
QSS 20 Project: Exploring the Association Between Race and Bail Decisions in Cook County, IL

Devan Fink

Dartmouth College Class of 2023
devan.s.fink.23@dartmouth.edu

Shuyi Jin

Dartmouth College Class of 2023
shuyi.jin.23@dartmouth.edu

Dev Punaini

Dartmouth College Class of 2022
dev.punaini.22@dartmouth.edu

Arnav Tolat

Dartmouth College Class of 2023
arnav.a.tolat.23@dartmouth.edu

Abstract

In this paper, we study racial disparities within bail decisions in the Cook County, IL court data. We analyze how the probability and length of pretrial detention differs by race. When an alleged criminal is first arraigned for his or her court date, a judge may set a cash bail value to allow said individual the opportunity to leave detention while awaiting trial. Depending on the severity of the crime, the likelihood that the defendant will appear at their court hearings, the potential danger the defendant may pose to themselves and/or society, and other factors, some defendants are not granted the opportunity to post bail. Other defendants may be granted the opportunity to post bail, but may not be able to pay hefty rates. Thus, we evaluate the ineligibility of certain defendants to post bail, the overall bail amounts, as well as bond increases and case lengths to determine whether there are racial disparities in pretrial detention. Across these analyses, we found several disparities against Black defendants, where they are treated unfavorably throughout the pretrial process.

1 Introduction

Criminal justice reform is one of the most important topics in the current United States political discourse. At the local, state, and national level, candidates have presented their plans to reform the system in hopes of finding more equitable solutions for all members of American society. During his campaign, U.S. President Joe Biden committed to criminal justice reform efforts across the nation, noting on his campaign website that, "too many people are incarcerated in the United States – and too many of them are Black and brown." Notably, Biden expressed his support for the elimination of cash bail, calling the practice the "modern-day debtors' prison." He noted that this process disproportionately impacts low-income individuals and discriminates on which defendants are provided the opportunity to be released from prison while awaiting trial.

Once a person is in police custody and is awaiting trial for an alleged offense, a judge may allow this person to be released from jail by posting bail or obtaining a bond. While "bail" and "bond" are frequently used interchangeably, there is a significant difference between the two. "Bail" refers to the amount of money the defendant him or herself must pay to get out of jail, while "bond" is typically posted on a defendant's behalf – often paid by a bail bond company – to help the defendant obtain their release. Bail is not intended to punish the defendant; rather, it is used to ensure that they will return to court for the remaining parts of the criminal case.

After an individual is arrested, a judge or another court officer will set the terms of their bail. To set these terms, the judge or court officer will weigh multiple factors, including: the severity of the crime, the likelihood that the defendant will appear at their court hearings, the potential danger the defendant may pose to themselves and/or society, and others. Potential rulings in a bail hearing typically include the following:

- **Release on Own Recognizance:** The defendant is released from jail in exchange for signing an agreement promising their return to court and the abiding by other conditions.
- **Personal Bond:** The defendant is released from jail upon signing a bond, which states that they will be liable for all penalties if they fail to appear in court.
- **Bail Set with Terms of Release:** The defendant may be granted their release by posting the bail set by the court, either by paying it themselves or by obtaining a bond through a bail bond company.
- **Denial of Bail:** The defendant has been deemed too significant of a risk and is not granted the opportunity to post bail.

In this paper, we will evaluate racial disparities in the pretrial detention process using the open data provided by the Cook County, IL court system. Using both the *Initiation* and *Sentencing* data sets, we can analyze whether (and for how much) a defendant was able to post bail and use this information to more deeply inspect racial disparities in pretrial detention. This will help us answer the following question: Are White defendants more or less likely to be provided the opportunity to post bail than Black defendants? In using this data, we can also evaluate how the lack of bail impacts the amount of time that each defendant will have to face pretrial detention. We can evaluate disparities in this time length by filtering for defendants who were not eligible to post bail and comparing differences in duration from the time the case was received until the defendant was sentenced across race. Lastly, we can evaluate difference in bail amounts across race as well to see if Black defendants are, on average, asked to pay in bail than similar White defendants.

Cook County, IL, is an interesting locality within which to evaluate this data, given that Illinois recently became the first U.S. state to completely eliminate cash bail. On Feb. 22, 2021, Illinois Governor J.B. Pritzker signed the Illinois Pre-Trial Fairness Act, which instituted a number of criminal justice reforms, including the elimination of all cash bail for defendants awaiting trial. The change officially takes place in January 2023, providing the state with ample time to make such a monumental shift. In place of cash bail, certain "risk assessment" tools will be utilized to determine whether a defendant is to be released while awaiting trial.

