Act of 1984." October 12, 1984. https://www.congress.gov/bill/98th-congress/senate-bill/215.
Congress.gov. "H.R.5865 - 98th Congress (1983-1984): Bail Reform Act of 1984." October 12, 1984. https://www.congress.gov/bill/98th-congress/house-bill/5865.

[21]Vanden Heuvel, Tim J. (1988) "The Bail Reform Act of 1984 and Witness Coercion," California Western Law Review: Vol. 25 : No. 1 , Article 7. https://scholarlycommons.law.cwsl.edu/cwlr/vol25/iss1/7.

[22]"Flight risk" refers to the risk of a defendant to flee a given jurisdiction before trial in order to avoid prosecution.

consideration, in theory, seemed to be an effective solution to rising crime at the time, the reality of its effects painted a much different story. When bail setters were faced with uncertainty determining a defendant's dangerousness, they many times resorted to using race and ethnicity as a proxy to guide their decisions.[23] Those who were deemed dangerous received the harshest bail outcomes. For many of these defendants, the courts would set unrealistically high bail amounts which, in effect, locked them behind bars as if they were guilty; after The Bail Reform Act of 1984, the probability of being held until trial was 17 percent higher for defendants who were classified as dangerous.[24] As a result of the reforms, an uncertain, partial element of consideration was cemented into the criminal justice system, making the process of bail setting subjective, at best.

The Bail Reform Act of 1984 paved the way for money bail to be used unjustly, unreasonably, and unconstitutionally. Fast-forward to today, and monetary bail is not the exception, but the rule. The effects have been, in a word, drastic. In 2022, on any given day, just under half a million individuals were sitting in jail awaiting trial, more than 60 percent of which were simply due to the inability to afford bail.[25] Further, such inability to pay varies drastically depending on the defendant's race and ethnicity. For instance, Black and Latino defendants are half as likely to afford bail as White

[23]Kutateladze, Besiki L., Nancy R. Andiloro, Brian D. Johnson, and Cassia C. Spohn. "Cumulative Disadvantage: Examining Racial and Ethnic Disparity in Prosecution and Sentencing: Cumulative Disadvantage." Criminology 52, no. 3 (August 2014): 514–51. https://doi.org/10.1111/1745-9125.12047.

[24]U.S. Department of Justice. "Pretrial Release and Detention: The Bail Reform Act of 1984." Bureau of Justice Statistics Special Report, February 1988. https://bjs.ojp.gov/content/pub/pdf/prd-bra84.pdf.

[25]Sawyer, Wendy, and Peter Wagner. "Mass Incarceration: The Whole Pie 2022." Prison Policy Initiative, March 2022. https://dataspace.princeton.edu/handle/88435/dsp0137720g91k; U.S. Commission on Civil Rights. "The Civil Rights Implications of Cash Bail." Briefing Report, January 2022. https://www.usccr.gov/files/2022-01/USCCR-Bail-Reform-Report-01-20-22.pdf.

defendants.[26] The downstream effects of unaffordable bail for defendants on the basis of race and ethnicity are destructive, to say the least. Poor minority defendants who aren't able to afford bail are more likely to plead guilty, face higher rates of conviction, and accept harsher sentences of incarceration.[27] Past literature, and history, suggest that such discrepancies are, in part, due to harsher bail outcomes given to minorities as opposed to White people.[28] In somewhat of an unexpected occurrence, however, recent literature has found contradictory results regarding racial and ethnic disparities in the bail setting process. Some of the current research indicates that minorities receive more lenient treatment in the bail system compared to their White counterparts, challenging the decades of past literature on discrimination in bail, which seemed to suggest the opposite.

While the issue of racial and ethnic bias in bail setting has long been studied within the world of academia, the recent rise in data availability brought about by progressive policies has made it possible for researchers to quantifiably measure such biases with greater accuracy. For instance, Judiciary Law 216 (5) and Executive Law 837-U of the New York State Legislature require that data regarding pretrial release and detention be made

[26]Demuth, Steven. "Racial and Ethnic Difference in Pretrial Release Decisions and Outcomes: A Comparison of Hispanic, Black, and White Felony Arrestees." 41 J. of Crim., 2003. https://www.ojp.gov/ncjrs/virtual-library/abstracts/racial-and-ethnic-differences-pretrial-release-decisions-and.

[27]Donnelly, Ellen and John M. MacDonald. "The Downstream Effects of Bail and Pretrial Detention on Racial Disparities in Incarceration." 108 J. Crim. L. & Criminology, 2018. https://scholarlycommons.law.northwestern.edu/jclc/vol108/iss4/4.

[28]Jones, Cynthia E. "Give Us Free: Addressing Racial Disparities in Bail Determinations."16 J. of Legislation and Public Policy, 2013. https://digitalcommons.wcl.american.edu/facsch_lawrev/917; Gelbach, Jonah B., and Shawn D. Bushway. "Testing for Racial Discrimination in Bail Setting Using Nonparametric Estimation of a Parametric Model." SSRN Scholarly Paper, August 2011. https://doi.org/10.2139/ssrn.1990324; Turner, K. B., and James B. Johnson. "A Comparison of Bail Amounts for Hispanics, Whites, and African Americans: A Single County Analysis." American Journal of Criminal Justice 30, no. 1 (September 2005): 35–53. https://doi.org/10.1007/BF02885880; Yanez, Dolores. "Discrimination against People of Color in America's Cash Bail System." Portland State University, 2021. https://doi.org/10.15760/honors.987.

available to the public.[29] This study analyzes that data in order to contribute to the growing field of empirical research surrounding bias in the criminal justice system and more specifically, provide an explanation for inconsistent results observed within the recent literature surrounding racial and ethnic discrimination in bail setting. This study also introduces a novel machine learning method for detecting racial and ethnic disparities in bail setting: an unpooled alternative outcome model which predicts bail outcomes for defendants, had they been of another race/ethnicity.

2 Literature Review

2.1 Racial and Ethnic Disparities in Bail

Past literature demonstrates that racial and ethnic disparities are ubiquitous throughout the criminal justice system. Minorities are more likely than White individuals to be pulled over by the police, despite having a lower probability of having contraband on them and during such encounters, are more likely to end up being killed.[30] They are also more likely to be arrested and ultimately found guilty in court, causing them to have among the highest incarceration rates in the country.[31] These effects are especially observed

[29]New York State Senate, Judiciary (JUD) CHAPTER 30, ARTICLE 7-A, § 216. https://www.nysenate.gov/legislation/laws/JUD/216; New York State Senate, Executive (EXC) CHAPTER 18, ARTICLE 35, § 837-u. https://www.nysenate.gov/legislation/laws/EXC/837-U.

[30]Pierson, Emma, Camelia Simoiu, Jan Overgoor, Sam Corbett-Davies, Daniel Jenson, Amy Shoemaker, Vignesh Ramachandran, et al. "A Large-Scale Analysis of Racial Disparities in Police Stops across the United States." Nature Human Behaviour 4, no. 7 (May 4, 2020): 736–45. https://doi.org/10.1038/s41562-020-0858-1; Schwartz, Gabriel L., and Jaquelyn L. Jahn. "Mapping Fatal Police Violence across U.S. Metropolitan Areas: Overall Rates and Racial/Ethnic Inequities, 2013-2017." Edited by Jonathan Jackson. PLOS ONE 15, no. 6 (June 24, 2020): e0229686. https://doi.org/10.1371/journal.pone.0229686.

[31]Gase, Lauren Nichol, Beth A. Glenn, Louis M. Gomez, Tony Kuo, Moira Inkelas, and Ninez A. Ponce. "Understanding Racial and Ethnic Disparities in Arrest: The Role of Individual, Home, School, and Community Characteristics." Race and Social Problems 8,

among Black and Hispanic people, who make up 38.4% and 30.4% of the inmate population, respectively, despite constituting only 13.6% and 18.9% of the total United States population.[32] Alarmingly, Black Americans are incarcerated at a rate 5 times higher than White people, while Latinx people are incarcerated at a rate 1.3 times higher than White people.[33]

As a means to identify the causes of and ultimately mitigate these disparities, researchers have considered the matter of racial/ethnic bias in the bail system. As one might expect, when it comes to the presence of racial and ethnic discrimination in the criminal justice system, bail is no exception. Numerous studies have found that disparities exist not only during the setting of bail, but also in the ability for defendants to post said bail. An analysis of over 11,000 cases in forty of the nation's most populous urban counties concluded that Black defendants are 32% more likely than White defendants to ultimately end up in prison after pretrial detention, while Latino defendants were 42% more likely.[34] Such disparities are further compounded when the downstream effects of pretrial detention are considered. Poor minority defendants who aren't able to afford bail are more likely to plead guilty, face

no. 4 (December 2016): 296–312. https://doi.org/10.1007/s12552-016-9183-8; King, Ryan D., and Michael T. Light. "Have Racial and Ethnic Disparities in Sentencing Declined?" Crime and Justice 48 (May 2019): 365–437. https://doi.org/10.1086/701505.

[32]U.S. Federal Bureau of Prisons. "BOP Statistics: Inmate Race," February 2023. https://www.bop.gov/about/statistics/statistics_inmate_race.jsp.; U.S. Federal Bureau of Prisons. "BOP Statistics: Inmate Ethnicity," February 2023. https://www.bop.gov/about/statistics/statistics_inmate_ethnicity.jsp. The Federal Bureau of Prison Racial and Ethnic Data at the time of this study was updated as of February 18, 2023; U.S. Census Bureau. "U.S. Census Bureau QuickFacts: United States," July 2021. https://www.census.gov/quickfacts/fact/table/US/PST045221. The U.S. Census Population Racial and Ethnic Data at the time of this study was updated as of July 1, 2021.

[33]Nellis, Ashley. "The Color of Justice: Racial and Ethnic Disparity in State Prisons." The Sentencing Project, October 13, 2021. https://www.sentencingproject.org/app/uploads/2022/08/The-Color-of-Justice-Racial-and-Ethnic-Disparity-in-State-Prisons.pdf.

[34]Sutton, John R. "Structural Bias in the Sentencing of Felony Defendants." Social Science Research 42, no. 5 (September 2013): 1207–21. https://doi.org/10.1016/j.ssresearch.2013.04.003.

higher rates of conviction, and accept harsher sentences of incarceration.[35] Being tagged as a jailbird completely alters the course of an individual's life, in one study, decreasing their probability of employment in the few years after their bail hearing by 9.4 percentage points, which can, for many individuals, affect their eligibility for government benefits that are tied to formal employment.[36]

Considering the adverse downstream effects of pretrial detention, the question of whether bail outcomes are systematically worse for minorities as compared to their White counterparts is of great concern. Past literature suggests that such a systemic discrepancy does exist, observing higher bail amounts assigned to Black and Latinx people compared to White people, for similar crimes and backgrounds. Analyzing administrative court records from all defendants arrested and charged in Philadelphia between 2010-2014 and in Miami-Dade between 2006-2014, researchers found that Black defendants are 3.6 percentage points more likely than White defendants to have monetary bail imposed, and when monetary bail is assigned, are expected to have bail amounts that are $9,923 greater.[37] An analysis of data on pretrial inmates detained in correctional facilities in Connecticut between 2016 and 2018 brought about similar results, finding that bail amounts for Black and Hispanic defendants were on average $15,352 and $13,529 higher, respectively, than that of White defendants.[38] The degree to which bail amounts vary between race groups also differs by the nature of the crime. For instance,

[35]Donnelly and MacDonald, "Downstream Effects of Bail."

