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The Effects of Pretrial Detention Length on Sentencing Guideline Departures in Two Pennsylvania Counties

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ABSTRACT AND ARTICLE INFORMATION

Pennsylvania's sentencing guidelines, as well as those of other jurisdictions, were enacted primarily to reduce unwarranted sentencing disparities. However, prior research asserts that the permissibility of guideline departures perpetuates or even exacerbates disparities from extralegal factors in sentencing decisions. While pretrial detention has been well-documented to have a negative impact on sentence outcomes like the decision to incarcerate and sentence length, its role in exacerbating sentencing disparities arising from sentencing guideline departures have been sorely understudied. The current study has two goals: (a) to quantify the effects that the length of pretrial detention has on the likelihood of dispositional, downward, and upward departures from Pennsylvania's sentencing guidelines and (b) to examine how the length of pretrial detention interacts with race to affect the likelihood of those departures. Using data from two Pennsylvania counties, the hierarchical logistic regression models reveal that a 2.7-fold increase in pretrial detention length was associated with a 15% reduction in the odds of a dispositional departure, an 8% reduction in the odds of a downward departure, and an 11% increase in the odds of an upward departure. Moreover, Black individuals who experienced a 2.7-fold increase in pretrial detention length were 12% less likely to receive a dispositional departure than their White counterparts. Implications for the effectiveness of Pennsylvania's sentencing guidelines and impacts on the criminal justice system are described.

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Pretrial detention, the act of jailing a person before trial, is one of the most consequential intermediate outcomes in a court case (Ottone & Scott-Hayward, 2018), and therefore something that warrants its intensive study, because of its severe and lasting impacts. In the United States, nearly 445,000 people, which constitute two-thirds of the total jail population, are currently held in jail despite not being convicted (Sawyer & Wagner, 2022). This not only siphons tens of millions of tax dollars for jail operations, re-entry, and rehabilitation programs but also costs billions of dollars through lost wages and a reduction in GDP (Baughman, 2017). On the individual level, pretrial detention contributes to a cycle of poverty, criminality, and incarceration through its repercussions on employment and housing (Rabuy & Kopf, 2016). Pretrial detention usually occurs in local jails and mostly affects people who do not have enough money to post bail (Rabuy & Kopf, 2016), which essentially criminalizes poverty (Sawyer & Wagner, 2022; Scott-Hayward & Fradella, 2019). Pretrial detention can often result in the loss of employment (Bergin et al., 2022; Sawyer & Wagner, 2022), housing (Bergin et al., 2022; Sawyer & Wagner, 2022), and government benefits (Dobbie et al., 2018), all of which are associated with unsuccessful re-entry and recidivism (Bergin et al., 2022; Lin, 2008; Peterson, 2015). In addition to lost wages, pretrial detainment also costs these individuals, most of whom could not afford bail, hundreds of dollars in court fees (Stevenson, 2018). Additionally, there is an often unobserved cost to families (Henrichson et al., 2017). When a parent is detained, children lose access to that parent's emotional or financial support, which can spur behavior problems, school issues, and future criminal activity (Baughman, 2017). These issues are exacerbated when homelessness occurs due to detainment (Bergin et al., 2022). The most significant impact on an individual is arguably the effect that pretrial detention has on criminal justice outcomes, particularly their sentencing.

There is considerable research assessing the consequences of pretrial detention on case outcomes. Firstly, it has been shown to induce guilty pleas (Dobbie et al., 2018; Heaton et al., 2017), as plea deals often present a tempting incentive to forgo the right to trial in exchange for escaping pretrial detention and the often adverse conditions of the jail (Henrichson et al., 2017; Scott-Hayward & Fradella, 2019; Stevenson, 2018). This affords them the opportunity to maintain their housing (Heaton et al., 2017; Petersen, 2020; Stevenson, 2018), employment (Heaton et al., 2017; Petersen, 2020; Stevenson, 2018), or childcare (Petersen, 2020). Largely through inducing guilty pleas (Petersen, 2020), pretrial detention has been shown to increase the odds of conviction (Dobbie et al., 2018; Heaton et al., 2017; Lee, 2019; Phillips, 2007; Stevenson, 2018). However, while guilty pleas have been associated with lighter sentences (Heaton et al., 2017), detained individuals face increased odds of incarceration (Heaton et al., 2017; Oleson, Lowenkamp, Wooldredge, et al., 2017; Phillips, 2007; Stevenson, 2018; Tartaro & Sedelmaier, 2009; Williams, 2003) and longer sentences (Heaton et al., 2017; LaFrentz & Spohn, 2006; Oleson, Lowenkamp, Cadigan, et al., 2014; Sacks & Ackerman, 2014; Stevenson, 2018). Moreover, some studies concluded that net of other factors, pretrial detention was the strongest predictor of incarceration (Phillips, 2007; Williams, 2003). St. Louis's (2023) meta-analysis found that among 57 studies examining the likelihood of incarceration, conviction, pleas, charge reductions, sentence lengths, and dismissals, pretrial detention exerted the strongest effect on the likelihood of incarceration.

Some scholars have argued that pretrial detention negatively affects sentencing outcomes because it makes individuals appear more blameworthy. Released individuals have the opportunity to demonstrate to the judge that they can safely return to society by keeping their jobs, complying with pretrial supervision requirements, participating in rehabilitation, or demonstrating restitution efforts (Scott-Hayward & Ireland, 2022; St. Louis, 2023; Williams, 2003). In this way, demonstrating a successful return to society supports arguments for non-incarceration sentences or for shorter incarceration periods. Some qualitative research found that judges frequently cited individuals' rehabilitation, restitution, and compliance efforts during pretrial release as reasons to impose less severe sentences (Scott-Hayward & Ireland, 2022), while quantitative research found that pretrial release is a mitigating factor in sentencing decisions (Didwania, 2020). Furthermore, released individuals may be afforded more opportunities to meet with their lawyers (Allan et al., 2005) and participate in the preparation of their defense (Menefee, 2018; St. Louis, 2023). Pretrial detainment, however, eliminates or restricts those opportunities. Some studies with continuous or ordinal measures of pretrial detention have found that these effects persisted even when individuals were released from detention at some point during the pretrial process. A robust quasi-experiment on cases in Oregon found that for those released 1-5 days after arraignment, the likelihood of incarceration was 14.7%, a 10.8 percentage point increase from the likelihood for those released at arraignment (Campbell et al., 2020). Another study analyzing cases from a

Midwestern jurisdiction found that each month of detention increased the likelihood of prison to jail by 1.08 times (Harrington, 2008).

This research is clear and consistent in demonstrating that pretrial detention makes securing favorable sentence outcomes more difficult, net of a plethora of legal and extralegal factors. Very few studies, however, address how pretrial detention impacts sentencing outcomes under sentencing guidelines, which were designed to regulate and standardize sentence practices and are instituted in several state and federal jurisdictions. In particular, there is a dearth of research exploring pretrial detention's effects on the likelihood of securing departures from sentencing guidelines. Given that pretrial detention further disadvantages some of our most vulnerable populations and places substantial strain on both the criminal justice system and society, it is crucial to study its underlying mechanics to develop effective and appropriate reform. We sought to confront this gap in the literature with, to our knowledge, the first study examining how the length of time spent in pretrial detention affects the likelihood of guideline departures, and if it exacerbates disparities in sentencing outcomes in local courts.

Literature Review

Prior to 1980, state and federal judges had largely unimpeded discretion to determine appropriate sentences. In the late 1970s, some state-level jurisdictions and the federal government began developing guidelines with the goal of establishing consistent and rational sentencing practices to improve uniformity and reduce unwarranted disparity that may arise from extralegal factors like race, sex, or other characteristics (Kramer & Ulmer, 2009; Mitchell, 2017). In 1980, Minnesota became the first state to adopt sentencing guidelines, with Pennsylvania and the federal government following suit in 1982 and 1987, respectively. Since then, other state jurisdictions have developed their own guidelines based on unique combinations of philosophies (Kramer & Ulmer, 2009; Mitchell, 2017). In general, sentencing guidelines are not rigid rules within which judges are required to sentence; rather, they act as advisory recommendations. The advisory nature of the guidelines originates from the Supreme Court's decisions in *Blakely v. Washington* and *United States v. Booker*. These rulings stipulated that mandatory guidelines could result in sentences based on facts not proven to a jury, which would violate the Sixth Amendment (*Blakely v. Washington*, 2004; *United States v. Booker*, 2005). Consequently, the Court held that the guidelines must be advisory in nature, and departures are subject to appellate review (*United States v. Booker*, 2005). Most guidelines are based only on standardized measurements of a person's criminal history and the severity of the committed offense(s). Most state guidelines use grids with these two measures, but others take the form of worksheets or narratives to help judges determine appropriate sentences without giving weight to unwarranted extralegal characteristics (Mitchell, 2017). Most guideline terms include a recommended sentence type, such as probation or incarceration, and a suggested sentence length or range of lengths to account for various contexts surrounding the case.