2 Related Work

Research into the pretrial detention phase of the incarceration system is extremely important considering the existing disparities that have been highlighted by literature. For example, a study from 2018 (Lerman et al.) reviewed empirical literature on racial and economic disparities to support the notion that race is an important determinant of who is ultimately detained and denied the opportunity to post bail. Importantly, the study found that pretrial detention could have a causal effect on conviction, highlighting the need to identify any disparities in the initiation stage of the criminal justice system. Although research has primarily focused on the sentencing stage, any disparities from the pretrial phase could have important implications which need to be addressed in reforms. Another article echoed this sentiment, as it found that the impacts of pre-trial detention could encourage defendants to take plea deals despite maintaining their innocence (Dobbie et al., 2021).

Other sources that have highlighted disproportionate pre-trial populations include a briefing by Prison Policy (Sawyer, 2019). Similar to the study mentioned previously, the briefing reviewed academic literature and found that Black and brown defendants can be 10-25% more likely to be detained pretrial or receive financial conditions of release. Unfortunately, more specific conclusions could not be derived due to both the limited and outdated nature of national data, considering that the government has not collected national data on the race or ethnicity of people awaiting trial since 2002. Since Cook County has a wealth of data available on defendants, we hope our results will fill some holes in current literature.

Another important finding from the Prison Policy briefing was that recent analyses have found reforms to be not been as effective as advocates had hoped. Specifically, both New Jersey's termination of most cash bail and Kentucky's requirement of a pretrial assessment tool had little or even negative effects on racial disparities. Therefore, it is valuable to consider not only the drivers behind current racial disparities but also what effective solutions could look like.

Having introduced the current state of pretrial detention nationally, we can more closely examine disparities in our area of interest. Objections raised against Cook County, IL specifically have been well recorded, with an example being a class action lawsuit filed against the Cook County judges in

2016. This class action lawsuit, which was detailed in an article by the MacArthur Justice Center at Northwestern Law, allege that a disproportionate share of African Americans are being kept in pre-trial detention because they cannot afford to pay the amount of bail set by the circuit court judges. The lawsuit led to a series of reforms in both Cook County and the state of Illinois, as judges were ordered to set affordable bond amounts for defendants who do not pose a danger to the public in 2016, and in early 2021, the State of Illinois abolished cash bail.

Other than recorded complaints against the incarceration system in Cook County, IL, we can also look towards reports of the aforementioned reforms for more information on the region. In May of 2019, the Circuit Court of Cook County released an examination of their bail reforms. This report conducts a cross-section analysis of the two 15-month periods before and after Cook County ended cash bail. The bail reform report not only serves as example of analysis conducted on the pre-trial detention process in Cook County, but will also help us set initial expectations for our work.

Key findings from the bail reform report in Cook County were that in the 15-month period after cash bail ended, average bond amounts decreased significantly, along with the average daily confined jail population. Interestingly, when we look at bond type trends, the report found that the frequency of deposit bonds decreased in the period after reforms, with the rate of decrease highest in non-White and non-Black races followed by Black races. While this report paints the Cook County reforms in a positive light, its important to recognize the author as the state. Therefore, the effectiveness of reforms should be further scrutinized, which we aim to do. Our study will build on previous literature which have identified racial disparities in the pretrial phase, looking at Cook County specifically. We will closely examine the pretrial phase and not only explore existing racial disparities but also correlational relationships the initiation stage may have with the sentencing stage.

3 Data

To conduct our study, we compiled data from the Cook County, IL database, located online at: <https://datacatalog.cookcountyil.gov/browse?category=Courts>. Two key data sets – *Initiation* data and *Sentencing* data – were analyzed in order to answer our broader research questions. Both data sets contain data from 2011 to 2021.

A summary of the data sources we are using is listed in Table 1 below.

Table 1: Summary of Data Sources

Data Source	Observations	Years	Observation Summary	Key Variables
Initiation.csv	1,041,304	2011-2021	Each observation represents a charge against a specific person.	BOND_DATE_CURRENT, BOND_TYPE_CURRENT, BOND_AMOUNT_INITIAL, BOND_AMOUNT_CURRENT
Sentencing.csv	260,307	2011-2021	Each observation represents a charge against a specific person that has been sentenced.	UPDATED_OFFENSE_CATEGORY, SENTENCE_DATE, LENGTH_OF_CASE_in_DAYS

Both our data sets range from 2011-2021 but include different observations and key variables.