[36]Dobbie, Will, and Crystal Yang. "The Economic Costs of Pretrial Detention." Brookings Papers on Economic Activity. Brookings Institution, March 24, 2021. https://www.brookings.edu/wp-content/uploads/2021/03/15872-BPEA-SP21_WEB_DobbieYang.pdf.

[37]Arnold, David, Will Dobbie, and Crystal S Yang. "Racial Bias in Bail Decisions*." The Quarterly Journal of Economics 133, no. 4 (November 1, 2018): 1885–1932. https://doi.org/10.1093/qje/qjy012.

[38]McDowell, Claire. "Assessing the Influence of Race on Monetary Bail". UGA Journal of Economics, 2019. https://econjournal.terry.uga.edu/index.php/UGAJUE/article/view/36.

in the same study, bail amounts were $8,329 and $12,816 higher for Black and Hispanic defendants, respectively, than White defendants for violation of probation or conditional discharge, the most common offense category in Connecticut.[39] These results are consistent with past research on racial disparities in bail amounts in Connecticut, particularly Houston and Ewing's 1991 reporting that Black defendants were assigned bail amounts, on average, 70 percent higher than that of White defendants.[40]

These results are also observed in jurisdictions across the country. Court data from the seventy-five largest counties in the United States between 1990 and 2009 found that Hispanic defendants have higher bail amounts than non-Hispanic defendants, and are less likely to be granted non-monetary release.[41] In another study using the same data, they find Black and Hispanic defendants were 66 percent and 91 percent more likely to be detained before trial compared to White defendants, respectively.[42] Such disparities in bail setting are reflected on the national level, as well. In 2017, The Pretrial Integrity and Safety Act put forth by then Senator Kamala Harris (D-CA) and Rand Paul (R-KY) in an effort to push bail reform noted that nationally, African American men and Hispanic men paid higher bail amounts than White men by 35% and 19%, respectively.[43] Another study found even more drastic discrepancies, noting that across the country, bail amounts were twice as large for Black and Brown defendants as compared to White defendants.[44] Fur-

[39]Ibid.

[40]Houston, Brant and Jack Ewing, "Blacks and Hispanics Must Pay More to Get Out of Jail." Hartford Courant, June 1991.

[41]Hood, Katherine, and Daniel Schneider. "Bail and Pretrial Detention: Contours and Causes of Temporal and County Variation." RSF: The Russell Sage Foundation Journal of the Social Sciences 5, no. 1 (2019): 126-149. https://muse.jhu.edu/article/720078.

[42]Demuth, Steven "Racial/Ethnic Difference Pretrial Release"

[43]Congress.gov. "Text - S.1593 - 115th Congress (2017-2018): Pretrial Integrity and Safety Act of 2017." July 20, 2017. https://www.congress.gov/bill/115th-congress/senate-bill/1593/text.

[44]Virani, Alicia, Stephanie Campos-Bui, Rachel Wallace, Cassidy Bennett, and Akruti Chandrayya. "Coming Up Short: The Unrealized Promise of In Re Humphrey."

ther, across the country, Black defendants are 25 percent more likely than White defendants to have monetary bail assigned.[45] All of the aforementioned findings fall neatly within the overwhelming body of literature which suggests a clear consensus: racial and ethnic disparities are present within the setting of bail.

Now, whether or not these disparities are due to racial discrimination or purely statistical discrimination remains a large challenge. Simple regression analysis most notably suffers from the shortcoming of failing to account for variables that may be observed in the courtroom during the setting of bail, but are not reflected within the dataset, leading to omitted variable bias. For instance, whether or not a defendant is employed may impact a judge's decision while setting their bail amount, yet isn't accounted for in a regression model. A few studies have been conducted that try to circumvent this issue and appropriately tackle the challenge of empirically detecting racial bias in bail setting. One of the most notable and frequently cited papers investigating this matter is Ayres & Waldfogel's 1994 review.[46] In their study, racial discrimination is reflected in their study if minorities face higher bail amounts, despite having equal bond rates as their White counterparts. Two key assumptions are held: (1) that bond rates are directly proportional to expected flight risk and (2) that bail setters aim to equalize flight risks among defendants such that as bail amount increases, probability of flight decreases. Inferring from their rescaled analysis in which White and minority defendants have nearly the same bond rates and flight probability, yet lower

Berkeley Law Policy Advocacy Clinic: UCLA School of Law Bail Practicum, October 2022. https://law.ucla.edu/sites/default/files/PDFs/Criminal_Justice_Program/Coming_Up_Short_Report_2022_WEB.pdf.

[45]Sawyer, Wendy. "How race impacts who is detained pretrial." Prison Policy Initiative, October 2019. https://www.prisonpolicy.org/blog/2019/10/09/pretrial_race/.

[46]Ayres, Ian, and Joel Waldfogel. "A Market Test for Race Discrimination in Bail Setting." Stanford Law Review 46, no. 5 (May 1994): 987. https://doi.org/10.2307/1229062.

bail amounts for White defendants, they conclude that there exists an element of racial discrimination in the bail setting process. This was reflected in their data of 1118 New Haven arrests, in which bail amounts assigned for Black male defendants were 35 percent greater than those of White male defendants.

The other seminal paper that tackles the issue of statistically detecting racial discrimination in bail setting is Gelbach and Bushway's 2011 review, which introduces a parameter that represents the implicit value that judges place on the loss of freedom suffered by those defendants who cannot make bail.[47] They find, in two of the five counties they analyzed, that judges value lost freedom of Black individuals significantly less than lost freedom of White individuals, at least $64 per day. They correspondingly find that the value of Black individuals' lost freedom is less than two-thirds that of White individuals. Outside of these two papers, very little research has been conducted by social scientists on racial and ethnic discrimination in bail setting through a statistical lens.

2.2 Pretrial Detention in New York

In 2019, New York lawmakers passed significant legislation in an attempt to bring about more progressive bail reform, and while it was undoubtedly beneficial in securing pretrial release for defendants who had been held on misdemeanors and nonviolent felonies, the bail system in New York still remains largely problematic. In 2021, in New York City, the average bail amount set at arraignment was $38,866, roughly double the average in 2019 of $19,162.[48] The former figure represents more than half of the median

[47] Gelbach, Jonah B., and Shawn D. Bushway. "Testing for Racial Discrimination in Bail Setting Using Nonparametric Estimation of a Parametric Model." SSRN Scholarly Paper, August 2011. https://doi.org/10.2139/ssrn.1990324.

[48] Office of the New York City Comptroller. "NYC Bail Trends Since 2019." Bureau of Budget and Bureau of Policy and Research, March 2022. https://comptroller.nyc.gov/

household income ($70,663) in New York City and helps explain why only a mere 9.7% of the city's defendants were able to post bail immediately in 2021.[49]

The practice of setting unjustifiably high bail amounts particularly against communities of color is perhaps nowhere more apparent than in New York. Consistent with the literature in the previous section, the struggle that many New Yorkers face in their attempt to post bail is exacerbated among Black and Latino people. Among all demographic groups in New York, Black men (aged 18 to 24) are most likely to have monetary bail set.[50] In both Upstate New York and Suburban New York City, Black people are also most likely to have monetary bail set.[51] Such racial disparities were even worse in the case of those who committed violent felonies; in New York City, for those defendants who committed a violent felony and ultimately faced monetary bail, there was an 13 percentage-point Black-White gap and a 8 percentage-point Latinx-White gap, while in Suburban NYC there was a 16 percentage-point Black-White gap and a 17 percentage-point Latinx-White gap.[52] In addition to racial and ethnic biases existing in the likelihood of having monetary bail assigned, they were also observed in average bail amounts. In 2021, across New York State, Hispanic defendants received the highest average

wp-content/uploads/documents/NYC_Bail_Trends_Since_2019.pdf.

[49]U.S. Census Bureau. "U.S. Census Bureau QuickFacts: New York City, New York," July 2022. https://www.census.gov/quickfacts/fact/table/newyorkcitynewyork/PST045222. The New York Census Median Household Income Data at the time of this study was updated as of July 1, 2022; Office of NYC Comptroller, "NYC Bail Trends 2019," 11.

[50]Lu, Olive, Erica Bond, Preeti Chauhan, and Michael Rempel. "Bail Reform in Action: Pretrial Release Outcomes in New York State, 2019-2020." John Jay College of Criminal Justice: Data Collaborative for Justice, May 2022. https://datacollaborativeforjustice.org/wp-content/uploads/2022/04/2022_05_03_Bail-Report.pdf.

[51]Ibid.

[52]Lu, Olive, and Michael Rempel. "Two Years In: 2020 Bail Reforms in Action in New York State ." John Jay College of Criminal Justice: Data Collaborative for Justice, December 2022. https://datacollaborativeforjustice.org/wp-content/uploads/2022/12/Two_Years_In_Bail_Reforms_New_York.pdf.

bail amount of $35,237, followed by Black defendants at $29,839, and lastly White defendants, who received the lowest average bail amount, at $16,600.[53] In light of receiving routinely harsher bail outcomes, both Black and Latino defendants have a lower probability than White defendants to be able to post the required bail necessary to ensure pretrial release.[54] In 2019, in New York City, Black defendants were 7% less likely to be able to afford bail at arraignment than White defendants.[55] Such racial discrepancies have radically shaped the profile of New York jails, leading to a massive over-representation of minorities within the inmate population. In 2021, Black and Latino people comprised 90% of New York City's jail admissions, while only making up 52% of New York City's total population.[56] The effects of pretrial detention are particularly drastic in New York City; there, any period of pretrial detention increases the likelihood of a guilty plea by 23 percentage points, a conviction by 24 percentage points, and a prison sentence by 35 percentage points.[57]

The most prominent paper statistically identifying racial discrimination in New York's bail system comes from Arnold, Dobbie, and Hull (2022), who developed a quasi-experimental method that measures racial discrimination by investigating the difference in a judge's release rates between Black and

[53]Laaninen, Esther. "Pretrial Consequences: The Impact of New York State Bail Reforms on Racial and Ethnic Disparities in Pretrial Outcomes ." City University of New York (CUNY): John Jay College of Criminal Justice, December 2022. https://academicworks.cuny.edu/cgi/viewcontent.cgi?article=1268&context=jj_etds.

[54]Rodriguez, Krystal, and Shane Correia. "The Facts on Bail Reform and Crime in New York City." Center for Court Innovation, February 3, 2021. https://www.innovatingjustice.org/sites/default/files/media/documents/2021-02/Handout_Bail_Reform_Crime_02032021.pdf; Ibid.

[55]Ibid.

[56]Western, Bruce, Jaclyn Davis, Flavien Ganter, and Natalie Smith. "The Cumulative Risk of Jail Incarceration." Proceedings of the National Academy of Sciences 118, no. 16 (April 20, 2021): e2023429118. https://doi.org/10.1073/pnas.2023429118.

[57]Koppel, Stephen, Tiffany Bergin, René Ropac, Imani Randolph, and Hannah Joseph. "Examining the Causal Effect of Pretrial Detention on Case Outcomes: A Judge Fixed Effect Instrumental Variable Approach." Journal of Experimental Criminology, December 23, 2022. https://doi.org/10.1007/s11292-022-09542-w.

