Do Detainees Plead Guilty Faster? A Survival Analysis of Pretrial Detention and the Timing of Guilty Pleas

Nick Petersen1

Abstract
Although numerous quantitative studies have linked pretrial detention to increased conviction rates, the precise mechanisms linking these decisions remain unclear. Qualitative studies shed light on these processes, revealing that many detainees plead guilty quickly to escape the pains of detention, including poor confinement conditions, strained work or family relations, and “dead time.” Moreover, these pressures to plead are often exacerbated by uncertain detention length, time-sensitive “exploding” plea deals, and temporal discounting. Utilizing data on felony defendants from large urban counties between 1990 and 2004, we assess whether pretrial detention accelerates the pace of guilty pleas. Survival analyses indicate that pretrial detainees plead guilty 2.86 times faster than released defendants do, suggesting that pretrial detention is a powerful prosecutorial tool. Moreover, local resources affect case processing time in ways that are consistent with the courtroom workgroup perspective. Implications for public policies and future research are discussed.

Keywords
guilty plea, pretrial detention, time-to-plea, bail, case processing time

While considerable attention has been devoted to the effects of pretrial detention on convictions, surprisingly few studies have sought to identify the mechanisms underlying these patterns. The limited research in this area suggests that pretrial

1University of Miami, Coral Gables, FL, USA

Corresponding Author:
Nick Petersen, Department of Sociology, University of Miami, Merrick Building, Room 122G, Coral Gables, FL 33124, USA.
Email: npetersen@miami.edu
detention induces guilty pleas in several ways, acting as a form of structural coercion in plea bargaining negotiations (Cheng, 2012; Euvrard & Leclerc, 2017; Kellough & Wortley, 2002). Detainees often plead guilty to escape poor confinement conditions, keep their job, or hold their family together (Pelvin, 2017; Rabinowit, 2010). Temporal considerations also play a critical role in compelling detainees to plead guilty, as many find it difficult to cope with the uncertainty of their detention length, spending “dead time” in jail, and time-sensitive “exploding” plea deals (Euvrard & Leclerc, 2017; Kellough & Wortley, 2002; Pelvin, 2017; Rabinowit, 2010). Thus, although qualitative studies indicate that detainees in specific jurisdictions plead guilty quickly to get out of jail, we currently lack generalizable knowledge about how these dynamics might operate across a wider range of cases and court contexts.

This gap in the literature has important implications for our understanding of pretrial detention, as well as criminal case processing more generally. Most quantitative bail studies capture whether a defendant was detained or convicted, but not the timing of these decisions. The examination of detention time is not only important in terms of offering a more fine-grained measure of pretrial detention, but also because the amount of time a defendant spends in jail can affect the pace of their plea. Moreover, because the vast majority of defendants are convicted through guilty pleas (Bibas, 2004, 2012; Lynch, 2016; McCoy, 2005, 2007), it is critical to understand the timing of guilty pleas. For most defendants, the question is not whether they will plead guilty, but when (Sacks & Ackerman, 2012). Based on the qualitative literature, we suspect that pretrial detention is a key factor in explaining the timing of guilty pleas.

We attempt to fill this gap in the literature by investigating the timing of guilty pleas for felony defendants in the 1990 to 2004 State Court Processing Statistics (SCPS) data set. Focusing on the timing of guilty pleas allows us to better identify the mechanisms linking pretrial detention and convictions, evaluating the hypothesis that detainees plead guilty quicker to get out of jail. Survival analyses indicate that detainees plead guilty faster than defendants who are released before adjudication, implying that pretrial detention can act as a form of structural coercion by inducing guilty pleas. We also find that the speed of guilty pleas depends on other case characteristics and social contextual factors in ways that comport with courtroom workgroup theories and existing research on case processing time. These results have implications for jurisdictions contemplating bail reform, demonstrating the potential costs of pretrial detention for the fairness of guilty pleas and the importance of local resources for case processing dynamics.

**Literature Review**

**Pretrial Detention, Case Outcomes, and Processing Time**

A large proportion of criminal defendants come from economically disadvantaged backgrounds (Pelvin, 2017; Rabinowit, 2010), and as a result, many of the 500,000 detainees held in U.S. jails each year are forced to wait in jail until adjudication simply because they cannot afford bail (Edkins & Dervan, 2018; Stevenson, 2018). Given that
so many detainees cannot afford bail, scholars have argued that our current bail system heavily disadvantages poorer defendants, regardless of guilt or innocence (Jones, 2013; Menefee, 2017; Schlesinger, 2015; Stevenson, 2018). Recognizing the importance of economically equitable bail practices both for defendants’ cases and larger considerations of equality, several counties and states have recently abolished cash bail, including California (Eckhouse, 2018).

Numerous studies have found that pretrial detention negatively affects disposition and sentencing decisions (for recent reviews, see Dobbie, Goldin, & Yang, 2018; Jones, 2013; Lee, 2019; Menefee, 2017; Schlesinger, 2015; Stevenson, 2018). In particular, pretrial detainees are more likely to be prosecuted (Kellough & Wortley, 2002), convicted (Dobbie et al., 2018; Gupta, Hansman, & Frenchman, 2016; Stevenson, 2018), incarcerated (Oleson, Lowenkamp, Cadigan, VanNostrand, & Wooldredge, 2016), have lengthier sentences (Didwania, 2018; Oleson et al., 2016; Sacks & Ackerman, 2014), and recidivate at higher rates (Gupta et al., 2016; Kim, Chauhan, Lu, Patten, & Smith, 2018; Ogle & Turanovic, 2016). These patterns are significant in and of themselves, but also because pretrial detention helps explain some of the racial and ethnic gap in conviction and sentencing rates, as Black defendants are more likely to experience pretrial detention and are detained for longer periods (Jones, 2013; Menefee, 2017; Schlesinger, 2015).

