Publicly Contracted Private Counsel: Defense Attorney Quality, Pay, and Defendant Outcomes

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Abstract

Governments increasingly outsource public services to private actors, but these contracted workers often face a "public-work pay disparity," earning less for their public service work than work in the private market. This paper focuses on the public provision of defense counsel outsourced to private attorneys and explores two main questions: How does the quality of publicly contracted defense attorneys impact case outcomes? And, how do changes in pay influence the composition and performance of these attorneys? Using administrative data from North Carolina and the quasi-random assignment of attorneys to cases, I estimate the quality of private attorneys providing public defense. The results reveal significant variation in attorney quality as measured by the likelihood of case dismissal, incarceration, probation, and pleading guilty. I find that a one SD increase in attorney quality raises the likelihood of case dismissal by 5.5% and reduces the likelihood of incarceration by 6.5% for felony cases. A statewide hourly pay reduction led to adverse outcomes for defendants, comparable to a 1 SD decrease in attorney quality. The adverse effects are driven by lower attorney performance and a shift in the pool of contracted attorneys toward lower-quality attorneys. My results raise concerns about equity for low-income defendants and that the lack of financial resources may exacerbate broader social and economic inequalities.

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The government's capacity to deliver public goods and services, address externalities, and protect citizens' rights depends on the effectiveness of those performing government functions. In recent years, the US and many OECD countries have seen a declining share of public services provided by public-sector workers as governments increasingly outsource these functions to private actors (The Council of State Governments, 2003; OECD, 2023).[1] However, publicly contracted workers often earn less for outsourced public service work than they would for the same work in the private market.[2] This public-work pay disparity poses challenges for attracting and retaining high-quality publicly contracted workers, especially for state and local governments. Moreover, it affects the production of effective government and may negatively impact the individuals and communities most dependent on public services.

These challenges may be most evident in the public provision of defense counsel. The 1963 landmark case *Gideon v. Wainwright* established the right to legal representation and required states to provide public counsel to low-income individuals in criminal cases (i.e., indigent defense counsel). Indigent defense services have become a vital public service, with nearly 80% of all criminal defendants relying on public counsel because they lack the financial resources to hire a private defense attorney (Harlow, 2000). The high demand for public attorneys has led governments to rely on private attorneys to represent low-income defendants on a case-by-case basis. However, the significant pay gap between public and private defense work has made it challenging for states to attract an adequate number of attorneys. It has also raised concerns that only lower-quality private attorneys are willing to provide public counsel. Understanding how publicly contracted private attorneys influence case outcomes for low-income defendants and how these attorneys

[1] Figure A.1 shows the increasing share of US expenditures devoted to outsourced public goods and services provided by private suppliers between 1970-2020.

[2] This disparity is part of the broader conversation about compensation for public services workers. In 2024, the Federal Salary Council estimated a 28% pay disparity between government and private sector workers (Federal Salary Council, 2024). The Economic Policy Institute recently reported that the public-sector pay disparity has widened since the COVID-19 pandemic (Morrissey and Sherer, 2024) Gittleman and Pierce (2012) highlight that the size of this disparity is sensitive to the inclusion of fringe benefits and the choice of controls in the analysis.

respond to economic incentives is crucial for improving the provision of public defense counsel.

In this paper, I examine how the quality and compensation of publicly contracted private attorneys affect the outcomes of criminal cases using administrative data on criminal court cases in North Carolina from 2007-2016. I analyze how the quality of defense attorneys affects case outcomes by leveraging the quasi-random assignment of attorneys to defendants. Although defense attorneys are defendants' sole advocates in the court system, relatively little research has focused on how defense attorneys influence case outcomes, with most research focusing on the role of other court actors such as judges or prosecutors. This lack of research on defense attorneys stems from potential issues with the endogenous sorting of defendants to attorneys. In North Carolina, most counties provide public counsel using the court-appointed attorney system. In these counties, private attorneys are contracted to represent either misdemeanor, lower-level felony, or higher-level felony cases for low-income defendants.[3] Court-appointed attorneys are assigned to low-income defendant cases following a standard rotational procedure, creating randomness in case assignment. The randomness in the assignment overcomes issues with endogenous sorting and allows for the construction of attorney quality measures. Using value-added methods and a Bayesian shrinkage estimator, I estimate measures of attorney quality using the likelihood of case dismissal, incarceration, probation, and pleading guilty.[4]

I find substantial differences in the quality of private attorneys providing public defense. For felony cases, the main estimates reveal that a defendant assigned a higher-quality attorney in the 90th percentile is 6 percentage points more likely to have their case dismissed than a defendant assigned a lower-quality attorney in the 10th percentile. Similar comparisons using quality measures constructed from the likelihood of incarceration

[3]While the implementation of this system differs by state, the court-appointed system is used as either the predominant or auxiliary indigent defense system by 30 US states (Beeman and Buetow, 2023).

[4]Examples of value-added methods and Bayesian shrinkage estimators include Rockoff (2004); Jacob, Lefgren and Sims (2010); Chetty, Friedman and Rockoff (2014); Petek and Pope (2023)

and probation show that defendants assigned a higher-quality attorney are 4 percentage points less likely to be incarcerated and 8 percentage points less likely to receive probation than those assigned a lower-quality attorney. Unsurprisingly, since nearly all cases end in a plea deal, defendants assigned a higher-quality attorney are 8 percentage points more likely to plead guilty than defendants assigned a low-quality attorney. The estimates for misdemeanor cases show similarly significant differences across attorneys.

These results highlight defense attorneys' substantial role in influencing case outcomes and reveal significant variation in quality among court-appointed attorneys. My results show that the gap in case outcomes between the 90th and 10th percentile court-appointed attorneys is as large as the case outcome disparity between defendants represented by private versus court-appointed attorneys, as estimated by Agan, Freedman and Owens (2021). Compared to the judge effect on incarceration, my estimates reveal a smaller difference between high and low-quality attorneys in incarceration outcomes for felony cases than high- and low-propensity judges, potentially suggesting that judicial discretion may have a more significant impact on the likelihood of incarceration than attorney quality. Overall, my results highlight defense attorneys' important role in obtaining favorable outcomes for defendants.

To understand how compensation affects case outcomes, I use an unanticipated 2011 North Carolina funding change that decreased the hourly compensation for court-appointed attorneys. Specifically, the pay decrease reduced the hourly compensation for court-appointed attorneys by 27% for misdemeanors, 20% for lower-level felonies, and 7% for higher-level felonies. At the same time, the pay decrease did not affect the salaried public defenders employed by the state to represent low-income defendants. Using the change in hourly pay for court-appointed attorneys, I implement a difference-in-differences strategy that compares case outcomes for court-appointed attorneys to those of public defenders. The main difference-in-differences estimates reveal that the 2011 pay reduction negatively affected case outcomes, particularly for misdemeanor cases; the likelihood

of dismissal decreased by 5 percentage points for misdemeanor cases assigned a court-appointed attorney. Additionally, the likelihood of incarceration and pleading guilty increased by 4 percentage points and 6 percentage points after the pay decrease.

The results of the pay change highlight how reducing economic incentives for contracted private attorneys leads to a decline in the quality of public defense provided to low-income defendants. The overall decrease in case outcomes after the pay decrease is comparable to a 0.75 SD decrease in attorney quality, measured by the likelihood of case dismissal. Additional analysis reveals that the adverse effects on case outcomes result from changes in attorney performance for attorneys who remain contracted and a shift in the composition of attorneys registering for indigent defense services towards lower-quality attorneys. Specifically, defendants assigned attorneys in their first year as court-appointed attorneys after the pay decrease had worse case outcomes than defendants assigned attorneys in their first year before the reduction.

I also find no evidence of heterogeneous effects by caseload or attorney experience, suggesting that the adverse effects concentrated among lower-quality new entrants are not attributable to factors such as limited experience or increased caseloads. Moreover, back-of-the-envelope calculations suggest that the short- and long-run increases in incarceration costs are nearly double the cost savings from decreased hourly pay for court-appointed attorneys. More generally, the results highlight how the quality and compensation of publicly contracted workers can significantly influence the outcomes for the individuals and communities that depend on their services.

Broadly, this paper adds to the literature on worker quality and skill in public-sector work. Previous studies consider the magnitude and role of the public-sector pay gap and how it affects public-sector worker quality (Krueger, 1988; Gittleman and Pierce, 2012; Schanzenbach, 2015), the importance of the individuals who perform government functions (Finan, Olken and Pande, 2017), and the role of financial incentives on the performance and quality of workers providing public services (Mas, 2006; Dal Bo, Finan and

Rossi, 2013; De Ree et al., 2018). I contribute to this literature by examining how changes in the pay for public-sector work affect the quality of public services.

This study also adds to the literature on whether governments should provide public services in-house or outsource them to private actors. Early research explores the theoretical framework of outsourcing public services, analyzing its implications for the quality and cost of public service provision (Hart, Shleifer and Vishny, 1997). Examples of outsourced public services and how they compare to in-house public services include education (Abdulkadiroğlu, Pathak and Walters, 2018), prisons (Mukherjee, 2021), juvenile correctional facilities (Bayer and Pozen, 2005), and employment services (Bennmarker, Grönqvist and Öckert, 2013). I contribute to this literature by focusing on how the quality and pay of contracted private actors affect the quality of public services. My results demonstrate that financial resources influence these private actors' quality, suggesting that increasing the compensation for contracted workers would enhance the overall quality of outsourced public services.

I also add to the growing literature on how court actors influence criminal and case outcomes. Much of this literature has focused on judges (Green and Winik, 2010; Loeffler, 2013; Alzer and Doyle, 2015; Mueller-Smith, 2015; Leslie and Pope, 2017; Bhuller et al., 2018; Dobbie et al., 2018; Bhuller et al., 2020; Nesbit, 2023). Recent work has expanded this literature to include prosecutors (Yang, 2015; Mueller-Smith, 2015; Didwania, 2022; Agan, Doleac and Harvey, 2023) and the jury (Anwar, Bayer and Hjalmarsson, 2012, 2022). This paper directly contributes to the growing literature on the role of defense counsel. Previous work has focused on disparities in case outcomes between public defenders and court-appointed attorneys, linking this literature to the broader literature on whether public services should be delivered in-house by the government or outsourced. Anderson and Heaton (2012) investigate case outcomes for indigent murder defendants in Philadelphia and show that defendants assigned a public defender have more favorable case outcomes. Roach (2014) also finds that cases assigned to pub-

lic defendants have better outcomes than cases assigned to court-appointed attorneys. Shem-Tov (2022) employs a novel research design by comparing cases with multiple defendants, each randomly assigned either a public defender or a court-appointed attorney, and confirms that defendants assigned public defenders experience more favorable case outcomes. Agan, Freedman and Owens (2021) investigates whether attorneys with private practices achieve better outcomes when retained by defendants compared to when they are assigned to indigent cases, finding that defendants who hire these attorneys experience more favorable case outcomes.

My paper's setting is similar to work done by Abrams and Yoon (2007), who exploit the random assignment of cases to 76 public defenders in Las Vegas to estimate differences in attorney quality for public defenders. My results complement the results from Abrams and Yoon by providing estimates for court-appointed attorneys. However, the impact of court-appointed attorneys on case outcomes may differ from public defenders for several reasons. Court-appointed attorneys often receive less consistent training and oversight, potentially resulting in more significant variability in attorney quality. Additionally, differences in compensation structures may influence the types of attorneys who choose to become public defenders or court-appointed attorneys. These distinctions suggest that the differences in attorney quality observed among court-appointed attorneys could differ from those seen among public defenders. Moreover, my measures of attorney quality are free from potential bias introduced by prosecutorial discretion. In many jurisdictions, prosecutors control which criminal cases are brought to court, influencing the cases assigned to attorneys. In North Carolina, however, the police serve as the charging agency, broadening the pool of cases assigned to attorneys. This structure ensures that case assignments are not biased by prosecutorial discretion, allowing for a more accurate assessment of attorney quality.

More generally, this paper adds to the literature on the influence of court actors on criminal and case outcomes by focusing on court-appointed attorneys. Understanding

the quality of court-appointed attorneys is particularly important, as over 30 jurisdictions rely on this system due to perceived cost savings and its flexibility in accommodating fluctuating demands for defense counsel (Beeman and Buetow, 2023). Moreover, even jurisdictions with public defenders often use court-appointed attorneys to manage cases where the public defender's office faces conflicts of interest, such as in cases with multiple defendants.

Lastly, I contribute to the literature examining how court-appointed attorneys' compensation level and structure influence case outcomes. This work finds that attorneys exert less effort when paid a flat rate than an hourly rate (Schwall, 2016; Lee, 2021). In the study most comparable to this paper, Roach (2017) examines a 2004 hourly pay increase for court-appointed attorneys in New York and finds evidence that case outcomes improved, particularly in counties with higher poverty rates. However, unlike the current study, Roach's analysis is limited by the inability to distinguish between publicly provided and privately retained attorneys. He relies instead on county-level poverty rates to act as a proxy for whether a case was assigned public counsel to assess the effects of the hourly pay increase. My data overcomes this limitation by directly identifying the type of attorney each case has. Additionally, I estimate how changes in hourly pay affect the composition and performance of court-appointed attorneys.

I. Setting

The landmark 1963 case *Gideon v. Wainwright* established the right to legal representation for low-income defendants in state criminal cases. While this ruling requires states to provide defense counsel, the provision of public defense varies across jurisdictions. In North Carolina, public defense is offered through two systems: public defenders, who are salaried government employees, and court-appointed attorneys, who are private attorneys compensated on a case-by-case basis. The quasi-random assignment of court-appointed attorneys allows for unbiased attorney quality measures, and the 2011 pay

reduction provides a natural experiment to assess the impact of financial incentives on attorney performance. Below, I explain the structure of the public defender and court-appointed attorney systems and the details of the pay reduction.

A. Public Provision of Defense Counsel

Of the 100 North Carolina counties, 35 use public defenders—salaried government employees whose sole responsibility is representing indigent clients. In these counties, the chief public defender oversees case assignment, determining which public defender within the office will handle each case. However, this case assignment process is not random, which limits the construction of reliable attorney quality measures for public defenders.

In contrast, 82 North Carolina counties rely on private lawyers who register with the North Carolina Office of Indigent Defense Services (NC IDS) to represent indigent defendants on a case-by-case basis, known as court-appointed attorneys. Court-appointed attorneys receive an hourly or flat rate and are assigned cases following a strict rotational system. The rotational system creates randomness in case assignment, ensuring that case assignment is not influenced by attorney preferences or selection. Before 2011, court-appointed attorneys were uniformly paid $75 per hour, except in two counties where a flat rate was used.[5]

To qualify for public defense, defendants must demonstrate financial hardship that limits their ability to hire a private attorney. In North Carolina, individuals who complete an indigency determination form and show some evidence of financial difficulty are assigned public counsel.[6] The right to an attorney extends to all critical stages of the court

[5]In 18 counties, court-appointed attorneys are individual attorneys or firms hired to represent all indigent defendants for a fixed period, such as one year. Because there is more flexibility in how these cases are assigned within a firm, my analysis excludes these court-appointed attorneys and focuses on the remaining 82 counties that use a list-based court-appointed attorney system.

[6]North Carolina does not have a precise measure of indigency. Regulations require that factors such as a person's employment, income, and assets be used to determine an individual's indigency status. Conversations with IDS staff revealed that almost all individuals who request public counsel qualify. The indigency determination form also informs the defendant that they will be responsible for a $60 indigent defense fee if their case is not dismissed. Additionally, the defendant is informed that they may be required to repay the state the cost of their public counsel as part of their sentence if convicted. Although defendants may

process. Public counsel is assigned within 48 hours of arrest in many states, including North Carolina, to ensure defense counsel before the defendant's first court appearance.

B. Case Assignment to Court-Appointed Attorneys

Endogenous attorney sorting to cases would introduce bias into attorney quality measures and is a concern in the public defender system, where case assignment is often discretionary. However, the case assignment for court-appointed attorneys in North Carolina follows a strict rotational system, mitigating these concerns and allowing for the construction of unbiased attorney quality measures.

Each county maintains three lists of court-appointed attorneys, organized by the types of cases they can handle: misdemeanors, lower-level felonies, and higher-level felonies. After a defendant qualifies for public counsel, the most serious charge on a case determines which list is used to assign an attorney. NC IDS regulations require cases to be assigned only to attorneys registered on the relevant list, with the attorney appointments following a strict rotational order. The rotational assignment system creates randomness in case assignment and eliminates concerns that attorneys might select cases based on their preferences, expertise, or defendant characteristics. This randomness in attorney assignments is essential for constructing unbiased attorney quality measures. In later sections, I provide evidence that case assignment is quasi-random conditional on county-list-by-time fixed effects.

C. 2011 Court-Appointed Pay Reduction

In an unexpected change, North Carolina reduced the budgetary funds allocated to compensate court-appointed attorneys by nearly 20%. Before this reduction, all court-appointed attorneys were paid a uniform hourly rate of $75 for public defense work. After the pay

still be responsible for paying attorney fees, the financial costs are significantly less than hiring a private attorney.

change in May 2011, the hourly pay rates were decreased to $55 per hour for misdemeanor cases, $60 per hour for cases resolved in Superior Court, and $70 per hour for higher-level felony cases. A survey conducted by NC IDS revealed that the pre-2011 hourly rate was only marginally sufficient to cover private attorneys' costs incurred from public defense work. The rate cuts imposed a significant financial strain on many attorneys, prompting some to consider withdrawing from the court-appointed attorney lists (North Carolina Office of Indigent Defense Services, 2015). Importantly for identification, the budget cuts only targeted the funds allocated for compensating court-appointed attorneys, leaving the salaries of public defenders unaffected. Using public defenders as a comparison group, I will estimate the effect of pay for court-appointed attorneys on case outcomes using a difference-in-differences framework.

