Authoritarian Control through the Judiciary

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Abstract

We argue that autocratic governments use the judiciary to target perceived threats, a primary tactic long recognized in the literature, focusing on ethnic minority issues in China. Using 4 million court verdicts, we find that China's criminal justice system imposes harsher penalties on ethnic minorities, with 6.7% longer sentences and a 26.9% and 34.9% higher likelihood of life imprisonment and the death penalty. This additional penalty is larger for crimes associated with social unrest, against less assimilated ethnic groups, and in regions experiencing heightened social tensions. In response to the potential ethnic unrest triggered by Uyghur conflicts, penalties against minorities significantly intensified. Judicial decisions are also strongly shaped by local government's political motivations. Since 2017, the majority-minority gap has declined substantially. We discuss how recent large-scale legal reforms help narrow the gap, though with the unintended consequence of weakening the judiciary's role in state control.

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1 Introduction

All authoritarian regimes must maintain social order to ensure their survival. To prevent political opponents from challenging their authority, these regimes employ a variety of tactics,[1] ranging from conventional methods based on brutal violence and ideological indoctrination (Olson, 1993; Adena et al., 2015; Yanagizawa-Drott, 2014) to more modern tools of governance, such as surveillance (Xu, 2021; Beraja et al., 2023), information manipulation (Rozenas and Stukal, 2019), censorship (King et al., 2013; Chen and Yang, 2019), local elections (Martinez-Bravo et al., 2022) and economic policies (Wen, 2024). This paper presents evidence of state control through the judiciary, a primary role of authoritarian legislation that has been long discussed in the literature yet lacks rigorous and systematic empirical evidence (Solomon, 1996; Pereira, 2005).

Our empirical analysis examines ethnic minority issues within the criminal justice system in China, one of the longest-standing authoritarian regimes in modern history. The Chinese Communist Party (CCP) is dominated by the Han ethnic majority, comprising about 91% of the population, and officially recognizes 55 ethnic minorities—each often with distinct ideologies, social practices, religious beliefs, and cultural traditions. Since the CCP is the sole ruling party and faces virtually no political opposition, addressing ethnic minority issues is crucial for ensuring state control. As China's judiciary and its members are entirely under the CCP's control, its legal system can be seen as an instrument of state control. All the judges are appointed, promoted, and demoted by the local governments; 85% of judges are CCP members, and all the courts' heads are party members. Consequently, ethnic minorities considered a threat to the central authority may be subject to unfavorable treatment.

We use a newly combined dataset of more than 4 million individual criminal court cases from the China Judgment Online from 2014 to 2021 that includes original sentencing documentation. Because the Supreme People's Court of China has obligated all the courts to publish all the verdict reports online, our dataset covers almost universal cases during the study period. Furthermore, our dataset includes an extensive set of variables about defendants' characteristics, criminal circumstances, and court proceedings. We develop a novel text-cleaning algorithm and extract possibly all the aggravating or mitigating factors that appear in criminal laws and sentencing guidelines from millions of complex, unstructured, and non-standardized documents. These features contrast starkly with previous studies that include only subsets of data across geography, crime types, criminal procedures, or court levels (Feigenberg and Miller, 2021; Rehavi and Starr, 2014;

[1] See reviews by Gehlbach et al. (2016), Guriev and Treisman (2019), and Egorov and Sonin (2024)

Anwar et al., 2012; Arnold et al., 2022; Cohen and Yang, 2019), and studies that do not contain detailed criminal characteristics (Ash et al., 2021).

Utilizing the comprehensive data, our empirical analysis proceeds in three steps. First, we present the stylized facts of China's criminal justice system through the lens of ethnicity. Despite the growing attention to ethnic minority issues in China, this is, to our knowledge, the first comprehensive national analysis of ethnic issues in its criminal justice system.[2] We employ a selection-on-observables approach, following Rehavi and Starr (2014), Fryer Jr (2019) and Feigenberg and Miller (2021), to compare sentencing outcomes between minority and otherwise similar majority offenders, conditioning on a rich set of covariates.

The results indicate that China's criminal justice system gives harsher penalties to ethnic minority defendants than otherwise observably similar majority defendants. Minorities receive 6.7% longer sentences and have a 26.9% and 34.9% higher likelihood of receiving life sentences and death sentences, which is comparable to or slightly larger than the Black-white disparity in the US.[3]

The results also reveal striking heterogeneity. The "minority penalty" is significantly larger for drug, violent, and sex offenses—crimes often viewed as severe and linked to organized criminal syndicates. The disparity is more pronounced against Islamic, Christian, and Tibetan Buddhist minorities, as well as ethnic groups with a history of conflicts with the Han—groups less assimilated to the majority group. The additional penalty is also greater in poor, minority-dominant, and high-crime prefectures—locations facing heightened social tensions. Not surprisingly, Han judges, who preside over more than 90% of criminal cases, tend to impose harsher penalties than minority judges. While suggestive, our findings document coherent patterns that harsher penalties are strongly associated with the perceived risks of social unrest.