One largely unexplored potential explanation for increased conviction rates among detainees is that they are coerced into pleading guilty. Interviews with defense attorneys and defendants indicate that the material, psychological, and temporal pains of pretrial detention lead many detainees to plead guilty to escape jail (Cheng, 2012; Euvrard & Leclerc, 2017; Kellough & Wortley, 2002; Pelvin, 2017; Rabinowitz, 2010). Detainees facing non-carceral sentences often plead guilty to evade unnecessary “dead time” in jail, whereas those facing carceral sentences may plead guilty to more quickly start their custodial sentence (Euvrard & Leclerc, 2017; Kellough & Wortley, 2002; Sacks & Ackerman, 2012). Moreover, prosecutors are less likely to drop cases when the defendant is detained pretrial (Kellough & Wortley, 2002), and the only two regression analyses we know of examining the impact of pretrial detention on case time find that detainees plead guilty quicker (Ostrom & Hanson, 1999; Sacks & Ackerman, 2012). In their ordinary least squares (OLS) regression analysis of time-to-disposition patterns among felony defendants (N = 3,152) in nine county courts, Ostrom and Hanson (1999) find that detainees have significantly shorter cases. In a more recent OLS analysis of felony cases in New Jersey (N = 499), Sacks and Ackerman (2012) find that detainees plead guilty quicker than those released pretrial. These studies suggest that pretrial detention serves as a powerful prosecutorial tool for swiftly securing guilty pleas.

The Pains of Detention and Pressures to Plead

The poor conditions of confinement are so unbearable for some detainees that they plead guilty to escape them (Euvrard & Leclerc, 2017; Kellough & Wortley, 2002; Pelvin, 2017; Rabinowitz, 2010). Because jails are county-funded and have higher
population turnover, they often contain large numbers of defendants in need of mental and physical health care, but lack the ability to adequately provide treatment (James & Glaze, 2006; Steadman, Osher, Robbins, Case, & Samuels, 2009). As a result of underfunding and overcrowding, rates of infectious diseases such as tuberculosis and HIV are dramatically higher among detainees compared with the general population (Csete, 2010; Open Society Foundations, 2011a; Pelvin, 2017). As one detainee interviewed by Kellough and Wortley (2002, p. 200) notes, these conditions can induce quick pleas: “The overcrowding . . . not enough beds . . . the only way to avoid it is to plead and get it over with quickly.”

The pains of detention extend beyond the jail cell walls, influencing detainees’ work and family lives in profound ways (Baughman, 2017; Dobbie et al., 2018; Open Society Foundations, 2011b; Pelvin, 2017; Rabinowitz, 2010). Not only do detainees “almost always lose their jobs” (Rabinowitz, 2010, p. 113), but they also lose property, time in school, or other opportunities, dramatically reducing their future employment prospects and wages (Dobbie et al., 2018; Pelvin, 2017; Rabinowitz, 2010). In addition, pretrial detention contributes to unstable housing, childcare, and family relations (Baughman, 2017; Pelvin, 2017; Rabinowitz, 2010). Accordingly, many detainees quickly conclude that these current costs outweigh the potential future benefits of fighting their charges while in detention, making an expeditious plea feel like the only way to move on with their life (Pelvin, 2017; Rabinowitz, 2010).

In addition, uncertainty about the length of detention accelerates guilty pleas. Unlike post-conviction incarceration, the amount of time a detainee may spend in jail is often unclear, ranging from several days to months or years (Narag, 2018; Pelvin, 2017). Such variability makes it difficult for detainees to estimate their length of stay in jail, and this temporal uncertainty has been linked to elevated levels of anxiety and depression (Freeman & Seymour, 2010; Oleski, 1977; Pelvin, 2017). In this context, pleading guilty often feels like the only way to create the kind of certainty needed to move on with their life, albeit with the mark of a criminal record (Euvrard & Leclerc, 2017; Pelvin, 2017; Rabinowitz, 2010). Given the immediate freedom gained when pleading guilty to non-carceral sanctions, versus the unknown future costs of going to trial or having a criminal record, it is not surprising that some defendants engage in temporal discounting and quickly accept guilty pleas (Edkins & Dervan, 2018).

The temporal uncertainties of pretrial detention are further compounded by considerations of “dead time” in at least two ways (Euvrard & Leclerc, 2017; Kellough & Wortley, 2002; Sacks & Ackerman, 2012). First, detainees experience “dead time” when their case is unlikely to result in post-conviction incarceration or when the time spent in pretrial detention would be equivalent to (or less than) any post-conviction incarceration they might experience. In this scenario, detainees’ desires to avoid “dead time” in detention significantly increases their motivation to plead guilty because failing to do so would cost more than any punishment they might receive if convicted. Second, “dead time” refers to situations where the detainee is facing incarceration and their time in pretrial detention may not count toward the post-conviction sentence. While officials are often obliged to consider pretrial detention time when making sentencing decisions, they are not required to do so in many jurisdictions, and this
uncertainty may lead some detainees to plead guilty to avoid unnecessary “dead time” in county jail (Euvrard & Leclerc, 2017; Kellough & Wortley, 2002; Sacks & Ackerman, 2012). These two scenarios imply that concerns about “dead time” affect guilty pleas in both serious and less serious cases, helping those facing probation avoid spending unnecessary time in detention and starting the sentencing clock for defendants facing carceral sanctions.

These factors do not simply imply that detainees are more likely to plead guilty, but rather that, if they do so, it will happen earlier in the plea bargaining process (Euvrard & Leclerc, 2017; Kellough & Wortley, 2002; Sacks & Ackerman, 2012). As such, many detainees realize that pleading guilty earlier allows them to avoid or mitigate the pains of pretrial detention (Euvrard & Leclerc, 2017). In other words, for those who plead guilty to avoid the pains of pretrial detention, there is an inherent benefit to doing so as quickly as possible, with diminishing returns thereafter (Euvrard & Leclerc, 2017). Lamenting about their delayed guilty plea, one detainee remarked that “Doing dead time forces you to plead; if I had plead guilty earlier, I wouldn’t be in here now” (Kellough & Wortley, 2002, p. 199 emphasis added).