Panel A of Figure 3 illustrates the number of court-appointed attorneys registered across the three court-appointed attorney lists—misdemeanors, lower-level felonies, and higher-level felonies—between 2008 and 2017. The vertical dotted line marks the 2011 pay decrease. Before the reduction, the number of registered court-appointed attorneys grew consistently for all three categories. However, after the pay cut, there was a notable decline in the number of attorneys registered for misdemeanor cases, who experienced the most significant hourly reduction of 27%. This decline highlights the potential disincentive created by lower pay, particularly for attorneys who received the largest pay reduction. It also raises concerns about how this change may have impacted the quality of public counsel for low-income defendants.

II. Data

The core data for this analysis come from the North Carolina Administrative Office of the Courts (AOC) and consist of charge-level criminal court records with a disposition date between 2007 and 2017. These data provide detailed defendant demographic characteristics and information on charges, case outcomes, and punishments. Additionally, they

include attorney-specific data such as the attorney's name, bar number, and type of representation (public defender or court-appointed attorney). Using the attorney bar numbers, I augmented the data with information on the attorney's gender and experience obtained from the North Carolina State Bar. I measure attorney experience as the number of years between the attorney's admission to the North Carolina Bar and their assignment to a criminal case.

To fully capture each defendant's case history, I link cases using the defendant's name and date of birth. This linkage enables me to construct criminal history controls, such as the number of prior convictions or whether the defendant is a first-time offender. It also allows for creating disposition-level data, which is necessary because attorneys assigned to a defendant are responsible for all cases and charges for that defendant. The most severe charge dictates which list of attorneys will be used to assign public counsel. For defendants with multiple cases resolved on the same disposition date, I identify the most severe charge across all of the defendant's cases using North Carolina's offense grading system to assign the severity of each charge. I then restrict the data to the most severe charge for each disposition date, using information from all charges to determine case outcomes. I discuss the data construction in more detail in Appendix B.

I restrict the sample to cases handled by attorneys who represented at least 15 misdemeanor or 15 felony defendants per year while they remained on the list. This threshold allows the analysis to focus on attorneys with sufficient caseloads to ensure more reliable attorney quality estimates. The dataset includes approximately 560,000 defendants across 1 million court spells. On average, an attorney handling misdemeanor cases handled 53 misdemeanor cases per year, while an attorney handling felony cases handled 29 felony cases per year. In total, 2,689 attorneys handled misdemeanor cases (with 2,410 being court-appointed), and 1,539 attorneys handled felony cases (with 1,384 being court-appointed).

A. Descriptive Statistics

Descriptive statistics for cases represented by court-appointed attorneys and public defenders are reported in Table 1. The total sample includes over 1 million observations, with misdemeanor cases comprising the majority. For misdemeanors and felonies, I compare case outcomes for defendants represented by court-appointed attorneys and public defenders. These outcomes include case dismissal, probation, incarceration, fines only, and guilty pleas. Each outcome is an indicator variable equal to one if the outcome occurs. I examine probation and incarceration durations in some analyses as additional outcome variables. A case is considered dismissed if all charges are dismissed.[7] Probation and incarceration are indicators equal to one if any of the charges result in probation or incarceration, while fines only is an indicator equal to one if the defendant is convicted but required only to pay a fine.

Among all case outcomes, dismissal is the most frequent across both attorney types. The high dismissal rate occurs because the police act as the charging agency in North Carolina. As a result, nearly all arrested individuals are charged by police, some of which prosecutors may not have charged.

To understand how attorney quality affects case outcomes, I focus on cases handled by court-appointed attorneys because their quasi-random assignment to cases allows for the construction of attorney quality measures. I measure attorney quality using case dismissal, probation, incarceration, and guilty pleas. In the latter part of the paper, I use public defenders as a comparison group to evaluate the impact of the 2011 reduction in court-appointed attorney hourly pay on case outcomes. Defendants represented by court-appointed attorneys differ demographically from those represented by public defenders. Court-appointed attorneys more often represent white defendants, as they are primarily used in rural areas, while public defenders are more likely to represent Black defendants.

[7] AOC disposition codes for a dismissed charge include dismissal by the court, lack of probable cause, dismissal for a speedy trial, or voluntary dismissal.

III. Court-Appointed Attorney Quality Measures

In this section, I examine the effect of court-appointed attorney quality on case outcomes by constructing attorney quality measures using conventional value-added methods. I measure attorney quality using the likelihood of case dismissal, incarceration, probation, and guilty pleas.[8] These measures will capture attorney quality if the attorney assignment to cases is exogenous conditional on county-list-by-time fixed effects. I test the plausibility of this assumption in later sections to address potential concerns about selection bias using several robustness tests to validate the quasi-random assignment of attorneys to cases. I then report the main results on the impact of attorney quality on case outcomes. Lastly, I consider the effects of policies that replace the least effective attorneys with average attorneys on case outcomes.

A. Empirical Method

I construct attorney quality measures to analyze how the quality of defense attorneys affects case outcomes using conventional value-added methods.[9] I implement a residualized, leave-out procedure that compares case outcomes for defendants who could have been assigned to the same set of attorneys. The set of potential attorneys a defendant may be assigned to is determined by the highest charge on the case, the county where the charge is filed, and the month and year of the attorney assignment. To ensure that comparisons are made only between defendants who could have been assigned to the same group of attorneys, all models include county-list-by-time fixed effects. Although the quasi-random case assignment eliminates concerns of selection bias, using residualized measures improves a more precise measure of attorney quality by controlling for

[8]Structured sentencing laws in North Carolina restrict the length of sentences for a given charge and criminal history, and judges play the dominant role in sentencing after conviction. Consequently, I focus on outcomes that an attorney can influence before a case reaches sentencing.

[9]This approach is similar to the methods used in the teacher value-added literature by Kane and Staiger (2008) and Jacob, Lefgren and Sims (2010), as well as in the judge propensity literature by Dobbie, Goldin and Yang (2018) and Leslie and Pope (2017).

variation in observable characteristics.

Let Y_{ict} be a case outcome for defendant i in case c, where defendant i is assigned attorney j in month-year t. The residual case outcome, after accounting for observable characteristics, is given by:

$$Y^*_{ict} = Y_{ic} - \beta X_{ict} = \mu_{jt} + \epsilon_{ict}. \tag{1}$$

where X_{ict} contains defendant demographic and criminal history controls and county-list-by-time fixed effects. Defendant demographic and criminal history controls include dummies for race, sex, first-time offender, criminal charge type, the class of the most serious charge, and whether the case was disposed of in district court; a cubic in age; the number of prior points from previous convictions; a cubic in the number of prior convictions, and a cubic in the number of charges. The residual outcome, Y^*_{ict}, includes the attorney quality measure μ_{jt} and a defendant-case idiosyncratic error term ϵ_{ict}.

For each case, I use the residual outcome, Y^*_{ict}, to construct leave-out mean case outcome for defendants assigned to attorney j. Let n_{jt} represent the total number of cases handled by attorney j in year t, and n_{ijt} represent the number of cases handled by attorney j for defendant i in year t. The leave-out attorney quality measure, $\widehat{\mu_{cj}}$, is constructed by excluding the residual outcomes defendant i's cases from the attorney's average case outcome:

$$\widehat{\mu^{Y}_{jct}} = \frac{1}{n_{jt} - n_{ijt}}(\sum_{k=0}^{n_{jt}} Y^*_{ikt} - \sum_{c=0}^{n_{ijt}} Y^*_{ict}). \tag{2}$$

This leave-out mean captures attorney j's quality by using the average outcome for all other clients they have represented, excluding defendant i. I create the leave-out means using the likelihood of case dismissal, incarceration, probation, and pleading guilty.

To construct more reliable estimates of attorney quality, I restrict the sample to attorneys who have represented at least 15 defendants on a given list. Following Kane and

Staiger (2008) and Chetty, Friedman and Rockoff (2014), I also apply an empirical Bayes estimator to adjust the leave-out means. This adjustment accounts for the reliability of the estimated attorney quality by incorporating the number of cases handled by each attorney. Specifically, the empirical Bayes estimate, BE_{jc}, is a reliability-adjusted measure of attorney j's quality in case c, where

$$BE_{jc} = \lambda_{jt} \times \widehat{\mu_{jct}} \tag{3}$$

The shrinkage factor, λ_{jt}, adjusts the leave-out mean $\widehat{\mu_{jc}}$ by accounting for the between-attorney and within-attorney variance,

$$\lambda_{jt} = \frac{\sigma_u}{\sigma_u + \frac{\sigma_\epsilon}{n_{jt} - n_{ijt}}} \tag{4}$$

where σ_u represents the between-attorney variation of the leave-out mean estimates and σ_ϵ represents the within-attorney variance. The shrinkage factor reduces the influence of noisy estimates for attorneys who have handled fewer cases by "shrinking" their estimates toward the overall mean, resulting in a more reliable measure of attorney quality.

I also construct attorney quality measures in alternative ways, each addressing different concerns. The primary approach uses only residual case outcomes from a single year to estimate attorney quality, allowing for potential changes in attorney quality over time. This approach leads to the largest variation in attorney effects because it uses the fewest number of cases to construct the leave-out means. Alternatively, I use the residual from all cases handled by an attorney across all years, resulting in a more reliable estimate of attorney quality by pooling a larger number of cases. While there is little concern about direct interaction between defendants, I also use cases from years other than the year in which a defendant's case was handled to address potential concerns about correlations between cases handled by the same attorney within the same year. Across all approaches, the effects of attorney quality on case outcomes remain robust to how I construct attorney

quality. Additionally, I show that the dispersion of attorney quality is consistent between attorneys handling cases either before or after 2011 in Table C.1.

B. Quasi-Randomization of Cases to Attorneys

Quasi-random assignment of attorneys to cases is essential for constructing measures of attorney quality free from attorney selection. The rotational mechanism used to assign court-appointed attorneys creates randomness in case assignment for cases assigned within the same county, month-year, and attorney list. I use three tests to provide evidence that case assignment is quasi-random conditional on county-list-by-time fixed effects. I cluster standard errors at the attorney level.

In the first test, I regress my measures of attorney quality on the defendant and criminal history characteristics, including county-list-by-time fixed effects. I then perform a joint significance test to determine whether attorneys are assigned to cases with systematically different observable characteristics. Table 2 presents the results of the joint significance test using case dismissal as the measure of attorney quality. For misdemeanor and felony cases, defendant demographic and criminal history characteristics significantly predict whether a case is dismissed, with F-statistics exceeding 900. The high F-statistic suggests that observable characteristics meaningfully explain whether a case is dismissed. In contrast, the F-statistic for the joint significance of these observable characteristics declines sharply when attorney quality is the outcome variable. For felony cases, the F-statistic is 1.2 (p-value: 0.208), indicating that observable defendant characteristics play a negligible role in predicting the assigned attorney's quality. The low F-stat for felony cases in models using attorney quality as the outcome suggests that attorney assignment is relatively balanced across defendant demographics and criminal history characteristics. However, the results indicate potential sorting for misdemeanor cases.

A similar pattern emerges when attorney quality is measured using other measures of attorney quality. Table 3 reports the F-statistics for joint significance tests across these

alternative measures of attorney quality. The results provide additional evidence of the quasi-random assignment of attorneys to felony cases, as observable defendant characteristics do not meaningfully affect attorney quality. In contrast, evidence of potential sorting persists for misdemeanor cases, suggesting that attorney assignment may not be entirely random.

The second test examines whether controlling for defendant and criminal history characteristics affects the relationship between attorney quality and case outcomes. Specifically, I regress a dummy for case dismissal on a standardized measure of attorney quality, measured by the likelihood of case dismissal, and compare specifications with and without controls. If attorney assignment is random, including defendant and criminal history controls should not substantially alter the estimated coefficient on attorney quality. Table 4 presents the results separately for misdemeanor and felony cases. The results indicate that a one standard deviation increase in attorney quality raises the probability of case dismissal by 3 percentage points for misdemeanor cases and 2.5 percentage points for felony cases. For felony cases, the point estimate remains stable after adding demographic and criminal history controls, suggesting random assignment. However, for misdemeanor cases, the point estimate decreases slightly after including controls, indicating that sorting may occur. These findings provide further evidence of random attorney assignment in felony cases but raise concerns about non-random assignment in misdemeanor cases.

The last test for randomness follows the procedure described by Abrams, Bertrand and Mullainathan (2012) and addresses limitations in joint significance tests when there are a small number of observations within a unit of randomization, such as the county-list-by-time cells in this setting. To overcome this, they propose a permutation-like method that simulates the random assignment of attorneys to cases, allowing for a test that does not over-reject the null hypothesis. This method generates simulated data where actual cases are randomly assigned to attorneys within each county-list-by-time cell. This ensures that observed differences in the simulated data are driven solely by sampling vari-

ation. Then, the procedure randomizes attorney assignments within county-list-by-time cells and creates a dispersion measure (e.g., standard deviation or interquartile range) of attorney means for characteristics, such as defendant or criminal history characteristics. This process is repeated 1,500 times, generating 1,500 simulated measures of dispersion to capture the variation expected when random assignment is ensured. The dispersion in the actual data is then compared to this simulated distribution to assess whether the empirical distribution could plausibly result from sampling variation. The actual dispersion falling within the range of the simulated dispersions provides evidence that the assignment process is quasi-random.

To account for the multiple geographies and time periods in my sample, I use the residuals from regressions with predicted case outcomes as the outcome variables, including county-list-by-time fixed effects. Residualization allows the procedure to be performed across all counties simultaneously. Table 5 reports the percentile rank of the empirical interquartile range (IQR) from the procedure for predicted likelihoods of case dismissal, probation, and incarceration. FigureA.2 illustrates the results for felony cases, and Figure A.3 shows the results for misdemeanor cases, with the actual dispersion marked by the vertical dashed line. I calculate the empirical IQR as the difference between the 75th and 25th percentiles of the attorney effect distribution. For each predicted case outcome in felony cases, the actual dispersion of attorney means falls within the distribution generated by the simulated data, suggesting that attorney assignment is quasi-random. In contrast, the results for misdemeanor cases show that the actual dispersion falls outside the simulated distribution for predicted case outcomes, indicating that some sorting appears to occur in the assignment of attorneys to misdemeanor cases.

Overall, the three tests provide evidence that felony case assignment to attorneys is conditionally random. Each test also reveals potential sorting in the assignment of misdemeanor cases. However, the effects of attorney quality on case outcomes after controlling for observable defendant characteristics remain large and statistically significant. This

suggests that sorting amongst misdemeanor cases is unlikely to explain the entire effect that attorneys have on a case outcome if the demographic and criminal history controls include the most important variables that determine a case outcome. Because of this, I include the results for both felony and misdemeanor cases. However, the results for attorney quality in misdemeanor cases should be interpreted cautiously.

C. Attorney Quality Results

Figure 1 shows the effect of a one standard deviation increase in attorney quality on the likelihood of the outcome used to construct the measure. For example, when using case dismissal as the attorney quality measure, the effect of case dismissal represents the impact of attorney case dismissal quality on actual case dismissal. The reported effect is the percentage change, measured by dividing the effect size by the mean of the dependent variable. By construction, a higher value on a given attorney quality measure implies that the attorney is more likely to achieve that specific outcome. For example, defendants assigned to attorneys with higher case dismissal quality are more likely to have their cases dismissed. This implies that higher-quality attorneys would have lower incarceration measures. The interpretation of probation and guilty plea measures is less straightforward, as it is unclear what the counterfactual outcome for a defendant would have been if they had not received probation or pled guilty. However, the high correlation between each measure suggests that higher-quality attorneys reduce the likelihood of probation and pleading guilty.

For felony cases, I find that a one standard deviation increase in attorney quality increases the likelihood of case dismissal by 5.5% and decreases the likelihood of incarceration by 6.4%. It also reduces the likelihood of probation by 9.4% and pleading guilty by 7.5%. The results are slightly larger for misdemeanor cases except for case dismissal. Comparing attorneys at the 90th versus 10th percentile within their respective quality measures, defendants represented by higher-quality attorneys are approximately 6 per-

centage points more likely to have their case dismissed, 4 percentage points less likely to be incarcerated, 8 percentage points less likely to receive probation, and 8 percentage points less likely to plead guilty. For misdemeanor cases, comparing attorneys at the 90th versus 10th percentile within their respective quality measures, defendants represented by higher-quality attorneys are approximately 4 percentage points more likely to have their case dismissed, 1 percentage point less likely to be incarcerated, 4 percentage points more likely to receive probation, and 7 percentage points less likely to plead guilty. These results highlight the substantial variation in case outcomes driven by attorney quality. The empirical distributions of Bayesian-adjusted attorney quality measures are provided in Appendix Figures A.4 and A.5, where a higher value indicates a greater likelihood that the outcome occurs.