The second part of our analysis leverages two quasi-experiments to explore judicial incentives as an instrument of state control. We first investigate how local jurisdictions respond to ongoing threats of unrest. When faced with potential threats, if local jurisdictions play a role in state control, they would likely imprison dissenters or impose harsh, exemplary punishments as a preventive measure to deter collective actions. To explore this, we follow Wen (2024) and use unrest triggered by the ongoing conflict between Uyghur separatists and the Chinese government in Xinjiang province. The separatist

[2]Hou and Truex (2022) examines drug cases in Yunnan province and finds that ethnic minorities receive harsher penalties. In contrast, Peng and Cheng (2022) studies theft cases in five minority-dominant provinces and finds that penalties are more lenient.

[3]Existing studies in the US typically find the sentencing disparity between Black and non-black offenders is about 10-20% (Anwar et al., 2012; Rehavi and Starr, 2014; Cohen and Yang, 2019; Feigenberg and Miller, 2021)

movement may cause spillover ethnic conflicts, particularly in regions with large minority populations. This setting naturally generates variations for a DDD: we utilize variations in the defendant's minority status, in the minority population share across spaces, and in the intensity of the Uyghur separatist movements over time.

Our results find a surge in the penalties against minority criminals in response to potential unrest. Judges impose significantly harsher penalties on minority defendants in minority-dominant regions when Uyghur separatist movements intensify. The impact is economically meaningful, with baseline minority penalties amplified by 26% in sentence length and by 37% and 44% in the likelihood of receiving life sentences and death sentences. Notably, this increase is observed only among younger males, who are typically seen as potential bearers of unrest; in contrast, non-threatening elderly and females experience almost no impact.

We then examine how rulings in China's criminal justice system are influenced by the political incentives of local governments. One of the CCP's ultimate goals is maintaining social order, and local governments play a key role in preventing collective actions to support this objective. If the local judiciary functions as a tool of state control, political leaders may be motivated to use this function to fulfill their responsibilities. Taking advantage of political leaders' promotion opportunities that can alter their efforts to fulfill responsibilities, we again employ the DDD approach.[4] Our results provide compelling evidence of local government influence on the judiciary: in minority-dominant regions, the appointment of politically motivated officials significantly intensifies the additional penalties solely imposed on ethnic minorities.

These two analyses, along with the stylized facts we presented, highlight the unique political role of China's criminal justice system. Our findings demonstrate that Chinas judiciary is heavily influenced by the political motives of local governments. the judiciary actively supports the governments efforts to maintain social order, particularly in situations where there is an increased risk of local unrest. These patterns stand in stark contrast to democratic judicial systems, where courts represent the interests of local citizens, and decisions are shaped by voter preferences (Lim, 2013; Berdejo and Yuchtman, 2013).

The third component of our analysis documents the likely diminishing role of China's criminal justice system in enforcing state control and investigates the underlying causes. In 2017, China dramatically shifted its ethnic policy towards harsher repression, raising concerns about the unwarranted severe penalties on minorities. Our data, however, re-

[4]We leverage China's unique bureaucratic system, where local leaders lose promotion opportunities once they turn 55 years old (Yao and Zhang, 2015; Campante et al., 2023). We use this age threshold to identify the promotion-seeking prefectural leaders. See section 3.3 for the details.

veal the opposite: the majority-minority gap in sentencing has narrowed notably during our study period.

We explore the drivers of this trend, focusing on the sentencing guideline reform, a cornerstone of its legislative overhaul initiated by the Supreme Court of China in 2017. This reform was introduced to address long-standing accusations of widespread inconsistent sentencing. Judges are required to follow mandatory guidelines that emphasize fact-based sentencing, significantly limiting judicial discretion. Even when local governments or courts are politically motivated to impose harsher penalties on ethnic minorities, these guidelines may prevent them from doing so.

Our results, using the staggered Difference-in-Difference estimator, suggest a significant contribution of the mandatory sentencing guidelines to the reduction in the minority-majority gap. The guideline reform may have primarily aimed to address disparities among Han defendants as they explain over 90% of criminal cases. Nonetheless, it reduced the majority-minority penalty in sentence length by approximately 65%, which had been imposed solely on minority defendants. This effect is confined to the 15 crimes and sentence lengths that were the primary focus of the reform. These suggest that China's large-scale legal reform has led to substantial improvements in fairness and transparency within its criminal justice system. However, the reform may have also had the unintended consequence of weakening the judiciarys role as an instrument of state control, as judges can no longer alter sentences for minority defendants to align with the autocrat political goals.