The *Initiation* data set includes data for 1,041,304 observations. Each observation represents a charge against a specific person, and important data is provided for each observation, including **CASE_PARTICIPANT_ID**, such that each individual actor in a specific crime is provided a unique identifier; **UPDATED_OFFENSE_CATEGORY**, which provides some surface-level detail on the crime committed; and **PRIMARY_CHARGE_FLAG**, which indicates if the specific charge listed in that row is the main charge levied against a specific individual for the alleged crime. Though there are 1,041,304 observations in this data set, there are only 384,777 unique observations within the **CASE_PARTICIPANT_ID** column, indicating that each individual was typically charged with more than one crime, on average. Indeed, our analysis determined that the average **CASE_PARTICIPANT_ID** is associated with 2.71 unique charges as indicated by **CHARGE_ID**.

The *Initiation* data includes the important data on bail used to conduct this study. The **BOND_AMOUNT_CURRENT** and **BOND_TYPE_CURRENT** columns are the two most crucial variables from this data set. As stated by its title, **BOND_AMOUNT_CURRENT** indicates,

in dollars, the current bond amount for that specific case-participant. **BOND_TYPE_CURRENT**, however, can take on one of five values:

1. **I-Bond — Individual Bond:** The defendant pays nothing and is released on their own recognizance with the promise to return for each court date and follow all other conditions as imposed by the judge.
2. **D-Bond — Deposit Bond:** The defendant must pay 10% of the bail set by a judge in order to be released from pretrial detention.
3. **C-Bond — Cash Bond:** The defendant must pay the full face-value of the bail amount ordered by a judge in order to secure pretrial release.
4. **No Bond:** No bond is set, and the defendant remains in custody.
5. **Null:** There is no record of bond found.

When a defendant has a the bond type of "No Bond," it is important to distinguish whether the defendant was offered the opportunity to post bail and subsequently was unable to post bail, or if the defendant was never offered the opportunity to post bail in the first place. Looking at the definition offered by the data set, we define "No Bond" defendants as those who were never offered the opportunity to post bail because the judge perceived the defendant as too dangerous to release. This is inferred from the definition, as it notes, "No bond is set." Therefore, these defendants were never given the opportunity to post bail. Defendants who were offered bail but ultimately were unable to post bail could belong to D-Bond, C-Bond or Null types, as the definition does not state they secured pretrial release, but only the terms of their potential release. One limitation is that the outcome of defendants from these bond types is unclear and unfortunately not available in the data set, which means that we cannot determine if specific defendants were able to afford bail. Nonetheless, we believe that analyzing rates of "No Bond" defendants will provide meaningful insight to the criminal justice system. Another limitation of the *Initiation* data is a lack of information on the criminal history of each defendant, which has a large influence on outcomes. On the other hand, we did not have any problems with missing data within the relevant variables used, which is a strength of this dataset.

The second important data set, *Sentencing*, includes information on the sentencing for each defendant within each case. In this data set, there is also a **CASE_PARTICIPANT_ID** that we can use in order to merge across both the *Initiation* and *Sentencing* to track specific defendants across the initiation phase of the trial through the sentencing phase of the trial. We can use this data to determine the length of each defendant's pre-trial detention, as the **SENTENCE_DATE** column provides detail on when the sentence was levied to the defendant. We can use the **LENGTH_OF_CASE_in_DAYS** column from *Sentencing* in order to analyze the length of each defendant's trial. Similar to the *Initiation* dataset, the *Sentencing* dataset did not have any problems with omissions for the key variables used.

4 Methods

In order to execute our analysis, we had to first combine the *Initiation* and *Sentencing* data sets and conduct some data cleaning. We cleaned the following variables in both data sets before the merge:

- **Simplified Offenses:** We re-coded some of the data from the updated offenses to more properly represent offenses for each observation. For example, we re-coded all offenses including the string "Arson" (i.e. "Arson and Attempt Arson") into one broader "Arson" category.
- **Gender and Race:** We re-coded some of the gender and race data into binary variables, coded as either 1s or 0s, to indicate whether a specific defendant was male (1 if male, 0 if female), White (1 if yes, 0 if no) or Black (1 if yes, 0 if no).
- **Age:** We re-coded ages that were greater than the 99.99th percentile as the 99.99th percentile age (85 years old in *Initiation* and 81 years old in *Sentencing*). This will remove ages that likely represent mistakes in data entry, such as the observation of an individual as being greater than 120 years old.
- **Cleaned Dates:** We removed all time stamps and created two new date columns in each data set for all dates listed: One that represents the month, date, and year for the specific variable, and one that represents just the month and year for the specific variable.