The guidelines' consultative nature imply that judges are permitted and sometimes encouraged to sentence outside the guidelines after considering the unique characteristics of the case. This is commonly referred to as a guideline departure or circumvention. Some jurisdictions do not limit judges' discretion to depart at all, while others have systems in place to determine the suitability of departures (Mitchell, 2017). Kramer and Ulmer (1996, p. 88) define two main types of departures. The first style is a *dispositional departure*, which occurs when the judge assigns a type of sentence that differs from the recommended sentence. For example, if a judge orders a convicted individual to probation instead of the recommended jail sentence, then the judge has departed dispositionally from the guidelines. For the purposes of the current article, a dispositional departure occurs when the judge imposes a non-incarceration sentence when the guidelines specify a lower bound of incarceration, a situation favorable to the accused individual. The second type regards sentences that are of the advised type but are longer or shorter than the recommended lengths; these are *durational departures*. Longer sentences are *upward departures*, and shorter sentences are *downward departures*. Most guidelines prescribe departures when aggravating or mitigating circumstances are present that justify a harsher or more lenient punishment than the guidelines accounted for in a typical case. For example, the United States Code asserts that departures are warranted if "there exists an aggravating or mitigating circumstance of a kind…not adequately taken into consideration by the Sentencing Commission in formulating the guidelines that should result in a sentence different from that described" (18 U.S.C. § 3553(b)(1)). Similar language appears in state guidelines such as Pennsylvania's on aggravated circumstances:

> Unless otherwise prohibited by statute, when the court determines that an aggravating circumstance is present, including consideration of validated assessments of risk, needs and responsivity to guide

> decisions related to the intensity of intervention, use of restrictive conditions and duration of community supervision, the court may impose an aggravated sentence. (204 Pa. Code § 303.13(a)

Sentencing Guidelines and Reducing Disparities

While some research posits that guidelines have successfully reduced racial disparities in sentencing (Ulmer & Laskorunsky, 2015), several scholars contend that the existence and endorsement of departures imply that, by definition, they allow the influence of extralegal factors in determining appropriate sentencing (Albonetti, 1997; Engen et al., 2003; Kramer & Ulmer, 2009). As the guidelines do not include extralegal factors in their recommendations yet encourage departures in unusual circumstances, they concur that extralegal factors are instrumental in determining appropriate sentences and even invite their consideration. While the intent is to match offenses and circumstances with fair consequences, this also allows the possibility for bias and stereotyping to influence decision-making. In this way, departures can perpetuate disparities that the guidelines were intended to reduce.

Prior work on guideline departures has contended that guidelines have failed to reduce (Blackwell et al., 2008; Everett & Wojtkiewicz, 2002; Johnson, 2006; Spohn, 2013) or have even exacerbated (Albonetti, 1997; Anderson et al., 1999; Johnson, 2005; Johnson et al., 2008; Kramer & Ulmer, 1996; LaFrentz & Spohn, 2006; Steffensmeier et al., 1993) sentencing disparities. This work showed that under the guidelines, either significant outcome dissimilarities existed by gender or race or that these differences persisted when controlling guideline measures like departures or presumptive sentences. Under then-current guidelines, researchers found that, when compared with male individuals, female individuals were less likely to receive incarceration sentences (Blackwell et al., 2008; Steffensmeier et al., 1993), less likely to receive unfavorable departures (Johnson, 2005), more likely to receive favorable departures (Engen et al., 2003; Johnson, 2005; Kramer & Ulmer, 1996, 2002; Spohn, 2013; Steffensmeier et al., 1993), and received shorter sentences (Albonetti, 1997; Blackwell et al., 2008; Holland & Prohaska, 2021; LaFrentz & Spohn, 2006). Likewise, when compared with similarly situated White individuals, Black and Hispanic individuals had higher probabilities of incarceration (Albonetti, 1997), received longer incarceration sentences (Albonetti, 1997; Everett & Wojtkiewicz, 2002), were less likely to receive favorable departures (Engen et al., 2003; Johnson, 2005; Johnson et al., 2006; Kramer & Ulmer, 2002), were more likely to receive unfavorable departures (Johnson, 2005), and received favorable departures that were smaller in magnitude (Albonetti, 1997). However, effect sizes varied. Studies with tighter controls (Steffensmeier et al., 1993) or more precise measures of race tended to report smaller effect sizes (Mitchell, 2005).

In contrast, some research found that race did not produce direct effects but rather interacted with other legal and extralegal variables to indirectly affect sentence outcomes. LaFrentz and Spohn's (2006) work did not find a direct effect of race and ethnicity on sentence length but did demonstrate that race interacted with gender, employment, pretrial detention, and guilty pleas to produce disparities of varying magnitudes for certain subgroups. Black individuals received larger durational departures than Hispanic and White individuals and pleading guilty produced lighter sentences for Black and White individuals but not Hispanic individuals (LaFrentz & Spohn, 2006). Being female shortened sentence lengths for Black and Hispanic individuals but not White individuals, and being employed helped White individuals but not minority individuals (LaFrentz & Spohn, 2006). Similarly, Albonetti's (1997) research found that the effects of departures, gender, education, and citizenship varied by race and ethnicity. Being female and having a high school diploma affected sentence length and the odds of imprisonment for Black and White individuals but not Hispanic individuals, and non-citizenship significantly increased sentence length for Black and Hispanic individuals but not White individuals (Albonetti, 1997). Also, White individuals received larger durational departures than Black or Hispanic individuals (Albonetti, 1997). Kramer and Ulmer (2002) did not find a significant difference between the downward departure odds of White and Black individuals but did find that young minority males received the harshest sentences compared with other race/gender/age categories. These studies show that race can act indirectly through conditioning the effects of other variables.

The object of sentencing disparities is not limited to demographic groups. The mode of conviction also appears to impact sentencing. Compared to pleading guilty, invoking the right to trial increased the probability of an incarceration sentence (Johnson, 2006; Tartaro & Sedelmaier, 2009). It also increased sentence lengths (Everett & Wojtkiewicz, 2002; LaFrentz & Spohn, 2006) and reduced the likelihood of downward departures (Engen et al., 2003; Kramer & Ulmer, 1996, 2002). Having a private attorney increased the likelihood of obtaining a favorable departure in one study (Johnson et al., 2008).

Few studies analyze how guidelines directly or indirectly perpetuate disparities through pretrial

detention. LaFrentz and Spohn (2006), Auerhahn (2007), and Spohn (2013) have indirectly found evidence that pretrial detention exacerbates disparities arising from departures by interacting with race, age, and gender. LaFrentz and Spohn (2006) found that compared to their released counterparts, detained Black individuals received an additional year and a half on their incarceration sentence, while detained White individuals received an extra six months. Auerhahn (2007) found that detained young Black and Hispanic males received notably longer sentences. While Spohn (2013) did not observe a direct impact of race on the likelihood of a favorable departure, she found that pretrial detention helped accumulate disadvantage for Black and Hispanic males because they were more likely to be detained pretrial:

> "Black and Hispanic males received harsher sentences than did white males not because pretrial detention affected subsequent outcomes only for black and Hispanic males, but because black males and Hispanic males were more likely than white males to be in custody prior to adjudication." (p. 100)

A handful of studies that predict guideline departures included pretrial detention as a predictor. The 2008 article by Johnson and colleagues sought to answer how county-level contextual variables affect departures from federal guidelines, and they included pretrial detention status as an individual-level predictor in their hierarchical models. Working with United States Sentencing Commission (USSC) data from 89 federal districts between 1997 and 2000, they found that pretrial detention significantly lowered the odds of a downward departure by 32% and reduced the departure size by 15%. Using this same data but examining disparities in the sentencing of Asian Americans, Johnson and Betsinger (2009) noted that detention multiplied the odds of a downward departure by 0.72. Only three of the reviewed studies emphasized this effect. Spohn (2013) strove to identify the precise mechanisms by which extralegal factors influenced sentence severity under federal guidelines. She found that for the U.S. Districts of Minnesota, Nebraska, and Iowa between 1998 and 2000, pretrial detention directly reduced the odds of a substantial assistance departure by 29%. More recently, Didwania (2020) combined another USSC dataset with a Legal Information Office Network System dataset to perform regressions on felony cases in 71 federal district courts from 2002 to 2014. She found that pretrial release increased the probability of a below-guidelines sentence by 56 percentage points. Using another USSC dataset for federal cases sentenced in 2019, DaGrossa and Muller (2021) published the first study on how pretrial detention affects federal guideline variances, which are deviations for reasons not outlined in the federal guidelines, whereas departures are deviations for specified reasons. The authors found that pretrial detention reduced the likelihood of being granted a downward variance by 49%, and the variances were 26% smaller than those of released individuals. Pretrial detention exerted the greatest influence in their models.