These results highlight the significant role of attorney quality in determining case outcomes, particularly the substantial variation between attorneys within the quality distribution. Compared to the literature, the gap in case outcomes between court-appointed attorneys at the 90th and 10th percentiles is comparable to the disparity between defendants represented by private versus court-appointed attorneys. Specifically, Agan, Freedman and Owens (2021) find that defendants assigned private attorneys have a 6 percentage point higher likelihood of case dismissal, 9 percentage points lower likelihood of incarceration, and 2 percentage points higher likelihood of pleading guilty compared to defendants assigned court-appointed attorneys. My results suggest that the within-attorney quality differences among court-appointed attorneys are comparable to the private-public attorney gap. Additionally, Humphries et al. (2023) show that defendants assigned to a judge at the 90th percentile versus the 10th percentile were 12 percentage points more likely to be incarcerated. My estimates reveal a 4 percentage point difference in incarceration for felony cases between high and low-quality attorneys, potentially suggesting that judges may have a more significant impact on the likelihood of incarceration than attorney quality. Overall, my results highlight defense attorneys' important role in obtaining

favorable outcomes for defendants.

Table 6 presents the within-attorney correlations across the four attorney quality measures for misdemeanor and felony cases. As expected, case dismissal quality is negatively correlated with probation, incarceration, and guilty pleas. These correlations suggest that attorneys effective at getting cases dismissed are less likely to have clients who end up incarcerated, on probation, or plead guilty. However, the weakest correlation is between case dismissal and incarceration, especially for felonies. The weaker correlation implies that attorneys who excel at getting case dismissals may not always be the most effective at reducing incarceration. Additionally, it indicates that while these quality measures capture similar aspects of attorney quality, they also reflect distinct dimensions of attorney performance. Lastly, even though it's ambiguous how attorney quality would affect these probation and guilty pleas, the strong correlation between the four measures of attorney quality suggests that higher-quality attorneys are more likely to decrease the likelihood of probation and guilty pleas.

D. Attorney Selection Policies

Policies that remove attorneys representing low-income defendants may receive criticism, particularly in jurisdictions already struggling to find enough court-appointed attorneys for indigent defense. However, the significant effect of attorney quality on case outcomes suggests that policies that shift the pool of court-appointed attorneys toward higher-quality attorneys may meaningfully improve the case outcomes for low-income defendants. I simulate the effects of policies that replace the least effective 5% of attorneys, based on their performance in case dismissal and incarceration outcomes, with attorneys of average quality.

Table 7 reports the effects of three alternative policies: (1) replacing the bottom 5% of attorneys based on their case dismissal quality, (2) replacing the top 5% of attorneys who increase the likelihood of incarceration, and (3) replacing attorneys who are in the bottom

5% for case dismissal and the top 5% for incarceration. The policies target attorneys at the extremes of the case dismissal and incarceration distributions because these correspond to the least effective attorneys. Figure 2 provides scatter plots of the attorney quality measures for case dismissal and incarceration, illustrating how each policy targets different attorneys. The scatter plots highlight that focusing on only one measure of attorney quality would lead to replacing different sets of attorneys, with only those below the 5th percentile in case dismissal and above the 95th percentile in incarceration targeted under all three policies.

The first policy, which targets attorneys in the bottom 5% of the case dismissal distribution, leads to more favorable case outcomes, including an increase in case dismissals, a reduction in incarceration, and decreases in probation and guilty pleas. The second policy, which replaces attorneys most likely to increase incarceration, similarly improves outcomes, with significant decreases in the likelihood of incarceration. The third policy, which targets lower-quality attorneys using both measures, has comprehensive effects that increase the likelihood of case dismissal and decrease the likelihood of incarceration, probation, and pleading guilty. These results suggest that focusing on multiple dimensions of attorney quality yields broader improvements in case outcomes and highlights the potential benefits of policies that aim to shift the distribution of attorney quality toward more effective attorneys. More generally, the results show that one potential way to reduce the case outcome gap highlighted by Agan, Freedman and Owens (2021) may be to consider policies that attract higher-quality attorneys.

IV. Financial Incentives, Attorney Quality, and Case Outcomes

In the previous section, I show substantial variation in attorney quality among court-appointed attorneys and that attorney quality significantly affects case outcomes. Economic incentives may be important in altering the performance and composition of court-appointed attorneys. Specifically, compensation could affect which private attorneys pro-

vide public defense and how much effort they exert when representing low-income defendants. This section explores how reductions in the pay of court-appointed attorneys in North Carolina impacted attorney quality and the case outcomes for indigent defendants.

A. Empirical Method

In May 2011, North Carolina reduced the budgetary funds allocated to compensate court-appointed attorneys by nearly 20%. The size of the pay reduction varied by case severity, corresponding to the three attorney lists. Attorneys handling misdemeanor cases saw a 27% reduction, while those handling lower- and higher-level felonies experienced 23%[10] and 7% reductions, respectively. At the same time, this budget change did not affect the pay for public defenders, allowing me to estimate how financial incentives affect case outcomes. To do so, I estimate how the reduction in hourly compensation affected case outcomes in counties that rely solely on court-appointed attorneys compared to those that utilize public defenders using a difference-in-differences strategy. I exclude the court-appointed attorneys in counties that use public defenders to isolate the effects of the pay change.

The effect of the 2011 pay reduction is estimated using the following model:

$$\begin{aligned} Y_{ict} = \alpha \text{CAA}_c + \phi \text{Pay Decrease}_{ct} + \beta(\text{CAA}_c \times \text{Pay Decrease}_{ct}) \\ + \psi X_{ict} + \gamma_c + \lambda_t + \epsilon_{ict} \end{aligned} \tag{5}$$

where Y_{ict} represents the case outcome for defendant i in county c at time t. The term CAA_c is an indicator equal to one if county c solely uses court-appointed attorneys. The term Pay Decrease_t is an indicator equal to one after 2011. X_{ict} is a vector of demographic and criminal history controls. The terms γ_c and λ_t are county and half-year fixed effects.

[10] Attorneys registered for lower-level felonies received \$60 an hour for cases resolved in superior court and \$55 otherwise. Roughly 50% of cases were resolved in superior court, yielding an effective hourly rate of approximately \$58.

The coefficient of interest, β, captures the impact of the pay reduction on case outcomes for defendants represented by court-appointed attorneys. Standard errors are clustered at the county level.

The main identifying assumption for this model is that, in the absence of the pay reduction, case outcomes for defendants in counties solely using court-appointed attorneys would have followed the same trajectory as those using public defenders. Figure 4 shows that case outcomes exhibited parallel trends before the 2011 pay reduction, supporting the validity of this assumption. Furthermore, the coefficient β captures the effect of the pay decrease as long as no other policy differentially affecting cases handled by court-appointed and public defenders occurred at the same time as the pay reduction. Although the Justice Reinvestment Act (JRA) was introduced in December 2011 as a significant reform to North Carolina's criminal justice system, its primary focus was on limiting courts' authority to revoke probation to reduce correctional facility costs (Rose, 2021). Additionally, these reforms applied uniformly to all cases, regardless of attorney type.

B. Effect of Hourly Pay Decrease for Court-Appointed Attorneys

Figure 4 plots the dynamic treatment effect of the 2011 pay reduction on five case outcomes: the likelihood of dismissal, guilty plea, incarceration, probation, and fines only. Each outcome is binary, indicating whether the specific result occurs. Dismissal is mutually exclusive to incarceration, probation, and fines only. Incarceration and probation are not mutually exclusive; defendants may receive incarceration and probation. Fines only indicates the defendant was convicted but was only required to pay fines. The dynamic treatment effects show how the effects of the pay reduction evolved over time, while pre-treatment estimates test the parallel trends assumption. All models control for demographic characteristics and criminal history and include fixed effects as specified in equation 5. Point estimates and 95% confidence intervals are presented, with standard

errors clustered at the county level.

The pre-period estimates for each outcome suggest that the trajectory of the case outcomes in counties solely using court-appointed attorneys would have followed the same trajectory as those using public defenders, providing evidence that the parallel trends assumption holds. However, the adverse effect of the pay decrease on case outcomes is observed after 2011. The impact on case outcomes is immediate but grows over time before stabilizing 2 years after the pay reduction. After two years, the likelihood of case dismissal for defendants assigned to court-appointed attorneys decreases by 5 percentage points, while guilty pleas increase by 5 percentage points. Likewise, defendants assigned court-appointed attorneys after the pay decrease was 4 percentage points and 3 percentage points more likely to be incarcerated or receive probation, respectively. The effect on fines only was negligible, suggesting that the increase in guilty pleas and reduced dismissals resulted in harsher sentencing rather than simply increasing the frequency of paying fines.

Table 8 presents estimates from equation 5, separately by misdemeanor, lower-level, and higher-level felony cases. The size of the pay reduction varied by case severity, corresponding to the three attorney lists. The estimates in column 1 report the average effect of the pay reduction for the outcomes listed in each row. These estimates reflect the average of the post-treatment effects and are, in all cases, smaller than the later effects observed in Figure 4.

The overall impact is primarily driven by attorneys handling misdemeanor cases, who received the most significant pay cut. Specifically, the likelihood of case dismissal decreases by 5 percentage points for misdemeanor cases. Additionally, for misdemeanor cases, the likelihood of pleading guilty increases by 6 percentage points, the likelihood of incarceration increases by 4 percentage points, and the likelihood of receiving fines increases by 0.3 percentage points. Misdemeanor defendants also see increased incarceration sentences, with an average of 1.3 additional days served. In contrast, lower- and

higher-level felony cases exhibit fewer effects. I find no significant changes for higher-level felonies. For lower-level felony cases, the only notable impacts are on incarceration and incarceration sentences. Defendants in lower-level felony cases assigned a court-appointed attorney after the pay reduction are 2.6 percentage points more likely to be incarcerated, serving an average of 5 additional days of incarceration.

These results reveal that decreasing the economic incentives for contracted private attorneys leads to a decline in the quality of public defense provided to low-income defendants. For example, the decline in the likelihood of case dismissal following the pay decrease is equivalent to a 0.75 standard deviation reduction in attorney quality, as measured by the probability of case dismissal. The simultaneous increase in incarceration and decrease in dismissals suggest that the pay reduction resulted in more convictions and harsher sentencing for defendants represented by court-appointed attorneys after the pay cut. These adverse case outcomes likely exacerbate the economic well-being of these defendants, as increased convictions and incarceration have been shown to lead to worse labor market outcomes (Pager, 2003; Mueller-Smith, 2015; Bhuller et al., 2020; Rose and Shem-Tov, 2021).

C. Compositional vs Within-Attorney Changes

The pay reduction for court-appointed attorneys adversely affected case outcomes, especially for misdemeanor cases. This section explores two potential mechanisms behind these adverse outcomes: changes in attorney performance and shifts in the composition of court-appointed attorneys. The results may be driven by changes in attorney performance if attorney effort changes after the pay cut, such as by reducing the time or resources they devote to each case. Alternatively, the reduction may have also prompted the exit of higher-quality attorneys, leaving only lower-quality attorneys willing to represent indigent clients at the reduced rate. To disentangle the mechanisms behind the adverse effects of the pay reduction, I categorize court-appointed and public defenders into

three groups—stayers, entrants, and exiters—and estimate equation 5 for cases handled between 2009 and 2014. Stayers are attorneys who registered before 2009 and remained on the list throughout the six years, while entrants joined a list between 2009 and 2014. Exiters are attorneys who registered before 2009 but stopped handling indigent cases during this time.

Focusing on stayers allows me to isolate within-attorney performance changes, as the pay reduction introduced variation in their compensation while holding attorney composition constant. In contrast, examining first-year outcomes for entrants before and after the pay reduction reveals whether the quality of new attorneys declined following the pay reduction. If new entrants after the pay decrease have worse first-year case outcomes, it suggests the decrease discouraged higher-quality attorneys from providing public defense. Similarly, analyzing last-year outcomes for exiters may reveal whether higher-quality attorneys stopped providing public defense after the pay decrease. By comparing these groups, I can assess the relative importance of performance changes versus compositional changes in explaining the adverse effects of the pay reduction.

Table 9 reports the estimates of the effect of the pay reduction on misdemeanor case outcomes for stayers, entrants, and exiters. The results for stayers in column 1 show that defendants represented by attorneys who remained registered after the pay decrease received worse case outcomes than those assigned to the same attorneys before the reduction. This suggests changes in attorney performance contributed to the adverse effects on case outcomes after the pay decrease. Column 2 presents the outcomes for new entrants. The effects suggest that defendants assigned to attorneys in their first year after the pay cut had less favorable outcomes and suggest that higher-quality attorneys were less likely to represent indigent misdemeanor cases after the pay decrease. Exiters exhibit a similar pattern in case of outcomes as new entrants, with worse case outcomes after the pay reduction, suggesting that the average quality of attorneys exiting the system after the pay decrease was lower than before. The effects after the pay decrease are consistent with a

framework where attorneys above some quality cutoff, x, were more likely to exit before the pay decrease, and the cutoff shifted to $y < x$ after the pay decrease. The new cutoff suggests that the average attorney who exits after the pay decrease is lower than the average before the pay decrease.

The estimates of the effect of the pay decrease on lower- and higher-level felony case outcomes for stayers, entrants, and exiters are reported in Tables A.4 and A.5. For both types of felony cases, there is little evidence of changes in attorney performance or composition after the pay decrease. Although attorneys representing felony cases also experienced a pay cut, defendants facing felony charges often face more severe consequences, such as longer incarceration sentences. This may motivate court-appointed attorneys not to alter their effort and performance to maintain their professional reputation despite the reduced pay. Additionally, most court-appointed attorneys handled misdemeanor cases before they handled felony cases, with only a subset of court-appointed attorneys moving to represent felony cases. This suggests that the type of attorney choosing to represent felony cases may not change significantly despite the pay decrease. and may explain why there are no composition effects. These potential attorney responses could explain why I find little effect on felony case outcomes for stayers, entrants, and exiters. However, the results suggest that the pay reduction adversely impacted misdemeanor case outcomes through changes in attorney performance and the composition of attorneys handling indigent cases.

D. Attorney Experience, Caseload, and Additional Heterogeneity

The previous section shows that the pay reduction's adverse effects result from changes in attorney performance and shifts in the composition of attorneys representing low-income defendants. Specifically, stayers perform worse after the pay reduction, and new entrants following the decrease are of lower quality than those entering before. Caseloads and attorney experience changes may partially explain these changes in attorney performance.

For example, if stayers handle larger caseloads, attorney performance may decline after the pay reduction. Alternatively, new entrants post-pay reduction may be of lower quality due to having less experience than new entrants before the pay reduction. If caseload and experience drive these effects, we would expect the results to be concentrated among attorneys with higher caseloads or less experience. Table 10 reports the impact of the pay decrease by attorney experience and caseload. The outcome variable is specified in the row heading. I define attorney experience as the number of years between the case assignment and the attorney's admission to the North Carolina Bar. I find similar results when I define attorney experience as the number of years between case assignment and the attorney's first year observed in the data. I measure an attorney's caseload by the total number of cases an attorney handles in a given year.

Panel A of Table 10 presents the estimates by attorney experience. For misdemeanor and lower-level felony cases, the results reveal no significant heterogeneous effects by experience. However, for higher-level felony cases, defendants assigned a more experienced attorney are more likely to have their case dismissed and a decreased likelihood of probation. As shown in Figure 3, the number of attorneys registering to handle lower- and higher-level felony cases grew after the pay reduction, even after registrations for misdemeanor cases declined. One possible explanation for this shift is that some attorneys who wished to continue handling indigent defense cases may have transitioned from representing misdemeanor to felony cases. The difference in outcomes by experience suggests that more experienced attorneys may have shifted toward higher-level felony cases.

Panel B of Table 10 reports the estimates by caseload. For misdemeanor cases, there is little difference in outcomes by caseload. Similarly, for lower- and higher-level felony cases, there are few differences by caseload, with a few exceptions; attorneys with above-median caseloads are more likely to increase the likelihood of incarceration for lower-level felonies, while attorneys with below-median caseloads are more likely to decrease the likelihood of pleading guilty for higher-level felony cases. Although there are subtle

differences across caseloads for certain outcomes, the results indicate relatively few differences in case outcomes by caseload. Together, the results by experience and caseload suggest that neither experience nor caseload plays a substantial role in explaining the adverse effects on case outcomes following the pay decrease.

Additionally, the effects may be concentrated among a subset of defendants or case types. Figures A.8-A.13 report the effect of the pay decrease on case outcomes by defendant characteristics and crime types. I find no statistical differences across demographic groups suggesting that the adverse effects are not concentrated among specific demographic groups. Similarly, the effects are not concentrated among specific crime types, with a few exceptions. I find that the small and often statistically insignificant effects for drug or alcohol and traffic or public order crimes. These results show that the effects on case dismissals and incarceration are more pronounced for violent and property crimes.

E. Robustness To Multinomial Logit Model

In this section, I use a multinomial logit model to estimate the effect of the pay decrease on case outcomes. The dependent variable is a categorical variable that takes on a different value for case dismissal, fines only, probation, or incarceration. For cases where a defendant is both incarcerated and receives probation, I use incarceration as the primary outcome to capture the most severe sentencing decision. For higher-level felony cases, the categorical variable excludes fines only.