Detainees’ desires to plead guilty are likely exacerbated by prosecutorial pressures. Plea deals themselves are temporally uncertain, as prosecutors typically stipulate very short expiration dates on them. These “exploding” offers force defendants to quickly plead guilty to avoid the possibility of progressively worse plea offers or a “trial penalty” (Caldwell, 2011; Lynch, 2016; Work, 2014; Zottoli, Daftary-Kapur, Winters, & Hogan, 2016). The threat of “exploding” offers, coupled with detainees’ desires to quickly escape jail, makes pretrial detention a powerful prosecutorial tool for swiftly securing guilty pleas (Bibas, 2004; McCoy, 2005, 2007). Therefore, some scholars argue that pretrial detention constitutes a form of structural coercion as prosecutors can use pretrial detention decisions that they advocated for at the bail hearing to secure a guilty plea later on in the court process (Cheng, 2012; Euvrard & Leclerc, 2017; Kellough & Wortley, 2002).

Prior Research on Criminal Case Processing

In addition to pretrial detention, several other case characteristics and organizational factors have been linked to court outcomes, including guilty pleas and case processing time. Prior research has found organizational dynamics to be especially predictive of case processing outcomes, making the courtroom workgroup perspective a predominant sentencing theory (Ulmer, 2012). According to this perspective, case processing is influenced by organizational priorities and the resources available to achieve them (Johnson, 2006; Kramer & Ulmer, 2009; Steffensmeier, Ulmer, & Kramer, 1998; Ulmer, 2012; Ulmer & Johnson, 2004). Moreover, local legal cultures and organizational dynamics, particularly norms around “going rates,” help to explain variations in case outcomes. Steffensmeier et al. (1998) theorize that three main “focal concerns” guide the punishment decisions of the courtroom workgroup: defendant’s culpability, community protection, and practical constrains, including caseloads and available jail/prison space. Cross-jurisdictional sentencing studies offer support for this perspective,
finding that caseload pressures and jail/prison capacity shape court outcomes, with each jurisdiction developing its own “going rate” (Johnson, 2006; Kramer & Ulmer, 2009; Ulmer & Johnson, 2004).

Much of the courtroom workgroup research focuses on conviction and sentencing outcomes, paying less attention to case time (Baumer, 2013; Ulmer, 2012). However, the few organizational studies of case processing time find support for the courtroom workgroup perspective (Church, 1982, 1985; Church, Carlson, Lee, & Tan, 1978; Flemming, Nardulli, & Eisenstein, 1987). For example, jurisdictions with higher caseloads process cases slower because of backlogs in the courts, as well as those that devote less organizational attention to celerity (Church et al., 1978; Ostrom & Hanson, 1999). Although some court actors express concerns about jail overcrowding and other unintended consequences that may result from processing too many cases too quickly (Luskin & Luskin, 1986), there are strong organizational and cultural incentives to quickly dispose cases in many jurisdictions (Church et al., 1978; Lara-Millán & Van Cleve, 2017; Luskin & Luskin, 1986; Ostrom & Hanson, 1999; Van Cleve, 2016). In particular, Gonzalez Van Cleve (2016, p. 58) notes that for many prosecutors “efficiency and speed of disposition provide daily evidence of the court professional’s work ethic,” and thus disposition speed serves as a primary prosecutorial performance metric.

The influence of organizational and cultural factors on processing time can also operate through case characteristics, as resources and time may be allocated differently across crime types. For example, cases involving more serious crimes often take longer because court actors treat them more seriously, defense attorneys invoke greater “strategic delays,” and judges allow for a fuller and lengthier adversarial process (Luskin & Luskin, 1986; Ostrom & Hanson, 1999; Petersen & Lynch, 2013). Petersen and Lynch (2013) find that death penalty cases take 54% longer than similarly situated noncapital murder cases because of the complex procedures involved in capital cases. In addition, cases with trial proceedings take significantly longer given their increased complexity (Ostrom & Hanson, 1999), whereas the presence of multiple defendants slows down cases because of scheduling complications and protracted plea bargaining (Luskin & Luskin, 1986; Petersen & Lynch, 2013).

Research Design

Data and Sample

This study employs survival techniques to examine whether pretrial detention speeds up the pace of guilty pleas. Utilizing data on felony defendants in large urban counties between 1990 and 2004 from the SCPS data set and other county-level data sources, we trace defendants through the court process to adjudication. In particular, we use Levin’s (2009) “Pretrial Release of Latino Defendants in the U.S.” database as it combines information from SCPS with a host of county-level variables (e.g., racial-ethnic composition, caseloads, crime rates, jail capacity). SCPS collects data on felony defendants from a sample of the largest counties in the United States, which Levin
Petersen (2009) merged with county-level variables from the National Center for State Courts, National Prosecutors Survey, Annual Survey of Jails, Uniform Crime Reports, and U.S. Census. Thus, the “Pretrial Release of Latino Defendants in the U.S.” database allows us to evaluate the relative influence of case characteristics, defendant demographics, and organizational factors on case processing times. Our analytic sample covers defendants from 65 counties in 25 states with an average population of 2.3 million residents, making results generalizable to large urban counties in the United States (Schlesinger, 2005).

Dependent Variable

Our outcome measure is time-to-plea. This variable combines information on the timing (number of days) and outcome (guilty plea or not) of adjudication into a single measure that can be analyzed within a survival framework. As SCPS does not collect information on the timing of plea offers, we focus on time-to-disposition by combining temporal (number of days from arrest to adjudication) and dispositional (adjudication outcome) information to evaluate whether detainees plead guilty faster. For cases lasting more than 1 year, SCPS codes the number of days from arrest to adjudication as 399. Given that SCPS follows murder cases for 2 years and non-murder cases for 1 year, we also code pending cases as lasting more than 1 year (i.e., 399 days). Although the exact date of adjudication for pending cases is unknown as adjudication occurred after SCPS data collection ended, we know they lasted at least 1 year, and thus we code them as lasting 399 days. In other words, pending cases are considered right-censored with an adjudication time that is unobserved, but is at least 1 year (i.e., 399 days).