White defendants who have identical pretrial misconduct[58] potential.[59] The basis behind this methodology is that if groups of Black and White defendants have the same likelihood of engaging in pretrial misconduct, then a truly racially-impartial judge will release them at the same rate. The key assumption held for racial discrimination to be measured in this manner is that the sole objective for a judge is to allow the release of as many defendants as possible, while minimizing the risk of pretrial misconduct. Arnold et. al (2022) ultimately conclude that roughly two-thirds of the racial disparity in release rates between Black and White defendants in New York City is due to racial discrimination. These results are consistent with other literature on outcome-specific racial disadvantages in New York, namely Kutateladze et. al's (2014) findings that Black and Latino defendants in New York County (Manhattan) are more likely to be detained, receive a custodial plea offer, and ultimately, be incarcerated.[60]

2.3 Inconsistencies in Recent Literature

Both Arnold et. al and Kutateladze et. al's results are, however, inconsistent with more recent literature, particularly Concannon and Na's (2022) findings, from New York County, that Black and Latino defendants were less likely to be detained than White defendants.[61] Concannon and Na reach these re-

[58]According to the Bureau of Justice Statistics, Pretrial misconduct is defined as failing to appear before court, being arrested for another crime while on bail, or any other violation of technical conditions of release.

[59]Arnold, David, Will Dobbie, and Peter Hull. "Measuring Racial Discrimination in Bail Decisions." National Bureau of Economic Research, April 2020. https://doi.org/10.3386/w26999.

[60]Kutateladze, Besiki L., Nancy R. Andiloro, Brian D. Johnson, and Cassia C. Spohn. "Cumulative Disadvantage: Examining Racial and Ethnic Disparity in Prosecution and Sentencing: Cumulative Disadvantage." Criminology 52, no. 3 (August 2014): 514–51. https://doi.org/10.1111/1745-9125.12047.

[61]Concannon, Connor, and Chongmin Na. "Examining Racial and Ethnic Disparity in Prosecutor's Bail Requests and Downstream Decision-Making." Race and Social Problems, January 4, 2023. https://doi.org/10.1007/s12552-022-09385-0.

sults by creating two separate models, both regressing on pretrial detention, a binary variable in which 1 represents a defendant having some amount of monetary bail assigned and 0 represents a defendant being released on their own recognizance. Model 1 includes only race and ethnicity as predictor variables, whereas Model 2 additionally includes other legally relevant variables related to the nature of the offense and the defendant's past criminal history. In their Model 1 results, Concannon and Na find that the odds of having monetary bail assigned are 1.54 times and 1.34 times higher for Black and Latino defendants than White defendants, respectively. However, once they account for the aforementioned variables in Model 2, they find that the odds of having monetary bail assigned at arraignment are 11 percent lower for Black defendants and by 14 percent lower for Latino defendants, compared to similarly situated White defendants. Also in their analysis, they find that there is no statistically significant difference between bail requests for White and Latino defendants.[62]

These results come as a contrariety to previous literature on racial disparities in bail setting, which have suggested that minorities are subject to harsher treatment within the bail setting process. Concannon and Na's contradictory results pose an interesting, yet unanswered, question to the research surrounding racial and ethnic disparities in bail setting in New York. This thesis aims to add to the existing body of literature by providing an explanation to Concannon and Na's unexpected results. This is executed by replicating Concannon and Na's data and methodology as closely as possible, and then cross-verifying whether their results hold true under new experimental data. These processes are described in greater detail in the following sections.

[62]Ibid, 10.

3 Data

3.1 Overview

This study is based on data provided by the New York State Division of Criminal Justice Services (DCJS) and was released in response to Judiciary Law 216 (5) and Executive Law 837-U of the New York State Legislature.[63] The dataset consists of all statewide criminal arraignments between January 1st, 2020 and June 30th, 2022.[64]

Sections 3.2 and 3.3 detail the dependent and independent variables of interest in the data. Section 3.4, describes the data used by Concannon and Na in their 2022 analysis, both its similarities and differences with the data used in this analysis, as well as the methods implemented to replicate their data.

Four restrictions were made to the data prior to analysis. First all observations in which the defendant was assigned a bail of $1 were dropped (N = 18,108); the dataset's documentation notes that a $1 bail represents new cases for defendants who are already serving time for a separate, unrelated charge. A $1 bail simply recognizes a defendant's new charge, though they are not actually held in custody for it. Second, all observations in which the defendant's age was denoted as 0 were dropped, as these observations were clearly miscodes (N = 18,190). Third, all observations in which any of the predictor variables—detailed in the Independent Variables section—were unknown or missing were dropped (N = 137,159). This importantly includes all observations in which the defendant's race or ethnicity were unknown (N = 55,558). Lastly, a couple of obscure anomalies were dropped, including an observation in which a bail assignment of $150 million, a value more than 225

[63] See https://www.nysenate.gov/legislation/laws/JUD/216 for Judiciary Law 216 (5) and https://www.nysenate.gov/legislation/laws/EXC/837-U for Executive Law 837-U.

[64] The data used in this study is available here: https://ww2.nycourts.gov/pretrial-release-data-33136.

standard deviations above the mean, was assigned as well as the dataset's sole observation in which bail was set in 2001 (N = 2).

Through these restrictions, a large number of observations were removed. To ensure that the removal of missing data did not introduce any bias to the analysis, verification that the missing data was not systematically related to the outcome variable was required. The outcome variable—the proportion of those defendants who had monetary bail assigned—was investigated for two separate subsets: the restricted dataset with all observations that had missing variables removed (the data used in this study) and a dataset containing only those observations that had missing variables. Seeing as to the proportion of defendants who had monetary bail assigned in the dataset with missing data removed (.13) was comparable to the dataset containing only observations with missing data (.14), this thesis proceeds with analysis using the restricted dataset. These calculations were also consistent with the proportion of defendants assigned monetary bail in the dataset before restrictions (.13), which contained observations both with and without missing data.

The final dataset contains 409,460 arraignments, 1,068 judges, 158 courts, and 62 counties. The average defendant's age at arrest is 34.8. The overwhelming majority, 81.2 percent, of the defendants are male, while the remaining 18.8 percent are female. The racial profile of the dataset is as follows: Black (53.9%), White (44.3%), Asian/Pacific Islander (1.2%), American Indian /Alaskan Native (.1%), and Other (.5%). The ethnic profile is as follows: Non-Hispanic (72.9%) and Hispanic (27.1%). 62.1 percent of arraignments were set inside of New York City and 37.9 percent were set outside of the city. 91 percent of arraignments took place in local courts, while the remaining 9 percent occurred in New York's supreme courts. The most common courthouses were Kings Criminal Court (16.6%), New York Criminal Court (14.6%), Queens Criminal Court (12.7%), Bronx Criminal Court (10.7%) and

the Suffolk 1st District Court (5.9%). The most common charge categories were Assault (24.8%), Drug (10.6%), Larceny(10.5%), Property (9.1%) and Criminal Contempt (6.8%).

The dataset described above was then further split into two distinct datasets: Dataset 1, which contains defendants who were either released on their own recognizance (ROR) *or* were assigned monetary bail and Dataset 2, which contains *only* those defendants who were assigned monetary bail. Notably, the summary statistics for bail amounts reported in Section 3.2 are associated with Dataset 2, describing only those defendants who had monetary bail assigned. In Dataset 1, a bail amount of $0 was manually assigned to all defendants released on their own recognizance. A third dataset, Dataset 3, was also created to replicate Concannon and Na's data as closely as possible. The creation of Dataset 3 is described in Section 3.4. The average and median bail amount in Dataset 1 is $5,615.73 and $0, respectively. The average and median bail amount in Dataset 2 is $30,460.14 and $10,000, respectively. The average and median bail amount in Dataset 3 is $20,040 and $1,500, respectively.

Dataset 3 served as the data for analysis regarding the verification of Concannon and Na's 2022 findings. Datasets 1 and 2 served as the data for further analysis investigating racial and ethnic disparities in bail setting in New York. These analyses will be described in further detail in the Methods section (Section 4) of this thesis.

3.2 Dependent Variables

The dependent variables of interest in this study are bail amount, which refers to the dollar amount assigned by a judge at a defendant's arraignment and pretrial detention, which is a binary variable indicating whether a defendant was released on their own recognizance (associated with a value of 0) or

assigned monetary bail (associated with a value of 1). While this study uses bail amount as a primer to understand how bail outcomes vary in New York with respect to race and ethnicity, pretrial detention is the foremost dependent variable of investigation for measuring racial and ethnic disparities in bail setting. In New York, when monetary bail is assigned, defendants have the option to post bail immediately, in which case they are released from the courthouse. If a defendant cannot afford bail immediately, they are transferred to the Department of Corrections, from which they are released when their bail is posted. If bail is not posted, defendants remain behind bars until their court date. In this study, having monetary bail assigned is synonymous with being detained pretrial.

Across the sample, 18.5 percent of defendants had monetary bail assigned, while the remaining 81.5 percent were released on their own recognizance. For those defendants who were assigned monetary bail, the average bail amount hovers just above $30,000, while the median lies significantly lower at $10,000, which is also the national median bail amount.[65] Notably, this dataset consists of arraignments collected between 2020 and 2022, a timeframe during which average bail amounts in New York have dramatically risen; over the past few years, average bail amounts in New York have gone from $19,162 in 2019 to $29,742 in 2020 to $38,866 in 2021. [66]

The following figures provide the proportion of those assigned monetary bail and summary statistics of bail amounts (for those defendants assigned monetary bail) on the basis of race and ethnicity, as well as the nature of the crime.

Table 1a provides the proportion of those assigned monetary bail by race and ethnicity. Notably, defendants who are Black are most likely to have

[65]Reaves, Brian. "Felony Defendants in Large Urban Counties, 2009 - Statistical Tables." U.S. Department of Justice: Bureau of Justice Statistics, December 2013. https://bjs.ojp.gov/content/pub/pdf/fdluc09.pdf.

[66]Office of NYC Comptroller, "NYC Bail Trends 2019," 11.

monetary bail assigned, followed by those who are American Indian/Alaskan Native, of other races, White, and finally, Asian/Pacific Islander. Interestingly, Non-Hispanics are more likely than Hispanics to have monetary bail assigned, which is unexpected from what past literature suggests. This could be due to a sizeable number of Black defendants, who do have a higher likelihood of having monetary bail assigned, being represented in the Non-Hispanic subset.

Table 1a: Proportion Assigned Monetary Bail by Race and Ethnicity

Race/Ethnicity	N	Bail Proportion
White	126753	0.15
Black	148341	0.22
Asian/Pacific Islander	3620	0.09
American Indian/Alaskan Native	330	0.19
Other	1386	0.17
Non Hispanic	202786	0.20
Hispanic	77644	0.16

Table 1b provides summary statistics of bail amounts by race and ethnicity. Black defendants have the highest average bail—roughly $3800 higher than that of White defendants—followed by Other, White, Asian/Pacific Islander, and American Indian/Alaskan Native. Black defendants also have the highest median bail, alongside Asians and Pacific Islanders, at $10,000, compared to $7,500 for White defendants and $5,000 for American Indians, Alaskan Natives, and Others. With regards to bail amounts across ethnicity, Hispanic defendants have a discernibly higher average bail amount than Non-Hispanics, roughly $9,000 greater. However, the median bail amount for both Hispanics and Non-Hispanics is the same at $10,000.

