

Pretrial Detention and the Sentencing Variance: An Analysis of Fixed Effects Across U.S. District Courts

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IN THIS ARTICLE, we examine the effect of pretrial detention status on a primary vehicle found in federal sentencing: the sentencing variance. Although a substantial amount of previous work has examined the influence of pretrial detention on sentencing decisions, few studies to date have considered this question at the federal level, and no previous work has specifically considered how pretrial detention affects variances from the federal sentencing guidelines. Using a technique known as multilevel modeling, we examine, across judicial districts, the fixed effect of pretrial detention on the likelihood that a downward variance will be granted at sentencing and on the size of downward variance granted.

Pretrial Detention and Sentencing

The research conducted to date on the effects of pretrial detention on case outcomes, which has focused almost exclusively on state criminal case processing, generally concludes that compared to released defendants, those ordered confined while their cases await adjudication experience more adverse outcomes, both legally and personally.

For example, there is evidence that defendants detained pretrial are quicker to plead guilty than their released counterparts. Petersen (2020), examining felony defendants across large urban areas between 1990 and 2004, found that those detained pled guilty 2.68 times faster than released defendants. Detained defendants are also more likely to be convicted and imprisoned than their released

counterparts. Lee (2019), using a large sample of felony defendants in Florida, determined that being detained pretrial increased the odds of conviction by 1.67, controlling for various factors. Sacks and Ackerman (2014), studying defendants in New Jersey, concluded that although pretrial detention did not appear to have an effect on the imprisonment decision, detained defendants received longer prison sentences than those released pretrial. Similar findings about the adverse consequences of pretrial detention have been offered by Tartaro & Sedelmaier (2009), LaFrentz & Spohn (2006), Williams (2003), and Clarke & Kurtz (1983).

To date, only a few studies have examined the effects of pretrial detention in the federal system. In examining over 90,000 cases sentenced in federal court between 2010 and 2011, Oleson et al. (2017) found that upon controlling for factors including defendant age, race, gender, prior criminal record, and offense of instant conviction, being detained pretrial was associated with both the increased likelihood of a sentence of imprisonment and increased sentence length. Using a similar method to study sentencing outcomes in two federal districts, Oleson et al. (2016) found that pretrial detention (and revocation of pretrial release) was associated with longer prison sentences, while successfully completing a term of pretrial supervision was associated with a shorter sentence length.

Notably, the effects of pretrial detention extend beyond the obvious legal consequences of sentencing. While detained, defendants

are unable to work and provide for their children and may experience the severing of familial and other social ties (Demuth & Steffensmeier, 2004). Holsinger & Holsinger (2018), for instance, found that even brief periods of pretrial detention (more than three days) negatively impacted defendants in each of these ways. Moreover, to the extent that pretrial detention is associated with a greater likelihood of imprisonment and longer sentences, it contributes to mass incarceration, the harmful effects of which on both individuals and communities have been well-documented (Rose & Clear, 1998; Sykes & Pettit, 2014; Western & Pettit, 2010).

In a 2017 article that appeared in the *Federal Sentencing Reporter*, Judge James G. Carr of the Northern District of Ohio lamented this contribution of pretrial detention to mass incarceration. In doing so, he termed the pretrial release decision “the most important and consequential decision in any federal criminal case except the decision at sentencing—which the release/detention decision directly affects” (p. 219).

Given the potential harmful consequences of imprisonment to defendants, their families, and communities, a greater understanding of the processes by which pretrial detention influences criminal sentencing is warranted. To that end, this study examines the effect of pretrial detention status on sentencing using a nationwide dataset. In particular, we examine the effect of pretrial detention on a primary vehicle of federal judicial decision-making: the sentencing variance.

The Guidelines and Sentencing

As many readers of *Federal Probation* know, in 1984, Congress passed the Sentencing Reform Act, which, among other things, created the Federal Sentencing Guidelines. Application of the guidelines, largely intended to reduce disparity in sentencing by providing a framework for sentencing decisions, was required by law for nearly 20 years following enactment of the Act. Today, judges seeking to impose a sentence outside the proscribed guideline range have two mechanisms for doing so: *departures* and *variances*.