The five aforementioned studies presented significant findings on how pretrial detention affects the likelihood of sentencing guidelines departures. Still, to our knowledge only these five exist, and they share several limitations. First, all scrutinized federal guidelines and datasets from the USSC rather than state-level guidelines. As 88% of pretrial detainees are held in local jails rather than by the federal government (Sawyer & Wagner, 2022), local studies are necessary to understand the breadth of this issue. Second, none modeled the likelihood of upward departures. They provided evidence that pretrial detention reduces the odds of favorable departures but no evidence supporting the idea that it increases the odds of unfavorable departures. Third, none included interaction effects between pretrial detention and other variables that are sources for disparity like race and gender. Spohn (2013) discussed how the relationship between race and pretrial detention affects the odds of receiving a downward departure, but this was done indirectly through separate models. Finally, all five studies (and almost all studies examining pretrial detention) incorporated pretrial detention as a dichotomous measure capturing if the individual was fully detained before trial or released prior to adjudication (for exceptions, see Oleson, Lowenkamp, Cadigan, et al., 2014, and Oleson, Lowenkamp, Wooldredge, et al., 2017). This oversimplification assumes that those who were initially detained and released at some point during the pretrial process have the same odds of case outcomes as those who were released promptly after arraignment, which some research has disproven. Using ordinal measures of detention, Campbell and colleagues (2020) and Thomas and colleagues (2022) quantified the likelihood of incarceration for different lengths of detention. Both research teams found substantial increases in the likelihood of incarceration as the time spent in detention accumulated and even found that one day in detention was enough to increase the likelihood by 15%-23%. These results could not have been found with a binary measure. It is even possible, therefore, that previous studies may even have distorted results (Harrington, 2008). While these five studies are significant in their results and scarcity, their limitations encourage deeper exploration.

Pennsylvania's Sentencing Guidelines

The lack of current studies on how pretrial detention affects guideline departures in local courts inspires more exploration on this topic. While several state-level jurisdictions have sentencing guidelines, Pennsylvania's are optimal to study for several reasons. First, Pennsylvania's guidelines are relatively lax; deviations are easily executable with no necessary requirements to institute a departure (Mitchell, 2017). This offers judges more discretion and, consequently, more opportunity for bias to seep into decision-making (Kramer & Ulmer, 1996). Moreover, Pennsylvania's criminal code endorses a variety of "sanction philosophies" (Steffensmeier et al., 1993, p .418) in sentencing; that is, judges may consider deterrence, restitution, rehabilitation, and retribution as the function of the sentence rather than solely punishment.[1] This makes it easier for judges, who can have different intentions for imposing sentences (Hofer et al., 1999), to draw from personal preferences or biases (Kramer & Ulmer, 1996). In turn, this leniency allows for more rigorous study of the guidelines' effectiveness in reducing disparities.

Second, Pennsylvania maintains detailed records on court sentences and criminal history whereas other state-level jurisdictions do not have systems in place for this (Steffensmeier et al., 1993). Pennsylvania records prior history and offense severity with predetermined scales, and they are the only two metrics that derive recommended sentences as per the guidelines. Not only does this extensive and accurate criminal history information make it easier for judges to sentence quickly and appropriately, but it also ensures the data's reliability (Steffensmeier et al., 1993). Because of these attributes, Pennsylvania has been intensively studied in sentencing research. While future studies investigating sentencing outcomes in understudied regions are necessary to fully understand the relationship between pretrial detention and sentencing, we believe that the present study adds to the vigor of the literature on Pennsylvania guidelines and thus strengthens the current understanding of guidelines and practices.

Overview of the Basic Sentencing Matrix

Pennsylvania uses measures for offense severity and criminal history to assess appropriate sentences for felonies and misdemeanors. Most offenses in the criminal code are assigned an Offense Gravity Score (OGS), which is a scale from 1 to 14 with 1 being the least serious category. Misdemeanors have an OGS between 1 and 5; felonies can have an OGS between 5 and 14. The OGS of 15 is reserved for homicide offenses and is not included in the current study. Criminal history is captured with the Prior Record Score (PRS). PRS ranges from 0 (*no prior convictions*) to 5 with extra classes for individuals with repeat felony offenses and repeat violent offenses. Based on severity, each convicted offense adds one to four points to an individual's PRS. Pennsylvania guidelines present a Basic Sentencing Matrix that uses OGS and PRS to deduce which square of the grid a case corresponds to and a particular recommendation.

When a judge sentences incarceration, they generally impose minimum and maximum terms. The minimum is the amount of time the individual is required to serve; once the minimum is served, the individual is eligible for release on parole. The maximum is, of course, the longest the individual may be incarcerated. The Basic Sentencing Matrix prescribes a type of sentence and range of minimum lengths proportionate to offense severity and criminal history (Kramer & Scirica, 1986). This means that the guidelines provide ranges for acceptable minimum terms, but not maximums. For each grid square, there are three available ranges: (a) a standard range, which is to be used under normal circumstances, (b) an aggravated range, which is to be used when the judge decides there are factors that increase the seriousness of the offense, and (c) a mitigated range, which is to be used when the judge determines there are factors that make the offense less severe. Judges can also sentence outside the aggravated and mitigated ranges as long as the terms are within statutory maximum and minimum limits, which are the longest allowable maximum and minimum sentences, respectively. Further, there are nine different enhancement opportunities that alter the prescribed ranges and are employed in cases with specific characteristics. These cases are not examined here.

Current Study

The current study had two purposes. First, we aimed to examine an understudied yet crucial topic in sentencing research: how the length of time spent in pretrial detention affects the odds of receiving sentencing departures. We conducted what we believe to be the first analysis of this on state-level guidelines, thus making the current study a valuable contribution to a gap in the literature. Second, we continued and expanded the conversation on the effectiveness of guidelines in reducing disparities by investigating how the length of pretrial detention interacts with race to affect the odds of receiving departures, also a novel approach in this body of work.

Based on prior research, the first three hypotheses posited that pretrial detention reduces the odds of favorable departures and increases the odds of unfavorable departures.

[H1] Individuals who spend longer in pretrial detention have decreased odds of receiving a dispositional departure; that is, a non-incarceration sentence when the guidelines recommend incarceration.
[H2] Individuals who spend longer in pretrial detention have decreased odds of receiving a downward departure; that is, a sentence that is shorter than the guidelines recommend.
[H3] Individuals who spend longer in pretrial detention have increased odds of receiving an upward departure; that is, a sentence that is longer than the guidelines recommend.

The latter three hypotheses proposed that through guideline departures, pretrial detention length interacts with race to produce unwarranted disparities in guideline departures. As there is no exact prior work on this, we formed our hypotheses around literature that described how race and pretrial detention interact to affect other sentencing outcomes.

[H4] Black and Hispanic individuals who spend longer in pretrial detention will have significantly lesser odds of a dispositional departure than similar White individuals.
[H5] Black and Hispanic individuals who spend longer in pretrial detention will have significantly lesser odds of a downward departure than similar White individuals.
[H6] Black and Hispanic individuals who spend longer in pretrial detention will have significantly greater odds of an upward departure than similar White individuals.

Methods

Data

The current study examined Pennsylvania's neighboring Lehigh and Northampton Counties. These counties comprise the Lehigh Valley, Pennsylvania's third-largest metropolitan area (U.S. Census Bureau, 2020a). We selected these two counties because of their diverse demographic, geographic, and political climates that mirror Pennsylvania and the nation. As they are frequently the deciding counties in the state's vote for national elections (Warren, 2019), Lehigh and Northampton Counties are well-known for being the "swing areas of the swing state" of Pennsylvania. Northampton County is particularly cited as a bellwether county (Satullo, 2021; Warren, 2019). The Lehigh Valley is essentially a microcosm of the state and the nation because it possesses ethnically diverse, liberal, urban neighborhoods, median-income suburbs, and heavily conservative rural areas (Novak, 2020; Warren, 2019). Moreover, Lehigh and Northampton Counties are 29% and 16% Hispanic respectively, which are the highest and sixth-highest proportions in the state (U.S. Census Bureau, 2020b). With 71% of Pennsylvanian counties' Hispanic populations below 5% (U.S. Census Bureau, 2020b), this ensured that enough Hispanic individuals were present in the dataset for study. Therefore, we restricted our analysis to these two influential and representative counties.

Data Sources

The current study combines two datasets from different Pennsylvania institutions. Sentencing information comes from the Pennsylvania Commission on Sentencing (PCS), which maintains detailed records of individual, case, and sentencing information. The PCS dataset contains information for all criminal cases sentenced in Pennsylvania between 2017 and 2021. It contains the state-defined measures of PRS and OGS as well as the guideline range that accompanies each convicted offense and the type and duration of each sentence. However, the PCS dataset does not include the cases' dates of filing, the type of attorney used, or pretrial detention information. Those fields are obtained from a second dataset from the Administrative Office of Pennsylvania Courts (AOPC). The datasets were joined via the offense tracking number, which is a unique identifier given to each case upon its initial filing. The datasets initially contained one row for each offense, meaning that cases with multiple offenses had multiple rows. To simplify, we retained the row with the most serious offense for each case. The PCS dataset contained an indicator field for the most serious offense in a case; this offense was retained. If several offenses held this title, then we retained the offense with the largest minimum incarceration sentence. If multiple offenses held this title, then the offense with the highest OGS was retained. If multiple rows remained at this stage, they were simply removed. All cases with missing values in the predictors were removed. Cases that were sentenced by a visiting judge or by a judge hearing less than 15 cases were removed. Cases subject to mandatory minimums or life sentences were removed. The total number of examined cases was 5,734.

Predictors

Individual characteristic predictors included race, sex, age, active criminal justice status, and PRS. Sex was dichotomous (0 = *male*, 1 = *female*). Age in years was an integer calculated by subtracting the date-of-birth from the date-of-sentence. Active criminal justice status captured if the individual was supervised by the criminal justice system when the current case began via probation, parole, pretrial

supervision, or some form of intermediate punishment. This was recategorized to a dichotomous predictor (0 = *no*, 1 = *yes*). PRS was treated as continuous from 0 to 6 with 6 referring to the special categories for those with repeat violent offenses and repeat felony offenses.