Table 1b: Summary Statistics of Dollar Bail Amounts by Race and Ethnicity

Race/Ethnicity	N	Min	Q1	Median	Mean	Q3	Max
White	18846	2	2500.00	7500.00	28094.82	20000.00	7500000
Black	32240	2	5000.00	10000.00	31903.70	25000.00	5000000
Asian/Pacific Islander	309	25	5000.00	10000.00	25978.24	25000.00	500000
American Indian/Alaskan Native	63	10	2500.00	5000.00	14566.83	15000.00	100000
Other	233	10	2000.00	5000.00	32274.48	20000.00	1000000
Non-Hispanic	39558	2	2500.00	10000.00	28311.66	25000.00	5000000
Hispanic	12145	2	5000.00	10000.00	37460.84	25000.00	7500000

Table 2a provides the proportion of those assigned monetary bail based on the severity and class of the offense. Unsurprisingly, those who committed violent offenses and felonies are more likely to have monetary bail assigned than those who committed nonviolent offenses and misdemeanors.

Table 2a: Proportion Assigned Monetary Bail by Severity and Class of Offense

Severity/Class of Offense	N	Bail Proportion
Non-Violent	234335	0.09
Violent	46095	0.67
Misdemeanor	181822	0.05
Felony	98608	0.44

Table 2b provides summary statistics of bail amounts based on the severity and class of the offense. Average bail amounts for violent offenses are significantly higher—more than double—that for nonviolent offenses. Similarly, the median bail amount for violent offenses is triple the median bail amount for nonviolent offenses. The average bail amount for felonies is more than 10 times higher the average bail amount for misdemeanors. Notably, the sample size for misdemeanors is much smaller than what one might expect. This is likely due to New York's 2019 Bail Reform laws, which largely eliminated the assignment of monetary bail for misdemeanors.[67] Table 2c

[67]Rahman, Insha. "New York, New York: Highlights of the 2019 Bail Reform Law." Vera Institute of Justice, July 2019. https://www.vera.org/downloads/publications/new-york-new-york-2019-bail-reform-law-highlights.pdf.

provides summary statistics of bail amounts based on the charge category.

Table 2b: Summary Statistics of Dollar Bail Amounts by Severity and Class of Offense

Severity/Class of Offense	N	Min	Q1	Median	Mean	Q3	Max
Non-Violent	20801	2	1000.00	5000.00	18624.14	10000.00	7500000
Violent	30902	3	5000.00	15000.00	38428.39	35000.00	5000000
Misdemeanor	8231	2	500.00	1500.00	3224.06	5000.00	250000
Felony	43472	2	5000.00	10000.00	35617.81	25000.00	7500000

Table 2c: Summary Statistics of Bail Amounts by Charge Category

Arraign.Charge.Category	N	Min	Q1	Median	Mean	Q3	Max
Criminal Possession of a Weapon	10561	2	7500.00	15000.00	32291.77	35000.00	2500000
Assault	9173	2	3500.00	10000.00	28920.16	25000.00	5000000
Criminal Contempt	6904	5	1250.00	3500.00	6914.07	7500.00	500000
Robbery	5856	10	5000.00	10000.00	31629.39	25000.00	2000000
Burglary	4528	5	5000.00	10000.00	23674.28	25000.00	2500000
Drug	3221	5	3500.00	15000.00	70292.83	50000.00	7500000
Property	1780	5	500.00	2500.00	10987.53	10000.00	500000
Larceny	1702	5	500.00	2500.00	7221.19	7500.00	500000
Other Sex Offense	1689	2	5000.00	15000.00	40051.55	50000.00	2000000
Strangulation	1408	5	2000.00	5000.00	9850.51	10000.00	500000
Other	1393	2	500.00	5000.00	26213.13	25000.00	1000000
Homicide Related	1317	1000	25000.00	75000.00	139764.24	150000.00	5000000
Rape	964	10	10000.00	25000.00	60667.13	75000.00	2500000
Aggravated Harassment	912	5	2000.00	5000.00	8310.99	10000.00	500000
Unlicensed Operation	160	5	100.00	1000.00	5141.06	5000.00	100000
DWI	140	5	250.00	5000.00	16647.29	16250.00	200000
Criminal Trespass	132	5	500.00	1500.00	2787.39	3500.00	25000
Endangering Welfare	117	5	250.00	2500.00	5779.79	5000.00	100000
Obstruction	113	5	100.00	1000.00	2246.06	2500.00	15000
Conspiracy	54	10	10000.00	50000.00	166282.50	150000.00	2500000
Other VTL	43	5	25.00	3000.00	21846.86	25000.00	200000

A full list of New York State Law Offenses can be found here: https://ypdcrime.com/penallawlist.php

3.3 Independent Variables

The primary independent variables of interest are Race and Ethnicity. The race categories are Black, White, Asian/Pacific Islander, Native American/ Alaskan Native, and Other. Black and White people, who comprise 53.9

percent and 44.3 percent of the sample respectively, make up the overwhelming majority of the dataset, followed by Asians and Pacific Islanders at 1.2 percent, Other races at .5 percent and American Indians and Alaskan Natives making up .1 percent. Given the small sample size for Asian, Pacific Islander, American Indian, Alaskan Native and Other defendants, this thesis is primarily interested in the Black-White disparity. The ethnicity categories are Hispanic and Non-Hispanic. Non-Hispanic people constitute most of the dataset, representing 72.9 percent of all arraignments, while the remaining 27.1 percent are Non-Hispanic.

Other sociodemographic variables were included in the models, namely gender, age, and region. Gender (coded as 1 for male and 0 for female) was the most consistent variable, with males comprising a staggering 81.2 percent of the sample. The age of defendants, taken at time of arraignment, varied from 13 to 99, though half of them fell within the ages of 26 and 42 and the average was around 35. Geographical location was also accounted for in the models through region, a binary variable indicating whether the arraignment took place inside New York City (associated with a value of 0) or outside of the city (associated with a value of 1). Outside of New York City is defined as any arraignment that took place outside of the five boroughs: Manhattan, The Bronx, Brooklyn, Queens and Staten Island. There are three other location-based variables in the original dataset: courthouse, county and district. These locations could potentially be used as a proxy for socioeconomic status, though such methods are not applied in this study.

Additional case- and defendant-specific variables include the severity of the offense, a binary variable indicating whether a defendant's offense was violent (associated with a value of 1) or non-violent (associated with a value of 0), the class of offense, a binary variable indicating whether the defendant committed a felony (associated with a value of 1) or a misdemeanor (associated with a value of 0), and the charge category, as defined by the New York

State Penal Code. Other variables were included to account for a defendant's past criminal history, namely their count of prior violent charges, count of prior nonviolent charges, count of prior misdemeanor charges, whether they had any pending violent charges, any pending nonviolent charges, and finally, any pending misdemeanor charges. 17.4 percent of arraignments dealt with violent offenses and 82.6 percent dealt with non-violent offenses. 37.2 percent of arraignments dealt with felonies and 62.8 percent dealt with misdemeanors. 8 percent, 16.3 percent and 23.3 percent of defendants had a pending violent charge, pending non-violent charge, and pending misdemeanor charge, respectively. 17.5 percent, 27 percent and 46.2 percent of defendants had at least one prior violent offense, one prior non-violent offense, and one prior misdemeanor offense on their records, respectively.

Notably, criminal history records (e.g. number of prior violent charges) are only available for arrests that require fingerprints to be taken. Hence, a defendant's past charges may not be accounted for in the data if those charges did not require their fingerprint be taken.[68]

3.4 Concannon and Na's Data

As aforementioned, Concannon and Na's inconsistent findings with prior literature on the topic of bail setting makes their data a primary interest of investigation in this study. Concannon and Na utilize data from the New York County (Manhattan) District Attorney's office containing 43,971 felony complaints filed between 2013 and 2017. The relevant dependent variables of interest in their study are (1) bail request, which refers to the bail amount requested by an Assistant District Attorney (ADA) and (2) pretrial detention, a binary variable indicating whether a defendant had monetary bail set

[68] A full list of charges that require fingerprints can be found in the Coded Law File on the Division of Criminal Justice Services website: https://www.criminaljustice.ny.gov/crimnet/ccman/ccman.htm

or was released on their own recognizance.

The independent variables of interest include demographic variables, as well as case- and defendant-specific variables related to the nature of the crime and the defendant's past criminal history. The demographic variables are race, ethnicity, gender, and age. The racial and ethnic groups defined are White, Black, Asian and Latino. The race and ethnicity of a defendant are assigned as dummy variables where White defendants serve as the reference category. Gender is a binary variable in which 0 represents female and 1 represents male, and age is an ordinal variable with the following categories: under 18, 18–24, 25–35, and over 35. The 25-35 age group serves as their reference category. Both gender and age are controlled for in their study. Additional case- and defendant-specific variables were also included. The nature of the crime was accounted for through various dummy variables which indicated whether the crime was violent or non-violent, the statutory severity of the offense, and the charge category of the offense. For charge category, Concannon and Na selected the 13 most common charges and classified all other charges as 'Other'. 'Class D grand larceny' served as the reference category for this variable. The defendant's criminal history was accounted for using five separate variables: count of prior misdemeanor convictions, count of prior felony convictions, count of prior violent convictions, count of bench warrants issued and whether the defendant had any other pending cases.

In order to validate whether Concannon and Na's results held up in this analysis, a subset of data was created which aimed to replicate Concannon and Na's data as closely as possible. To accomplish this, two additional restrictions were made to the data described in Section 3.1. First, the data was restricted to only include observations in New York County (Manhattan). Second all cases classified as misdemeanors were dropped. The resulting dataset, Dataset 3, consisted of all felony arraignments in New York County.

Dataset 3 contains roughly the same variables observed in Concannon and Na's data, though some are coded for differently. The remainder of this section describes the two datasets' similarities and differences.

The most notable difference in the datasets' dependent variables is that Concannon and Na's data denotes bail requests whereas the data in this analysis denotes bail amounts. Bail requests are different from bail amounts in that a bail request refers to the bail amount suggested during the initial screening of a case by a prosecutor whereas bail amount refers to the dollar bail amount ultimately assigned by a judge during a defendant's arraignment. The pretrial detention variable, however, is defined the same exact way in both analyses: 1 represents a defendant having some amount of monetary bail assigned and 0 represents a defendant being released on their own recognizance.

Among the demographic variables (race, ethnicity, gender, and age), gender is the only variable which is coded identically across both studies (0 represents female and 1 represents male). The key differences between the racial and ethnic variables across datasets are (1) Concannon and Na's data doesn't include American Indian/Alaskan Native as one of their race categories, (2) Concannon and Na's data doesn't specify whether the Asian race category contains Pacific Islanders also and (3) Concannon and Na's ethnicity group comparison is Latino vs. Non-Latino compared to Hispanic vs. Non-Hispanic in this data. Age is also coded differently across datasets, being an ordinal variable with four categories in Concannon and Na's data, compared to a continuous variable in this study.

Most of the case- and defendant-specific variables relating to the nature of the crime and the defendant's past criminal history are coded the same in both datasets, namely the charge category, count of prior misdemeanor convictions, count of prior felony convictions, and the count of prior violent convictions. Notably, while the charge categories in both datasets are de-

fined according to the Division of Criminal Justice Services documentation, they are additionally classified according to the charge weight in Concannon and Na's data (e.g., Robbery vs. Class D Robbery). Concannon and Na also include 14 separate charge categories (including 'Other'), compared to this analysis' 21 categories. The pending case variable, which indicates if a defendant is facing an ongoing charge, is also different across datasets. In Concannon and Na's data, the pending case variable is conglomerated to broadly include any pending offense a defendant may be facing whereas in this analysis, it is deconstructed into three separate variables: pending violent offenses, pending nonviolent offenses, and pending misdemeanors.