Table A.6 reports the marginal effects of the pay reduction for court-appointed attorneys on case outcomes. The results are consistent with the main analysis that the pay reduction adversely affected case outcomes, particularly for misdemeanor cases. Similar to the main analysis, the results show that the effects of the pay decrease are concentrated among misdemeanor cases, with defendants assigned a court-appointed attorney being less likely to have a case dismissal and more likely to be incarcerated, put on probation, or pay fines.

The previous results include case dismissal as one of the values for the categorical variable. Table A.7 focuses on sentencing outcomes conditional on cases not being dismissed. In this specification, I examine the likelihood of receiving fines only, probation, or incarceration once a case has moved beyond the dismissal stage. The results show no significant effects on case outcomes conditional on not having the case dismissed. This suggests that the decrease in case dismissals primarily drives the harsher sentences for misdemeanor defendants. Overall, the results from the multinomial logit model suggest that the main analysis is robust to model specification.

V. Discussion

In this section, I discuss the broader implications of my results. While I find that the quality and compensation of attorneys affect case outcomes, the optimal levels of case dismissals or incarceration remain unclear. Consequently, it is also unclear whether the observed effects on case outcomes of the pay decrease are socially beneficial or not. However, my results have significant implications for equity, particularly for low-income defendants who rely on court-appointed attorneys. My findings show that the disparities in case outcomes between high- and low-quality court-appointed attorneys are similar to the differences observed between retained private attorneys and court-appointed attorneys. The literature also clearly shows that defendants assigned public defenders have more favorable case outcomes than defendants assigned court-appointed attorneys (Roach, 2014; Anderson and Walker, 2015; Shem-Tov, 2022). From an equity perspective, low-income defendants who cannot afford private counsel and are assigned a court-appointed attorney are more likely to have less favorable outcomes than defendants with a private attorney or public defender. These disparities highlight a broader issue of unequal access to adequate legal representation, which disproportionately affects low-income individuals. Addressing these case outcome gaps by increasing funding for court-appointed attorneys or replacing lower-quality attorneys could help mitigate these inequities and

improve outcomes for defendants who rely on indigent defense services.

Additionally, my findings suggest the reallocation of state resources after the 2011 pay reduction. Specifically, while the state may have saved on attorney compensation costs, this reduction likely increased incarceration expenses due to higher incarceration rates and longer sentences for defendants assigned court-appointed attorneys after the pay decrease. In the short run, the state reduced its payments to court-appointed attorneys by $13 million. However, this was offset by a $4 million increase in incarceration costs. In the long run, decreasing case dismissals for misdemeanor cases may significantly increase incarceration costs because defendants may be required to pay all court-appointed attorney fees. At the very least, defendants must pay the public defense application fee of $60 if their case is not dismissed. Using this lower-bound application fee, the results from Giles (2023) suggest a 0.65 percentage point increase in the likelihood of a subsequent felony conviction for these misdemeanor defendants. Using this estimate, the decrease in attorney pay could increase long-run incarceration costs by $20 million through new felony convictions, pushing the total increase in incarceration costs to $24 million—nearly double the $13 million saved in attorney compensation for misdemeanor cases.

VI. Conclusion

When defendants cannot afford legal representation, states are required to provide defense counsel. In this paper, I use detailed administrative court records from North Carolina to examine how attorney quality and compensation affect case outcomes for low-income defendants. The randomized assignment of court-appointed attorneys allows for the estimation of attorney quality using conventional value-added methods, revealing that disparities in case outcomes between high- and low-quality court-appointed attorneys are comparable to those observed between defendants represented by retained private attorneys and those with court-appointed attorneys.

I also estimate the impact of attorney compensation changes on case outcomes by

leveraging a statewide policy change that reduced the hourly compensation for court-appointed attorneys while leaving public defender salaries unchanged. My results reveal that decreasing the economic incentives for contracted private attorneys leads to a decline in the quality of public defense provided to low-income defendants. The adverse effects of the pay decrease are comparable to a 0.75 standard deviation reduction in attorney quality, as measured by the probability of case dismissal. I show that the reduced hourly compensation for court-appointed attorneys affected attorney performance and shifted the overall composition of private attorneys providing public counsel toward lower-quality attorneys.

These results shed light on the broader issue of public-work pay disparities and their impact on the quality of government services. As governments increasingly outsource public services to private actors, the gap in compensation between public-sector and private-sector workers poses challenges for attracting high-quality workers, particularly in areas such as indigent defense. Addressing compensation disparities in public services may enhance the production of effective government and positively impact the individuals and communities most dependent on these services.

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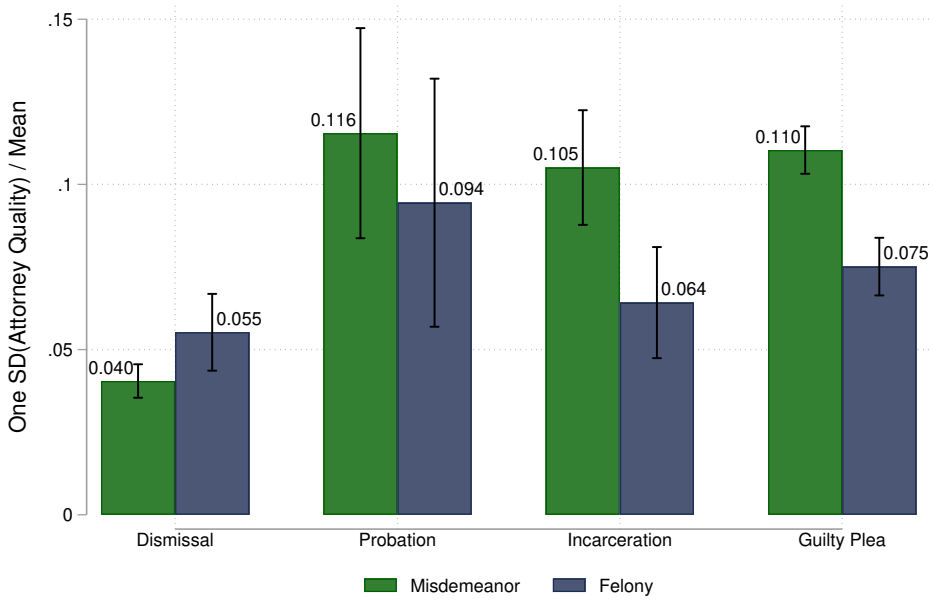
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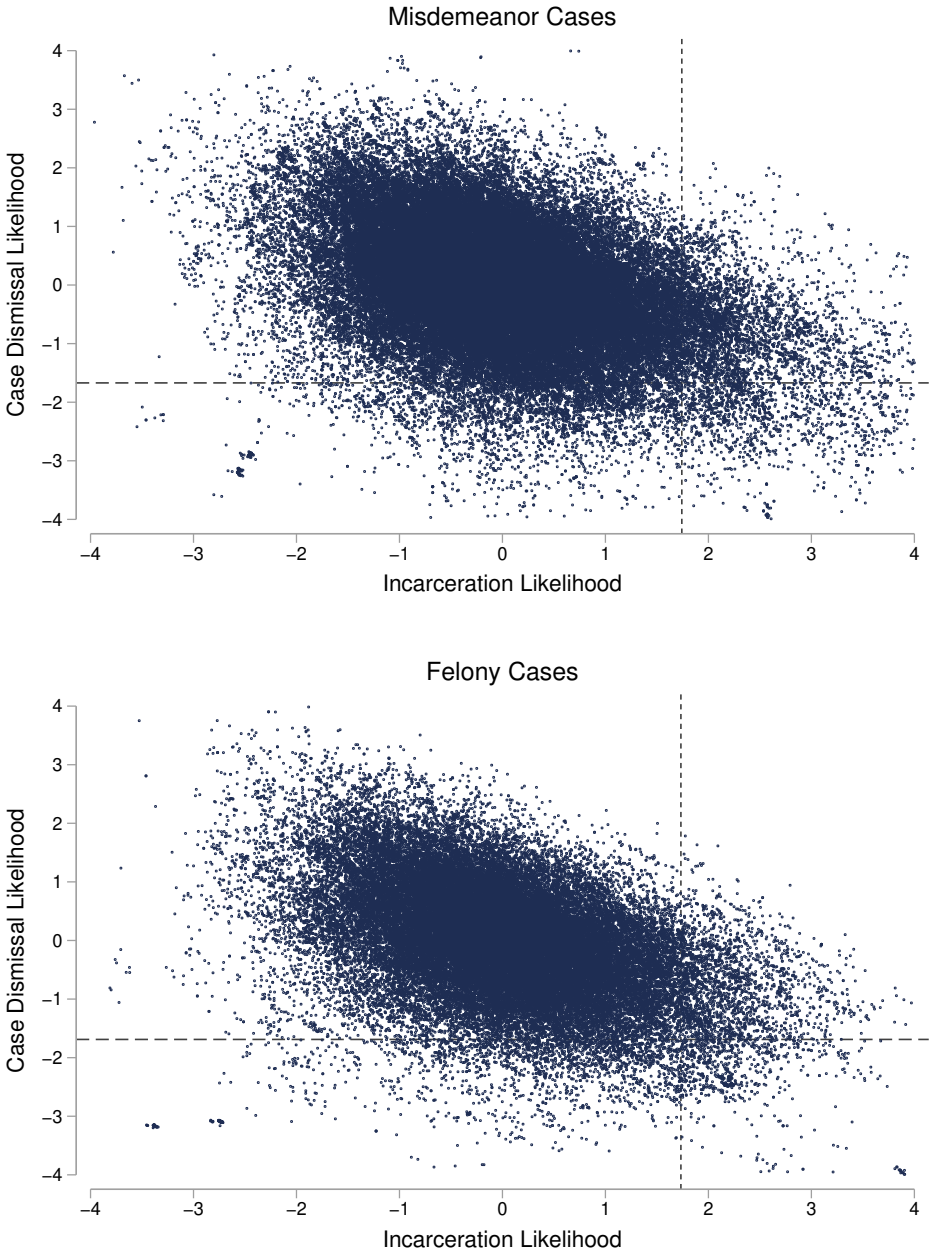
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Figure 1 Effect of One Standard Deviation Increase in Attorney Quality



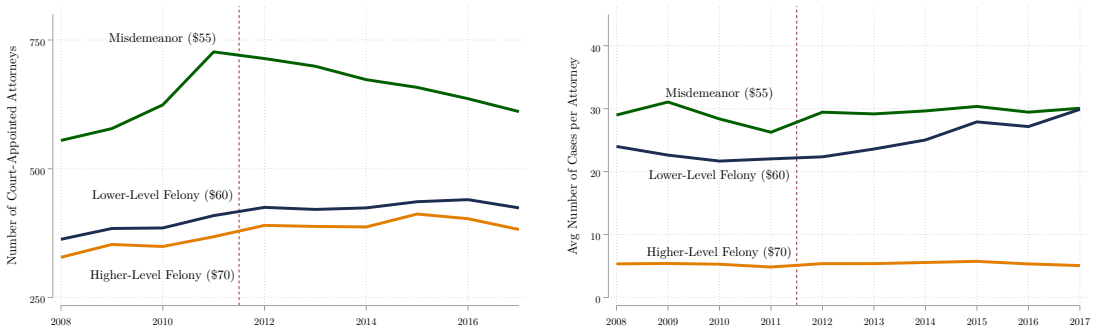
Note: The figure shows the effect of a one standard deviation increase in attorney quality, measured separately by case dismissal, probation, incarceration, and guilty plea. The effect of attorney quality is specific to the outcome used to construct the measure. For example, if case dismissal is used as the measure of attorney quality, the effect shown is the impact of attorney quality (as measured by case dismissal) on actual case dismissal. The effect is expressed as a percentage change in the outcome, calculated by dividing the effect by the mean of the outcome. Dismissal is a binary indicator equal to one if all charges for the case are dismissed. Incarceration is a binary indicator equal to one if any charges result in an incarceration sentence, and probation is a binary indicator equal to one if any charges result in a probation sentence. Incarceration and probation are not mutually exclusive, as sentences can include both outcomes.

Figure 2 Attorney Selection Policies



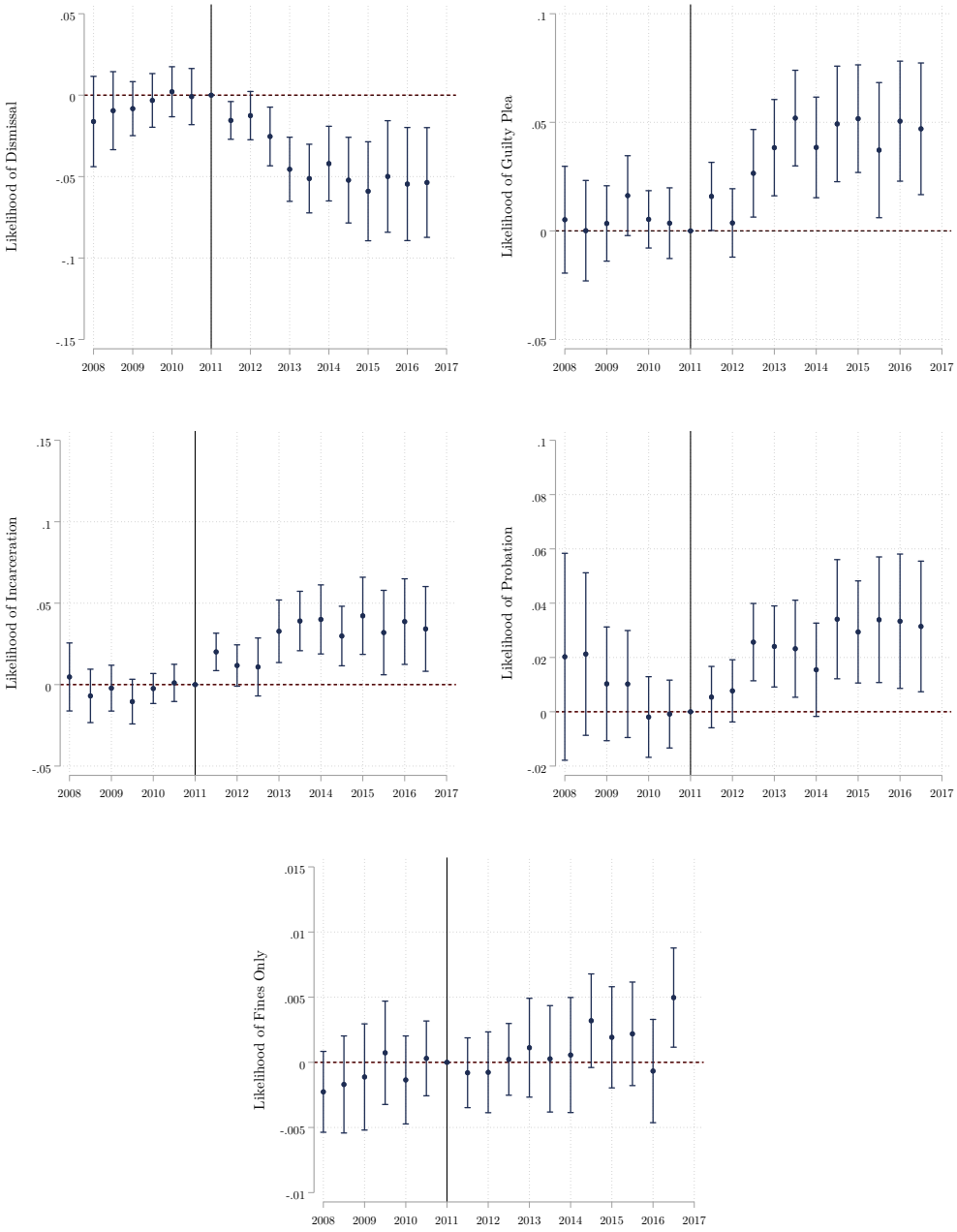
Note: The figure provides scatter plots of attorney quality measures for case dismissal and incarceration. Each point represents a normalized leave-out mean quality measure within 4 standard deviations of the mean. The 5th percentile case dismissal quality and 95th percentile incarceration likelihood measures are shown by the dotted lines.

Figure 3 Number of Court-Appointed Attorneys, Cases and the Fraction of Cases Requiring Public Defender or Court-Appointed Attorneys



Note: The first figure provides the number of attorneys registered on each list over time. The second figure reports the average number of cases that an attorney handles each year by list. The orange line represents attorneys responsible for higher-level felony cases. The blue line represents attorneys who represent lower-level felony cases. The green line represents attorneys handling misdemeanor cases.

Figure 4 Effects of Pay Decrease on Case Outcomes



Note: The figure plots the effects of the 2011 court appointed attorney pay reduction on the likelihood of case dismissal, pleading guilty, incarceration, probation, and fines only. The vertical line represents the second half of 2011 when the pay reduction occurred. The event study compares court appointed attorneys in counties without public defenders to public defenders. Public defenders did not receive a pay reduction. Each specification controls for defendant demographic and case characteristics such as age, sex, race and ethnicity, prior convictions, prior sentencing points, an indicator for whether case is resolved in district court, and the charge class for more severe charge. Standard errors are clustered at the county level.