The initial response values for race were American Indian, Asian/Pacific Islander, Black, Hispanic, Other, Unknown, and White. For the statistical models, we combined American Indian, Asian/Pacific Islander, Other, and Unknown into the *Other* category, but we present the counts and proportions for all race responses in the descriptive tables in the Results section. Our reasoning was as follows. Researchers often choose to combine or omit these groups due to low frequencies affecting model reliability (Liebler & Halpern-Manners, 2008; Ross et al., 2020). Indeed, most of the reviewed works use a dichotomous race variable, either Black/White or White/Non-White; some include a third Hispanic category. These two approaches give rise to equitability issues. Aggregating groups may weaken or obscure racial effects (Li, 2021; Liebler & Halpern-Manners, 2008; Mitchell, 2005; Ross et al., 2020). Omitting groups neglects to investigate potential existing relationships and implicitly suggests that these groups' experiences, whether individually or collectively, are either no different from the included groups or unimportant to the research as a whole (Liebler & Halpern-Manners, 2008).

Studies with sample sizes large enough to include other races have demonstrated that these groups have diverse criminal justice experiences, and these experiences should not be aggregated or ignored. Everett and Wojtkiewicz (2002) included a race variable with White, Black, Hispanic, Native American, and Asian; they found that Black, Hispanic, and Native American individuals were significantly more likely to receive harsher sentences than their White counterparts. Johnson and Betsinger (2009) found that when compared to Asian individuals, White, Black, Hispanic, and individuals of other races were all significantly less likely to receive a substantial assistance departure, but only White and Hispanic individuals were more likely to receive a downward departure. Accordingly, the current study includes the statistics of all reported races in Tables 1-3. However, in our models, we created an aggregate *Other* category, as the counts for some of these groups were exceedingly low, and this would have produced distorted and unreliable odds ratios. We acknowledge that this presents an incomplete picture of the effect of race on sentence departures and the experiences of Native American, Asian, and residents of the Lehigh Valley whose racial identities are not adequately captured by the provided categories. We advise that future studies should investigate and incorporate the experiences of these groups by employing large and representative samples.

Case characteristic predictors included crime type, OGS, mode of disposition, case duration, attorney type, and pretrial detention length. At our discretion, the 660 unique crimes in the cleaned dataset were categorized into six groups. *Violent* crimes included offenses involving physical harm, the attempt at or threat of physical harm, or weapons. *Economic* crimes include offenses regarding theft, forgery, or fraud. *DUI* crimes consisted of any labeled DUI offense. We categorized *drug possession* crimes as offenses involving the possession of paraphernalia or a controlled substance and *drug delivery* crimes as offenses involving the intention to distribute a substance. The remaining offenses were categorized as *other*. OGS was treated as a continuous variable with a maximum of 14 and a minimum of 1. Mode of disposition was collapsed into a dichotomous indicator if the individual went to trial or pled guilty (0 = *guilty plea*, 1 = *trial*). Case duration indicated continuously the number of months between the case's filed date and the sentencing date. Two cases had negative durations due to errors in their filed dates; the typos were manually repaired after the correct dates were obtained from the case files on the AOPC's online case search portal. Attorney type had four classes: appointed, which consists of any court-appointed attorney; none, which consists of blanks and those incorrectly listed as being represented by the District Attorney; public defenders; and private attorneys.

We defined pretrial detention length as the number of full days that the individual was detained before their sentence date. The case information detailed start and end dates for pretrial detention, but these occasionally contained typographical errors: some end dates were before start dates, some end dates were after the sentencing date, and some cases had no end dates listed at all. We removed all cases with end dates before start dates. If a case had no end date but had a start date or had an end date that was after the sentencing date, the sentencing date was used in place of the end date to calculate pretrial detention length. Any case without start or end dates was assigned a pretrial detention length of 0. Because pretrial detention length is dependent upon case duration, we checked for multicollinearity with Pearson correlation coefficients and VIF values for the models. The largest correlation coefficient was -0.08, and the VIF analysis yielded no values greater than 2, so there were no multicollinearity concerns.

The continuous predictors age, number of convictions, case duration, and pretrial detention length were natural log-transformed. Case duration and pretrial detention length had 1 added to their

values before the transform to handle the 0 cases. All continuous predictors were grand-mean centered.

Defining Departures

To model the odds of a type of departure, the set of cases must contain all cases in which the type of departure was possible. This necessitated three subsets of the data, as some cases were eligible for one departure type but not another due to statutory minimums or maximums (Engen et al., 2003). Some cases were eligible for all three types of departures. For dispositional departures, the subset needed to only contain cases in which the minimum recommended sentence was incarceration so that any non-incarceration sentence, such as probation or an intermediate punishment, indicated a departure. Cases for this subset were selected either if their mitigated range recommended incarceration or, if they did not have a mitigated range, their standard lower bound recommended incarceration.

The two durational departure subsets were slightly more complicated. Cases in which a downward departure was possible must have both received an incarceration sentence and had an incarceration recommendation in the standard lower bound. A downward departure, therefore, occurred when the minimum of an imposed incarceration sentence was less than the lower bound of the standard range. Similarly, the cases in which an upward departure was possible included cases that received an incarceration sentence, had an incarceration recommendation as the upper bound, and had an upper bound less than the statutory minimum. This third stipulation arose because the guidelines provide ranges for recommended minimum sentences; the standard range upper bound is the longest recommended minimum sentence. This is different from the statutory minimum, which details the longest minimum sentence allowable by law. Consequently, the standard range upper bound needed to be less than the longest allowable minimum sentence for an upward departure to be possible. Of these cases, any in which the imposed minimum sentence was above the upper bound was designated as having an upward departure.

We chose to use the lower and upper bounds of the standard range instead of the mitigated and aggravated boundaries as the departure qualifier because the guidelines treat a sentence outside the aggravated and mitigated ranges the same as sentences within those ranges in record-keeping. The guidelines stipulate that for any departure, "the reason or reasons for the deviation from the guidelines shall be recorded on the Guideline Sentence Form" (204 Pa. Code §303.1(d)). It also stipulates that when "the court imposes an aggravated or mitigated sentence, it shall state the reasons on the record and on the Guideline Sentence Form" (204 Pa. Code §303.13(c)). The guidelines, therefore, treat a sentence imposed in the aggravated or mitigated ranges essentially the same, and thus judges incur the same amount of extra effort in deciding to sentence within or outside of the mitigated or aggravated ranges. While deviation from mitigated or aggravated boundaries can be considered a different outcome than a sentence within those ranges, the current study focuses on departures from the standard guideline ranges.

Statistical Procedure

We examined guideline departures with three dichotomous dependent variables: (a) the decision to depart dispositionally, (b) the decision to depart durationally downward, and (c) the decision to depart durationally upward from the guidelines. We followed the lead of established sentencing researchers and employed hierarchical logistic regression models to account for the nested nature of the data (see Holland & Prohaska, 2021; Johnson et al., 2008; Oleson, Lowenkamp, Cadigan, et al., 2014). Each case was nested within a certain jurisdiction, county, or region, and was sentenced by a particular judge, which may produce characteristic or outcome similarities. Indeed, previous research has shown that inter-county variation exists in judicial and sentencing decisions (Johnson, 2006; Kramer & Ulmer, 1996, 2009; Tartaro & Sedelmaier, 2009). Classical regression procedures that do not account for nested structures rely on the assumption that the model residuals are independent. However, characteristic similarities in nested data may produce correlated residuals, poor coefficient estimates, and possibly incorrect results (Gelman & Hill, 2006; Seltzer, 2004). Hierarchical models acknowledge that the effects of predictors on the outcome may be different among groups. The models estimate the fixed effect of a predictor on the outcome, accounting for any group differences or random effects, so that the reported coefficient estimates the overall effect of the predictor on the outcome.

For the current study, cases were nested within sentencing judges, which have been shown to be a source of variation in sentence outcomes (Oleson, Lowenkamp, Cadigan, et al., 2014; Oleson, Lowenkamp, Wooldredge, et al., 2017). There were 18 judges in each subset, with six in Lehigh County and 12 in Northampton County. The nesting of judges in the counties prompted the use of a third level in the model, but as this level would only have had two groups, the hierarchical model would have been reduced to a classical regression model (Gelman & Hill, 2006). Therefore, we included the county variable as a level-1 fixed effect. Additionally, while some research has found that the effects of pretrial

detention on sentence outcomes varied across judicial districts (Holland & Prohaska, 2021), adding level-2 terms for pretrial detention length caused model convergence issues in all three models. Therefore, we confined our analysis to the fixed level-1 effects.

We executed the following procedure for each of the three subsets. First, we fit an intercept-only model with random effects to determine if enough variance existed among intercepts across judges to justify the use of hierarchical modeling. We used the intraclass correlation coefficient, the proportion of variability that lies between judges, with the formula presented in Wu and colleagues (2012):

$$ICC = \frac{\widehat{\tau_0}}{\widehat{\tau_0} + \frac{\pi^2}{3}} \quad (1)$$

In this formula, $\widehat{\tau_0}$ is the estimated random intercept variance and $\pi^2/3$ referring to the assumed level-1 variance for the standard logistic distribution (Sommet & Morselli, 2017). Second, we fit a varying-intercept model with all predictors. Third, we fit that model with an interaction term between pretrial detention length and race. It is worth noting that this dataset accounts for an entire population rather than a random sample of a population. While the models can be viewed as descriptive and not inferential in this way (Blackwell et al., 2008), they can still be used for predictive purposes for future cases, with the uncertainty arising from an underlying probability distribution "generating" the cases.