- **Subsetting to Primary Charge:** This was an important step in our analysis, as it removes duplicate case-participants to just their primary charge for analysis. Without this step, we would risk double-counting for much of our analysis. We potentially will lose some valuable information as to whether the number of charges levied against an individual influences some of these results, but this is beyond the scope of this paper.
- **Creating IDs:** We created IDs to represent unique judges (from the *Sentencing* data) and unique law enforcement agencies (from the *Initiation* data).

Then, we merged the two data sets using an inner join along the **CASE_PARTICIPANT_ID** column, looking for exact matches. There were similar variables in each data set, so we dropped columns that were identical in each data set. The resulting merged data set has 173,664 unique observations, which means that we were able to obtain initiation data for 92% of defendants listed in the *Sentencing* data set. Defendants could be missing from the Sentencing data set for a range of reasons, with one being the time lag component where a defendant will eventually be recorded in the Sentencing data set but has only recently been initiated. While we noted there were initially 384,777 unique case participants in the *Initiation* data set, it may seem curious why the resulting merged data set only has sentencing data for 173,664. This is likely because most cases are not resolved via a trial — this may explain why just 45% of unique case participants in *Initiation* are also listed in *Sentencing*.

With our data now cleaned and merged, we are able to investigate a multitude of potential racial disparities within the overall data set.

First, we want to evaluate whether there is a racial disparity in the proportion of White and Black defendants who do not have the opportunity to post bond. Doing so across different types of crimes, however, might add additional confounds to the data. To avoid this, we found the offenses with the highest number of "No Bond" observations and looked for disparities within those categories. Armed Robbery cases (405 cases where no bond issued), Homicide cases (265), Unlawful Use of Weapon cases (220), Robbery cases (186) and Battery cases (144) were the top five offenses to feature the most cases without bond issued. Importantly, we must acknowledge that a key factor in pre-trial detention is prior history of crime, which we do not have access to in our data sets. Since we have seen that on average Black defendants have more prior crimes due to a higher police presence, our analyses on racial disparities will be confounded by this factor.

Second, we can filter among this data to evaluate the difference in time specific defendants must sit in pre-sentencing detention to evaluate disparities between race. That is, we hope to determine whether White individuals who were not granted the opportunity to post bond have speedier trials than Black individuals. If this is the case, this means that the bail process — which is not intended to be a punishment — may actually keep Black people in jail longer even as they just await word on their overall sentencing status.

Third, we hope to evaluate disparities in bond amounts. We first conducted a preliminary analysis of average bond amounts by grouping defendants by race, but once again identified crucial confounds. In this case, the confounds that must be taken into account before conducting further analysis: 1) type of bond and 2) alleged offense. As mentioned above, there are two types of bonds that may impact for how much bail is set: Deposit Bonds and Cash Bonds. Deposit bonds are much more common than cash bonds, with 92,534 case-participants listed as having been issued deposit bonds to just 610 having been issued cash bonds. Again, we will subset to the most common offenses when evaluating disparities, with Narcotics (26,227 deposit bonds), Unlawful Use of Weapon (11,487), Retail Theft (8,129), Burglary (6,161), and Battery (4,880) offenses representing the most common offenses to result in deposit bonds being issued. Only Narcotics (328) offenses and Unlawful Use of Weapon (106) offenses had more than 100 cash bonds issued, so these will be the offenses we use to analyze disparities in bond amounts.

Fourth, we seek to examine defendants whose initial bond amount was increased in successive hearings and compare those rates across Black and White defendants. Again, there are confounding factors here such as the gravity of the offense or potential failure to honor bail conditions. Thus, for our analysis, we made a list of the top six bailable offenses by number of entries and compared rates across each offense. Unlawful Use of Weapon, which was one of the top 6 offenses, proved unhelpful to our analysis since both Black and White defendants had a 0.0% rate of bond increases for that offense. There is no data for whether defendants failed to honor bail conditions or committed

another offense while undergoing trial, so while this analysis does uncover differences across race, it cannot make a causal claim due to lack of information.