Table 1 Descriptive Statistics for Counties Whose Primary Form of Indigent Defense is Court-Appointed Attorneys or Public Defenders

	Misdemeanor Cases		Felony Cases	
	Appointed Counsel	Public Defenders	Appointed Counsel	Public Defenders
A. Outcomes				
Dismissal	0.630	0.695	0.444	0.437
Incarceration	0.130	0.122	0.274	0.286
Probation	0.212	0.168	0.339	0.342
Fines Only	0.047	0.030	0.003	0.002
Guilty Plea	0.355	0.340	0.434	0.448
Prison Sentence (Days)	6.65	4.76	88.65	96.15
Probation Sentence (Days)	90.02	70.84	236.95	223.29
B. Defendant and Case Characteristics				
Male	0.644	0.690	0.754	0.786
Age at charge	32.19	32.59	31.41	31.80
White	0.526	0.352	0.521	0.347
Black	0.401	0.567	0.427	0.594
Hispanic	0.033	0.047	0.023	0.032
Race other	0.041	0.033	0.028	0.027
First time offender	0.745	0.776	0.623	0.664
Num. prior convictions	0.527	0.475	0.842	0.716
Num. charges	2.10	1.95	3.59	3.19
Violent crime	0.253	0.242	0.117	0.139
Property crime	0.177	0.177	0.316	0.273
Financial crime	0.021	0.021	0.173	0.182
Public order crime	0.413	0.408	0.088	0.088
Drug crime	0.130	0.144	0.292	0.294
Miscellaneous crime	0.006	0.008	0.015	0.024
Individuals	259,717	249,728	95,430	92,988
N	388,704	383,095	126,701	121,718

Note: The summary statistics for court-appointed counsel pertain to the sample used to estimate attorney quality, while those for public defenders correspond to the comparison group employed in assessing the impact of the 2011 pay reduction on case outcomes for court-appointed attorneys. Both samples include only cases with non-missing outcomes and controls necessary for model estimation. Outcome variables are binary indicators, except for the incarceration and probation sentence lengths. Similarly, all defendant and case characteristics are binary indicators, with the exception of age at charge, number of prior convictions, and number of charges. In the subsequent analysis comparing case outcomes between court-appointed attorneys and public defenders before and after the pay reduction, the focus is on the subset of court-appointed attorneys registered in counties without a public defender's office.

Table 2 Test for Random Assignment to Attorneys using Dismissal Quality Measure

	Misdemeanor		Felony	
	Dismissal	Attorney Quality	Dismissal	Attorney Quality
Age	0.010***	0.000	0.021***	0.001
	(0.002)	(0.000)	(0.003)	(0.001)
Male	-0.006***	0.001***	0.002	0.002**
	(0.002)	(0.000)	(0.003)	(0.001)
Black	-0.001	0.000	0.018***	0.000
	(0.002)	(0.000)	(0.003)	(0.001)
Hispanic	-0.124***	-0.005***	-0.070***	-0.004
	(0.005)	(0.001)	(0.010)	(0.003)
Violent Offense	0.138***	0.005***	-0.069***	0.001
	(0.010)	(0.002)	(0.014)	(0.003)
Property Offense	0.004	0.006***	-0.009	0.002
	(0.010)	(0.002)	(0.013)	(0.002)
Financial and Fraud Offense	0.068***	0.005***	0.002	0.000
	(0.011)	(0.002)	(0.013)	(0.002)
Drugs and Alcohol Offense	0.005	0.006***	0.011	0.002
	(0.010)	(0.002)	(0.013)	(0.002)
Traffic and Public Order Offense	0.003	0.005***	-0.033**	0.001
	(0.010)	(0.002)	(0.014)	(0.002)
Number of Charges	-0.361***	-0.002**	-0.291***	-0.004**
	(0.005)	(0.001)	(0.007)	(0.002)
Observations	367,331	367,331	120,600	120,503
Joint F-Stat	3312.543	5.685	814.202	1.195
P-value	0.000	0.000	0.000	0.208

Note: Values are conditional on county-list-by-time fixed effects. F-statistics are for the joint significance of defendants' demographic and criminal history characteristics. Standard errors are clustered at the attorney-level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 3 F-Statistics for joint significance of Defendants' Demographic and Criminal History Characteristics

	Misdemeanor		Felony	
	Outcome	Attorney Quality	Outcome	Attorney Quality
Dismissal	3312.54	5.68	814.20	1.20
Probation	677.23	3.74	263.97	1.39
Incarceration	550.57	2.49	467.88	0.99
Guilty Plea	1320.81	4.41	529.00	1.46

Note: Values are conditional on county-list-by-time fixed effects. F-statistics are for the joint significance of defendants' demographic and criminal history characteristics. Standard errors are clustered at the attorney-level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 4 Test for Random Assignment to Attorneys using Controls Across Specifications

	Misdemeanor		Felony	
	Dismissal	Dismissal	Dismissal	Dismissal
Attorney Dismissal Quality	0.029***	0.025***	0.025***	0.025***
	(0.002)	(0.002)	(0.003)	(0.003)
Age		0.011***		0.019***
		(0.002)		(0.003)
Male		-0.006***		0.001
		(0.002)		(0.003)
Black		-0.001		0.017***
		(0.002)		(0.003)
Hispanic		-0.124***		-0.066***
		(0.005)		(0.010)
Violent Offense		0.138***		-0.054***
		(0.010)		(0.013)
Property Offense		0.003		0.006
		(0.010)		(0.013)
Financial and Fraud Offense		0.065***		0.019
		(0.011)		(0.013)
Drugs and Alcohol Offense		0.004		0.026**
		(0.010)		(0.013)
Traffic and Public Order Offense		0.002		-0.018
		(0.010)		(0.013)
Number of Charges		-0.362***		-0.290***
		(0.005)		(0.007)
Observations	367,701	367,701	121,807	121,807

Note: Values are conditional on county-list-by-time fixed effects. Standard errors are clustered at the attorney-level. *** p<0.01, ** p<0.05, * p<0.1

Table 5 Percentile Rank of Empirical Interquartile Range to Test for Random Assignment

	Misdemeanor	Felony
Predicted Dismissal	99.99	72.20
Predicted Probation	99.99	75.40
Predicted Incarceration	99.99	87.40

Note: The table presents results from the random-assignment simulation, following the approach of Abrams, Bertrand and Mullainathan (2012), using predicted likelihoods of case dismissal, probation, and incarceration. It reports the percentile rank of the empirical interquartile range (IQR) within the distribution of IQRs from the simulated data. The empirical IQR is calculated as the difference between the 75th and 25th percentiles of the attorney effect distribution. To construct the random-assignment simulation, simulated data are generated from the actual data by randomly assigning the predicted case outcomes to attorneys (with replacement) within county-list-by-time groups. Attorney means are then calculated and ranked, allowing for the measurement of the simulated IQR. This process is repeated 1,500 times, and the resulting 1,500 simulated IQRs form the random-assignment simulation distribution.

Table 6 Correlation of Attorney Quality Measures

	Dismissal	Probation	Incarceration	Guilty Plea
A. Misdemeanor				
Dismissal	1			
Probation	-0.734	1		
Incarceration	-0.469	0.037	1	
Guilty Plea	-0.642	0.531	0.365	1
B. Felony				
Dismissal	1			
Probation	-0.708	1		
Incarceration	-0.382	-0.222	1	
Guilty Plea	-0.546	0.352	0.240	1

Note: The table shows the correlation between each of the misdemeanor attorney quality measures. For dismissal, incarceration, and probation, a positive value indicates a higher likelihood of that outcome occurring. For the sentence length measures, positive values correspond to longer sentences.

Table 7 Effects of Replacing 5% Lowest Quality Attorneys on Case Outcomes

	Dismissal	Probation	Incarceration	Fines Only	Guilty Plea	Probation Sentence	Incarceration Sentence
A. Misdemeanor Measures							
Bottom 5% Dismissal Measure	0.053***	-0.039***	-0.018***	-0.004***	-0.045***	-13.955***	-0.870***
	(0.004)	(0.006)	(0.003)	(0.002)	(0.004)	(2.731)	(0.310)
Top 5% Incarceration Measure	0.024***	-0.005	-0.030***	0.003**	-0.024***	-3.168	-0.816***
	(0.004)	(0.006)	(0.003)	(0.001)	(0.004)	(2.855)	(0.301)
(1/2) (Dismissal + Incarceration Measures)	0.045***	-0.026***	-0.028***	-0.001	-0.041***	-10.094***	-0.995***
	(0.004)	(0.006)	(0.003)	(0.002)	(0.005)	(2.682)	(0.307)
B. Felony Measures							
Bottom 5% Dismissal Measure	0.053***	-0.050***	-0.018***	0.000	-0.037***	-18.697***	-3.233
	(0.009)	(0.012)	(0.006)	(0.000)	(0.007)	(2.392)	(2.189)
Top 5% Incarceration Measure	0.020**	0.004	-0.037***	-0.001	-0.014*	-1.77	-6.248***
	(0.010)	(0.013)	(0.005)	(0.000)	(0.007)	(2.740)	(1.952)
(1/2) (Dismissal + Incarceration Measures)	0.042***	-0.027	-0.032***	0.000	-0.030***	-12.031***	-5.573**
	(0.015)	(0.019)	(0.006)	(0.001)	(0.010)	(3.326)	(2.707)

Note: The unit of observation is an attorney case. Panel A includes all misdemeanor cases, and Panel B includes all felony cases. The simulation uses the estimated effects of attorney quality on case outcomes and the within-attorney correlations between each quality measure and assumes that the attorney quality measures are normally distributed. Each row shows the effect on a defendant's outcome of being assigned an average attorney instead of an attorney in the bottom 5% of least effective attorneys, as measured by the attorney quality measure indicated in the row. By construction, the bottom 5% of attorneys along the case dismissal measure are the least effective while the least effective attorneys along the incarceration measure are in the top 5%. Row 1 in Panel A reports the effect on a case outcome had the case been assigned an average case dismissal attorney rather than one in the bottom 5%. Row 2 reports similar estimates using the incarceration measure. Row 3 uses the inverse of the incarceration measure to create an average of an attorney's dismissal and incarceration measures to capture the least effective attorneys along both measures. Panel B performs the same analysis for felony cases. Standard errors are shown in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

Table 8 Effect of 2011 Pay Reduction by Case Type

	Main	Misdemeanor	Lower-Level Felony	Higher-Level Felony
	(1)	(2)	(3)	(4)
A. Dismissal likelihood				
Appointed Counsel × Pay Decrease	-0.035***	-0.052***	-0.010	0.044
	(0.009)	(0.012)	(0.017)	(0.027)
Dep Mean	0.609	0.701	0.451	0.394
B. Guilty Plea				
Appointed Counsel × Pay Decrease	0.032***	0.061***	-0.015	-0.031
	(0.010)	(0.013)	(0.022)	(0.031)
Dep Mean	0.350	0.307	0.429	0.425
C. Incarceration likelihood				
Appointed Counsel × Pay Decrease	0.032***	0.042***	0.026***	-0.021
	(0.008)	(0.010)	(0.009)	(0.021)
Dep Mean	0.189	0.136	0.256	0.442
D. Probation likelihood				
Appointed Counsel × Pay Decrease	0.015	0.012	0.016	-0.013
	(0.010)	(0.011)	(0.014)	(0.012)
Dep Mean	0.226	0.167	0.353	0.219
E. Fines only likelihood				
Appointed Counsel × Pay Decrease	0.002*	0.003**	-0.000	0.001*
	(0.001)	(0.001)	(0.001)	(0.001)
Dep Mean	0.009	0.013	0.003	0.001
F.Incarceration Sentence				
Appointed Counsel × Pay Decrease	1.973	1.299***	5.168*	-2.663
	(3.083)	(0.333)	(2.963)	(41.935)
Dep Mean	49.79	5.05	57.98	545.10
G. Probation Sentence				
Appointed Counsel × Pay Decrease	8.528*	4.637	14.282	-9.261
	(4.944)	(4.476)	(9.465)	(11.500)
Dep Mean	127.30	70.47	239.20	178.00
Observations	656,576	422,888	198,773	34,915
Country FE	X	X	X	X
Half-year FE	X	X	X	X

Note: This table presents the DID estimates for the effect of the 2011 pay reduction for court-appointed attorneys. Column (1) provides the main estimate, while the last three columns present estimates for attorneys handling specific types of cases. Attorneys registered for list one are able to handle cases where the highest charge is a misdemeanor. Attorneys registered on list one handle cases where the highest charge is a misdemeanor. Attorneys on list two or three represent lower-level or higher-level felony cases, respectively. In 2011, the pay for misdemeanor cases decreased to \$55, while the pay for lower-level and higher-level felonies decreased to \$60 and \$70. Standard errors clustered at the county level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

Table 9 Effect of Pay Reduction on Misdemeanor Case Outcomes for Stayers, Entrants, and Exiters

	Stayers	Entrants	Exiters
	(1)	(2)	(3)
A. Dismissal likelihood			
Appointed Counsel × Pay Decrease	-0.034**	-0.047***	-0.031*
	(0.016)	(0.018)	(0.016)
B. Guilty Plea			
Appointed Counsel × Pay Decrease	0.047**	0.042**	0.038*
	(0.018)	(0.017)	(0.019)
C. Incarceration likelihood			
Appointed Counsel × Pay Decrease	0.029***	0.043***	0.036***
	(0.010)	(0.009)	(0.013)
D. Probation likelihood			
Appointed Counsel × Pay Decrease	0.011	0.006	0.002
	(0.013)	(0.017)	(0.014)
E. Fines only likelihood			
Appointed Counsel × Pay Decrease	0.000	-0.001	-0.003
	(0.002)	(0.003)	(0.004)
Observations	71,328	37,482	23,192
Country FE	x	x	x
Half-year FE	x	x	x

Note: The table presents estimates of the pay reduction's effect on misdemeanor case outcomes for three groups of attorneys: stayers, entrants, and exiters. Stayers are attorneys who remained continuously registered on the list from 2009 to 2014. Entrants are attorneys who joined the list during this period, and exiters are those who ceased handling cases within this timeframe. For entrants, the estimates capture case outcomes in their first year of registration, while for exiters, the estimates reflect case outcomes in their final year before removing their names from the list. Standard errors are clustered at the county level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

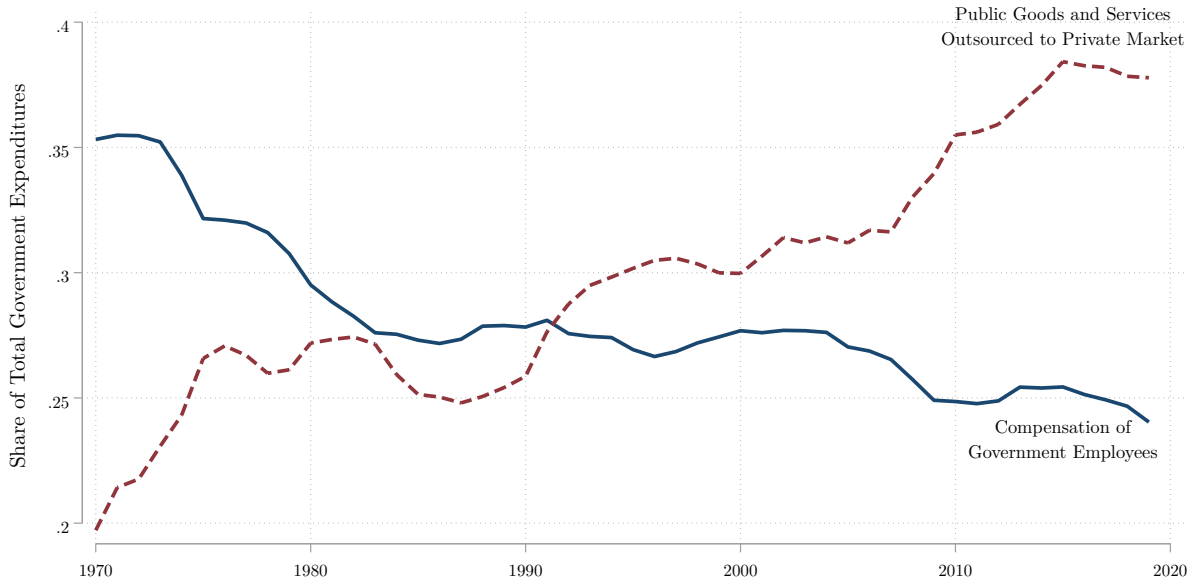
Table 10 Effect of the Pay Reduction by Attorney Experience and Caseload

	Misdemeanors		Lower-Level Felonies		Higher-Level Felonies	
	<= Median	> Median	<= Median	> Median	<= Median	> Median
A. Experience						
Dismissal likelihood	-0.051***	-0.050***	-0.025	0.005	0.022	0.066*
	(0.013)	(0.013)	(0.020)	(0.017)	(0.020)	(0.038)
Guilty Plea	0.068***	0.050***	-0.011	-0.023	-0.032	-0.029
	(0.013)	(0.015)	(0.025)	(0.021)	(0.030)	(0.034)
Incarceration likelihood	0.045***	0.037***	0.027**	0.024**	-0.018	-0.026
	(0.011)	(0.010)	(0.012)	(0.012)	(0.022)	(0.025)
Probation likelihood	0.009	0.015	0.034*	-0.002	0.011	-0.036*
	(0.011)	(0.013)	(0.017)	(0.016)	(0.023)	(0.021)
Fines only likelihood	0.003*	0.003*	-0.001	0.001	0.000	0.001**
	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
B. Number of Cases						
Dismissal likelihood	-0.055***	-0.052***	-0.001	0.002	0.064	0.031
	(0.014)	(0.012)	(0.025)	(0.028)	(0.039)	(0.023)
Guilty Plea	0.060***	0.063***	-0.021	-0.033	-0.062*	-0.012
	(0.014)	(0.013)	(0.027)	(0.038)	(0.033)	(0.035)
Incarceration likelihood	0.049***	0.035***	0.016	0.029*	-0.047	-0.006
	(0.011)	(0.009)	(0.015)	(0.017)	(0.038)	(0.013)
Probation likelihood	0.009	0.019	0.004	0.006	-0.001	-0.026
	(0.011)	(0.012)	(0.018)	(0.031)	(0.016)	(0.020)
Fines only likelihood	0.002	0.004***	0.000	-0.000	0.000	0.002**
	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)