All analyses were performed with R (v4.1.2; R Core Team, 2021). The R package lme4 was used to construct the models (v1.1-28; Bates et al., 2015). Data exploration was performed using the packages DescTools (v0.99.45; Signorell et al., 2022), dplyr (v1.0.8; Wickham et al., 2022), readxl (v.1.3.1; Wickham & Bryan, 2019), lubridate (v1.8.0; Grolemund & Wickham, 2011), and misty (v0.4.11; Yanagida, 2023).

Results

Descriptive Statistics

The descriptive statistics for all three subsets are presented in Tables 1-3. Though the data were pooled in the models, each descriptive table is broken down by county to visually investigate how case characteristics differ. Individuals were primarily male and White, with ages averaging in the mid-thirties. About one-third of cases took place during the COVID-19 pandemic, which is consistent with the time spent in the pandemic in the dataset (1.75 years out of 5 years total if beginning in April 2020). Only 1-2% of cases went to trial. Violent crimes were the most common and accounted for approximately one-quarter of cases. A majority employed a public defender. Between both counties, 63%, 74%, and 72% of cases eligible for dispositional, downward, and upward departures respectively were detained pretrial for at least one day; 53%, 61%, and 64% of these cases were detained for at least 30 days. There were some notable differences between counties and across subsets. Across all subsets, three times fewer Northampton County individuals had an active criminal justice status than Lehigh County individuals. Northampton County individuals were much more likely to represent themselves than Lehigh County individuals. Lehigh County had higher proportions of Hispanic individuals. DUI cases were more likely to be eligible for a dispositional departure than either durational departure. Upward departure cases were shorter on average than the other two types of cases.

The departure rates exhibited dissimilarities as well. The dispositional departure rates of males, cases with a prior active case, and cases that went to trial were considerably smaller than their respective counterparts. DUIs were the most common crime to receive dispositional or downward departures. Cases that went to trial were more likely to receive an upward departure and less likely to receive a dispositional or downward departure. In Northampton County, cases during the pandemic were much less likely to receive dispositional departures. The difference in average pretrial detention length for cases with and without a dispositional departure was surprisingly stark; cases with a dispositional departure had spent 5-8 times fewer days in pretrial detention than cases without a dispositional departure. This pattern persists in cases eligible for a downward departure but of lesser magnitude. Cases that received upward departures had similar average lengths of pretrial detention as those that did not. Overall, Lehigh County judges were much more likely to grant departures than Northampton County judges, which suggests that the culture surrounding guideline departures differs between the counties.

Hierarchical Models

The unconditioned null models in Table 4 investigated if hierarchical logistic regression models are appropriate for the data. The intraclass correlation coefficient reported that 44% of the variability in the odds of a dispositional departure lies between judges. This value is 17% for downward departures and 9% for upward departures. We felt that these coefficients justify the usage of hierarchical logistic regression models.

Dispositional Departure Models

Table 5 contains the results of the full models; we begin by discussing the dispositional departure models. As expected, PRS and OGS were strong predictors of dispositional departure likelihood. One point increase in either measure was associated with a 25% decrease in the odds of departure, all else equal ($p < .001$). Female individuals were 54% more likely to receive a dispositional departure than similarly situated male individuals ($p < .05$). As the descriptive statistics suggested, DUIs were strongly associated with departures as opposed to other crimes, with an extremely large odds ratio of 24.5 ($p < .001$). Both drug crimes were more than twice as likely than other crimes to receive a dispositional departure ($p < .001$). Also anticipated was the significance of the county predictor; all else equal, Northampton County individuals were 85% less likely to receive a dispositional departure ($p < .001$). Longer cases, cases with an active prior case, and cases with more convictions were less likely to receive dispositional departures. Here, we found support for our first hypothesis. All else equal, a 2.7-fold increase in the length of pretrial detention was associated with a 15% decrease in the odds of a dispositional departure ($p < .001$). The model was refitted with an interaction term

Table 1: Descriptive Statistics for Dispositional Departures Subset

Variable	Lehigh County			Northampton County		
	n	%	Dispositional Departure Rate	*n*	%	Dispositional Departure Rate
Race						
American Indian	0	0.0	-	1	0.1	0.0
Asian/Pacific Islander	2	0.1	0.0	0	0.0	-
Black	582	28.3	27.5	277	28.0	5.8
Hispanic	172	8.4	9.9	19	1.9	0.0
Other	12	0.6	8.3	0	0.0	-
Unknown	34	1.7	29.4	12	1.2	16.7
White	1,242	60.8	37.0	681	68.9	24.2
Sex						
Male	1,814	88.7	28.7	882	89.1	15.6
Female	230	11.3	55.2	108	10.9	71.4
Age	Depart = 0: $M = 35.7$; $SD = 11.3$ Depart = 1: $M = 38.8$; $SD = 11.6$			Depart = 0: $M = 38.3$; $SD = 10.9$ Depart = 1: $M = 37.9$; $SD = 12.6$		
Active Case						
No	1,522	74.5	37.6	918	92.7	19.7
Yes	522	25.5	14.4	72	7.3	2.8
PRS	Depart = 0: $M = 3.6$; $SD = 1.9$ Depart = 1: $M = 2.4$; $SD = 2.3$			Depart = 0: $M = 3.9$; $SD = 1.7$ Depart = 1: $M = 0.8$; $SD = 1.6$		
Crime Type						
Other	241	11.8	18.6	144	14.5	3.5
Drug Delivery	375	18.3	16.0	173	17.5	3.5
Drug Possession	213	10.4	42.7	77	7.8	6.5
DUI	329	16.1	89.8	159	16.1	96.3
Economic	351	17.2	21.9	183	18.5	2.7
Violent	535	26.2	14.2	254	25.7	2.4
COVID Year						
No	1,282	62.7	30.3	670	67.7	25.8
Yes	762	37.3	34.0	320	32.3	3.1
Number of Convictions	Depart = 0: $M = 1.4$; $SD = 1.1$ Depart = 1: $M = 1.1$; $SD = 0.4$			Depart = 0: $M = 1.3$; $SD = 0.9$ Depart = 1: $M = 1.0$; $SD = 0.2$		
OGS	Depart = 0: $M = 6.3$; $SD = 3.0$ Depart = 1: $M = 3.6$; $SD = 2.2$			Depart = 0: $M = 5.7$; $SD = 2.7$ Depart = 1: $M = 4.3$; $SD = 1.6$		
Disposition Type						
Plea	2,018	98.7	31.9	965	97.5	19.0
Trial	26	1.3	11.5	25	2.5	0.0
Case Duration (months)	Depart = 0: $M = 9.0$; $SD = 6.8$ Depart = 1: $M = 7.4$; $SD = 4.4$			Depart = 0: $M = 9.3$; $SD = 6.4$ Depart = 1: $M = 7.8$; $SD = 3.2$		
Attorney Type						
Appointed	129	6.3	12.4	49	4.9	0.0
None	125	6.2	69.0	149	15.1	28.9
Private	674	33.0	41.5	276	27.9	37.7
Public	1,116	54.5	23.7	516	52.4	7.0
Pretrial Detention Length (days)	Depart = 0: $M = 127.6$; $SD = 150.5$ Depart = 1: $M = 26.7$; $SD = 60.6$			Depart = 0: $M = 156.5$; $SD = 164.7$ Depart = 1: $M = 18.3$; $SD = 60.6$		
Total	2,044	67.4	31.7	990	32.6	18.5

between pretrial detention length and race; the results are in Table 6. Importantly, race became significant in the interaction with pretrial detention length. Black individuals who experienced a 2.7-fold increase in pretrial detention length were 13% less likely to receive a dispositional departure than similarly detained White individuals ($p < .05$). No significant result was found for individuals of other races or ethnicities.