Outside of variations in data structure, there are a couple of other notable ways in which Concannon and Na's data differ from the data used in this analysis. First, this study's data is more recent, spanning from 2020 to 2022, as opposed to Concannon and Na's data which spans from 2013 to 2017. Second, Concannon and Na include a few variables which were not available in our dataset, namely (1) whether the defendant in question was labeled as a 'crime driver' by the Manhattan Crimes Strategies Unit, (2) whether the case was classified as a domestic violence case, (3) the defendant's attorney type/legal defense and (4) a defendant's bench warrant count.

Concannon and Na create two separate models to predict pretrial detention and bail requests. Model 1 includes only race and ethnicity as predictor variables, whereas Model 2 additionally includes other legally relevant variables related to the nature of the crime and the defendant's past criminal history. A similar methodology is implemented in this study and is described in more detail in the next section.

4 Methods and Results

4.1 Framework

The goal of this study is to identify and measure racial and ethnic disparities within the process of bail setting in New York. In order to reach this goal, this study considers three key examinations: (1) whether or not a defendant's race and ethnicity affect their likelihood of having monetary bail assigned, (2) the underlying cause of Concannon and Na's irregular results and (3) the degree to which a defendant's predicted bail outcome would differ, had they been of another race or ethnicity. The below sections address each of these examinations.

To address the first matter, this study replicates the methods implemented by Concannon and Na's 2022 analysis in which they find that minority defendants, particularly Black and Latino, are less likely to be assigned monetary bail. These methods comprise of performing a logistic regression on pretrial detention in order to predict which defendants are assigned monetary bail and which are released on their own recognizance. Concannon and Na create two separate models in which they perform the logistic regression on: Model 1, which only accounts for race and ethnicity and Model 2, which additionally includes all other independent variables of interest. The two models in this thesis follow a similar suit and are as follows: Model 1 includes only race and ethnicity and Model 2 additionally includes all of the aforementioned independent variables in Section 3.2, namely age, gender, region (inside NYC vs. outside NYC), severity of offense (violent vs. non-violent), class of offense (felony vs. misdemeanor), charge category, count of prior violent charges, count of prior nonviolent charges, count of prior misdemeanor charges, whether the defendant has any pending violent charges, whether the defendant has any pending nonviolent charges, and finally, whether the defendant has any pending misdemeanor charges. Charge category is con-

trolled for in Model 2, as indicated by the charge fixed effect in the regression output. In both models, White (Non-Hispanic) serves as the reference category. Notably, across all regressions, Model 2 achieves a higher accuracy than Model 1, indicating that the results outputted by Model 2 are more robust and accurate than those of Model 1. Model 1 serves as grounds to gather an initial observance of how race and ethnicity affect bail outcomes, rather than an actual accurate predictor of bail outcomes.

To address the second matter, logistic regressions (both Model 1 and Model 2) on pretrial detention were performed on additional subsets, distinguished by key variables that differ between this study's data and Concannon and Na's data. This is done as a means to investigate differing results between the current analysis and Concannon and Na's. The first differing variable of interest is severity of the offense (Violent vs. Nonviolent), as Concannon and Na's data presumably contains more cases of nonviolent felonies. This assumption is made considering legislative bail reform in New York—which eliminated monetary bail for many nonviolent felonies—that passed in 2020, after the span of Concannon and Na's data (2013 to 2017).[69] The other differing variable of interest is the region variable (Inside vs. Outside NYC), which isn't accounted for in Concannon and Na's data due to their data only consisting of arraignments made in Manhattan. To further investigate the influence of region on pretrial detention, a third model, Model 3, is introduced which contains all of the covariates in Model 2 except the region variable. Model 3 returns results that closely resemble the irregular results of Concannon and Na. The insights from this section's results are discussed in detail in the discussion section (Section 5) of this thesis.

To address the third matter, four separate Logistic Regression General Additive Models (GAM) regressing on pretrial detention were trained using each subset of race and ethnicity within the data: Black, White, Hispanic

[69]Rahman, Insha. "2019 Bail Reform Law

and Non-Hispanic. After each of the models were trained, individual observations from one group were substituted into the opposite racial/ethnic model (i.e., Black defendants were substituted into the White defendant model, Hispanic defendants into the Non-Hispanic defendant model, etc.) in order to predict defendants' alternative outcomes in pretrial detention, had they been of another race/ethnicity.

4.2 Measuring Racial and Ethnic Disparities in the Assignment of Monetary Bail

Methods

In order to determine whether racial and ethnic disparities exist in the assignment of monetary bail, a logistic regression model was run on pretrial detention, where 1 represents a defendant having monetary bail set and 0 represents a defendant being released on their own recognizance. The regression was performed on Dataset 3, which is this study's closest replicate of Concannon and Na's data, containing only felony arraignments in New York County. Notably, for this regression, the region variable (Inside vs. Outside NYC) does not apply as all observations in Dataset 3 occur within Manhattan (Inside NYC). All regression results are outputted as odds ratios.

Model performance was tested in this regressions using a 10-fold cross validation method. As aforementioned, Model 1 only includes race and ethnicity as predictor variables whereas Model 2 additionally includes all other independent variables described in Section 3.2. Model 1 achieved an accuracy of 53% and Model 2 achieved an accuracy of 76%.

Results

Table 3a provides a comparison of the odds ratios of pretrial detention (for felonies in Manhattan) between the current analysis and Concannon and

Na's.[70] The models of each analysis include their respective covariates. In both analyses, the odds of having monetary bail assigned are greater for minorities when only race and ethnicity are accounted for (Model 1). Model 1 of the current analysis reports that the odds of having monetary bail assigned are 1.4 times higher for Black defendants than White defendants and 1.2 times higher for Hispanic defendants than White defendants. Model 1 of Concannon and Na's analysis reports that the odds of having monetary bail assigned are 1.5 times higher for Black defendants than White defendants and 1.3 times higher for Latino defendants than White defendants.

The similarities end here, however. Following the inclusion of additional variables beyond race and ethnicity (Model 2), the odds of having monetary bail assigned are still greater for minorities than White defendants in the current analysis. In Concannon and Na's analysis, however, the odds change such that minorities have lower odds of being assigned monetary bail. Model 2 of the current analysis reports that the odds of having monetary bail assigned are 1.2 times higher for Black defendants than White defendants and 1.3 times higher for Hispanic defendants than White defendants. Model 2 of Concannon and Na's analysis reports that the odds of having monetary bail assigned are 11% lower for Black defendants than White defendants and 14% lower for Latino defendants than White defendants.

[70]Concannon and Na's results are taken directly from their report, which can be found here: https://doi.org/10.1007/s12552-022-09385-0.

Table 3a: Logistic Regression Odds Ratios Predicting Pretrial Detention: Felonies in Manhattan

	Pretrial Detention Binary Variable Monetary Bail Set (1) or Released on Recognizance (0)			
	Saran		Concannon and Na	
	Model 1	*Model 2*	*Model 1*	*Model 2*
Intercept	0.81***	0.25***	1.64***	0.47***
Black	1.40***	1.16*	1.54***	0.89**
	(0.07)	(0.07)	(0.03)	(0.04)
Hispanic/Latino∗	1.17***	1.32***	1.34***	0.86***
	(0.05)	(0.08)	(0.03)	(0.04)
Asian∗	0.68	0.67	0.61***	0.87
	(0.19)	(0.24)	(0.07)	(0.07)
American Indian/Alaskan Native	0.000	0.000		
	(0.001)	(0.002)		
N	12,315	12,315	43,971	43,971
Saran Covariates	Yes	Yes	—	—
Concannon & Na Covariates	—	—	Yes	Yes
Notes:			***Significant at the 1 percent level.	
			**Significant at the 5 percent level.	
			*Significant at the 10 percent level.	

∗ Ethnicity is denoted as Hispanic in this data, compared to Latino in Concannon and Na's data.

∗ Asian includes Pacific Islander in this data, though it is unsure whether that is the case with Concannon and Na's data.

Table 3b reports the complete odds ratios of pretrial detention (for felonies in Manhattan) for all covariates (except charge category) in the current analysis. Outside of the effects of race and ethnicity, there are a few noteworthy results. The most distinguished predictor variable in this regression is the severity of the offense, that is whether the defendant's offense was classified as violent or non-violent. A violent offense increases the odds of having monetary bail assigned at arraignment by nearly 10 fold. Interestingly, whether a defendant has another pending charge—violent, nonviolent, or misdemeanor—appears to increase the odds of having monetary bail assigned, more so than a defendant's past criminal history. The odds of having monetary bail assigned doesn't vary with age, though they are 2.9 times higher for male defendants than female defendants.

Table 3b: Logistic Regression Odds Ratios Predicting Pretrial Detention: Felonies in Manhattan

	Pretrial Detention Binary Variable Monetary Bail Set (1) or Released on Recognizance (0)	
	Model 1	*Model 2*
Intercept	0.809***	0.254***
Black	1.397***	1.163*
	(0.065)	(0.069)
Asian/Pacific Islander	0.683	0.671
	(0.189)	(0.238)
American Indian/Alaskan Native	0.00001	0.00000
	(0.001)	(0.002)
Hispanic	1.167***	1.319***
	(0.053)	(0.076)
Age		1.000
		(0.002)
Gender (1 - Male)		2.869***
		(0.206)
Severity of Offense (1 - Violent)		9.819***
		(0.787)
Prior Violent Offenses		1.645***
		(0.068)
Prior Non-Violent Offenses		1.108***
		(0.028)
Prior Misdemeanor Offenses		1.051***
		(0.009)
Pending Violent Charge (1)		2.505***
		(0.179)
Pending Non-Violent Charge (1)		2.063***
		(0.128)
Pending Misdemeanor Charge (1)		1.978***
		(0.116)
N	12,315	12,315
Log Likelihood	−8,498.261	−5,934.555
Akaike Inf. Crit.	17,006.520	11,935.110
Charge Fixed Effect	—	Yes

Notes: ***Significant at the 1 percent level.
**Significant at the 5 percent level.
*Significant at the 10 percent level.

4.3 Investigating Concannon and Na's Results

Methods

This section aims to investigate a few key variables that might explain the discrepancies between Concannon and Na's results and the results found in the previous section. One key difference is that the current study analyzes more recent data, spanning from 2020 to 2022, compared to Concannon and Na's analysis which spans from 2013 to 2017. Notably, in 2020, New York passed massive bail reform which eliminated monetary bail for most misdemeanors and nonviolent felonies. Hence, Concannon and Na's data is likely to include many more nonviolent felonies. Additionally, Concannon and Na's analysis fails to provide any insight on the effect of race and ethnicity on pretrial detention outside of New York City, as their data only consists of arraignments made in Manhattan.

To account for these differences, logistic regressions were run on (1) separate subsets of violent and nonviolent felonies in Manhattan as well as (2) separate subsets of felonies inside and outside of New York City. To further investigate the impact of region, an additional logistic regression was run on a subset containing felonies across the entirety of New York State, using a new model, Model 3, which excludes the region variable entirely. Notably, Model 3 contains all of the same covariates as Model 2 except for the region variable. Model 1 and Model 2 are also ran on this subset of felonies across the entirety of New York State. All regression results are outputted as odds ratios.