5 Results

5.1 Disparities in Inability to Post Bond

The first important question is whether there are racial disparities in the inability to post bond. When a judge rules that a defendant may not post bond in a trial, they are therefore not released from custody. This is extremely important, as even innocent individuals would not be allowed to leave custody as they await the completion of their trial, and this is a decision that is completely at the judge's discretion. Granted, only individuals who are accused of the most serious of crimes are typically those not allowed to be released on bond, as they may pose a serious flight risk and/or a serious risk to the community if granted release. Even still, that does not mean these types of evaluations do not inherently have racial bias.

In Table 2, we can see the difference in "no bond" rates for Black and White defendants among each of the top-five crimes for which judges levied a no bail ruling. These rates are calculated by summing the total number of individuals barred from posting bond for a specific crime divided by the total number of individuals who have been charged for said crime. For example, 303 Black people charged with Armed Robbery were not able to post bond, out of a total of 2,925 Black people charged with Armed Robbery overall, yielding a 10.4% rate.

The Difference column in Table 2 represents the difference in proportions for individuals not able to post bond by rate (Black-White). This is the key to determining whether disparities exist. We also calculated two-sample z difference-in-proportion test for each of these offenses, resulting in the p -values listed in the last column of the table:

Table 2: No Bond Rates for Black and White Defendants Among Top Offenses

Offense	Black Rate	White Rate	Difference (B-W)	p -value
Armed Robbery	0.104	0.102	0.001	0.938
Homicide	0.230	0.254	-0.025	0.557
Unlawful Use of Weapon	0.014	0.006	0.008	0.080
Robbery	0.039	0.019	0.020	0.050
Battery	0.020	0.009	0.011	0.003

For statistically significant differences, no bond rates are racially biased against Black defendants.

We can see from Table 2 that whether there are racial disparities in No Bond rates does depend heavily on the crime committed. In Armed Robbery cases, for example, there was almost no difference in No Bond rates. In Homicide cases, however, White individuals were not granted release on bond at a slightly higher rate than Black people.

Contextualizing these results with our p -value paints a clearer picture on existing racial disparities in no bond rates. While Homicide was the only offense where White individuals were more likely to not be granted release on bail, it is important to note that the p -value found this difference to be statistically insignificant. In fact, using the standard p -value of less than or equal to 0.05, we find that only the disparities for defendants charged with Robbery or Battery to be statistically significant. For both of these offenses, Black defendants were more than twice as likely to be unable to post bond compared to White defendants charged for the same offense.

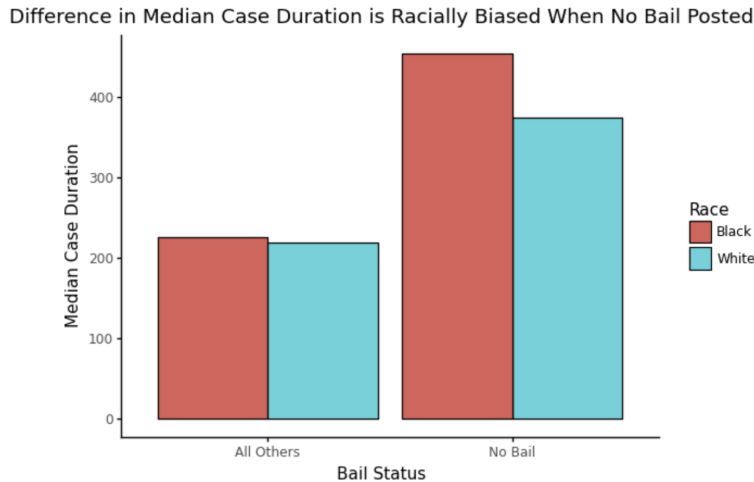
5.2 Length of Case Duration With No Bond Posting

We also evaluated the length of pre-sentencing detention for individuals who were not able to post bail by analyzing median case duration by race for those top crimes. We can compare differences for each of the main five crimes from Section 5.1, both individually and in the aggregate.

First, across all five main crimes, it is clear that there is a significant disparity in median case duration across race when the defendant is barred from posting bail. In our analysis, we find that the median Black defendant's case — when barred from posting bail — lasted 454 days, which was 79 days longer than the median White defendant's case, at just 375 days. This means that the median Black defendant had to remain in pre-sentencing detention for almost three months longer than the median White defendant.

To further contextualize this 79-day figure, we considered the difference in median case duration for all other bond types: I-Bond, D-Bonds, and C-Bonds. Here, there is still a disparity in case duration, but it is far less significant. The median case duration for Black defendants was 226 days, while the median case duration for White defendants was 219.5 days, suggesting that the median Black defendant's case lasted approximately one week longer than the median White defendant's case. This difference in case duration, stratified by a binary no bond vs. all other bond classification, is best visualized in Figure 1, which shows these disparities across the aforementioned five top crimes combined.