Downward Departure Models

The full downward departure model showed some differences from the dispositional departure model. The only significant individual characteristic was PRS, and it interestingly demonstrated a positive relationship with the odds of a downward departure. A one-point increase in PRS was associated with a 21% increase in the odds of a downward departure ($p < .001$). Furthermore, a one-point increase in OGS was associated with a 15% increase in those odds ($p < .001$). With respect to other crimes, drug crimes increased the odds of a downward departure, and DUIs again had a large odds ratio. The odds were 35% higher if the case took place during the COVID-19 pandemic ($p < .01$), and they were 89% lower if the case went to trial instead of resolving through a plea ($p < .01$). Longer cases had reduced odds; a 2.7-fold increase in duration corresponded to a 25% decrease

Table 2: Descriptive Statistics for Downward Departures Subset

Variable	Lehigh County			Northampton County		
	n	%	Downward Departure Rate	*n*	%	Downward Departure Rate
Race						
American Indian	0	0.0	-	2	0.1	0.0
Asian/Pacific Islander	3	0.1	0.0	4	0.3	50.0
Black	570	28.2	41.8	402	29.4	12.9
Hispanic	204	10.1	30.9	22	1.6	27.3
Other	13	0.6	15.4	0	0.0	-
Unknown	46	2.3	37.0	22	1.6	0.0
White	1,183	58.6	40.0	916	67.0	11.6
Sex						
Male	1,832	90.7	39.1	1,215	88.8	12.3
Female	187	9.3	40.6	153	11.2	11.1
Age	Depart = 0: $M = 33.9$; $SD = 10.9$ Depart = 1: $M = 35.7$; $SD = 11.4$			Depart = 0: $M = 37.2$; $SD = 11.3$ Depart = 1: $M = 37.6$; $SD = 11.3$		
Active Case						
No	1,421	70.4	40.5	1,256	91.8	11.5
Yes	598	29.6	36.2	112	8.2	19.6
PRS	Depart = 0: $M = 2.9$; $SD = 2.1$ Depart = 1: $M = 3.4$; $SD = 2.1$			Depart = 0: $M = 3.2$; $SD = 2.0$ Depart = 1: $M = 3.6$; $SD = 2.0$		
Crime Type						
Other	343	17.0	27.9	284	20.8	11.4
Drug Delivery	442	21.9	43.2	246	18.0	13.8
Drug Possession	158	7.8	64.6	135	9.9	14.8
DUI	27	1.3	83.3	6	0.4	40.0
Economic	453	22.4	34.0	311	22.7	12.9
Violent	596	29.5	37.9	386	28.2	9.3
COVID Year						
No	1,308	64.8	35.6	851	62.2	13.2
Yes	711	35.2	46.0	517	37.8	10.4
Number of Convictions	Depart = 0: $M = 1.4$; $SD = 1.1$ Depart = 1: $M = 1.3$; $SD = 0.7$			Depart = 0: $M = 1.4$; $SD = 3.0$ Depart = 1: $M = 1.2$; $SD = 1.2$		
OGS	Depart = 0: $M = 5.9$; $SD = 2.8$ Depart = 1: $M = 6.1$; $SD = 2.9$			Depart = 0: $M = 5.2$; $SD = 2.5$ Depart = 1: $M = 5.4$; $SD = 2.7$		
Disposition Type						
Plea	1,997	98.9	39.6	1,340	98.0	12.4
Trial	22	1.1	9.1	28	2.0	0.0
Case Duration (months)	Depart = 0: $M = 8.3$; $SD = 6.0$ Depart = 1: $M = 8.5$; $SD = 7.3$			Depart = 0: $M = 8.8$; $SD = 6.8$ Depart = 1: $M = 8.2$; $SD = 6.1$		
Attorney Type						
Appointed	158	7.8	32.3	81	2.9	6.1
None	58	2.9	37.3	199	14.5	14.1
Private	540	26.7	42.0	285	20.8	13.7
Public	1,263	62.6	39.1	803	58.7	11.7
Pretrial Detention Length (days)	Depart = 0: $M = 126.9$; $SD = 147.2$ Depart = 1: $M = 96.1$; $SD = 129.3$			Depart = 0: $M = 131.9$; $SD = 151.9$ Depart = 1: $M = 107.5$; $SD = 123.5$		
Total	2,019	59.6	39.3	1,368	40.4	12.1

in the odds of departure ($p < .01$). In support of our second hypothesis, we found that a 2.7-fold increase in pretrial detention length corresponded to an 8% decrease in the odds of departure, all else equal ($p < .001$). The interaction term, however, failed to reach significance.

Upward Departure Models

The upward departure models bore a resemblance to the downward departure models in that the only individual characteristic that reached significance was PRS, and again it exhibited a strange relationship to the odds of an upward departure. A one-point increase in an individual's PRS corresponded to a 36% decrease in the odds of departure ($p < .001$). OGS also demonstrated this inverse relationship, with a one-point increase corresponding to a 30% decrease in odds ($p < .001$). In this model, COVID year, drug crimes, and number of convictions failed to reach significance, but violent cases had 66% greater odds of departure compared to other crimes ($p < .001$). DUIs had greatly reduced odds of departures (OR = 0.12, $p < .05$). A 2.7-fold increase in pretrial detention length was associated with an 11% increase in the odds of departure ($p < .001$), supporting our third hypothesis. As in the downward departure model, the interaction failed to reach significance.

Table 3: Descriptive Statistics for Upward Departures Subset

Variable	Lehigh County			Northampton County		
	n	%	Upward Departure Rate	*n*	%	Upward Departure Rate
Race						
American Indian	0	0.0	-	2	0.1	0.0
Asian/Pacific Islander	4	0.2	25.0	4	0.2	0.0
Black	648	25.6	13.0	499	27.2	5.8
Hispanic	221	8.7	10.9	23	1.3	4.3
Other	10	0.4	20.0	0	0.0	-
Unknown	70	2.8	17.1	30	1.6	6.7
White	1,577	62.3	14.2	1,279	69.9	8.4
Sex						
Male	2,212	87.4	14.0	1,549	84.3	7.2
Female	318	12.6	11.6	288	15.7	9.7
Age	Depart = 0: $M = 33.6$; $SD = 10.8$ Depart = 1: $M = 32.8$; $SD = 11.4$			Depart = 0: $M = 35.6$; $SD = 11.4$ Depart = 1: $M = 32.7$; $SD = 11.6$		
Active Case						
No	1,853	73.2	14.2	1,681	91.5	7.7
Yes	677	26.8	12.4	156	8.5	6.4
PRS	Depart = 0: $M = 2.4$; $SD = 2.0$ Depart = 1: $M = 1.2$; $SD = 1.7$			Depart = 0: $M = 2.4$; $SD = 2.0$ Depart = 1: $M = 0.9$; $SD = 1.5$		
Crime Type						
Other	543	21.5	16.9	468	25.5	7.3
Drug Delivery	485	19.2	9.9	276	15.0	2.9
Drug Possession	217	8.6	12.4	153	8.3	9.2
DUI	23	0.9	0	7	0.4	14.3
Economic	632	25.0	8.9	437	23.8	4.3
Violent	630	24.9	19.7	496	27.0	12.9
COVID Year						
No	1,723	68.1	12.6	1,223	66.6	7.3
Yes	807	31.9	16.1	614	33.4	8.3
Number of Convictions	Depart = 0: $M = 1.3$; $SD = 0.9$ Depart = 1: $M = 1.3$; $SD = 0.8$			Depart = 0: $M = 1.4$; $SD = 2.6$ Depart = 1: $M = 1.4$; $SD = 0.8$		
OGS	Depart = 0: $M = 5.2$; $SD = 2.6$ Depart = 1: $M = 4.1$; $SD = 2.5$			Depart = 0: $M = 4.6$; $SD = 2.4$ Depart = 1: $M = 3.7$; $SD = 2.5$		
Disposition Type						
Plea	2,511	99.2	13.5	1,811	98.6	7.6
Trial	19	0.8	36.8	26	1.4	11.5
Case Duration (months)	Depart = 0: $M = 7.5$; $SD = 6.2$ Depart = 1: $M = 7.6$; $SD = 5.9$			Depart = 0: $M = 7.9$; $SD = 6.2$ Depart = 1: $M = 7.5$; $SD = 4.9$		
Attorney Type						
Appointed	183	7.2	12.6	108	5.9	5.6
None	76	3.0	14.5	300	16.3	7.3
Private	631	24.9	16.0	374	20.4	11.8
Public	1,640	64.8	12.9	1,055	57.4	6.4
Pretrial Detention Length (days)	Depart = 0: $M = 131.4$; $SD = 194.3$ Depart = 1: $M = 135.7$; $SD = 178.4$			Depart = 0: $M = 106.9$; $SD = 139.6$ Depart = 1: $M = 113.0$; $SD = 149.6$		
Total	2,530	57.9	13.7	1,837	42.1	7.6

Discussion

The current study sought to address a gap in the literature by examining the fixed effects of pretrial detention length on the odds of receiving three types of sentencing guideline departures in two Pennsylvania counties. We developed two ideas to investigate with three hypotheses each. First, we asked if longer stints in pretrial detention decreased the odds of dispositional or downward departures or increased the odds of upward departures. Second, we asked if pretrial detention length exacerbated racial disparities in sentencing by reducing the odds of dispositional and downward departures and increasing the odds of upward departures for Black and Hispanic individuals relative to White individuals.