Independent Variables

Case characteristics. We control for several case characteristics that may influence time-to-plea, especially pretrial detention. SCPS considers defendants who are in jail until adjudication as “detained,” whereas defendants who are detained pretrial but later released or those who were never detained are coded as “released” (1 = detained until adjudication, 0 = not detained until adjudication). This operationalization is consistent with prior research examining the effects of pretrial detention on case times (Ostrom & Hanson, 1999; Sacks & Ackerman, 2012) and is ideal for our purposes because, to the extent that detainees plead guilty to get out of jail, the effect of pretrial detention should be concentrated among those who are awaiting adjudication in jail. In other words, defendants who are initially detained but later released from jail do not need to plead guilty to escape pretrial detention as they were already free at adjudication.

Although pretrial detention is our main predictor of interest, we adjust for other case characteristics prior research has linked to case processing times and outcomes. Because cases that are more serious may take longer (Ostrom & Hanson, 1999; Petersen & Lynch, 2013; Sacks & Ackerman, 2012), we control for whether multiple
charges were filed (1 = multiple charges, 0 = single charge) and the offense category for the most serious charge (drug, property, violent, or other crimes). In addition, we include fixed effects for the arrest year as there might be annual variations in case processing time (Ostrom & Hanson, 1999; Petersen & Lynch, 2013).

**Defendant demographics.** We also control for defendant demographics. Defendant race and ethnicity were divided into three categories: White, Black, and Hispanic. Similar to Wang and Mears (2010a, 2010b), we excluded “other” racial and ethnic groups as they comprise less than 1% of the sample. Using principal component analysis, a criminal history factor was constructed based on dummy variables for whether the defendant had a prior: felony arrest ($\lambda = 0.81$), felony convictions ($\lambda = 0.89$), jail sentence ($\lambda = 0.74$), and prison sentence ($\lambda = 0.75$). Gender is coded as a dummy variable (1 = male, 0 = female), whereas age is measured continuously.

**Social contextual factors.** Finally, we assess the influence of organizational and demographic factors derived from the courtroom workgroup perspective. To capture caseload pressures and local resources, we include the rate of criminal case filings and spending on prosecutor offices for each county. Because local jail capacity may influence court actors’ decisions (Ostrom & Hanson, 1999; Steffensmeier et al., 1998; Williams, 2016), we measure the percentage of jail capacity used in each jurisdiction. Finally, we control for whether the county is in a southern state (1 = yes/0 = no), local crime rates, and U.S. census population demographics (% Black residents, % Latino residents, and county population). These county social contextual factors were log transformed to reduce skewness in their distributions.

**Analytic Technique**

To assess the relationship between pretrial detention and time-to-plea, we estimated a survival model. We utilize a Cox proportional hazard model, rather than an OLS regression, to account for the presence of censoring and non-normality typically found in survival data like ours (Box-Steffensmeier & Jones, 2004; Cleves, Gould, Gutierrez, & Marchenko, 2016). Cases resulting in a guilty plea during the period of analysis were coded as “failures,” whereas dismissals were coded as “non-failures” and pending cases were treated as right-censored. Cases resulting in a trial were excluded from our analytic sample because the criminal justice system is primarily a system of guilty pleas (Bibas, 2004, 2012; Lynch, 2016; McCoy, 2005, 2007), with trials constituting less than 5% of our sample. Roughly 95% of the millions of felony cases prosecuted each year in the United States are resolved through a guilty plea (Bureau of Justice Statistics, 2010), and thus “plea bargaining is sentencing” (Caleb, n.d., as cited McCoy, 2007), making it “the name of the game” when studying criminal justice (Bibas, 2012, p. xvi). Because we exclude trials, our dependent variable therefore combines information about the likelihood and timing of pleading guilty into one measure—the hazard rate of pleading guilty—representing the probability that a defendant will plead guilty at a particular time given that they have not already pled guilty.
Like most criminal justice data sets, SCPS suffers from missing data. We adjust for missing data using chained multiple imputation in Stata (average missingness for imputed variables = 7.4 %). Ten multiply-imputed data sets were constructed using the following variables as predictors in the imputation model: time-to-adjudication, crime type, multiple charges, defendant gender, year of arrest, southern county, county racial–ethnic composition and population, county crime rate, and county caseload rate. Imputation was not possible for 4% of the cases because of missing data on these measures or our dependent variable. These observations were dropped from the analysis as excluding such a small proportion of the cases is unlikely to bias model estimates (Acock, 2013).

The analysis proceeds as follows. First, we present summary statistics for our data, including the unadjusted incident rate of pleading guilty (Table 1). Next, we estimated a survival model predicting the hazard rate of pleading guilty (Table 2) and plot adjusted survival times by pretrial detention status to visualize this key hypothesized relationship (Figure 1). In all of these analyses, standard errors were clustered at the county level to adjust for the nesting of defendants within counties. Variance inflation factors from an OLS regression predicting time-to-adjudication were below 3, indicating that multicollinearity was not an issue (Acock, 2013). Results are presented as hazard ratios where values larger than 1 imply an increasing hazard rate (i.e., decreasing survival time), and hazard ratios less than 1 indicate a decreasing hazard rate (i.e., increasing survival time; Box-Steffensmeier & Jones, 2004; Cleves et al., 2016). We interpret hazard ratios for categorical variables as percentage changes using the following formula: $(e^{\beta[x_1]} - e^{\beta[x_2]}/e^{\beta[x_2]})*100)$. For log-transformed predictors, the hazard rate is interpreted as a $(1 - \beta)*100$ percentage change for every $e^{\beta[x_1]}$ increase in $x_1$.