Figure 1: Case Duration



It is clear that when no bail opportunity is provided, there is a significantly longer median case for Black defendants than for White defendants across each of the five crimes with the largest magnitude of No Bond eligibility. We can evaluate any potential disparities *within* crimes as well, to better isolate the effect of bail vs. no bail on the case duration of crimes for each of the two races.

In Table 3, we see the Black-White difference in case duration for a given crime, stratified to whether the defendant was able to post bail. The **B-W Difference No Bail** column represents the Black-White difference median case duration for defendants not able to post bail, while the **B-W Difference All Bail** column represents the Black-White difference in median case duration for defendants able to post any type of bail.

Table 3: Case Duration Lengths for Black and White Defendants Among Top Offenses

Offense	B-W Difference No Bail	B-W Difference All Bail	Disparity Difference
Armed Robbery	114.0	121.0	-7.0
Homicide	73.0	162.0	-89.0
Unlawful Use of Weapon	-35.0	-6.5	-28.5
Robbery	141.0	-8.0	149.0
Battery	195.5	12.5	183.0

Black defendants are typically subjected to longer cases than White defendants, but this may not be related to bond type for certain offenses.

From this table, it is clear that Black defendants typically have a longer case than White defendants, irrespective of whether or not they post bail. However, the case duration may not be as dependent on a binary yes-no bail indicator for all crimes. For example, in Armed Robbery, Homicide, and Unlawful Use of Weapon cases, the length of trial disparity was actually *worse* for Black defendants than White defendants when they were able to post bail. However, for both Robbery and Battery cases, the disparity significantly increased when the defendant was not able to post bail, by a magnitude of over 100 days for both case types. This would suggest that while there may be a disparity in case duration based on race, it may not be stratified by bail type across all offenses uniformly.

Interestingly, in Homicide cases, the Black-White difference in case duration was actually 89 days longer in all bail instances than in no bail instances.

5.3 Disparities in Bond Amounts

Next, we can gain insight to any existing disparities within the pre-trial process by examining bond amounts in addition to whether someone was allowed to post bail. Bond amounts play a significant role in the pre-trial process because defendants can find themselves unable to afford bail if the bond amount is set unreasonably high. Furthermore, there are different bond types, as we outlined in the Data section, that increase or decrease the affordability of posting bail. For example, a defendant will find it much easier to post a D-Bond where they only have to pay 10% of the bail rather than a C-Bond where the full value must be paid. By examining differences in not only bond amount but also the type of bond posted, we can learn more about the role that posting bail has in any disparities across the pre-trial process.

An initial analysis of bond amounts show that on average, Black defendants have to pay higher bail than White defendants. Specifically, the average bail amount for Black defendants was \$64,272.72 while the average bail amount for White defendants was \$50,313.57. Despite the significant difference between these two figures, they are likely influenced by extreme outliers given the large standard deviations. In fact, when we look at the median for both races we get substantially different results: both races have a median bail amount of \$25,000.

Significant disparities do appear when looking at individual offenses, however. As mentioned in Section 4, we analyzed the difference in bond amounts for the crimes with the largest magnitude of both D-Bonds and I-Bonds. The results were rather stark.

First, for D-Bonds, Black defendants had to pay a larger average bond for all of the top-five offenses, with differences ranging from about \$5,000 to nearly \$25,000. A similar picture is painted across median bond amounts, with Black defendants having to pay more for all offenses except Retail Theft, in which the median D-Bond was the same for both races at \$25,000. The mean and median bond amounts for each offense are listed in Table 4 and Table 5.

Table 4: Difference in Mean D-Bond Amounts for Top Crimes

Offense	White Bond	Black Bond	Difference
Narcotics	\$36,840.20	\$44,238.16	\$7,397.96
Unlawful Use of Weapon	\$63,859.24	\$72,418.48	\$8,559.24
Retail Theft	\$34,874.54	\$40,041.60	\$5,167.06
Burglary	\$52,995.15	\$63,354.36	\$10,359.21
Battery	\$69,059.57	\$93,172.03	\$24,112.46

Mean D-Bond amounts are racially biased against Black defendants.