The hierarchical logistic regression models provided evidence supporting the first three hypotheses. All else equal, a 2.7-fold increase in time spent in pretrial detention was associated with a 15% reduction in the odds of a dispositional departure, an 8% reduction in the odds of a downward departure, and an 11% increase in the odds of an upward departure. While these results are cohesive with – albeit smaller than – those previously reported in Johnson et al. (2008), Johnson and Betsinger (2009), Spohn (2013), Didwania (2020), and DaGrossa and Muller (2021), this is the first study to demonstrate that pretrial detention negatively affects the odds of favorable departure outcomes in local courts. While we did not have any data on judge reasons for departure, we found that being detained increased the odds that an individual would be removed from society rather than released back into it, which suggests that detention amplified the appearance of dangerousness. Concurrently, detention length was positively associated with the odds of receiving longer sentences, which implies that detention made these individuals seem more deserving of punishment. Moreover, this study shows the potency of even a small spell in detention. Of individuals who were never detained, 53% received a dispositional departure, but just 12% of individuals who were detained for as little as one day received a dispositional departure. This is consistent with other work that has shown that spending one day in detention is enough to induce guilty pleas and increase the odds of carceral sentences (Campbell et al., 2020; Thomas et al., 2022). The ramifications of spending just one day in detention are troubling, as they suggest that it may exert great influence on individuals' lives and their perceived dangerousness and culpability. This could be attributed to the emphasis that judges place on rehabilitative potential in their sentencing decisions. Judges have been found to value plea agreements, remorsefulness, and occasionally most of all, rehabilitative potential in their decisions to depart from guidelines (Kramer & Ulmer, 1996, 2002; Scott-Hayward & Ireland, 2022; Steffensmeier et al., 1993). Demonstrating improvement or even a desire to improve is influential in making accurate predictions of the effectiveness and necessity of different sentences in achieving the goals of punishment, deterrence, and community protection. With the average case lasting between seven and nine months, one day in detention may not seem like enough time to seriously interfere with an individual's ability to participate in their defense, meet with their lawyers, show remorse, or demonstrate a desire to improve. However, within one-to-three days, detained individuals can miss work, lose their job, or lose their vehicles (Smith, 2022), creating instability that might affect their ability to work towards improvement or demonstrate that they are productive members of the community. Consequently, we infer that pretrial detention, for any amount of time, may increase the odds of incarceration by harming individuals' abilities to manage their lives and their cases and, simultaneously, making them appear like they belong in custody (Thomas et al., 2022, p. 3).

Table 4: Unconditioned Hierarchical Models of Dispositional Departures, Downward Departures, and Upward Departures

	Dispositional Departure			*Downward Departure*			*Upward Departure*		
Fixed Effect	*b*	SE	OR	*b*	SE	OR	*b*	SE	OR
Intercept	-2.24	0.41	0.11***	-1.45	0.21	0.23***	-2.33	0.16	0.10***
Random Effect	Variance	SD		Variance	SD		Variance	SD	
Intercept	2.58	1.61		0.69	0.83		0.33	0.57	
ICC	0.44			0.17			0.09		

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

Considering that two-thirds of individuals in our dataset were detained pretrial for at least three days, and 98% were held for failure to post bail, this has serious and impactful implications for the criminal justice system. This supports scholarly discourse on cumulative disadvantage in that detention often occurs at the start of a case, but it can affect outcomes months later, even if a person is detained for a brief time. That this domino effect impacts those who cannot afford bail demonstrates how this system subjugates and targets poor individuals. The importance of this outcome cannot be overstated. Because pretrial detention can impact housing stability, employment, conviction, and incarceration, these results fuel the argument that pretrial detention perpetuates a cycle of poverty and criminality. Magisterial District Judges should be cognizant that the bails they set can induce pretrial detention and in turn can have injurious ramifications on individuals, their families, the economy, and the criminal justice system. Sentencing judges should use these results to think critically about their procedures and how they may consciously or unconsciously weigh pretrial detention in their decision-making. Lawmakers and legislators should consider reviewing bail and pretrial detention laws to minimize detention admissions and the amount of time spent in detention.

Evidence that pretrial detention exacerbated racial disparities in sentencing was weak. The fourth hypothesis was supported, but the fifth and sixth hypotheses were unsupported. Black individuals who experienced a 2.7-fold increase in pretrial detention length were 12% less likely to receive a dispositional departure than their White counterparts. However, this was only seen in dispositional departures for Black individuals; we did not find evidence that Hispanic individuals have worse odds of favorable departure outcomes. Nontrivially, no evidence was found to suggest that race influences the decision to depart. These mixed results are consistent with prior literature, some of which found that race directly influences sentencing outcomes (Albonetti, 1997;

Table 5: Hierarchical Models of Dispositional Departures, Downward Departures, and Upward Departures

	Dispositional Departures			*Downward Departures*			*Upward Departures*		
***n* (Level 1)**	**3,304**			**3,387**			**4,367**		
***n* (Level 2)**	**18**			**18**			**18**		
Fixed Effects	*b*	SE	OR	*b*	SE	OR	*b*	SE	OR
Intercept	-1.87	.41	0.15***	-1.16	.22	0.31***	-2.17	.28	0.11***
Race									
White (ref)									
Black	0.15	.14	1.17	0.17	.10	1.18	-0.04	.13	0.96
Hispanic	-0.48	.30	0.62	-0.21	.17	0.81	-0.22	.24	0.80
Other	-0.08	.45	0.93	-0.24	.27	0.79	0.04	.29	1.04
Sex									
Male (ref)									
Female	0.43	.19	1.54*	0.15	.14	1.16	-0.27	.15	0.76
Age (logged)	1.08	.22	2.95***	0.08	.15	1.08	0.12	.17	1.13
Active Case									
No (ref)									
Yes	-0.41	.16	0.66*	-0.19	.10	0.83	0.06	.14	1.06
PRS	-0.28	.04	0.75***	0.19	.03	1.21***	-0.45	.04	0.64***
Crime Type									
Other (ref)									
Drug Delivery	0.82	.24	2.26***	0.46	.15	1.58**	-0.06	.20	0.94
Drug Possession	0.90	.23	2.46***	1.04	.17	2.84***	-0.27	.21	0.76
DUI	3.21	.30	24.49***	3.02	.42	20.56***	-2.10	1.06	0.12*
Economic	0.24	.22	1.27	0.16	.14	1.17	-0.31	.16	0.73
Violent	-0.11	.23	0.89	0.20	.14	1.23	0.51	.14	1.66***
COVID Year									
No (ref)									
Yes	0.04	.17	1.04	0.30	.11	1.35**	0.13	.14	1.14
Number of Convictions (logged)	-0.74	.23	0.48**	-0.31	.13	0.73*	-0.03	.14	0.97
OGS	-0.31	.03	0.73***	0.14	.02	1.15***	-0.35	.03	0.70***
Disposition Type									
Plea (ref)									
Trial	0.07	.79	1.07	-2.25	.75	0.11**	1.42	.48	4.12**
Case Duration (logged)	-0.27	.12	0.76*	-0.29	.09	0.75**	0.34	.10	1.41**
Attorney Type									
Appointed (ref)									
None	0.54	.36	1.71	0.03	.25	1.03	-0.06	-.30	0.94
Private	0.01	.31	1.01	0.29	.19	1.34	0.30	.23	1.35
Public	0.06	.30	1.05	0.28	.17	1.32	-0.17	.22	0.85
Pretrial Detention Length (logged)	-0.16	.03	0.85***	-0.09	.02	0.92***	0.11	.02	1.11***
County									
Lehigh (ref)									
Northampton	-1.89	.36	0.15***	-1.54	.16	0.21***	-0.98	.21	0.37***
Random Effects	Variance	SD		Variance	SD		Variance	SD	
Intercept	0.31	.56		0.05	0.22		0.10	.32	

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

Engen et al., 2003; Kramer & Ulmer, 1996) and some of which did not (LaFrentz & Spohn, 2006; Spohn, 2013). There are several explanations for this. First, several scholars have found that race interacts with age, gender, and other variables to produce disparate sentencing outcomes. Including interactions with these variables may reveal disparities. Second, only model intercepts varied across judges rather than the predictors, possibly introducing aggregation bias. It is possible that the effect of race also varies across judges; that is, some judges have more bias than others. This means that a potential effect variance between judges may be obscured through the aggregation (Hofer et al., 1999; Spohn, 2013). Indeed, some work has found that county-level courts value individual-level factors differently in the decision to depart (Johnson, 2005, 2006). Unfortunately, the present study could not let the coefficients for pretrial detention or race predictors vary across judges due to model convergence issues. Third, it is possible that the definition of the dependent variables impeded the detection of an effect. We defined the dependent variables dichotomously as a judge's yes/no decision to depart, but this definition combines many sentence lengths into two outcomes. As such, the effects of the predictors on the size of the departure are unknown. Pretrial detention may interact with race to produce larger upward departures or smaller downward departures for Black or other racial minorities. Additionally, we counted sentences in the mitigated and aggravated ranges as departures, which may have further obscured the relationship. It is possible that White individuals had higher odds of receiving sentences below the mitigated than Black or individuals from other racial groups, but since we combined these outcomes, we could not detect this effect (Scott-Hayward & Ireland, 2022). Researchers conducting studies of pretrial detention, race, and guideline deviations should consider the current study

Table 6: Hierarchical Models of Dispositional Departures, Downward Departures, and Upward Departures with Interaction Term