Departures are grounds for deviation from the guidelines for reasons specifically authorized in the guidelines. For instance, Chapter 5 of the U.S. Sentencing Commission's *Guidelines Manual* allows for downward departures (sentences below the recommended guideline range) for substantial assistance to authorities and if unusual circumstances surround the offense of conviction. Many personal characteristics of defendants, such as educational history, drug or alcohol dependence, employment history, family ties and responsibilities, and lack of guidance as a youth are "not ordinarily" to be considered grounds for departure (U.S. Sentencing Commission, 2018).

The Supreme Court's ruling in *U.S. v. Booker* (2005) that mandatory application of the guidelines is a violation of the Sixth Amendment created additional opportunity for judges to fashion sentences outside the guideline range. Prior to *Booker*, judges who wished to impose a sentence outside the range recommended in the guidelines could rely only upon guideline-authorized departures to do so. Now, by analysis of the sentencing factors outlined at 18 U.S.C. Sec. 3553(a), judges may impose a sentence outside the recommended guideline range for reasons not specifically authorized by the guidelines; i.e., a variance.

A substantial amount of research has examined the extent to which various legal and non-legal factors, both those authorized and those not authorized by the guidelines, have influenced sentencing decisions. Much previous work, for instance, has suggested that differences persist across racial lines with regard to imprisonment decisions. In particular, some research has concluded that judges impose sentences of imprisonment for Black male defendants at higher rates than for White male defendants. A recent study conducted by the Sentencing Commission found that Black male defendants received sentences 19 percent longer than

similarly-situated White male defendants. Notably, the Commission stated that these different sentences are primarily arrived at through the use of sentencing variances (U.S. Sentencing Commission, 2017). Similar conclusions using federal sentencing data have been reached by Yang (2015), Rehavi and Starr (2014), Ulmer, Light, and Kramer (2011), Doerner and Dumuth (2010, 2014), and Mustard (2001), among others.

Disparities in sentencing have also been found between the sexes. Farrell (2004), for instance, found that from 1999 to 2005, sentence lengths for women in federal courts were on average 16 percent shorter than those for men. Moreover, between 2000 and 2002, female defendants were more likely to be released on bail compared to men and less likely to receive a sentence to a term of imprisonment.

Variations in sentence length may also occur across age ranges. In the federal system, defendants over age 50 have been found to be more likely to receive downward sentencing departures (Burrow & Koons-Witt, 2004).

With regard to legal factors that influence sentencing, it has been well-documented that judges consider the severity of the crime of conviction (Spohn, 2009) and the extent of the defendant's prior criminal record (Johnson, Ulmer, & Kramer, 2008; Mitchell, 2005; Vigorita, 2003) when fashioning a sentence. Additionally, defendants who have exercised their constitutional right to a trial generally receive sentences that are harsher than those who have pled guilty (Bushway, Redlich, & Norris, 2014; Ulmer, Eisenstein, & Johnson, 2010). Of note, the federal sentencing guidelines are structured in a way which promulgates this "trial penalty"; defendants who plead guilty are generally eligible for a reduction in their guideline range, whereas defendants who are convicted via trial typically are not.

To date, most of the work which has examined federal sentencing has used guideline departures as either the dependent variable or a predictor in models containing many of these legal and extra-legal factors. However, because judges may invoke variances without consideration of the relatively narrow confines of the guidelines, variances provide a greater opportunity for judges to consider many more aspects of a defendant's background and characteristics than do departures and therefore allow for broader use of discretion. Indeed, variances are common in the federal system; 25 percent of all defendants sentenced

in federal courts in fiscal year 2019 received variances at sentencing (U.S. Sentencing Commission, 2019). Despite this, rarely have variances been used as the outcome of interest in studies of federal sentencing, and we are aware of no prior work that has examined how the pretrial release decision influences federal sentencing variances specifically. For these reasons, as well as because our independent variable, pretrial detention status, is not authorized by the guidelines as grounds for a departure, we choose to use sentencing variances, rather than departures, as the outcome of interest.

The study considers the effect of pretrial detention status on two outcomes, controlling for assorted individual-level variables previously found to be associated with sentencing decisions. Specifically, the following two research questions were asked:

Research Question 1: What is the effect of being released pretrial (compared to being detained) on the likelihood that a downward variance will be granted at sentencing?