**Results**

**Summary Statistics**

Table 1 displays means and standard deviations for our predictor variables, as well as the incident rate for our dependent variable. We present the incident rate of pleading guilty, rather than the mean, because doing so better describes survival outcomes that are non-normal or censored (Cleves et al., 2016). The incident rate is 0.004, meaning that the rate of pleading guilty is 0.004 per person days. Tuning to our key predictor, slightly more than one third of defendants are detained pretrial (37%). In terms of criminal history, 59% of defendants have a prior felony arrest, 40% have a prior felony conviction, 21% have been imprisoned previously, and 41% have been jailed previously. Typically defendants are charged with multiple offenses (56%), the most serious charge being related to drugs (35%), or a property crime (31%). Most defendants are Black (37%) males (83%) in their mid-30s ($M = 30$). On average, counties in the data set have a population of about 2.3 million residents (9% of whom are Black and 6% of whom are Latino), a crime rate of 0.06, a caseload rate of 0.001, jails that are at 101% capacity, and spend US$20 per resident on prosecution.
Table 1. Summary Statistics for Felony Defendants in Large Urban Jurisdictions 1990 to 2004.

<table>
<thead>
<tr>
<th></th>
<th>M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unadjusted incident rate</td>
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<tr>
<td>Time-to-plea</td>
<td>0.0043</td>
</tr>
<tr>
<td>Case characteristics</td>
<td></td>
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<tr>
<td>Pretrial detained</td>
<td>0.3724 (0.4835)</td>
</tr>
<tr>
<td>Multiple arrest charges</td>
<td>0.5610 (0.4963)</td>
</tr>
<tr>
<td>Prior felony arrest</td>
<td>0.5910 (0.4917)</td>
</tr>
<tr>
<td>Prior felony conviction</td>
<td>0.3959 (0.4890)</td>
</tr>
<tr>
<td>Prior prison incarceration</td>
<td>0.2143 (0.4103)</td>
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<tr>
<td>Prior jail incarceration</td>
<td>0.4079 (0.4914)</td>
</tr>
<tr>
<td>Violent crime</td>
<td>0.2444 (0.4298)</td>
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<tr>
<td>Property crime</td>
<td>0.3139 (0.4641)</td>
</tr>
<tr>
<td>Drug crime</td>
<td>0.3536 (0.4781)</td>
</tr>
<tr>
<td>Public order crime</td>
<td>0.0880 (0.2834)</td>
</tr>
<tr>
<td>Year 1990</td>
<td>0.1120 (0.3154)</td>
</tr>
<tr>
<td>Year 1992</td>
<td>0.1100 (0.3129)</td>
</tr>
<tr>
<td>Year 1994</td>
<td>0.1221 (0.3274)</td>
</tr>
<tr>
<td>Year 1996</td>
<td>0.1296 (0.3359)</td>
</tr>
<tr>
<td>Year 1998</td>
<td>0.1360 (0.3428)</td>
</tr>
<tr>
<td>Year 2000</td>
<td>0.1256 (0.3314)</td>
</tr>
<tr>
<td>Year 2002</td>
<td>0.1296 (0.3359)</td>
</tr>
<tr>
<td>Year 2004</td>
<td>0.1350 (0.3418)</td>
</tr>
<tr>
<td>Defendant demographics</td>
<td></td>
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<tr>
<td>Age</td>
<td>30.0249 (9.9917)</td>
</tr>
<tr>
<td>Male</td>
<td>0.8294 (0.3762)</td>
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<tr>
<td>Black</td>
<td>0.3704 (0.4829)</td>
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<tr>
<td>Hispanic</td>
<td>0.2211 (0.4150)</td>
</tr>
<tr>
<td>White</td>
<td>0.2386 (0.4262)</td>
</tr>
<tr>
<td>Social contextual factors</td>
<td></td>
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<tr>
<td>Case rate</td>
<td>0.0012 (0.0008)</td>
</tr>
<tr>
<td>% jail capacity used</td>
<td>101.9566 (22.0885)</td>
</tr>
<tr>
<td>Per capita prosecutor expenditure</td>
<td>20.3172 (22.2847)</td>
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<tr>
<td>Crime rate</td>
<td>0.0664 (0.0372)</td>
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<tr>
<td>% Black</td>
<td>0.0924 (0.1487)</td>
</tr>
<tr>
<td>% Latino</td>
<td>0.0685 (0.1482)</td>
</tr>
<tr>
<td>Population</td>
<td>2,337,145.7932 (2,427,800.4370)</td>
</tr>
<tr>
<td>South</td>
<td>0.2445 (0.4298)</td>
</tr>
</tbody>
</table>

Note. First multiply imputed sample.

Cox Proportional Hazard Regression

Table 2, which displays Cox proportional hazard estimates, offers strong support for our hypothesis that detainees plead guilty faster. Net of other factors, detainees plead
guilty 2.86 times faster than defendants released pretrial do. Figure 1 plots adjusted survival times by detention status, revealing a sharp decline in the survival time of detainees. These patterns are consistent with the limited prior quantitative (Ostrom & Hanson, 1999; Sacks & Ackerman, 2012) and qualitative research (Cheng, 2012; Euvrard & Leclerc, 2017; Kellough & Wortley, 2002; Pelvin, 2017; Rabinowitz, 2010) on plea bargaining and case processing time.

Other case factors and defendant demographics matter as well. In line with previous research on court processing time, cases involving more serious crimes, particularly violence, take longer (Ostrom & Hanson, 1999; Petersen & Lynch, 2013; Sacks & Ackerman, 2012). However, the presence of multiple charges and criminal history do not predict the time-to-plea. Gender is the only demographic predictor that influences the time-to-plea, with male defendants taking 11% longer to plead guilty.

Consistent with prior research on the courtroom workgroup, several social contextual factors predict the time-to-plea. As the case rate increases by 2.7 times (i.e., a

Table 2. Cox Proportional Hazard Regression Predicting Time-to-Plea.