For violent felonies in Manhattan, Model 1 achieved an accuracy of 71% and Model 2 achieved an accuracy of 78%. For nonviolent felonies in Manhattan, Model 1 achieved an accuracy of 71% and Model 2 achieved an accuracy of 76%. For all arraignments inside New York City, Model 1 achieved an accuracy of 54% and Model 2 achieved an accuracy of 79%. For all arraignments

outside New York City, Model 1 achieved an accuracy of 58% and Model 2 achieved an accuracy of 79%. For violent felonies across all of New York State, Model 1 achieved an accuracy of 55%, Model 2 achieved an accuracy of 78% and Model 3 achieved an accuracy of 77%.

Results

Table 5 reports the results of the logistic regressions on pretrial detention in violent and nonviolent offenses. For arraignments set for violent offenses, Model 1 reports that the odds of having monetary bail assigned are about 1.6 times higher for Black defendants than White defendants and 1.1 higher Hispanic defendants compared to White defendants. Model 2 reports that the odds of having monetary bail assigned are about 1.2 times higher for Black defendants than White defendants and about 3% lower for Hispanic defendants than White defendants. For arraignments set for nonviolent offenses, Model 1 reports that the odds of having monetary bail assigned are about 1.2 times higher for Black defendants than White defendants and 1.5 times higher for Hispanic defendants than White defendants. Model 2 reports that the odds of having monetary bail assigned are roughly the same—1% higher— for Black defendants than White defendants and 1.9 times higher for Hispanic defendants compared to White defendants.

Table 4: Logistic Regression Odds Ratios Predicting Release Decision: Felonies in Manhattan (Violent vs. Nonviolent)

	Release Decision Binary Variable: Monetary Bail Set (1) or Released on Recognizance (0)			
	Violent		Nonviolent	
	Model 1	*Model 2*	*Model 1*	*Model 2*
Intercept	1.722***	0.000	.311***	.305***
Black	1.629***	1.244***	1.166***	1.049***
	(0.116)	(0.101)	(0.085)	(0.090)
Asian/Pacific Islander	0.536	0.427	1.157***	1.098**
	(0.218)	0.217)	(0.458)	(0.534)
American Indian/Alaskan Native			0.00001	0.00000
			(0.002)	(0.001)
Hispanic	1.059***	0.966***	1.539***	1.855***
	(0.074)	(0.076)	(0.109)	(0.158)
Age		0.991***		1.013***
		(0.003)		(0.003)
Gender (1 - Male)		3.168***		2.197***
		(0.274)		(0.285)
Prior Violent Offenses		2.333***		1.363***
		(0.165)		(0.076)
Prior Non-Violent Offenses		1.243***		1.035***
		(0.055)		(0.035)
Prior Misdemeanor Offenses		1.082***		1.019***
		(0.015)		(0.013)
Pending Violent Charge (1)		2.726***		2.409***
		(0.287)		(0.241)
Pending Non-Violent Charge (1)		2.110***		2.188***
		(0.209)		(0.179)
Pending Misdemeanor Charge (1)		2.134***		1.894***
		(0.181)		(0.159)
N	6,665	6,665	5,650	5,650
Log Likelihood	−3,986.491	−3,095.833	−3,380.337	−2,676.530
Akaike Inf. Crit.	7,980.981	6,235.665	6,770.674	5,415.060
Charge Fixed Effect	—	Yes	—	Yes

Notes: ***Significant at the 1 percent level.
**Significant at the 5 percent level.
*Significant at the 10 percent level.

Table 6 reports the results of the logistic regressions on pretrial detention inside and outside of New York City. For arraignments assigned inside of New York City, Model 1 reports that the odds of having monetary bail assigned are 1.5 times higher for Black defendants than White defendants and roughly the same—1% lower—for Hispanic defendants compared to White defendants. Notably, the odds ratios for Hispanic defendants in Model 1 are not statistically significant. Model 2 reports that the odds of having monetary bail assigned are about 1.1 times higher for Black defendants than White defendants and 1.1 times higher for Hispanic defendants compared to White defendants. For arraignments assigned outside of New York City, Model 1 reports that the odds of having monetary bail assigned are 1.9 times higher for Black defendants than White defendants and 1.3 times higher for Hispanic defendants than White defendants. Model 2 reports that the odds of having monetary bail assigned are 1.2 times higher for Black defendants than White defendants and 1.3 times higher for Hispanic defendants than White defendants.

Table 5: Logistic Regression Odds Ratios Predicting Release Decision: Felonies in New York State: (Inside vs. Outside NYC)

	Release Decision Binary Variable Monetary Bail Set (1) or Released on Recognizance (0)			
	Inside NYC		Outside NYC	
	Model 1	*Model 2*	*Model 1*	*Model 2*
Intercept	0.677***	0.285***	0.505***	0.329***
Black	1.452***	1.078**	1.850***	1.182***
	(0.033)	(0.032)	(0.039)	(0.033)
Asian/Pacific Islander	0.639***	0.806**	0.754*	1.337
	(0.057)	(0.085)	(0.111)	(0.255)
American Indian/Alaskan Native	1.023	1.602	1.945***	1.862**
	(0.444)	(0.894)	(0.448)	(0.577)
Other	2.987	4.003	0.900	1.007
	(3.659)	(8.052)	(0.088)	(0.127)
Hispanic	0.989	1.062**	1.298***	1.253***
	(0.023)	(0.031)	(0.037)	(0.047)
Age		0.990***		0.990***
		(0.001)		(0.001)
Gender (1 - Male)		2.867***		2.093***
		(0.103)		(0.524)
Severity of Offense (1 - Violent)		10.648***		11.490***
		(0.441)		(0.053)
Prior Violent Offenses		1.769***		1.845***
		(0.037)		(0.053)
Prior Non-Violent Offenses		1.234***		1.430***
		(0.017)		(0.024)
Prior Misdemeanor Offenses		1.078***		1.053***
		(0.005)		(0.006)
Pending Violent Charge (1)		2.772***		2.181***
		(0.093)		(0.110)
Pending Non-Violent Charge (1)		2.419***		2.199***
		(0.073)		(0.074)
Pending Misdemeanor Charge (1)		2.023***		1.716***
		(0.059)		(0.053)
N	55,127	55,127	43,458	43,458
Log Likelihood	−37,807.270	−26,104.220	−29,028.360	−19,432.760
Akaike Inf. Crit.	75,626.540	52,278.440	58,068.710	38,935.520
Charge Fixed Effect	—	Yes	—	Yes

Notes:
***Significant at the 1 percent level.
**Significant at the 5 percent level.
*Significant at the 10 percent level.

Table 7 reports the odds ratios of the pretrial detention outcome for arraignments made for felonies across all of New York State. When only race and ethnicity are accounted for (Model 1), the odds of having monetary bail assigned are 1.5 times higher for Black defendants than White defendants. Similar to the previous regression on felonies in Manhattan, the inclusion of other legally-relevant variables (Model 2) decreases the odds of having monetary bail assigned for Black defendants. Notably, these odds are still 1.2 times higher the odds of having monetary bail assigned for White defendants. An observably different effect is observed for Hispanics. When only race and ethnicity are included, the odds of having monetary bail assigned are 8.2% lower for Hispanic defendants than White defendants. However, once other legally-relevant variables are accounted for, the odds of having monetary bail assigned are 1.1 times higher for Hispanic defendants than White defendants.

Notably, by excluding the region variable from Model 2 (denoted here as Model 3), similar results to Concannon and Na are reported. Particularly, Model 3 reports that the odds of having monetary bail assigned are 12% lower for Black defendants than White defendants, compared to 11% lower for Black defendants than White defendants as reported by Concannon and Na. Model 3 also reports that the odds of having monetary bail assigned are 24% lower for Hispanic defendants than White defendants, compared to 14% lower for Latino defendants than White defendants as reported by Concannon and Na. In the previous analyses, the region variable was disregarded due to all arraignments occuring within Manhattan. However, across New York State, Concannon and Na's claims of lower odds of having monetary bail assigned for minorities is true only through the omission of the region variable. This suggests some level of omitted variable bias in Concannon and Na's analysis, the implications of which will be examined in the discussion section (Section 5) of this thesis.

Table 6: Logistic Regression Odds Ratios Predicting Release Decision: Felonies in New York State

	Release Decision Binary Variable Monetary Bail Set (1) or Released on Recognizance (0)		
	Model 1	*Model 2*	*Model 3*
Intercept	0.556***	0.165***	0.379***
Black	1.714***	1.151***	0.943***
	(0.025)	(0.023)	(0.018)
Asian/Pacific Islander	0.753***	0.948	0.681***
	(0.056)	(0.087)	(0.062)
American Indian/Alaskan Native	1.644**	1.779**	1.867**
	(0.333)	(0.480)	(0.492)
Other	0.897	1.077	1.593***
	(0.086)	(0.134)	(0.194)
Hispanic	1.160***	1.134***	0.876***
	(1.160)	(0.025)	(0.018)
Age		0.989***	0.986***
		(0.001)	(0.001)
Gender (1 - Male)		2.458***	2.357***
		(0.062)	(0.059)
Region (1 - Outside NYC)		2.125***	
		(0.041)	
Severity of Offense (1 - Violent)		11.160***	10.161***
		(0.341)	(0.305)
Prior Violent Offenses		1.788***	1.732***
		(0.030)	(0.029)
Prior Non-Violent Offenses		1.313***	1.288***
		(0.014)	(0.014)
Prior Misdemeanor Offenses		1.066***	1.072***
		(0.004)	(0.004)
Pending Violent Charge (1)		2.582***	2.325***
		(0.072)	(0.064)
Pending Non-Violent Charge (1)		2.310***	2.199***
		(0.052)	(0.049)
Pending Misdemeanor Charge (1)		1.862***	1.915***
		(0.039)	(0.040)
N	98,585	98,585	98,585
Log Likelihood	−66,894.360	−45,717.790	−46,509.050
Akaike Inf. Crit.	133,800.700	91,507.590	93,088.100
Charge Fixed Effect	—	Yes	Yes

Notes:

***Significant at the 1 percent level.
**Significant at the 5 percent level.
*Significant at the 10 percent level.

4.4 A Machine-Learning Approach to Measuring Racial and Ethnic Disparities in Bail Setting

Methods

In order to determine the degree to which defendants' predicted bail outcomes differ had they been of another race or ethnicity, an unpooled alternative outcome method was utilized. For these analyses, observations with defendants of race Asian/Pacific Islander, American India/Alaskan Native, and Other were all excluded in order to distinctly focus on the Black-White disparity. Also, all arraignments set for misdemeanors were dropped, leaving only arraignments set for felonies. This new dataset will be referred to as Dataset 4.

Dataset 4 was first separated into four separate subsets (Black, White, Hispanic and Non-Hispanic) in which each subset only contained defendants of that respective race or ethnicity (i.e., Black dataset only contained Black defendants, White dataset only contained White defendants, etc.). Each of these subsets were used to train a respective GAM logistic regression model regressing on pretrial detention. For simplicity, I will refer to these models as the Black defendant model, White defendant model, and so on. Individual observations from one group were then substituted into the opposite racial/ethnic model (i.e., Black defendants were substituted into the White defendant model, Hispanics into the Non-Hispanic defendant model, etc.) in order to observe defendants' alternative bail outcomes, had they been of another race/ethnicity.