Research Question 2: Among a sample of defendants granted downward sentencing variances, what is the effect of being released pretrial (compared to being detained) on the size of the variance granted?

Method

The study uses generalized linear mixed models to answer the research questions. Multilevel analysis is appropriate when data are grouped in a hierarchical structure, or "nested," as such grouping may violate the assumption of independence of observations, resulting in biased estimates and incorrectly estimated standard errors (Raudenbush & Bryk, 2002). Multilevel modeling has infrequently been used in studies involving federal sentencing data but is wholly appropriate given the fact that individual-level defendants are nested within judicial districts. Multilevel modeling provides not only the opportunity to discern the effects of individual-level variables such as defendant status pretrial, age, race, gender, prior record, and crime of conviction on sentencing outcomes, but also allows us to control for the possible effects of higher-order contextual factors, such as the characteristics of judicial districts (Hamilton, 2017).

Data were gathered from the U.S. Sentencing Commission's individual level datafile for 2019, containing information on the 76,538 sentences imposed that fiscal year

in U.S. district courts. The datafile is publicly available at the Commission's website. All analyses were conducted using SPSS (Field, 2009; Heck, Thomas, & Tabata, 2012; Heck, Thomas, & Tabata, 2014).

The models contained assorted covariates found to predict sentencing outcomes at the individual level. These included defendant age in years (a natural log transformation was used because the data were positively skewed and the variable were grand-mean centered) (Enders & Tofighi, 2007). Variables reflecting defendant race (non-Black = 0, Black = 1) and gender (male = 0, female = 1) were also included as covariates.

The instant offense of conviction was also included as a moderating variable. Seven categories of offenses were developed: drug offenses, weapons offenses, violent crime, financial crime, sex offenses, immigration offenses, and a category for miscellaneous "other" offenses. Drug offenses served as the reference category.

Also included was a variable capturing the extent of each defendant's prior criminal record. This was a categorical variable comprising the Criminal History categories I through VI as determined by the Sentencing Guidelines, with Criminal History Category I serving as the reference.

Of the 76,538 cases in the sampling frame, valid data on variances were available for 76,034 of them. Of these, below-range variances were granted on 17,608 (23 percent), making downward variances the most common mechanism for arriving at a sentence outside the recommended guideline range. Removed from this dataset were all cases which were subject to a statutory mandatory minimum sentence. Notably, mechanisms exist which allow judges to impose sentences below the mandatory minimum required by statute, usually by finding grounds for a downward departure or through the application of certain guidelines. And judges may certainly find that any given defendant is eligible for both a departure *and* a variance. However, for the sake of conceptual clarity and due to certain ambiguities in the dataset, we decided to remove from the analysis cases which were subject to mandatory minimum sentences by statute. Also removed was any case in which both a sentencing departure and variance were found. Because the dataset does not specify how much of a given sentence reduction was attributable to a departure and how much was attributable to a variance, it is impossible to disentangle the effect of each of

these when both are present in the same case. Finally, removed from the sample were cases which had a minimum guideline range of zero months in custody, because, by definition, there is no room in these cases for judges to vary downward. These steps produced a final sample consisting of 43,392 cases.

Answering the first research question, examining the effect of pretrial detention status on the likelihood that a downward variance will be granted, began with development of an unconditioned model. This null model is designed simply to answer the question of whether the likelihood of receiving a downward variance varies across judicial districts and allows us to examine the extent of any variability. A significant finding justifies the use of multilevel modeling.

The second step in the analysis involved adding individual-level (Level 1) predictors to explain the influence of each of these on the likelihood of being granted a downward variance, allowing for the "nested" nature of the data.

Similarly, answering the second research question—pertaining to the size of downward variances granted considering pretrial status—began with construction of a null model. This analysis was limited to the 11,569 defendants in the sample who were awarded downward variances at sentencing. A Level

1 model was then constructed that examined the fixed effects of each of the variables of interest on the size of downward variance granted. It is noted that in this case, the dependent variable was the percent reduction in the length of sentence imposed, from the bottom of the otherwise applicable guideline range. Thus, for example, a defendant who faced a guideline range of 12 to 18 months and received a sentence of six months in custody (six months below the minimum of the guideline range) was awarded a 50 percent reduction (i.e., downward variance) in sentence. A defendant who faced a guideline range of 18 to 24 months and received a sentence of 12 months in custody (also six months below the minimum of the guideline range) was awarded a smaller (33 percent) reduction in sentence.