Note: The table reports estimates for the effect of the 2011 pay reduction on court-appointed attorneys by attorney experience and case load. The row indicates the outcome of interest. Experience is measured as the number of years between being assigned a case and when the attorney was admitted to the North Carolina Bar Association. The caseload is measured by the number of misdemeanor, lower-level felony, or higher-level felony cases an attorney handled in a year. Standard errors are clustered at the county level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

A Appendix: Tables and Figures

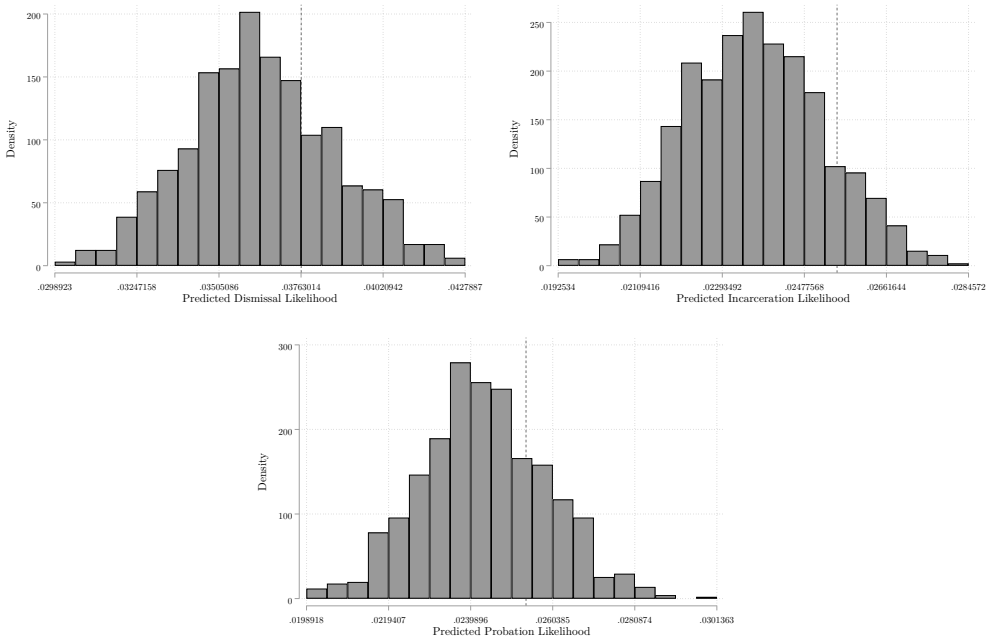
Figure A.1 Share of Total Government Expenditures Devoted to Public-Sector Compensation and Public Goods and Services Supplied by Market Producers



Source: OECD National Accounts Statistics

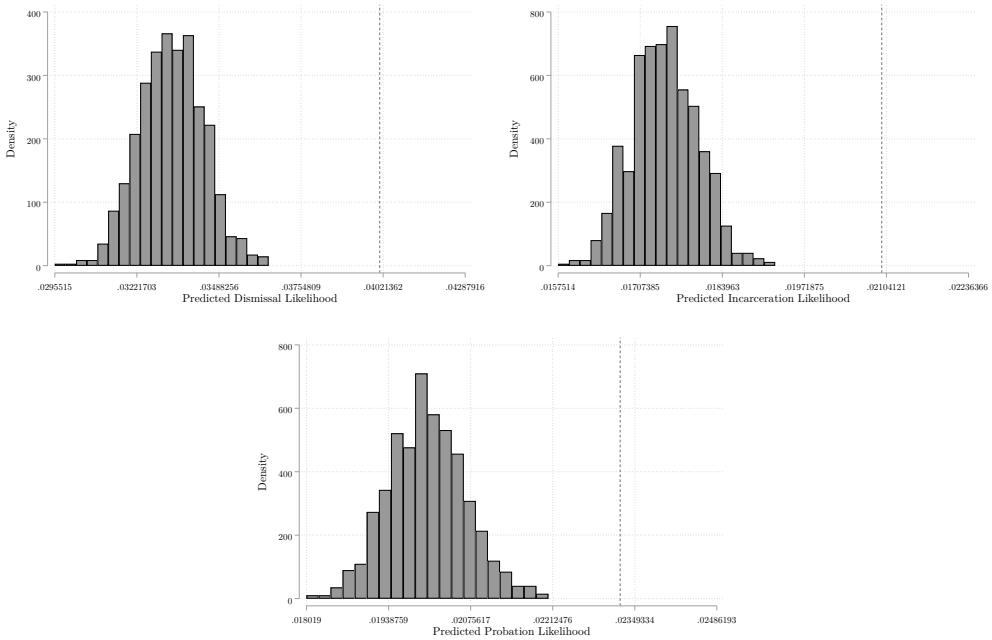
Note: The figure presents public-sector compensation and the provision of public goods and services by market producers as a share of total US government expenditures. Public goods and services provided by market producers serve as a proxy for outsourced public goods and services, while public-sector compensation proxies the volume of goods and services produced in-house (OECD, 2023).

Figure A.2 Court-Appointed Attorney Assigned to Felony Cases: 25th-75th Interquartile Range of Attorney Means from Simulations Compared to Actual Deviation



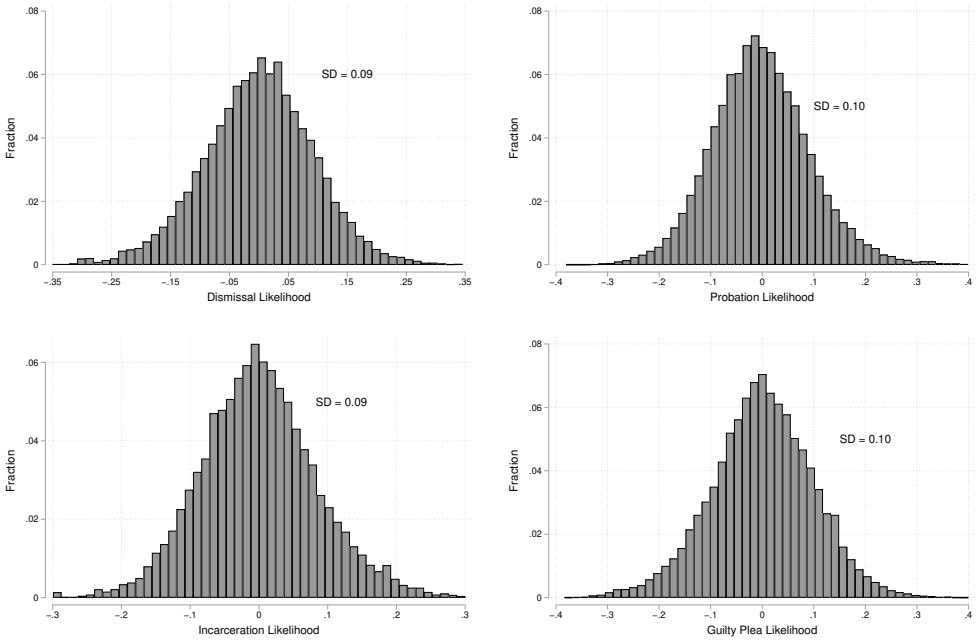
Note: The null hypothesis is that each attorney has the same fraction of defendants with the observable case or defendant characteristic. The unit of randomization is an attorney assigned county-list-by-time cell. Each of the 1,500 simulated data sets is constructed by randomly assigning (with replacement) a case or defendant characteristic to each observation within each randomization unit. For each simulated data set, the 25th-75th interpercentile range of the attorney means is computed. The dotted line represents the actual dispersion of attorney means.

Figure A.3 Court-Appointed Attorney Assigned to Misdemeanor Cases: 25th-75th Interpercentile Range of Attorney Means from Simulations Compared to Actual Deviation



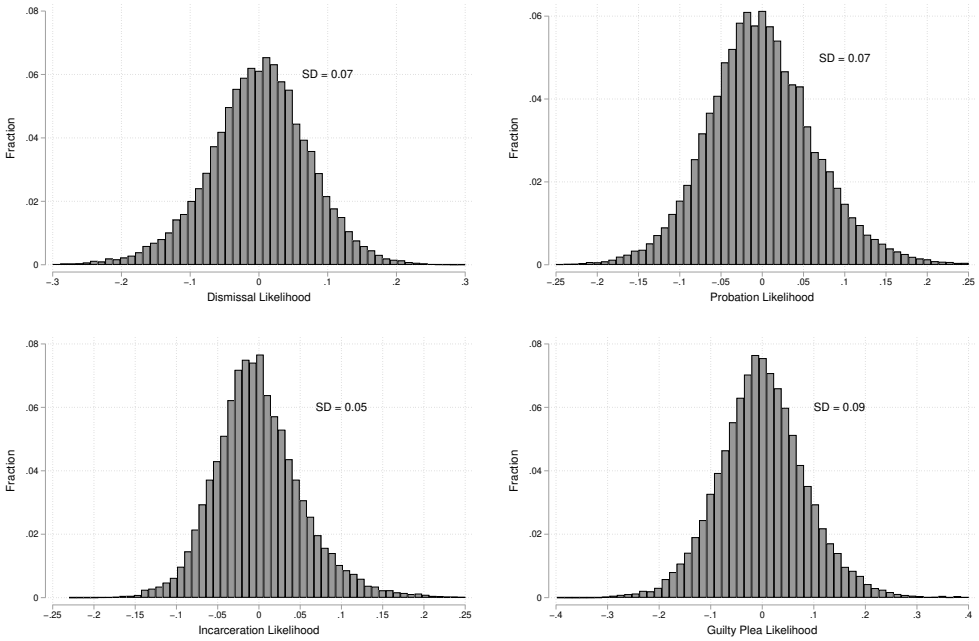
Note: The null hypothesis is that each attorney has the same fraction of defendants with the observable case or defendant characteristic. The unit of randomization is an county-list-by-time cell. Each of the 1,500 simulated data sets is constructed by randomly assigning (with replacement) a case or defendant characteristic to each observation within each randomization unit. For each simulated data set, the 25th-75th interpercentile range of the attorney means is computed. The dotted line represents the actual dispersion of attorney means.

Figure A.4 Distribution of Yearly Attorney Quality Measures for Felony Cases



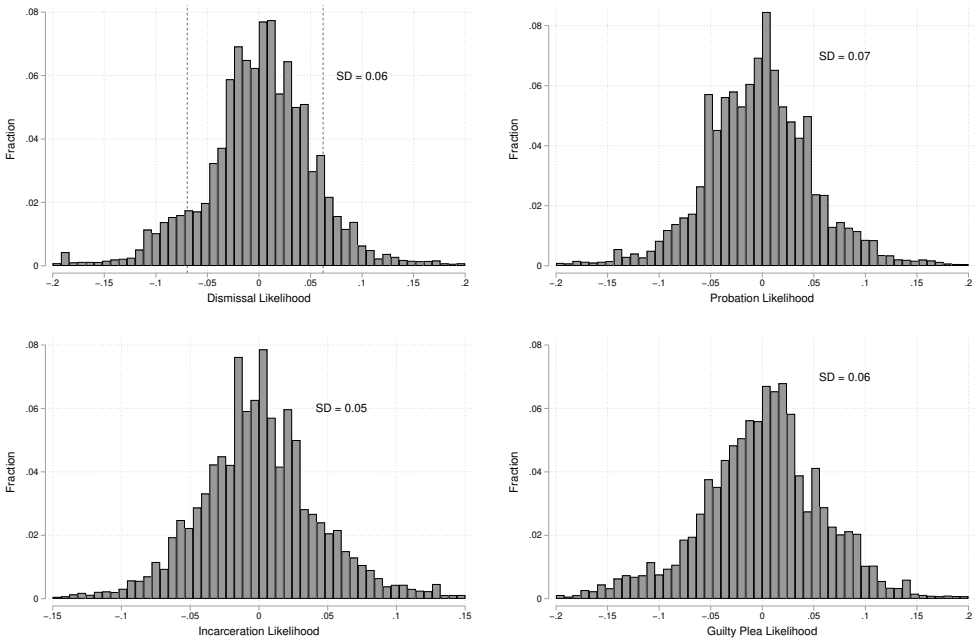
Note: The distribution of yearly attorney effects is plotted using case dismissal, probation, incarceration, and guilty plea as measures of attorney quality. For each measure, attorney quality is estimated using only cases from the same year in which defendant i's case is assigned. The standard deviation for each distribution is reported alongside the corresponding figure.

Figure A.5 Distribution of Yearly Attorney Quality Measures for Misdemeanor Cases



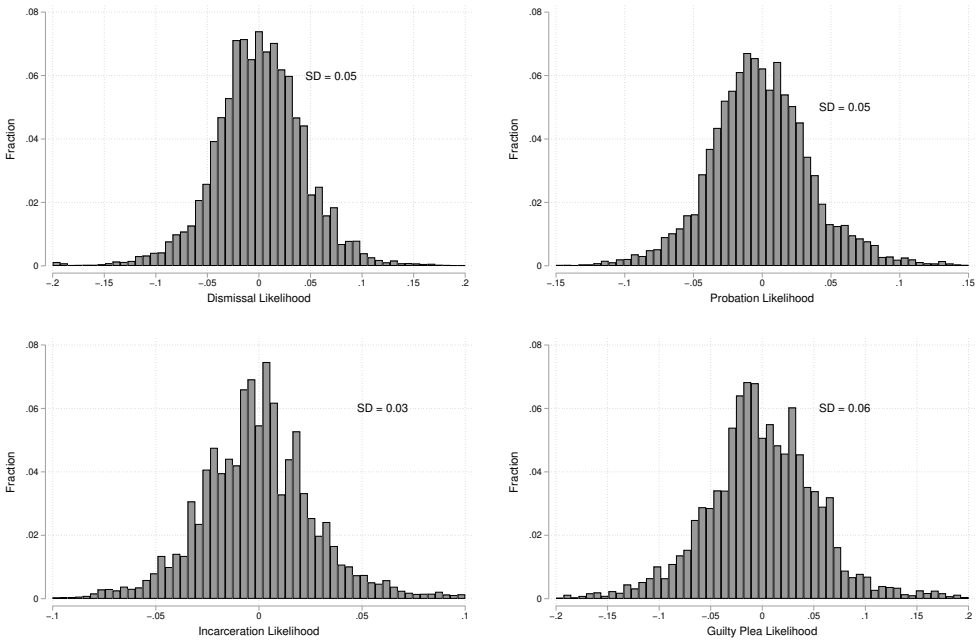
Note: The distribution of yearly attorney effects is plotted using case dismissal, probation, incarceration, and guilty plea as measures of attorney quality. For each measure, attorney quality is estimated using only cases from the same year in which defendant *i*'s case is assigned. The standard deviation for each distribution is reported alongside the corresponding figure.

Figure A.6 Distribution of Attorney Quality Measures Pooling Cases Across Years for Felony Cases



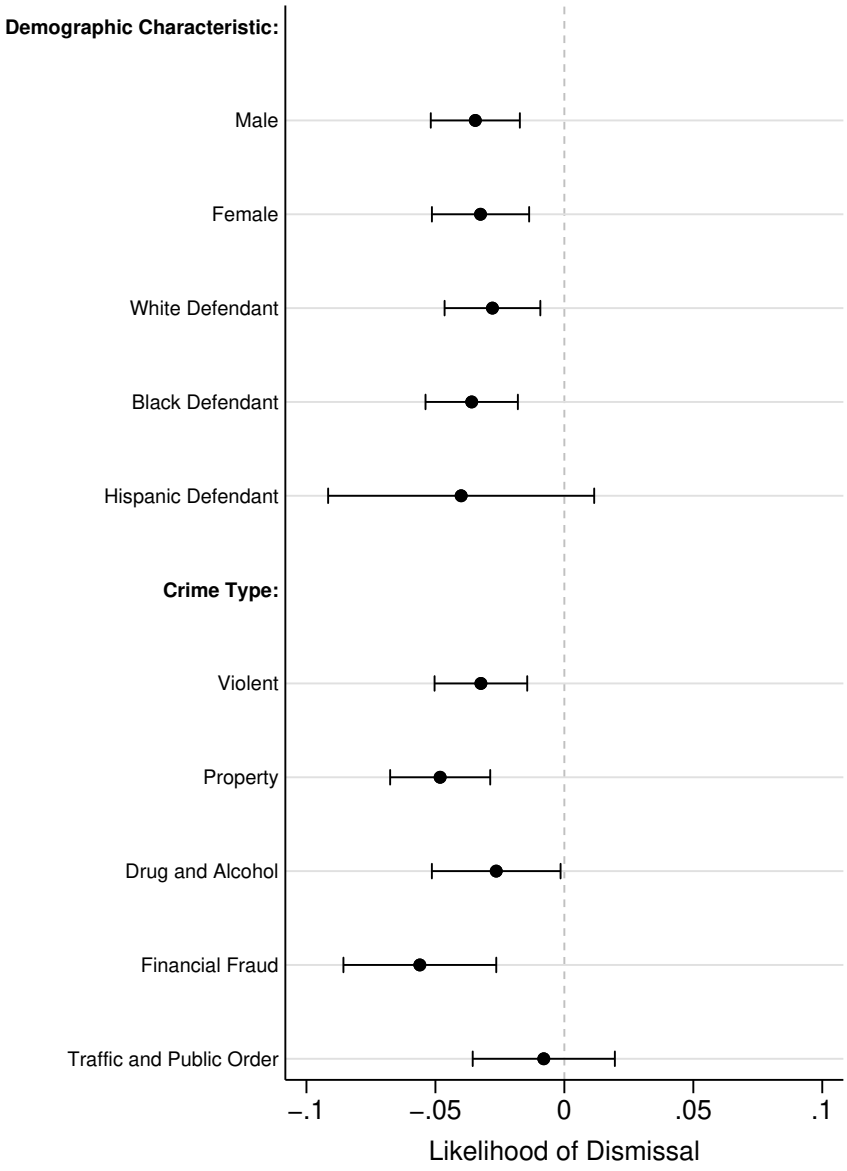
Note: The distribution of attorney effects is plotted using case dismissal, probation, incarceration, and guilty plea as measures of attorney quality. For each measure, attorney quality is estimated using all cases handled by the attorney, excluding the cases assigned to defendant i. The standard deviation for each distribution is reported alongside the corresponding figure.