Results

Table 8 provides the probabilities of having monetary bail assigned for each race/ethnicity (True Model), the predicted probabilities of having monetary bail assigned had they been of the opposite race/ethnicity (Alternate Model),

and the difference between those probabilities (Model Difference). The probability of having monetary bail assigned for Black defendants would be 3.2% lower had they been White. The probability of having monetary bail assigned for White defendants would be 1.8% higher had they been black. The probability of having monetary bail assigned for Hispanic defendants would be 2.2% lower had they been Non-Hispanic. The probability of having monetary bail assigned for Non-Hispanic defendants would be 1.1% higher had they been Hispanic.

Standard Errors for each of the Model Differences were found using a bootstrap approach with 250 replicates. The standard errors are also reported in Table 8.

Table 7: General Additive Model Predicted Probabilities of Pretrial Detention: Unpooled Method

Race/Ethnicity	True Model	Alternate Model	Model Difference	Standard Error
Black	0.492	0.458	0.034	0.004
White	0.374	0.390	−0.016	0.004
Hispanic	0.423	0.403	0.020	0.002
Non-Hispanic	0.448	0.458	−0.010	0.002

5 Discussion

5.1 Key Findings

This thesis provides a number of insights regarding racial and ethnic disparities in in New York's bail setting process. Most notably, Black and Hispanic defendants are expected to have a lower probability of having monetary bail assigned had they been White and Non-Hispanic, as predicted by unpooled alternative outcome models. Black and Hispanic defendants also observe higher odds of having monetary bail assigned than White and Non-Hispanic

defendants when only accounting for race and ethnicity (Model 1) as well as when controlling for legally-relevant variables (Model 2).[71] These results are consistent for Black defendants across all subsets of the data, namely felonies inside New York City, felonies outside of New York Cities, violent felonies in Manhattan, nonviolent felonies in Manhattan, and felonies across the entirety of New York State. These results are consistent for Hispanic defendants across all of these subsets except for Model 2 for violent felonies in Manhattan and Model 1 for felonies inside New York City, in which Hispanic defendants were predicted to have lower odds of having monetary bail assigned than White defendants. Notably, the results from Model 1 for Hispanic defendants for felonies inside New York City were not statistically significant.

Though these results are congruous with the overwhelming body of literature surrounding racial and ethnic disparities in the bail setting process, they are at odds with Concannon and Na's 2022 analysis which finds that Black and Latino defendants have lower odds of having monetary bail assigned than White defendants. While this study aims to replicate Concannon and Na's study as closely as possible, it fails to account for a number of variables that Concannon and Na control for in their analysis, namely whether a defendant was tagged as a 'crime driver', whether the offense in question was a domestic violent case, the defendant's defense type, and a defendant's bench warrant count. These variables may account for the differences observed between the current analysis and Concannan and Na's analysis, though it is unsure.

This study seeks, instead, to provide an explanation for Concannon and Na's results by investigating differing variables between the their dataset and this thesis', the first of which being the severity of offense (violent vs. nonviolent offenses). Due to New York's 2020 Bail Reform Laws, which

[71]The disparities for Asian, Pacific Islander, American Indian and Alaskan Native defendants are not included in the discussion as their results were not statistically significant in this study.

eliminated monetary bail for most misdemeanors and nonviolent felonies, it is presumable that Concannon and Na's data (2014 - 2017) includes more nonviolent felonies than the data used in this study (2020 - 2022). This study hypothesized that this data discrepancy might account for Concannon and Na's results, had there been lower odds of having monetary bail assigned for Black and Hispanic defendants who committed nonviolent felonies. This turned out not to be the case, however. Rather, this study finds that minorities have higher odds of having monetary bail assigned in nonviolent felonies, failing to provide an explanation for Concannon and Na's results.

This study also investigates the region variable, which indicates whether an arraignment was set inside or outside of New York City. Given that Concannan and Na's data only observes Manhattan, if minorities had lower odds of having monetary bail assigned inside New York City, that may provide an explanation for Concannon and Na's results. This, once again, turns out not to be the case. Black and Latino defendants observe higher odds of having monetary bail assigned both inside and outside of New York City, as well as across the entirety of New York State. Interestingly, when looking at felonies across all of New York State, the exclusion of the region variable from Model 2 (Model 3), brings about similar results to that of Concannon and Na. While this lends credence to the possibility of racial and ethnic disparities being related to some variable closely related to region, the more likely explanation is that the omittance of even one variable can drastically change the results of the logistic regression analyses. In both this analysis as well as Concannon and Na's, it is likely there are variables which greatly influence a defendant's likelihood of having monetary bail assigned, yet are failed to be accounted for.

5.2 Research Limitations and Future Research

The findings of this study must be observed in light of some limitations, the most pertinent of which being the available data. The Criminal Procedure Law amendments of the Bail Reform Law (2020), New York's Pivotal reform of the bail system, instructs judges to consider key factors in the assignment of bail, including but not limited to: (1) the accused individual's activities and history, (2) the charges facing the individual, (3) the individual's criminal history, (4) the individual's record of previous adjudication as a juvenile delinquent or of pending cases, (5) the individual's previous record with respect to flight to avoid criminal prosecution, (6) if monetary bail is authorized, the individual's financial circumstances, the individual's ability to post bail without posing undue hardship, as well as his or her ability to obtain a secured, unsecured, or partially secured bond.[72]

While the data in this study provides key information such as the class of offense (felony or misdemeanor), severity of offense (violent or nonviolent) and charge category, it fails to account for all aspects of the nature and circumstance of the charged offense. This study also entirely fails to include three of the key factors mentioned above, namely an individual's record as a juvenile delinquent, their history of failing to appear in court, and their financial circumstances. Lastly, while this study does include information regarding whether a defendant has any other pending cases at the time of arraignment, it doesn't specify whether the defendant was on probation, parole or released. The failure to account for all variables observed in the courtroom during the bail-decision process introduces an element of omitted variable bias. If this study incorporated the aforementioned variables, the results might change. In the same light, Concannon and Na suffer from the

[72]New York State Senate, NY CLS CPL § 150.10. Criminal Procedure Law amendments to Bail Reform Law (Effective January 1, 2020). https://cdn.ymaws.com/www.nysda.org/resource/resmgr/2020reforms/ny_bail_law_2020.pdf.

same shortcoming of omitted variable bias as their analysis also excludes a number of crucial variables, the inclusion of which might change or explain their findings. Future research can build on this study through the inclusion of these key variables, as well as accounting for any other additional information that may be observed in the courtroom during the bail decision-making process.

On that note, this thesis puts forth a policy recommendation to amend Executive Law 837-U—New York's law mandating the public release of data regarding pretrial release and detention—to include as many, if not all, of the variables taken into consideration by a judge during a defendant's arraignment, as outlined by the 2020 Bail Reform Laws. This would allow future researchers to more accurately investigate not only racial and ethnic disparities, but any aspect of the bail setting process in New York.

Another limitation of this study was the disproportionate sample size with regards to race. The incredibly small count of observations for Asian, Pacific Islander, American Indian and Alaskan Native defendants compared to Black and White defendants prohibited this study from making robust inferences about other racial disparities outside of the Black-White disparity.

6 Conclusion

This thesis investigates racial and ethnic disparities within the bail setting process in New York. It finds evidence that there is discrimination towards minority, particularly Black and Hispanic, defendants in bail outcomes on two fronts. First, the odds of having monetary bail assigned are higher for defendants if they are Black or Hispanic than if they are White. Second, the probability of having monetary bail assigned for minority defendants is expected to be lower had they been non-minorities.

These results must be considered in light of the available data failing to

include all the variables which may influence a judge's decision during an arraignment. Concannon and Na's analysis is faced with a similar issue, which might help explain why their results are inconsistent with the overwhelming body of literature surrounding the topic of racial and ethnic disparities in bail setting. Future researchers should include as many relevant variables as possible when trying to estimate defendants' bail outcomes. New York policymakers can aid researchers by amending Executive Law 837-U to additionally include all legally relevant variables that influence a judge's decision when choosing a bail outcome in the publicly released data surrounding pretrial detention.

This study builds on existing research by introducing a novel alternative outcome method to statistically detect racial and ethnic discrimination within the bail setting process. This method can be used to test for bias in other settings. This study also supports the overwhelming body of literature surrounding racial and ethnic disparities in bail setting by finding evidence that minority defendants are faced with harsher bail outcomes than similarly situated non-minority defendants.

References

Alien Registration Act of 1940, 76th Congress, 3rd session, Public Law 76-760, ch. 439, 54 Stat. 670, 18 U.S.C. § 2385.

Arnold, David, Will Dobbie, and Peter Hull. "Measuring Racial Discrimination in Bail Decisions." National Bureau of Economic Research, April 2020. https://doi.org/10.3386/w26999.

Arnold, David, Will Dobbie, and Crystal S Yang. "Racial Bias in Bail Decisions*." The Quarterly Journal of Economics 133, no. 4 (November 1, 2018): 1885–1932. https://doi.org/10.1093/qje/qjy012.

Ayres, Ian, and Joel Waldfogel. "A Market Test for Race Discrimination in Bail Setting." Stanford Law Review 46, no. 5 (May 1994): 987. https://doi.org/10.2307/1229062.

Bail Reform Act of 1966, 89th Congress, Public Law 89-465, 18 U.S. Code § 3142.

Concannon, Connor, and Chongmin Na. "Examining Racial and Ethnic Disparity in Prosecutor's Bail Requests and Downstream Decision-Making." Race and Social Problems, January 4, 2023. https://doi.org/10.1007/s12552-022-09385-0.

Congress.gov. "H.R.5865 - 98th Congress (1983-1984): Bail Reform Act of 1984." October 12, 1984. https://www.congress.gov/bill/98th-congress/house-bill/5865.

Congress.gov. "S.215 - 98th Congress (1983-1984): Bail Reform Act of 1984." October 12, 1984. https://www.congress.gov/bill/98th-congress/senate-bill/215.

Congress.gov. "Text - S.1593 - 115th Congress (2017-2018): Pretrial Integrity and Safety Act of 2017." July 20, 2017. https://www.congress.gov/bill/115th-congress/senate-bill/1593/text.

Congress.gov. "S.923 - 97th Congress (1981-1982): Pretrial Services Act of 1982." September 27, 1982. https://www.congress.gov/bill/97th-congress/senate-bill/923.

Demuth, Steven. "Racial and Ethnic Difference in Pretrial Release Decisions and Outcomes: A Comparison of Hispanic, Black, and White Felony Arrestees." 41 J. of Crim., 2003. https://www.ojp.gov/ncjrs/virtual-library/abstracts/racial-and-ethnic-differences-pretrial-release-decisions-and.

Dobbie, Will, and Crystal Yang. "The Economic Costs of Pretrial Detention." Brookings Papers on Economic Activity. Brookings Institution, March 24, 2021. https://www.brookings.edu/wp-content/uploads/2021/03/15872-BPEA-SP21_WEB_DobbieYang.pdf.

Donnelly, Ellen and John M. MacDonald. "The Downstream Effects of Bail and Pretrial Detention on Racial Disparities in Incarceration." 108 J. Crim. L. & Criminology, 2018. https://scholarlycommons.law.northwestern.edu/jclc/vol108/iss4/4.

Gase, Lauren Nichol, Beth A. Glenn, Louis M. Gomez, Tony Kuo, Moira Inkelas, and Ninez A. Ponce. "Understanding Racial and Ethnic Disparities in Arrest: The Role of Individual, Home, School, and Community Characteristics." Race and Social Problems 8, no. 4 (December 2016): 296–312. https://doi.org/10.1007/s12552-016-9183-8.