	Dispositional Departures			*Downward Departures*			*Upward Departures*		
***n* (Level 1)**	**3,304**			**3,387**			**4,367**		
***n* (Level 2)**	**18**			**18**			**18**		
Fixed Effects	*b*	SE	OR	*b*	SE	OR	*b*	SE	OR
Intercept	-1.87	.41	0.15***	-1.17	.22	0.31***	-2.16	.28	0.11***
Race									
White (ref)									
Black	0.08	.15	1.08	0.17	.10	1.19	-0.03	.13	0.97
Hispanic	-0.46	.31	0.63	-0.20	.17	0.82	-0.23	.24	0.80
Other	-0.11	.46	0.89	-0.23	.27	0.80	-0.04	.31	0.96
Sex									
Male (ref)									
Female	0.45	.19	1.57*	0.14	.14	1.15	-0.27	.15	0.76
Age (logged)	1.07	.22	2.92***	0.07	.15	1.08	0.13	.17	1.13
Active Case									
No (ref)									
Yes	-0.43	.17	0.65**	-0.18	.11	0.83	0.05	.14	1.06
PRS	-0.29	.04	0.75***	0.19	.03	1.21***	-0.45	.04	0.63***
Crime Type									
Other (ref)									
Drug Delivery	0.81	.24	2.24***	0.46	.15	1.59**	-0.06	.20	0.94
Drug Possession	0.89	.23	2.43***	1.05	.17	2.85***	-0.27	.21	0.77
DUI	3.24	.30	25.46***	3.00	.55	20.02***	-2.08	1.06	0.13*
Economic	0.22	.22	1.24	0.16	.14	1.17	-0.32	.16	0.73
Violent	-0.11	.23	0.90	0.21	.14	1.23	0.50	.14	1.65***
COVID Year									
No (ref)									
Yes	0.20	.17	1.05	0.31	.11	1.36**	0.13	.14	1.13
Number of Convictions (logged)	-0.72	.23	0.49**	-0.32	.13	0.73*	-0.04	.14	0.97
OGS	-0.31	.03	0.73***	0.15	.02	1.16***	-0.35	.03	0.70***
Disposition Type									
Plea (ref)									
Trial	0.07	.78	1.08	-2.23	.75	0.11**	1.42	.48	4.12**
Case Duration (logged)	-0.27	.11	0.76*	-0.29	.09	0.75***	0.35	.10	1.42***
Attorney Type									
Appointed (ref)									
None	0.59	.37	1.80	0.01	.25	1.01	-0.07	.30	0.94
Private	0.06	.31	1.06	0.28	.19	1.33	0.30	.23	1.36
Public	0.09	.30	1.09	0.28	.17	1.32	-0.17	.22	0.85
Pretrial Detention Length (logged)	-0.12	.04	0.89***	-0.11	.02	0.89***	0.13	.03	1.13***
County									
Lehigh (ref)									
Northampton	-1.91	.34	0.15***	-1.54	.15	0.22***	-0.99	.21	0.37***
Pretrial Detention Length × Black	-0.14	.06	0.87*	0.07	.04	1.07	-0.08	.05	0.92
Pretrial Detention Length × Hispanic	0.11	.12	1.12	0.01	.07	1.01	-0.04	.09	0.96
Pretrial Detention Length × Other Race	-0.14	.20	0.87	0.01	.12	1.01	0.15	.14	1.17
Random Effects	Variance	SD		Variance	SD		Variance	SD	
Intercept	0.32	.57		0.05	0.21		0.10	.31	

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

when deciding how to define and measure pretrial detention and departures.

It is worth discussing the implications of the current study on guideline implementation and perceived appropriateness. As Ulmer (2014, p. 273) described, departures are ways that judges can communicate policy disagreements with guideline drafters. Counterintuitively and conversely to most prior work (except Painter-Davis & Ulmer, 2019), the models reported that as criminal history and offense severity increased, the odds of a downward departure increased, and the odds of an upward departure decreased. That is, individuals with more extensive criminal histories who were convicted of more heinous offenses were more likely to receive shorter sentences, net of controlled factors. This incongruity suggests that the PCS and judges have differing opinions on how harshly individuals should be punished. While they agree on incarceration for these cases, they disagree on the length of punishment. Therefore, as the judge has already decided upon incapacitation and deterrence over rehabilitation as the primary goals (Painter-Davis & Ulmer, 2019), length is then a function of culpability and risk. Judges may feel that individuals are not as dangerous or deserving of punishment as the PCS estimates them, or that these offenses, particularly DUI offenses, do not warrant extensive punishment. They may be conscious of the risks of jail overcrowding or prolonged imprisonment. This disagreement is further emphasized by the large departure rates from the counties, particularly in Lehigh County.

Favorable departures from standard ranges were common in Lehigh County. Around three in ten eligible Lehigh County cases received a dispositional departure, and nearly four in ten received a downward departure. These rates were large enough to warrant our surprise since Pennsylvania's guidelines are considered "loose" by comparison (Kramer & Ulmer, 1996, p. 83; Steffensmeier et al., 1993, p. 418), and thus are designed to satisfy a wide set of circumstances. Frequent departures signal that there were often factors that judges felt were significant, and they generally believe the standard ranges are too restrictive to be appropriate in many cases (Kramer & Ulmer, 2002; Painter-Davis & Ulmer, 2019). This insinuates that judges believe the guidelines do not adequately account for circumstances to determine the appropriate sentence for their goals. Since dispositional and downward departures were more common than upward departures, the current study evinces that the recommended ranges are often viewed as too harsh. As Lehigh County judges departed more frequently than Northampton County judges, it is possible that Lehigh County judges may be more open to considering mitigating or aggravating factors than Northampton County judges. This suggests a difference in attitudes or culture surrounding guideline departures across counties, even those that are similar in composition and geography. The PCS and other researchers can take the results from this study to conduct future studies on guideline departures in other Pennsylvania counties to inform appropriate guideline adjustments (Ulmer, 2014). Additionally, other jurisdictions with sentencing guidelines can conduct similar studies to inform their own unique adjustments. Departures are similarly common in some jurisdictions, as Frase (2019) found when comparing departure rates in 2016 and 2017. Kansas (21%), Minnesota (26%), Virginia (20%), and Washington (19%) had similar rates to Pennsylvania (28%), but larger variability existed in other jurisdictions (Frase, 2019). In the federal courts, 46% of cases received departures, while just 7% of cases in the District of Columbia received departures (Frase, 2019). With these rates, studying the relationship between pretrial detention and this often overlooked sentencing outcome in other jurisdictions can reveal more about how it functions elsewhere, thus gaining a better understanding of its underlying mechanisms.

The significance of the individual characteristic predictors sex, age, and race (through its interaction with pretrial detention) in the dispositional departure model but insignificance in the durational departure models suggest that disparities still exist under these guidelines in the decision to incarcerate. In other words, the decision to incarcerate is influenced by individual characteristics, but the length decision is not. Therefore, we found evidence that bias by sex, age, and race is most pronounced when the judge makes the incarceration decision. However, pretrial detention, a reflection of socioeconomic status, remained significant in all departure decisions. This shows that disparities in sentencing outcomes still exist under guidelines for poorer individuals, even when no evidence is found for sex, age, and race disparities. This disparity based on wealth is not discussed enough in sentencing guideline research, and we implore the need for future studies dedicated to understanding how socioeconomic status accumulates disadvantage in sentencing outcomes.

Due to data unavailability, we were unable to control for employment, education, marital status, number of dependents, or evidence strength, which other studies have shown to be significant in examining pretrial detention and sentencing outcomes (Holland & Prohaska, 2021; LaFrentz & Spohn, 2006; Oleson, Lowenkamp, Wooldredge, et al., 2017). Future work should account for more case-contextual variables, particularly because guideline departures operationalize extraordinary circumstances in the sentencing decision.

Conclusion

Quantifying, understanding, and demystifying the role that pretrial detention plays in a variety of sentencing outcomes is essential to address it appropriately. An immense body of literature has documented the detrimental effects that pretrial detention has on sentencing outcomes and, in turn, on the lives of the detained individuals, their families, their local economy, and the criminal justice system. The current study supports this previous research. It adds to the collective understanding by being the first to document its effect on departures from state-level sentencing guidelines, a direly understudied area of research. We found that pretrial detention length was associated with 15% lower odds of a dispositional departure, 8% lower odds of a downward departure, and 11% higher odds of an upward departure, net of case and individual characteristics. We also found that pretrial detention may exacerbate racial disparities in addition to creating a disparity of its own: poorer individuals may have received harsher sentences because they were detained pretrial. The significance of pretrial detainment, even short periods of detainment, cannot be overstated. That this commonplace practice affects poorer individuals, some of the most vulnerable in our society, demands attention. Studying pretrial detention and its effects on a multitude of sentencing outcomes is crucial to appropriately understand and address disparities in the criminal justice system and to work to improve the system's equitability.

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Tre Schumacher is from Easton, PA, and is currently a law student at Delaware Law School working towards his JD. He studied Philosophy and Economics as an undergraduate student at La Salle University and published his 2021 undergraduate research paper "Non-Reductionist Science: Assessing Metabolism and Entropy with Systems Theory and Hegelian Logic" in La Salle's Undergraduate Research Commons. He is now interested in criminal and civil law. Mr. Schumacher co-authored the enclosed paper as an intern for LVJI under the supervision of Ms. Wrigley.

Endnotes

[1] Sentencing philosophies as outlined by sentencing commissions differ by jurisdiction. For example, Delaware's commission lists incapacitation, restitution, and rehabilitation as the goals of sentencing; Minnesota's commission stresses the equivalence of sanction to offense severity, the exclusion of extralegal factors, and the consideration of correctional resources; and North Carolina's commission asserts that sentencing policies should be consistent, accurate, harmonious with resource priorities, and supported by available correctional resources (National Council on Crime and Delinquency, 1996).