<table>
<thead>
<tr>
<th>Model Number</th>
<th>HR (SE)</th>
</tr>
</thead>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Case characterisitics</td>
<td></td>
</tr>
<tr>
<td>Pretrial detained</td>
<td>2.86*** (0.11)</td>
</tr>
<tr>
<td>Multiple arrest charges</td>
<td>0.98 (0.04)</td>
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<tr>
<td>Criminal history factor score</td>
<td>0.99 (0.01)</td>
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<tr>
<td>Property crime</td>
<td>1.85*** (0.06)</td>
</tr>
<tr>
<td>Drug crime</td>
<td>1.74*** (0.08)</td>
</tr>
<tr>
<td>Public order crime</td>
<td>1.84*** (0.08)</td>
</tr>
<tr>
<td>Defendant demographics</td>
<td></td>
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<tr>
<td>Age</td>
<td>1.00 (0.00)</td>
</tr>
<tr>
<td>Male</td>
<td>0.88*** (0.02)</td>
</tr>
<tr>
<td>Black</td>
<td>0.96 (0.03)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>1.02 (0.03)</td>
</tr>
<tr>
<td>Social contextual factors</td>
<td></td>
</tr>
<tr>
<td>Log case rate</td>
<td>0.84* (0.07)</td>
</tr>
<tr>
<td>Log % jail capacity used</td>
<td>0.62*** (0.08)</td>
</tr>
<tr>
<td>Log per capita prosecutor expenditure</td>
<td>1.11* (0.05)</td>
</tr>
<tr>
<td>Log crime rate</td>
<td>1.14 (0.09)</td>
</tr>
<tr>
<td>Log percent Black</td>
<td>0.84** (0.05)</td>
</tr>
<tr>
<td>Log percent Latino</td>
<td>1.04 (0.05)</td>
</tr>
<tr>
<td>Log population</td>
<td>1.04 (0.06)</td>
</tr>
<tr>
<td>South</td>
<td>0.83 (0.09)</td>
</tr>
<tr>
<td>Observations</td>
<td>107,497</td>
</tr>
</tbody>
</table>

Note. Standard errors clustered by county in parentheses. Multiply imputed sample. Reference groups = released pretrial, violent offense charge, female defendant, White defendant, county in non-southern state. Annual fixed effects included, but not shown here. HR = hazard ratio. *p < .05. **p < .01. ***p < .001.
one-unit increase on the natural log scale of 2.7), the hazard rate decreases by 16%, and the hazard rate decreases by 38% as jail capacity increases by 2.7 times. In contrast, as per capita prosecutor spending increases by 2.7 times, the hazard rate increases by 11%. These findings speak to the importance of caseload pressures and organizational resources, indicating that counties with higher caseloads and fewer local resources process defendants through the courts at a slower rate. Finally, defendants in counties with a larger Black population have a slower rate of pleading guilty. In particular, as the percentage of Black residents in the county increases by 2.7 times, the hazard rate decreases by 16%.

**Discussion**

Despite a wealth of quantitative research linking pretrial detention to increased conviction rates, most studies utilize binary detention and conviction measures, ignoring the timing of these outcomes. Drawing from the few qualitative studies on the topic, we hypothesized that a variety of factors will lead pretrial detainees to quickly plead guilty, including poor confinement conditions, desires to avoid “dead time” or move on with their lives, and prosecutorial pressures like “exploding” plea deals (Cheng, 2012; Euvrard & Leclerc, 2017; Kellough & Wortley, 2002; Pelvin, 2017; Rabinowitz, 2010). Results support this general prediction, indicating that detainees plead guilty 2.86 times faster than those released pretrial, net of other factors. In addition, we hypothesized that organizational factors would matter too given prior research on the
courtroom workgroup perspective. Estimates largely confirm this expectation, as cases in counties characterized by higher caseloads, fewer prosecutorial resources, and less jail capacity take significantly longer to reach adjudication.

For many detainees, the pains of pretrial detention lead them plead guilty. Given that locally funded jails typically have fewer resources than state funded prisons (James & Glaze, 2006; Pelvin, 2017), and most of the counties in our sample are at or over capacity, confinement conditions likely play a role in accelerating detainees’ guilty pleas. Detainees may also plead guilty to blunt the economic and familial impacts of pretrial detention (Pelvin, 2017; Rabinowitz, 2010), particularly for non-violent defendants whom are facing less severe sanctions (Pelvin, 2017). Moreover, uncertainty about the length of pretrial detention and prosecutorial pressures to accept “exploding” pleas likely exacerbate these concerns (Daftary-Kapur & Zottoli, 2014; Edkins & Dervan, 2018; Pelvin, 2017; Rabinowitz, 2010; Zottoli et al., 2016), activating temporal discounting logics (Daftary-Kapur & Zottoli, 2014; Edkins & Dervan, 2018). Taken together, these factors produce a perfect storm for guilty pleas among detainees, compelling them to cut a quick deal with prosecutors.

An alternative explanation for the pretrial detention effect is that prosecutors prioritize detainees’ cases out of concerns about jailing defendants or conserving local jail resources (Ostrom & Hanson, 1999). In other words, detainees may plead guilty at an accelerated rate because prosecutors focus more attention on their cases, not because they want to escape jail or are pressured to do so. However, we find this explanation lacking in several regards. Prior research suggests that prosecutors place great value on the certainty and celerity of case outcomes, as their performance is often evaluated on the rate at which they can secure convictions (Albonetti & Hepburn, 1996; Lara-Millán & Van Cleve, 2017; Van Cleve, 2016). Pretrial detention is a powerful tool for achieving these objectives as detainees often feel like they have no choice but to quickly plead guilty (Euvrard & Leclerc, 2017; Kellough & Wortley, 2002; Pelvin, 2017; Sacks & Ackerman, 2012). If prosecutors were concerned about jailing innocent defendants or conserving scarce jail beds, they could more effectively avoid such situations by advocating for pretrial release instead. Because prosecutors can advocate for pretrial detention and then use it as a prosecutorial hammer in plea negotiations, it represents a form of structural coercion (Cheng, 2012; Euvrard & Leclerc, 2017; Kellough & Wortley, 2002). In other words, it seems unlikely that faster guilty pleas among detainees reflect increased prosecutorial attention or concern as these defendants were detained based on prosecutorial bail recommendations.