Table 5: Difference in Median D-Bond Amounts for Top Crimes

Offense	White Bond	Black Bond	Difference
Narcotics	\$20,000	\$30,000	\$10,000
Unlawful Use of Weapon	\$40,000	\$50,000	\$10,000
Retail Theft	\$25,000	\$25,000	\$0
Burglary	\$40,000	\$50,000	\$10,000
Battery	\$40,000	\$50,000	\$10,000

Median D-Bond amounts are racially biased against Black defendants.

We conducted the same analysis looking at C-Bonds, with mean differences listed in Table 6 and median differences listed in Table 7.

Here, too, there are significant disparities in mean and median bond amount, though — as with the majority of our analysis — there is not enough evidence to establish a causal relationship between race and bond amount. It is interesting, though, that across these crimes, for which there are the most D- and C-Bonds issued, respectively, Black defendants were issued larger bond amounts than White defendants. This does potentially suggest some evidence for racial bias, even in spite of the overall bond amounts across all offenses in the data set not showing much bias.

Table 6: Difference in Mean C-Bond Amounts for Top Crimes

Offense	White Bond	Black Bond	Difference
Narcotics	\$27,202.13	\$40,170.96	\$12,968.83
Unlawful Use of Weapon	\$18,000.00	\$74,061.11	\$56,061.11

Mean C-Bond amounts are racially biased against Black defendants.

Table 7: Difference in Median C-Bond Amounts for Top Crimes

Offense	White Bond	Black Bond	Difference
Narcotics	\$10,000	\$20,000	\$10,000
Unlawful Use of Weapon	\$2,000	\$25,000	\$23,000

Median C-Bond amounts are racially biased against Black defendants.

Additionally, other than examining how bond amounts varied across different subsets, we also hoped to identify any general trends in the frequency of each bond type. For example, we might expect White defendants to be more likely to be offered a I-Bond than Black defendants. However, we failed to find any meaningful differences as the Black defendant population for each bond type was around 4x more than the White defendant population. Specifically, we saw 4.67x, 4.45x, and 4.38x more Black defendants than White defendants for C-Bonds, I-Bonds and D-Bonds, respectively.

5.4 Disparities in Bond Increases

Another disparity we looked at was whether bond amounts were increased for defendants across successive hearings. This is significant to the implications of our analysis since the entire purpose of ending cash bail is to prevent defendants from being jailed due to inability to afford the bond amount. Increases in the bond amount over successive hearings adversely affect poorer defendants, as well as making it more difficult for defendants who may have already had to borrow the amount set in the initial hearing. Although bond increases are usually due to a defendants failure to honor bail conditions, there remains a level of bias in these decisions.

We started our analysis by setting up a binary flag for whether the current bond amount was higher than the initial bond amount. We then subset this by race and compared rates across Black and White defendants, looking at the absolute as well as the relative difference. We also subset the data to entries that had bonds posted, creating a list of the top six offenses that allowed defendants to post bail and then omitting Unlawful Use of Weapon owing to its 0% bond increase rate across race.

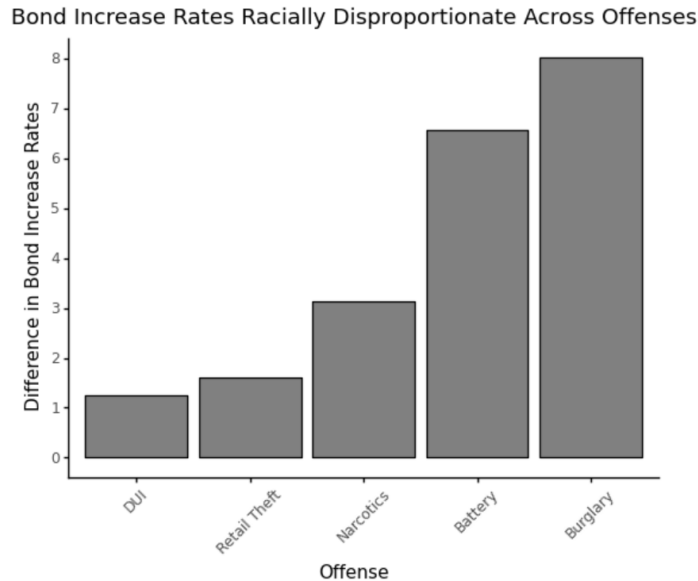
Table 8: Difference in Bond Increase Rates for Black and White Defendants Across Most-Common Bailable Offenses

Offense	Black Rate	White Rate	Difference (B-W)	Relative Difference
Narcotics	0.000939	0.000299	0.000640	3.138153
Retail Theft	0.000581	0.000362	0.000218	1.602556
Burglary	0.000782	0.000098	0.000684	8.014855
DUI	0.000347	0.000278	0.000070	1.250694
Battery	0.001514	0.000230	0.001283	6.568875

Black defendants are more likely to see bond increases

As Table 8 shows, the numeric differences were quite small between races owing to the low percentage of overall defendants whose bonds are increased. However, a relative difference indicator found that Black defendants are at least 25% and as much as 700% more likely to have their bond amount increased across the offenses analyzed.