Results

Of the 43,392 cases comprising the final sample, 27 percent received variances downward from their sentencing range as determined by the guidelines. The mean age of defendants in the sample was 37. Twenty-two percent of the defendants were Black and 12 percent were female. The plurality of defendants (30 percent) were classified in Criminal History Category I, and 43 percent of the convictions were for immigration-related

TABLE 1.
Descriptive statistics for cases in full sample (n=43,392)

	Mean	SD	Min.	Max.	Valid N
Dependent Variable					
Downward Variance	.27	.44	0	1	43,392
Level 1 Variables					
Age	37.11	11.19	18	86	43,392
Female	.12	.32	0	1	43,392
Black	.22	.41	0	1	43,392
CH Category I	.30	.46	0	1	43,392
CH Category II	.20	.40	0	1	43,392
CH Category III	.21	.41	0	1	43,392
CH Category IV	.12	.33	0	1	43,392
CH Category V	.07	.26	0	1	43,392
CH Category VI	.09	.29	0	1	43,392
Drug Offense	.14	.34	0	1	43,392
Violent Offense	.06	.23	0	1	43,392
Weapons Offense	.17	.38	0	1	43,392
Financial Offense	.14	.35	0	1	43,392
Sex Offense	.03	.16	0	1	43,392
Immigration Offense	.43	.50	0	1	43,392
Other Offense	.04	.19	0	1	43,392

offenses. Descriptive statistics are presented in Table 1 (previous page).

Answering the first research question—designed to determine the effect of being detained pretrial on the likelihood that a downward variance will be awarded at sentencing—began with construction of a null model. This unconditioned model, presented in Table 2, reveals the intercept variance varies between judicial districts ($z = 6.42, p < .001$), and the significance of this value justifies the development of a multilevel model. The intraclass correlation (Hedeker, 2007) suggests

that 12 percent of the variability in whether a downward variance is granted lies between judicial districts.

A Level 1 fixed effects model was then constructed to determine the effect of pretrial detention status and the other individual-level covariates on the likelihood that a downward variance would be granted. The results are presented in Table 3. Because the variance components in this model were found to be significant ($p < .001$), we are able to conclude that the likelihood of being granted a downward departure varies across

districts given the Level 1 predictors included in the model. The effect of being detained pretrial (compared to being released) was to reduce the likelihood of being granted a downward variance at sentencing by nearly 49 percent, controlling for the other covariates. Of additional note, female defendants were 28 percent more likely than male defendants to receive a variance downward. Defendants convicted of financial crimes were 26 percent less likely than those convicted of drug offenses to receive a downward variance, and those convicted of immigration offenses were 52 percent less likely. Interestingly, defendants guilty of sex offenses were 51 percent more likely than those convicted of drug crimes to receive variances downward.

Answering the second research question—assessing the effect of pretrial detention on the size of downward variance among defendants who received a downward variance—was necessarily limited to those defendants who were awarded downward variances. This was 11,569 (27 percent) of the defendants in the larger sample. Of this subsample, 17 percent of the defendants were female, 29 percent were Black, and the average age was 39 years. The average downward sentencing variance amounted to a 49 percent reduction in sentence from the bottom of the otherwise applicable guideline range. Descriptive statistics are provided in Table 4 (next page).

As with Research Question 1, answering this question also began with construction of a null model. The model presented in Table 5 (next page) indicates the intercept variance varies between judicial districts (Wald $z = 5.509, p < .001$). The intraclass correlation is .563, suggesting that approximately 56.3 percent of the variability in the size of downward variances lies between judicial districts.

The fixed effects model (Table 6, next page) suggests that among defendants who receive downward sentencing variances, those detained pretrial receive variances approximately 26 percent smaller than defendants who are released pretrial. We also note that defendants convicted following trial receive variances 8 percent smaller than those who pled guilty. Defendants convicted of violent, weapons-related, and financial crimes all received variances smaller than those convicted of drug crimes. Of note, no significant difference in size of downward variance was found across defendant gender or race.