Although pretrial detention is a strong predictor of processing time, a number of other case characteristics and defendant demographics influence the timing of guilty pleas. Consistent with prior research, cases involving more serious offenses take longer to reach resolution, which may reflect case complexity or increased public scrutiny (Luskin & Luskin, 1986; Ostrom & Hanson, 1999; Petersen & Lynch, 2013). In contrast, defendant demographics have little influence, with gender being the only significant demographic predictor. Thus, structural factors associated with the cases themselves seem to play a larger role in case processing dynamics than the demographic profile of the actual defendants in those cases.
We also find support for the courtroom workgroup perspective. In line with prior work on the timing and likelihood of court outcomes, we find that jurisdictional variation in the timing of guilty pleas is partially dependent upon local caseloads and available resources (Church, 1982, 1985; Church et al., 1978; Flemming et al., 1987; Johnson, 2006; Kramer & Ulmer, 2009; Steffensmeier et al., 1998; Ulmer & Johnson, 2004). These patterns may stem from shared understandings about “going rates” among members of the courtroom workgroup, as well as their available resources to achieve them. While much of the recent research on the organizational context of criminal courts focuses on sentencing decisions (Ulmer, 2012), our findings indicate that similar arguments can be made with respect to case length.

Because court actors operate within the bounds of their localized political and social context (Luskin & Luskin, 1986; Steffensmeier et al., 1998; Ulmer, 2012), the negative effect of jail capacity on case time might reflect the institutionalization of concerns about local jail resources (Williams, 2016). In other words, officials from jurisdictions with jail overcrowding may be less willing to convict defendants to conserve scarce resources, or may be more deliberative when accepting guilty pleas, thereby decreasing the pace of guilty pleas in these areas. In addition, the fact that counties with better-funded prosecutor offices process cases quicker indicates that the amount of monetary support given to members of the courtroom workgroup affects case processing dynamics. Finally, the negative relationship between the Black population and case processing was unexpected, but could reflect increased levels of legal cynicism in areas with a larger Black population. Given that Black Americans generally have less confidence in the criminal justice system (Brunson & Miller, 2006; Brunson & Weitzer, 2009), jurisdictions with larger Black populations might exhibit higher levels of legal cynicism. In this context, defendants may exhibit greater legal cynicism, which, in turn, could translate into lengthier plea negotiations.

Although this study examines the influence of pretrial detention on the timing of guilty pleas, it also sheds light on more general case processing dynamics. Despite advances in electronic court record keeping, plea bargaining largely remains a “black box” because of difficulties associated with collecting fine-grain information on plea negotiations such as charge versus sentence reductions, prosecutorial pressure tactics, and defense strategies (Kutateladze, Lynn, & Liang, 2012; Kutateladze, Andiloro, & Johnson, 2016). Because nearly all cases that result in a conviction stem from a guilty plea and many publicly available data sets have information about case dates, examining the timing of guilty pleas is one way to better understand plea bargaining processes (Sacks & Ackerman, 2012). In other words, heterogeneities in conviction patterns are obscured when researchers only look at the mode of disposition as most defendants plead guilty, whereas the timing of pleas offers additional insights about how these decisions unfold.

**Legal and Policy Implications**

Although we cannot evaluate the veracity of the pleas in our sample, research indicating that as many as 20% of defendants self-reportedly enter into erroneous guilty pleas
(Daftary-Kapur & Zottoli, 2014; Zottoli et al., 2016) suggests that at least some of detainees were innocent but pled guilty to escape pretrial detention. Time pressures and temporal discounting likely exacerbate the potential for erroneous pleas. Given that individuals’ decision-making abilities are generally subject to temporal discounting (Daftary-Kapur & Zottoli, 2014; Edkins & Dervan, 2018) and are compromised under time pressures (Starcke & Brand, 2012), it is not surprising that psychologists have linked time pressures to coercive plea deals (Redlich, Bibas, Edkins, & Madon, 2017; Redlich & Shteynberg, 2016; Redlich & Summers, 2012). Thus, the fast-paced nature of detainees’ pleas might translate into elevated wrongful conviction rates among this group. Moreover, the fact that detainees forfeit their rights to a lengthier plea bargaining process at higher rates raises concerns about the fairness of these plea deals (Boruchowitz, Brink, & Dimino, 2009; Kohler-Hausmann, 2018; National Association of Criminal Defense Lawyers, 2011). Although scholars have documented the potential moral and legal issues associated with the forfeiture of defendants’ trial rights to avoid a “trial penalty” (Bibas, 2004, 2012), less attention has been devoted to the timing of these dynamics. Our findings suggest that detainees’ expeditious pleas not only raise concerns about trial rights but also about their rights to a lengthier legal process. To the extent that detainees quickly plead guilty to get out of jail, they may sacrifice their rights to more robust court proceedings.

For counties considering bail reforms and other efforts to improve the fairness and efficiency of felony case processing, this study also offers insights about potential remedies. The importance of local resources for case timing in our sample suggests that jurisdictions concerned about court backlogs could reduce jail overcrowding and caseloads while increasing the availability of resources to prosecutors and other members of the courtroom workgroup. Thus, decreased reliance on pretrial detention might help increase case processing efficiency and temper the pains of detention for those jailed at the pretrial or post-conviction stages by reducing jail overcrowding and increasing prosecutorial resources. In other words, any cost savings associated with decreased pretrial detention rates could be reallocated to members of the courtroom workgroup to help reduce court backlogs. Such reform efforts should, of course, be balanced against defendant’s constitutional rights to ensure that increased efficiency does not increase wrongful conviction rates or force defendants who want lengthier plea negotiations to waive these rights (McCoy, 2005).