Figure 2: Bond Increase Rates



6 Discussion and Conclusion

6.1 Trends in the Data

Our analysis has discovered that despite far smaller numeric rates of differences across Black and White defendants, the relative or multiplicative differences are significant. Black defendants are two times as likely to be denied bail across some of the top five crimes with "No Bail" verdicts. In general, Black defendants are also more likely to be issued larger bond amounts across several offense and bond types. Furthermore, they are anywhere between 1.25 to 8 times as likely as White defendants to have their bond amounts increased during successive hearings for most of the top six crimes that allow defendants to post bail. When denied bail, the trial of the median Black defendant lasts 79 days longer than the median White defendant, subjecting Black defendants to both higher rates and higher amounts of pretrial detention.

It is useful to view our conclusions in combination with the time-series analysis conducted by the Cook County bail reform report. The report, as previously stated, acknowledges many positive outcomes of ending cash bail. However, it also demonstrates that the percentage of defendants denied bail and deemed "too dangerous to release" increased significantly, with Black defendants more than six times as likely to be detained without bond than before these reforms. Offense is a confounding factor here, with violent offenses having much higher rates of defendants getting a "No Bond" verdict.

Thus, across time and across various offenses, Black defendants have worse pretrial outcomes than White defendants. Even with the abolition of cash bail, Black defendants are more likely than White defendants to be denied bail and detained pretrial. These disparities can have significant impact on the sentencing stage, supported by both existing literature and our analysis of case duration. Our analysis discovered significant relative differences across race across a range of pretrial outcomes that provide the background for Cook County deciding to abolish cash bail, but their own report complements our findings and discovers that disparities continue even after the reforms.

6.2 Limitations and Implications

Although we are encouraged by our results, we recognize that there are some key limitations that need to be addressed. First, as mentioned prior, we were unable to account for the criminal history of each defendant due to the information available in the datasets. Many of the disparities we have identified could be attributed to Black defendants having a more extensive criminal history due to a higher police presence for which we are unable to account. Therefore, next steps in this research could include looking for datasets which allow us to track each defendant's criminal past. Another

540 limitation of this work is that that we narrowed our scope to racial disparities, specifically between
541 Black and White defendants. It would have been interesting to broaden our scope given more time,
542 whether that was by expanding our analysis to other races or shifting to additional variables en-
543 tirely, such as socioeconomic disparities. Nevertheless, we believe our results carry strong policy
544 implications.

545 Politically, our analysis discusses an unexpected outcome of the ending of cash bail, wherein the
546 affordability of new cash bail amounts is disproportionately limited to White defendants, and Black
547 defendants are disproportionately denied bail and deemed "too dangerous to release." Cook County
548 judges make determinations of "too dangerous to release" based upon a scoring system called the
549 Public Safety Assessment or the PSA, highlighting the insidious role data-based tools may play in
550 sustaining or increasing racial disparities. Existing literature has already established the linkages
551 between increased pretrial detention and worse sentencing outcomes, directly relating the higher
552 bail-denial and pretrial detention rates of Black defendants as showcased in our analysis to higher
553 incarceration rates and worse sentencing outcomes for Black defendants overall.

554 As other jurisdictions consider abolishing cash bail or implementing data-based systems to deter-
555 mine bail denials, our analysis of Cook County provides a good benchmark for the racial disparities
556 in the Cook County Bond and Sentencing Court System against which other jurisdictions can com-
557 pare their data, seeing if their judicial system has similar or higher rates of disparities. The look
558 into bail denials also illustrates an unintended consequence of cash-bail abolition, showcasing a dis-
559 proportionate proportion of Black defendants deemed "too dangerous to release." These defendants
560 may at another time gotten a high D-Bond or C-Bond, but due to current regulations are simply
561 being denied release from prison at higher rates. Other jurisdictions, as well as Cook County, should
562 learn from this disparity and work to ensure that their Public Safety Assessment or similar tools are
563 not simply reinforcing racial disparities.

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