TABLE 2.
Unconditioned model of likelihood of downward sentencing variance

Fixed effect	Coefficient	Std. error	T-ratio	Odds Ratio	df
Intercept	-.671	.071	-9.488	.511***	93
Random effect	Estimate	Std. error	z-test		
Var (Intercept)	.447	.070	6.42***		
Intraclass correlation	.120				

* $p < .05$, ** $p < .01$, *** $p < .001$

TABLE 3.
Multilevel fixed effects model of likelihood of being granted a downward sentencing variance.

Fixed effect	Coefficient	Std. error	Odds Ratio
Intercept	.141	.106	1.151
Pretrial Status (Detained = 1)	-.682	.051	.505***
Age, logged	.020	.013	1.021
Gender (Female = 1)	.246	.045	1.278***
Race (Black = 1)	.038	.052	1.039
Type of Conviction (Trial = 1)	.446	.084	1.562***
CH Category (I = 0)			
CH Category II	-.400	.061	.670***
CH Category III	-.424	.085	.655***
CH Category IV	-.407	.059	.665***
CH Category V	-.317	.076	.729***
CH Category VI	-.183	.068	.833**
Offense type (Drugs = 0)			
Violence	-.155	.109	.857
Weapons	-.080	.078	.924
Financial	-.296	.084	.743***
Sex Offense	.411	.110	1.508***
Immigration	-.742	.190	.476***
Other	-.050	.082	.951

* $p < .05$, ** $p < .01$, *** $p < .001$

Discussion

The present study examined the effect of pretrial detention on the likelihood that a defendant will receive a downward variance from the federal sentencing guidelines. It also examined, among a subsample of defendants who received downward variances, the influence of pretrial detention status on the size of the variance granted. Using multilevel analysis of nationwide federal sentencing data, we conclude that defendants detained pretrial are 49 percent less likely to receive a downward variance at sentencing than those released. Among a subsample of defendants who do receive downward variances, variances are 26 percent smaller for those defendants who are detained pending sentencing.

Consistent with other studies, female defendants were more likely to receive

variances downward. Interestingly, defendants convicted of sex offenses were more likely to receive downward variances than those convicted of drug crimes, the reference category. It may be that judges view the guideline penalties for sex offenders to be overly harsh, but further study is needed to support this proposition. By contrast, defendants convicted of financial crimes and immigration offenses were less likely than those convicted of drug offenses to receive downward variances. Because the guidelines typically recommend relatively brief terms of imprisonment for immigration offenses, it may be that judges see less need to vary downward in those cases. We also found that defendants convicted following trial were more likely than those who have pled guilty to receive the benefit of a downward sentencing

variance. This finding is somewhat contrary to previous work examining the “trial penalty,” which has found that defendants who exercise their right to a trial often receive harsher sentences than those who have pled guilty. Under the federal sentencing guidelines, defendants who plead guilty are generally eligible for a reduction in their guideline range, whereas defendants who are convicted via trial are generally not. Again, we suggest this finding may be an indication that federal judges view at least some guideline ranges to be excessively punitive and perhaps try to mitigate the “trial penalty” inherent in the guidelines by awarding variances downward.

When it comes to explaining the extent of downward variance granted, of all the variables in the model, pretrial detention status exerted the greatest influence. Defendants released

TABLE 4.
Descriptive statistics for cases granted downward variance (n=11,569)

	Mean	SD	Min.	Max.	Valid N
Dependent Variable					
% of Downward Variance Granted	48.67	31.21	.43	100.00	11,431
Level 1 Variables					
Age	38.50	12.48	18	86	11,569
Female	.17	.37	0	1	11,567
Black	.29	.45	0	1	11,569
CH Category I	.45	.50	0	1	11,569
CH Category II	.14	.34	0	1	11,569
CH Category III	.15	.36	0	1	11,569
CH Category IV	.10	.29	0	1	11,569
CH Category V	.07	.24	0	1	11,569
CH Category VI	.10	.30	0	1	11,569
Drug Offense	.19	.39	0	1	11,569
Violent Offense	.07	.26	0	1	11,569
Weapons Offense	.21	.41	0	1	11,569
Financial Offense	.23	.42	0	1	11,569
Sex Offense	.05	.21	0	1	11,569
Immigration Offense	.20	.40	0	1	11,569
Other Offense	.05	.22	0	1	11,569