These policy implications are consistent with the courtroom workgroup literature. Although numerous studies have examined the influence of caseload pressures and jail/prison on sentencing outcomes (e.g., Johnson, 2006; Kramer & Ulmer, 2009; Ulmer & Johnson, 2004), relatively little work has been done linking these organizational factors to case processing time. Therefore, our analysis extends workgroup sentencing studies to case time, addressing Sacks and Ackerman’s (2012) call for research in this area to “incorporate measures of the courtroom culture and organization as these factors play a role in timing of case dispositions” (p. 276). In doing so, we highlight the relevance of organizational dynamics for the study of case processing time and uncover potential areas for policy reform such as adjustments to jail capacity, caseloads, and prosecutorial spending.
**Shortcomings and Future Directions**

As SCPS focuses on felony cases, we do not know whether similar processes occur in other low-level cases. This is an important omission because the effects of pretrial detention may be exaggerated in misdemeanor cases due to the greater imbalance between the pains of detention and post-conviction sanctions, potentially producing higher plea rates (Heaton, Mayson, & Stevenson, 2017; Kellough & Wortley, 2002; Sacks & Ackerman, 2012). The data are also limited to cases in large urban jurisdictions. While inclusion of large counties in SCPS data makes our findings generalizable to more urbanized criminal justice systems (Schlesinger, 2005), it is unclear whether these results apply to rural settings that have seen an increase in their jail populations over the past several decades (Hyperakt, 2017).

In addition, SCPS lacks more fine-grain information about pretrial detention and plea negotiations. Although guilty pleas generally occur at arraignment, we cannot tell whether some plea offers were given before or after that date as SCPS collects data on the disposition date, rather than the plea offer date (Bibas, 2004; Bureau of Justice Statistics, 2019). Despite this lack of information, we argue that the disposition date offers a unique window into the relationship between pretrial detention and guilty pleas because, to the extent that detainees’ bail status leads them to plead guilty, our time-to-plea measure captures these dynamics. The lack of qualitative data on plea negotiations also shapes our interpretation of regression results. Although our findings are consistent with theorized explanations of accelerated guilty pleas among detainees, we cannot say for sure which factors have the greatest impact on case processing time and why (e.g., poor confinement conditions, “dead time,” prosecutorial pressures). We suspect that these factors work in tandem with one another to speed up guilty pleas, as prior research indicates that detainees plead guilty quicker for many reasons, which are often compounding (Euvrard & Leclerc, 2017; Kellough & Wortley, 2002; Pelvin, 2017; Rabinowitz, 2010). Given that quantitative methods are generally less equipped to explain why patterns exist (Abbott, 2004), additional qualitative research is needed on the topic to further elucidate why detainees plead guilty quicker.

**Conclusion**

Despite these shortcomings, the current study adds to the growing literature on the effects of pretrial detention by highlighting its impact on the timing of guilty pleas. Results indicate that detainees plead guilty quicker net of other factors, suggesting that some defendants plead guilty to escape pretrial detention. In addition, our results highlighting the importance of organizational factors speak to the utility of the courtroom workgroup perspective for understanding variations in case processing time. As jurisdictions continue to debate the utility of pretrial detention, this study offers novel insights about the potential consequences of pretrial detention and the effect of local resources on case processing dynamics.
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ORCID iD

Nick Petersen https://orcid.org/0000-0002-3097-2885

Supplemental Material

Supplemental material for this article is available online.

Notes

1. For example, Florida law indicates that officials “shall allow a defendant” to receive time served credit where applicable but does not indicate that they “must” do so (Florida Legislature, 2001). Although we do not know whether defendants have knowledge about these legal ambiguities, defense attorneys often strategically advise clients about how their bail status might affect plea negotiations (Euvrard & Leclerc, 2017), and thus it is likely that attorneys also inform defendants about these dynamics.

2. The sample includes counties from all regions of the country (e.g., West, Midwest, South, and Northeast), and in particular from the following states: AL, AZ, CA, CT, DC, FL, GA, HI, IL, IN, KY, MA, MD, MI, MO, NJ, NY, OH, PA, TN, TX, UT, VA, WA, and WI.

3. Pending cases represent roughly 13% of our sample. Our substantive conclusion regarding the effect of pretrial detention is similar when we exclude these pending cases, and thus we include them in Model 1 to increase our sample size (see Model 2 in Supplemental Appendix).

4. While roughly 13% of SCPS cases are pending, survival models are designed to deal with this type of censoring (Box-Steffensmeier & Jones, 2004; Cleves, Gould, Gutierrez, & Marchenko, 2016). As Box-Steffensmeier and Jones (2004) note, “Right-censoring is commonly observed in event history data sets. Typically, we encounter right-censoring because the time-frame of a study or observation plan concludes prior to the completion or termination of survival times. The ubiquity of right-censoring in social science data sets provides a strong motivation for event history models” (p. 16).

5. Given that trials occur in less than 5% of SCPS cases, focusing on guilty pleas ensures that our results speak to the modal form of adjudication in felony cases (Bibas, 2004, 2012; Lynch, 2016; McCoy, 2005, 2007). Moreover, our substantive results with regard to pretrial detention are similar when trials are included in the analysis, suggesting they have little influence on the conclusions we reach (see Model 3 in Supplemental Appendix).

6. While time-to-adjudication was missing in 2.4% of the cases, we were unable to impute missing data for these cases as Stata does not permit survival analyses where the dependent variable is multiply imputed (StataCorp, 2015). Another 1.5% of cases used as predictors in the imputation equation were missing data themselves and thus could not be multiply imputed, bringing the total number of missing cases to 4%.


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**Author Biography**

**Nick Petersen** is an assistant professor of sociology at the University of Miami. He holds a PhD from the University of California—Irvine in Criminology, Law & Society. His research focuses on criminal court processing and racial-ethnic stratification within criminal justice institutions.