Gelbach, Jonah B., and Shawn D. Bushway. "Testing for Racial Discrimination in Bail Setting Using Nonparametric Estimation of a Parametric Model." SSRN Scholarly Paper, August 2011. https://doi.org/10.2139/ssrn.1990324.

Hood, Katherine, and Daniel Schneider. "Bail and Pretrial Detention: Contours and Causes of Temporal and County Variation." RSF: The Russell Sage Foundation Journal of the Social Sciences 5, no. 1 (2019): 126-149. https://muse.jhu.edu/article/720078.

Houston, Brant and Jack Ewing, "Blacks and Hispanics Must Pay More to Get Out of Jail." Hartford Courant, June 1991.

Jones, Cynthia E. "Give Us Free: Addressing Racial Disparities in Bail Determinations."16 J. of Legislation and Public Policy, 2013. https://digitalcommons.wcl.american.edu/facsch_lawrev/917.

Judiciary Act of 1789, 1st Congress, ch. 20, 1 Stat. 73. See https://www.waed.uscourts.gov/9ctimeline/1Stat73.pdf.

Justia Law. "Stack v. Boyle, 342 U.S. 1(1951)," n.d. https://supreme.justia.com/cases/federal/us/342/1/.

Kennedy, Spurgeon, Henry Alan, John Clark, and Jolanta Juszkiewicz. "Pretrial Release and Supervision Program: Training Supplement." National Criminal Justice Reference Service: Pretrial Services Resource Center, January 1997. https://www.ojp.gov/ncjrs/virtual-library/abstracts/pretrial-release-and-supervision-program-training-supplement.

King, Ryan D., and Michael T. Light. "Have Racial and Ethnic Disparities in Sentencing Declined?" Crime and Justice 48 (May 2019): 365–437. https://doi.org/10.1086/701505.

Koppel, Stephen, Tiffany Bergin, René Ropac, Imani Randolph, and Hannah Joseph. "Examining the Causal Effect of Pretrial Detention on Case Outcomes: A Judge Fixed Effect Instrumental Variable Approach." Journal of Experimental Criminology, December 23, 2022. https://doi.org/10.1007/s11292-022-09542-w.

Kutateladze, Besiki L., Nancy R. Andiloro, Brian D. Johnson, and Cassia C. Spohn. "Cumulative Disadvantage: Examining Racial and Ethnic Disparity in Prosecution and Sentencing: Cumulative Disadvantage." Criminology 52, no. 3 (August 2014): 514–51. https://doi.org/10.1111/1745-9125.12047.

Laaninen, Esther. "Pretrial Consequences: The Impact of New York State Bail Reforms on Racial and Ethnic Disparities in Pretrial Outcomes ." City University of New York (CUNY): John Jay College of Criminal Justice, December 2022. https://academicworks.cuny.edu/cgi/viewcontent.cgi?article=1268&context=jj_etds.

Lay, Donald P. and De La Hunt, Jill (1985) "The Bail Reform Act of 1984: A Discussion," William Mitchell Law Review: Vol. 11: Iss. 4, Article 2. http://open.mitchellhamline.edu/wmlr/vol11/iss4/2.

Lu, Olive, Erica Bond, Preeti Chauhan, and Michael Rempel. "Bail Reform in Action: Pretrial Release Outcomes in New York State, 2019-2020." John Jay College of Criminal Justice: Data Collaborative for Justice, May 2022. https://datacollaborativeforjustice.org/wp-content/uploads/2022/04/2022_05_03_Bail-Report.pdf.

Lu, Olive, and Michael Rempel. "Two Years In: 2020 Bail Reforms in Action in New York State ." John Jay College of Criminal Justice: Data Collaborative for Justice, December 2022. https://datacollaborativeforjustice.org/wp-content/uploads/2022/12/Two_Years_In_Bail_Reforms_New_York.pdf.

McDowell, Claire. "Assessing the Influence of Race on Monetary Bail". UGA Journal of Economics, 2019. https://econjournal.terry.uga.edu/index.php/UGAJUE/article/view/36.

Nellis, Ashley. "The Color of Justice: Racial and Ethnic Disparity in State Prisons." The Sentencing Project, October 13, 2021. https://www.sentencingproject.org/app/uploads/2022/08/The-Color-of-Justice-Racial-and-Ethnic-Disparity-in-State-Prisons.pdf.

New York State Senate, Executive (EXC) CHAPTER 18, ARTICLE 35, § 837-u. https://www.nysenate.gov/legislation/laws/EXC/837-U.

New York State Senate, Judiciary (JUD) CHAPTER 30, ARTICLE 7-A, § 216. https://www.nysenate.gov/legislation/laws/JUD/216.

New York State Senate, NY CLS CPL § 150.10. Criminal Procedure Law amendments to Bail Reform Law (Effective January 1, 2020). https://cdn.ymaws.com/www.nysda.org/resource/resmgr/2020reforms/ny_bail_law_2020.pdf.

Office of the New York City Comptroller. "NYC Bail Trends Since 2019." Bureau of Budget and Bureau of Policy and Research, March 2022. https://comptroller.nyc.gov/wp-content/uploads/documents/NYC_Bail_Trends_Since_2019.pdf.

Pierson, Emma, Camelia Simoiu, Jan Overgoor, Sam Corbett-Davies, Daniel Jenson, Amy Shoemaker, Vignesh Ramachandran, et al. "A Large-Scale Analysis of Racial Disparities in Police Stops across the United States." Nature Human Behaviour 4, no. 7 (May 4, 2020): 736–45. https://doi.org/10.1038/s41562-020-0858-1.

Rahman, Insha. "New York, New York: Highlights of the 2019 Bail Reform Law." Vera Institute of Justice, July 2019. https://www.vera.org/downloads/publications/new-york-new-york-2019-bail-reform-law-highlights.pdf.

Reaves, Brian. "Felony Defendants in Large Urban Counties, 2009 - Statistical Tables." U.S. Department of Justice: Bureau of Justice Statistics, December 2013. https://bjs.ojp.gov/content/pub/pdf/fdluc09.pdf.

Rodriguez, Krystal, and Shane Correia. "The Facts on Bail Reform and Crime in New York City." Center for Court Innovation, February 3, 2021. https://www.innovatingjustice.org/sites/default/files/media/documents/2021-02/Handout_Bail_Reform_Crime_02032021.pdf.

Sawyer, Wendy. "How race impacts who is detained pretrial" Prison Policy Initiative, October 2019. https://www.prisonpolicy.org/blog/2019/10/09/pretrial_race/.

Sawyer, Wendy, and Peter Wagner. "Mass Incarceration: The Whole Pie 2022." Prison Policy Initiative, March 2022. https://dataspace.princeton.edu/handle/88435/dsp0137720g91k

Schnacke, Timothy, Michael Jones, and Claire Brooker. "The History of Bail and Pretrial Release." Pretrial Justice Institute, September 23, 2010. https://cdpsdocs.state.co.us/ccjj/Committees/BailSub/Handouts/HistoryofBail-Pre-TrialRelease-PJI_2010.pdf.

Schwartz, Gabriel L., and Jaquelyn L. Jahn. "Mapping Fatal Police Violence across U.S. Metropolitan Areas: Overall Rates and Racial/Ethnic Inequities, 2013-2017." Edited by Jonathan Jackson. PLOS ONE 15, no. 6 (June 24, 2020): e0229686. https://doi.org/10.1371/journal.pone.0229686.

Seibler, John Michael, and Jason Snead. "The History of Cash Bail ." Legal Memorandum. The Heritage Foundation, August 2017. https://www.heritage.org/sites/default/files/2017-08/LM-213.pdf.

Stack v. Boyle, 342 U.S. 1 (1951)

Sutton, John R. "Structural Bias in the Sentencing of Felony Defendants." Social Science Research 42, no. 5 (September 2013): 1207–21. https://doi.org/10.1016/j.ssresearch.2013.04.003.

Turner, K. B., and James B. Johnson. "A Comparison of Bail Amounts for Hispanics, Whites, and African Americans: A Single County Analysis." American Journal of Criminal Justice 30, no. 1, (September 2005): 35–53. https://doi.org/10.1007/BF02885880.

U.S. Census Bureau. "U.S. Census Bureau QuickFacts: New York City, New York," July 2022. https://www.census.gov/quickfacts/fact/table/newyorkcitynewyork/PST045222.

U.S. Census Bureau. "U.S. Census Bureau QuickFacts: United States," July 2021. https://www.census.gov/quickfacts/fact/table/US/PST045221.

U.S. Commission on Civil Rights. "The Civil Rights Implications of Cash Bail." Briefing Report, January 2022. https://www.usccr.gov/files/2022-01/USCCR-Bail-Reform-Report-01-20-22.pdf.

U.S. Const. amend. VIII (ratified 1791). See https://constitution.congress.gov/constitution/amendment-8/.

U.S. Department of Justice Library. "Testimony by Attorney General Robert F. Kennedy on Bail Legislation before the Subcommittees on Constitutional Rights and Improvements in Judicial Machinery of the Senate Judiciary Committee," August 4, 1964. https://www.justice.gov/sites/default/files/ag/legacy/2011/01/20/08-04-1964.pdf.

U.S. Department of Justice. "Pretrial Release and Detention: The Bail Reform Act of 1984." Bureau of Justice Statistics Special Report, February 1988. https://bjs.ojp.gov/content/pub/pdf/prd-bra84.pdf.

U.S. Federal Bureau of Prisons. "BOP Statistics: Inmate Ethnicity," February 2023. https://www.bop.gov/about/statistics/statistics_inmate_ethnicity.jsp.

U.S. Federal Bureau of Prisons. "BOP Statistics: Inmate Race," February 2023. https://www.bop.gov/about/statistics/statistics_inmate_race.jsp.

Vanden Heuvel, Tim J. (1988) "The Bail Reform Act of 1984 and Witness Coercion," California Western Law Review: Vol. 25 : No. 1 , Article 7. https://scholarlycommons.law.cwsl.edu/cwlr/vol25/iss1/7.

VanNostrand, Marie, and Gena Keebler. "Our Journey Toward Pretrial Justice." Federal Probation Journal, United States Courts 71, no. 2 (September 2007): 35–46. https://www.uscourts.gov/sites/default/files/71_2_6_0.pdf

Virani, Alicia, Stephanie Campos-Bui, Rachel Wallace, Cassidy Bennett, and Akruti Chandrayya. "Coming Up Short: The Unrealized Promise of In Re Humphrey." Berkeley Law Policy Advocacy Clinic: UCLA School of Law Bail Practicum, October 2022. https://law.ucla.edu/sites/default/files/PDFs/Criminal_Justice_Program/Coming_Up_Short_Report_2022_WEB.pdf.

Western, Bruce, Jaclyn Davis, Flavien Ganter, and Natalie Smith. "The Cumulative Risk of Jail Incarceration." Proceedings of the National Academy of Sciences 118, no. 16 (April 20, 2021): e2023429118. https://doi.org/10.1073/pnas.2023429118.

Wiseman, Samuel R. "Pretrial Detention and the Right to Be Monitored." The Yale Law Journal 123, no. 5 (March 2014). https://www.yalelawjournal.org/essay/pretrial-detention-and-the-right-to-be-monitored.

Yanez, Dolores. "Discrimination against People of Color in America's Cash Bail System." Portland State University, 2021. https://doi.org/10.15760/honors.987.