TABLE 5.
Unconditioned model of extent of downward variance granted (percent downward)

Fixed effect	Coefficient	Std. error	T-ratio	df
Intercept	49.758	.914	54.752	93
Random effect	Estimate	Std. error	Wald z	
Var (Intercept)	64.146	11.644	5.509***	
Intraclass correlation	.563			

*p < .05, **p < .01, ***p < .001

TABLE 6.
Multilevel fixed effects model of extent of downward variance granted (percent downward)

Fixed effect	Coefficient	Std. error
Intercept	13.832**	4.934
Pretrial Status (Detained = 1)	-26.098***	.616
Gender (Female = 1)	-1.853	1.301
Race (Black = 1)	-.287	.628
Age, logged	.633**	.227
Type of Conviction (Trial = 1)	-8.034***	1.352
CH Category (I = 0)		
CH Category II	-.469	.574
CH Category III	-4.629***	.799
CH Category IV	-8.703***	.966
CH Category V	-7.879***	1.133
CH Category VI	-6.181***	.983
Offense type (Drugs = 0)		
Violence	-4.710***	1.124
Weapons	-3.037***	.849
Financial	-3.328***	.841
Sex Offense	-1.853	1.301
Immigration	5.021***	.973
Other	10.127***	1.262

*p < .05, **p < .01, ***p < .001

pretrial enjoyed downward variances 26 percent larger than those detained. Defendants convicted at trial received variances 8 percent smaller than those who pled guilty. Defendants convicted of violent, weapons-related, and financial crimes all received smaller variances than those convicted of drug offenses, but the differences in the size of the downward variance amounted to no more than a few percentage points in any case. Even though all the effects appear to be modest (no more than 4 percent difference in size of variance), this may be taken as some evidence that many judges believe the sentencing guidelines for drug offenses to be too punitive.

Although the results of this study suggest significant difference in both the likelihood and extent of downward variances awarded to defendants detained pretrial and those released, the results do not explain *why* these differences in sentencing outcomes occur. It may be, as Judge Carr suggested in his 2017 article in the *Federal Sentencing Reporter*, that defendants released pretrial—unlike their detained counterparts—have the opportunity to engage in positive behavior and present evidence of that behavior to the court in mitigation of sentencing. Our understanding of this potential dynamic would be furthered by research that seeks to identify the precise mechanisms through which pretrial release affects the sentencing decision.

Regardless, because of the apparent downstream effect of pretrial detention on the length of sentence imposed, it is not difficult to see how, as Judge Carr has argued, the decision to detain pretrial contributes to mass incarceration. Clear and Austin (2009), for instance, have suggested there exists an “iron law of prison populations,” in which the size of the prison population is a direct function of the number of people imprisoned and the length of sentences imposed.

We believe meaningful reduction in the prison population can and should be accomplished, in part, through more widespread use of pretrial release. To this end, the United States Probation and Pretrial Services system’s 2017 Strategic Plan expressed the goal of identifying alternatives to incarceration that address the purposes of sentencing in low-risk, non-violent cases. We believe this can be done without introducing any significant risk to public safety through the appropriate use of pretrial conditions. In a 2017 study, for instance, Wolff et al. compared defendants released pretrial with conditions of location monitoring to a group

of defendants released absent a location monitoring condition, matched on propensity scores. The defendants placed on location monitoring were significantly less likely to be rearrested for a new crime while awaiting sentencing.

Finally, we note that although the present study makes use of multilevel analysis because significant differences exist between federal districts with regard to the use of and extent of downward variances granted, this study only examines fixed effects at the level of the individual defendant and not differences that may occur across higher-order constructs. Future work in this area may consider, for example, the characteristics of judicial districts (Johnson, Ulmer, & Kramer, 2008) and even judges (Anderson & Spohn, 2010; Steffensmeier & Herbert, 1999). Nonetheless, we believe the present study contributes to our understanding of the effects of pretrial detention on sentencing outcomes and underscores the implications of the detention decision for not only individual defendants, but their families, communities, and society at large.

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