Figure A.7 Distribution of Attorney Quality Measures Pooling Cases Across Years for Felony Cases



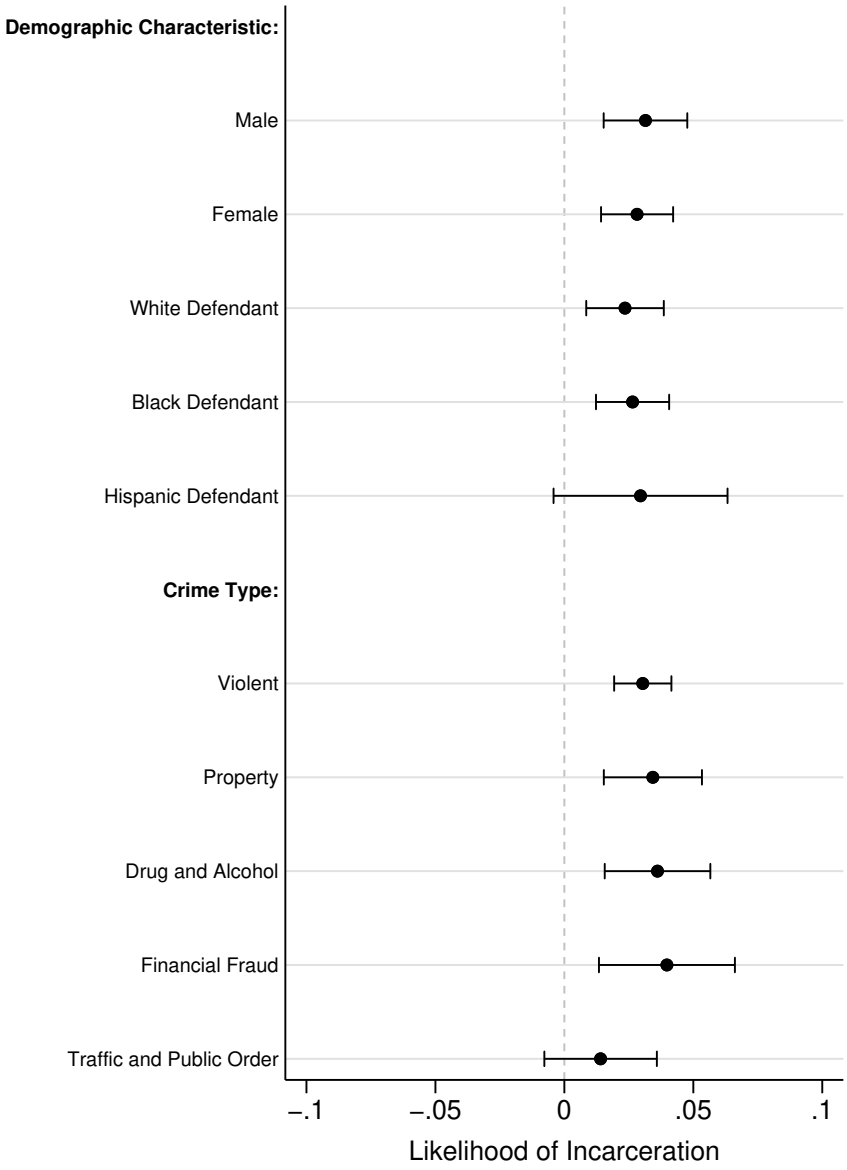
Note: The distribution of attorney effects is plotted using case dismissal, probation, incarceration, and guilty plea as measures of attorney quality. For each measure, attorney quality is estimated using all cases handled by the attorney, excluding the cases assigned to defendant i. The standard deviation for each distribution is reported alongside the corresponding figure.

Figure A.8 Heterogeneous Effects of Pay Decrease on Case Dismissal, by Defendant Characteristics and Crime Type



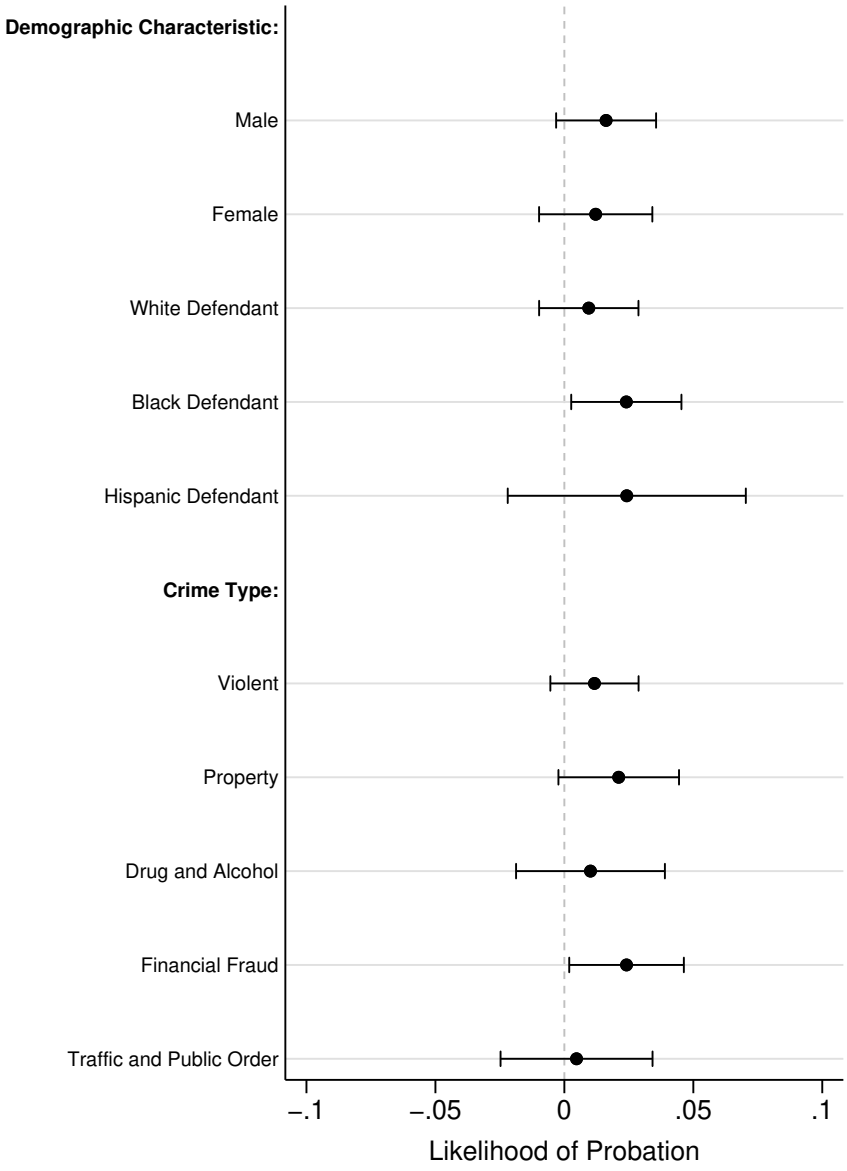
Note: The figure reports the heterogeneous effects of the pay decrease on the likelihood of case dismissal. The bars represent 95% confidence intervals. Point estimates and confidence intervals are estimated using equation 5 using the subgroup of cases with the defendant characteristic or crime type indicated on the y-axis. Confidence intervals are clustered at the county-level.

Figure A.9 Heterogeneous Effects of Pay Decrease on Incarceration, by Defendant Characteristics and Crime Type



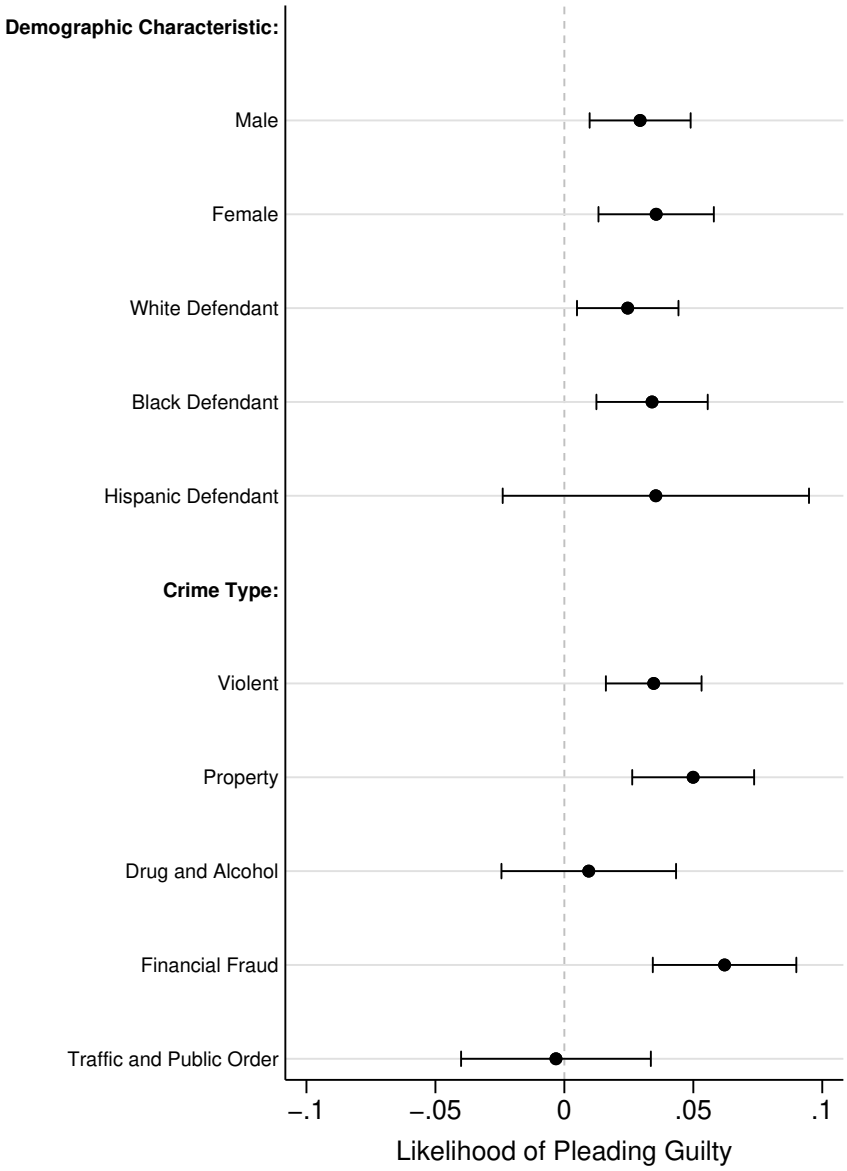
Note: The figure reports the heterogeneous effects of the pay decrease on the likelihood of incarceration. The bars represent 95% confidence intervals. Point estimates and confidence intervals are estimated using equation 5 using the subgroup of cases with the defendant characteristic or crime type indicated on the y-axis. Confidence intervals are clustered at the county-level.

Figure A.10 Heterogeneous Effects of Pay Decrease on Probation, by Defendant Characteristics and Crime Type



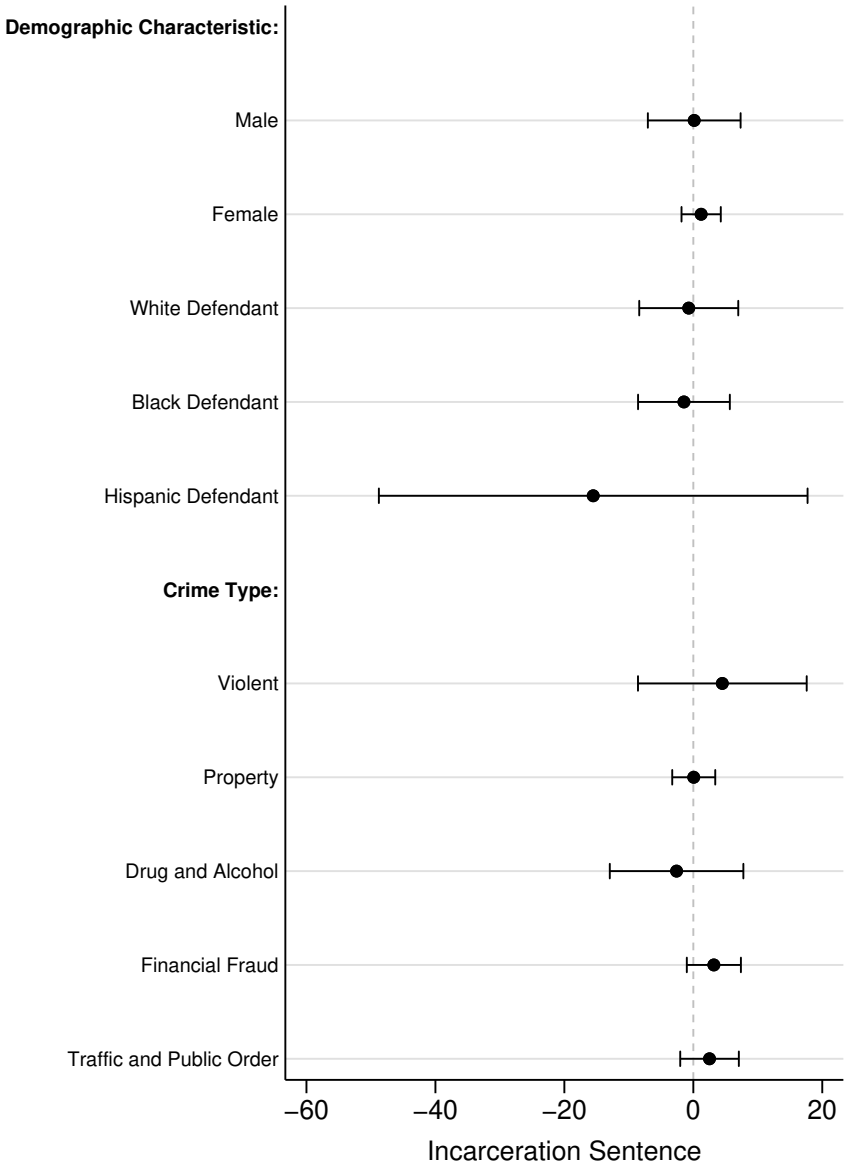
Note: The figure reports the heterogeneous effects of the pay decrease on the likelihood of probation. The bars represent 95% confidence intervals. Point estimates and confidence intervals are estimated using equation 5 using the subgroup of cases with the defendant characteristic or crime type indicated on the y-axis. Confidence intervals are clustered at the county-level.

Figure A.11 Heterogeneous Effects of Pay Decrease on Pleading Guilty, by Defendant Characteristics and Crime Type



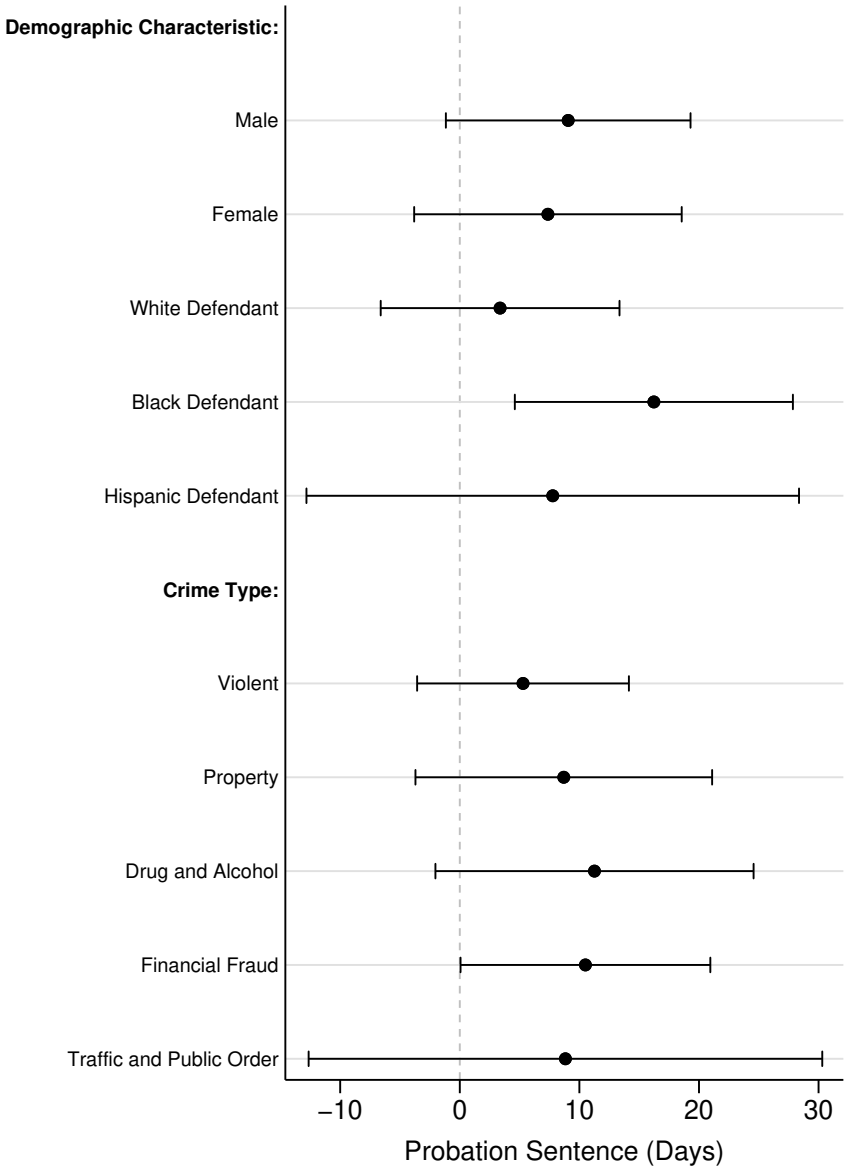
Note: The figure reports the heterogeneous effects of the pay decrease on the likelihood of pleading guilty. The bars represent 95% confidence intervals. Point estimates and confidence intervals are estimated using equation 5 using the subgroup of cases with the defendant characteristic or crime type indicated on the y-axis. Confidence intervals are clustered at the county-level.

Figure A.12 Heterogeneous Effects of Pay Decrease on Incarceration Sentence, by Defendant Characteristics and Crime Type



Note: The figure reports the heterogeneous effects of the pay decrease on incarceration duration in days. The bars represent 95% confidence intervals. Point estimates and confidence intervals are estimated using equation 5 using the subgroup of cases with the defendant characteristic or crime type indicated on the y-axis. Confidence intervals are clustered at the county-level.

Figure A.13 Heterogeneous Effects of Pay Decrease on Incarceration Sentence, by Defendant Characteristics and Crime Type



Note: The figure reports the heterogeneous effects of the pay decrease on probation duration in days. The bars represent 95% confidence intervals. Point estimates and confidence intervals are estimated using equation 5 using the subgroup of cases with the defendant characteristic or crime type indicated on the y-axis. Confidence intervals are clustered at the county-level.

Table A.1 Standard Deviations of Yearly Attorney Quality Pre-2011 and Post-2011

	Pre-2011 Attorneys		Post-2011 Attorneys	
	Misdemeanor	Felony	Misdemeanor	Felony
Dismissal	0.07	0.09	0.07	0.09
Probation	0.07	0.09	0.08	0.10
Incarceration	0.05	0.09	0.06	0.08
Guilty Plea	0.08	0.09	0.07	0.10

Note: The table reports the standard deviation of attorney quality estimated using only attorneys before or after 2011. The year 2011 is excluded from both samples.

Table A.2 F-Statistics from Random Assignment Test for All Outcomes

	Actual Outcome	Attorney Quality	Actual Outcome	Attorney Quality
Dismissal	3312.54	5.68	814.20	1.20
Probation	677.23	3.74	263.97	1.39
Incarceration	550.57	2.49	467.88	0.99
Guilty Plea	1320.81	4.41	529.00	1.46

Note: The F-statistics for the random assignment test discussed in Table 2 for each outcome and attorney quality measure indicated by the row heading. Values are conditional on county-list-by-time fixed effects. F-statistics are for the joint significance of defendants' demographic and criminal history characteristics. Standard errors are clustered at the attorney-level.

Table A.3 Changes in Attorney Composition and Within-Attorney Quality

	Stayers		Entrants		Exiters	
	(1)	(2)	(3)	(4)	(5)	(6)
A. Dismissal likelihood	-0.019	-0.017	-0.057***	-0.040**	-0.026*	-0.013
Appointed Counsel × Pay Decrease	(0.015)	(0.016)	(0.015)	(0.017)	(0.015)	(0.015)
B. Guilty Plea	0.020	0.022	0.030	0.004	0.036**	0.027
Appointed Counsel × Pay Decrease	(0.013)	(0.014)	(0.018)	(0.020)	(0.017)	(0.017)
C. Incarceration likelihood	0.023**	0.021**	0.035***	0.026**	0.024*	0.020
Appointed Counsel × Pay Decrease	(0.009)	(0.010)	(0.010)	(0.013)	(0.014)	(0.016)
D. Probation likelihood	0.007	0.006	0.024*	0.014	0.017	0.007
Appointed Counsel × Pay Decrease	(0.012)	(0.012)	(0.014)	(0.019)	(0.013)	(0.014)
E. Fines only likelihood	0.001	0.001	0.003	0.004	0.000	0.000
Appointed Counsel × Pay Decrease	(0.001)	(0.001)	(0.003)	(0.003)	(0.002)	(0.002)
Observations	122,090	122,090	67,245	67,245	99,872	99,872
Country FE	x	x	x	x	x	x
Half-year FE	x	x	x	x	x	x
Demographic & Crime Controls	x	x	x	x	x	x
Attorney FE		x		x		x

Note: The table presents estimates for the effect of the 2011 pay reduction on court-appointed attorneys, comparing results before and after adding an attorney fixed effect. The analysis is segmented into three groups of attorneys: stayers, entrants, and exiters. Stayers are attorneys who remained registered on a list from 2009 to 2014. Entrants are new attorneys who registered and stayed on a list sometime during this period. Exiters are those who stopped handling cases during this time. Standard errors are clustered at the county level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

Table A.4 Effect of Pay Reduction on Lower-Level Felony Case Outcomes for Stayers, Entrants, and Exiters

	Stayers	Entrants	Exiters
	(1)	(2)	(3)
A. Dismissal likelihood			
Appointed Counsel × Pay Decrease	0.000	-0.007	0.016
	(0.026)	(0.033)	(0.031)
B. Guilty Plea			
Appointed Counsel × Pay Decrease	-0.020	0.003	-0.034
	(0.025)	(0.035)	(0.029)
C. Incarceration likelihood			
Appointed Counsel × Pay Decrease	0.005	0.029	0.014
	(0.013)	(0.024)	(0.023)
D. Probation likelihood			
Appointed Counsel × Pay Decrease	0.010	0.006	-0.027
	(0.018)	(0.036)	(0.031)
E. Fines only likelihood			
Appointed Counsel × Pay Decrease	0.000	-0.000	-0.002
	(0.001)	(0.002)	(0.002)
Observations	42,886	13,269	24,820
Country FE	x	x	x
Half-year FE	x	x	x

Note: The table presents estimates of the pay reduction's effect on lower-level felony case outcomes for three groups of attorneys: stayers, entrants, and exiters. Stayers are attorneys who remained continuously registered on the list from 2009 to 2014. Entrants are attorneys who joined the list during this period, and exiters are those who ceased handling cases within this timeframe. For entrants, the estimates capture case outcomes in their first year of registration, while for exiters, the estimates reflect case outcomes in their final year before removing their names from the list. Standard errors are clustered at the county level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

Table A.5 Effect of Pay Reduction on Higher-Level Felony Cases Outcomes for Stayers, Entrants, and Exiters

	Stayers	Entrants	Exiters
	(1)	(2)	(3)
A. Dismissal likelihood			
Appointed Counsel × Pay Decrease	0.047	-0.016	-0.022
	(0.032)	(0.041)	(0.037)
B. Guilty Plea			
Appointed Counsel × Pay Decrease	-0.007	-0.040	-0.003
	(0.036)	(0.036)	(0.043)
C. Incarceration likelihood			
Appointed Counsel × Pay Decrease	-0.029	0.008	-0.003
	(0.029)	(0.038)	(0.042)
D. Probation likelihood			
Appointed Counsel × Pay Decrease	-0.007	0.012	0.057
	(0.021)	(0.039)	(0.039)
E. Fines only likelihood			
Appointed Counsel × Pay Decrease	0.002	-0.003	-0.002
	(0.001)	(0.003)	(0.002)
Observations	8,036	2,237	2,002
Country FE	x	x	x
Half-year FE	x	x	x

Note: The table presents estimates of the pay reduction's effect on higher-level felony case outcomes for three groups of attorneys: stayers, entrants, and exiters. Stayers are attorneys who remained continuously registered on the list from 2009 to 2014. Entrants are attorneys who joined the list during this period, and exiters are those who ceased handling cases within this timeframe. For entrants, the estimates capture case outcomes in their first year of registration, while for exiters, the estimates reflect case outcomes in their final year before removing their names from the list. Standard errors are clustered at the county level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

Table A.6 Marginal Effect of Pay Decrease Using Multinomial Logit Model

	All	Misdemeanor	Lower-Level Felony	Higher-Level Felony
Dismissal	-0.042***	-0.070***	0.002	0.026
	(0.010)	(0.014)	(0.020)	(0.018)
Fines Only	0.002*	0.003**	-0.000	.
	(0.001)	(0.002)	(0.001)	.
Probation	0.007	0.017*	-0.017	-0.023
	(0.009)	(0.009)	(0.018)	(0.014)
Incarceration	0.032***	0.049***	0.015	-0.003
	(0.011)	(0.014)	(0.011)	(0.012)

Note: The table reports the marginal effect of the 2011 pay decrease for court-appointed attorneys using a multinomial logit model. The dependent variable takes on a different value for case dismissal, receiving fines only, probation, and incarceration. I exclude fines only for higher-level felony cases. Standard errors are clustered at the county level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table A.7 Marginal Effect of Pay Decrease Using Multinomial Logit Model, Excluding Case Dismissal

	All	Misdemeanor	Lower-Level Felony	Higher-Level Felony
Fines Only	0.002	-0.003	-0.001	.
	(0.003)	(0.005)	(0.001)	.
Probation	-0.033	-0.043	-0.032	-0.026
	(0.020)	(0.029)	(0.020)	(0.019)
Incarceration	0.031	0.046	0.033*	0.026
	(0.020)	(0.030)	(0.019)	(0.019)

Note: The table reports the marginal effect of the 2011 pay decrease for court-appointed attorneys using a multinomial logit model, conditional on the case not being dismissed. The dependent variable takes on a different value for receiving fines only, probation, and incarceration. I exclude fines only for higher-level felony cases. Standard errors are clustered at the county level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

B Appendix: Data Construction

The core data for this analysis come from the North Carolina Administrative Office of the Courts (AOC) and consist of charge-level criminal court records with a disposition date between 2007 and 2017. Although charges are grouped together under a case number, a defendant may have multiple cases that are disposed of at the same time. Attorneys assigned to a defendant's case will handle all of the cases for that defendant. Therefore, I construct a disposition-level dataset using the date of disposition. This requires that I clean the defendant information to link cases across individuals, identify the final date of disposition, determine the lead charge, and construct disposition-level case outcomes. The remainder of this section describes this process.

The data contain defendant information such as their name, date of birth, address, race, and sex. After carefully cleaning the defendant's name and date of birth text fields, I used the defendant's name and date of birth to construct a defendant identification number. I use the defendant identification number to identify all of the cases and charges for each defendant in the data and to create criminal history variables.

Additionally, the data contain information on attorneys, including the attorney name, attorney type (i.e., court-appointed, public defender, or retained counsel), and attorney assignment date. Beginning in 2014, these data also contain attorney bar numbers. I carefully clean the attorney names and use the name and bar number to merge additional North Carolina Bar information, including attorney sex and the year the attorney joined the Bar.

The data also contain detailed information on the entire court proceedings, with the date of disposition used as the data field to indicate when a court event occurred. Additionally, subsequent probation violations may be linked to the court case such that the same case may have disposition dates from multiple years. I use the disposition dates from the original set of charges to identify a final disposition date for each case. Then, I

link all defendant cases together using the final disposition date. This linkage identifies all of a defendant's charges that are resolved on the same date.

The final dataset will contain one observation for each defendant-disposition-date. I use the most severe charge as the main observation. I identify the severity of each charge using North Carolina's offense grading system. The system ranks each charge between 1 and 39, with murder being ranked 1 and infractions ranked 39. Using information from all charges disposed of on the same date, I also construct case outcomes. I determine that a case is dismissed if all of the defendant's charges are dismissed. I use probation, incarceration, and fine information across all of a defendant's charges to determine a defendant's sentence and sentence duration.

After I restrict the data to the most severe charge, I make additional restrictions. First, I restrict the data to cases where the defendant is over the age of 18 at the time of the charge. Although individuals in North Carolina are charged as adults at the age of 16, counties maintain different lists of attorneys for defendants under the age of 18. Second, I eliminate cases with a charge of murder as these cases are often higher profile, and additional rules specific to capital cases must be followed when assigning representation. Third, I restrict the data to felony and misdemeanor cases. This last restriction removes minor traffic violations while also maintaining more severe traffic violations that carry more severe consequences. Fourth, I eliminate cases involving DWI charges as counties maintain a different list of attorneys specifically for these cases. Lastly, I restrict to cases handled by a public attorney, specifically to public defenders or to court-appointed attorneys who are assigned using the list system.

C Appendix: Attorney Quality Before and After Pay Reduction for Court-Appointed Attorneys

Using yearly measures of attorney quality allows for attorney quality to change over time. This is particularly important because I show that financial incentives affect case

outcomes. However, there may be a concern that the effect of attorney quality on case outcomes may differ before and after the pay decrease. To address this concern, I estimate attorney quality measures separately for attorneys handling cases either before or after 2011, excluding the year 2011 from both subsamples. Table C.1 compares the standard deviations from the distribution of attorney quality for pre- and post-2011 attorneys. The comparison reveals that the dispersion of attorney quality is consistent between the two sets of attorneys and suggests that the effect of attorney quality on case outcomes is not driven by changes in the distribution of attorney quality over time.

Table C.1 Standard Deviations of Yearly Attorney Quality Pre-2011 and Post-2011

	Pre-2011 Attorneys		Post-2011 Attorneys	
	Misdemeanor	Felony	Misdemeanor	Felony
Dismissal	0.07	0.09	0.07	0.09
Probation	0.07	0.09	0.08	0.10
Incarceration	0.05	0.09	0.06	0.08
Guilty Plea	0.08	0.09	0.07	0.10

Note: The table reports the standard deviation of attorney quality estimated using only attorneys before or after 2011. The year 2011 is excluded from both samples.

D Appendix: Shift in State Spending Calculations

The statewide reduction in attorney compensation followed a $12 million annual cut in North Carolina's budget for court-appointed attorneys, which translated to approximately a $103 reduction per case. I estimate that this reduction led to a 5 percentage point increase in the likelihood of incarceration and an additional 1.3 days (5 day baseline) in incarceration sentences following the pay cut. According to the North Carolina Department of Adult Corrections, the estimated daily cost per incarcerated offender is $103.19 (2019 dollars).[11] Based on these figures, I estimate that from 2011 to 2017, the direct costs of

[11] obtained from the North Carolina Department of Adult Corrections's daily cost per offender report: https://www.dac.nc.gov/information-and-services/publications-data-and-research/cost-corrections

increased incarceration amounted to $4 million, while the state saved $13 million from reduced compensation for misdemeanor cases as follows: There were 126,783 misdemeanor cases assigned to court-appointed attorneys after the pay decrease. Using $103.19 as the estimated cost per day of incarceration, the direct cost of incarceration is estimated to be $4 million [126,783 cases * 0.05 increase in likelihood * (5 days + 1.3 days) * $103.19 per day]. The state saved approximately $13 million in reduced attorney costs [126,783 cases * $103 savings per case].

Additionally, defendants are required to pay court-appointed attorney fees, with a minimum application fee of $60 if their case is not dismissed. Based on estimates from Giles (2023), a $60 increase in court fees for misdemeanor cases raises the likelihood of a subsequent felony conviction by 0.65 percentage points. These findings suggest that the reduction in attorney pay could result in an additional $20 million in social costs associated with incarceration due to the rise in new felony convictions. The reduction in attorney compensation led to a decrease in the likelihood of case dismissal by 5 percentage points. The average prison sentence for a felony case is 238 days. Since the pay cut did not affect felony prison sentence durations, the estimated cost of new felony incarcerations is $20 million [126,783 cases * 0.00645 increase in felony convictions * 238-day average incarceration sentence * $103.19 daily cost].

In total, I estimate that the increase in incarceration costs between 2011 and 2017 amounted to at least $24 million, nearly twice the amount saved by the reduction in compensation for court-appointed attorneys.