Our study contributes to several strands of literature. First, we provide large-scale quantitative evidence on the judiciary's role in sustaining autocratic regimes by suppressing potential unrest. While existing research has examined various autocratic tools for survival (see reviews by Gehlbach et al., 2016, Guriev and Treisman, 2019, and Egorov and Sonin, 2024), such as fear (Olson, 1993), ideological indoctrination (Adena et al., 2015; Yanagizawa-Drott, 2014), education (Cantoni et al., 2017), surveillance (Xu, 2021; Beraja et al., 2023), information manipulation (Tirole, 2021), censorship (King et al., 2013; Chen and Yang, 2019), local elections (Martinez-Bravo et al., 2022), and economic policies (Wen, 2024), the role of autocratic legislation has largely been overlooked.[5] Existing political science studies often focus on the judiciary's role in repressing individual political opponents, primarily through case studies (Solomon, 1996; Pereira, 2005), with a few exceptions (Shen-Bayh, 2018). Our paper demonstrates that, for regime survival, an autocratic judiciary can harshly penalize not only specific individuals but also entire groups, like the ethnic minorities we analyzed, which may constitute a significant portion of the

[5]Traditional research on autocratic judiciaries highlights their roles in coordination, signaling, and information gathering (Goldstein, 1978; Feeley, 1979)

population.

We also contribute to the literature on sentencing disparity by providing the first comprehensive evidence of ethnic disparities within China's criminal justice system. Previous research has documented discrimination against ethnic and religious minorities in criminal justice systems worldwide (Anwar et al., 2012; Shayo and Zussman, 2011; Rehavi and Starr, 2014; Cohen and Yang, 2019; Feigenberg and Miller, 2021; Arnold et al., 2022; Choi et al., 2022). In China, studies by Hou and Truex (2022) and Peng and Cheng (2022) have examined drug and theft cases in a few provinces, yielding mixed results. By utilizing data covering all criminal types throughout the nation, our research documents a consistent pattern of harsher penalties imposed on ethnic minorities. We further highlight the "political roots" of this disparity, showing that the disparity is largely driven by political dynamics and incentives. This stands in stark contrast to democratic regimes, where judicial decisions are closely tied to electoral preferences (Lim, 2013; Berdejo and Yuchtman, 2013).

2 Background

2.1 China's Ethnic Minority Issues

Ethnic minority issues lie at the heart of China's social stability, the largest and one of the longest-standing authoritarian regimes in modern history. China, a multiethnic nation, has a Han ethnic majority that comprises 91.5% of the population, while its government officially recognizes 55 minority ethnic groups. As China's Communist Party (CCP) remains the sole ruling party and faces virtually no political opposition, ethnic minorities—often with distinct ideologies, social practices, religious beliefs, and cultural traditions—pose some of the greatest challenges that the regime must navigate to maintain stability.

Ethnicity has long been a source of political conflicts in China. China's ethnic policy largely follows the Soviet model and confines minority autonomy to prevent territorial separation. Since the nation's establishment, the central government has granted formal rights to ethnic autonomy, though these have rarely been fully implemented. Freedom of religious beliefs, preservation of culture and language, and access to equal legal rights have not always been guaranteed, often leading to disputes between the Chinese government and ethnic minorities (Zhang 2011). Over the past few decades, tensions have steadily escalated. Political movements in Tibet and Xinjiang since 2008 prompted increasingly tough responses from the central government.[6] Since 2017, the government

[6]This includes initiatives like the "Strike Hard Campaign Against Violent Terrorism" in 2014

has shifted to even harsher policies toward the Uyghur population in Xinjiang, drawing intense international attention and condemnation.[7] These dynamics further raise concerns about the unwarranted imprisonment and harsher penalties imposed on minorities by the judiciary, one of the autocratic tools the nation may employ.

Concurrently, over the past decades, the Chinese government has implemented various affirmative action policies favoring ethnic minorities. These policies include exemptions from the One Child Policy, additional points on national college entrance exams, tuition waivers, and stipends. Ethnic minorities also benefit from preferential access to employment opportunities, special tax breaks, and, in theory, the right to preserve their languages and cultures. Additionally, the government has introduced a series of poverty alleviation and local economic policies. Given these preferential treatments, one might even expect similar considerations to be reflected in the judicial system.

These seemingly contradictory policies, where the authorities offer both preferential and hostile treatment, can be explained by China's unique ethnic policy. Since China's formation, it has long sought to build a "unitary multiethnic nation," where all distinct ethnic groups are politically unified while their diversity is acknowledged and their development promoted. To achieve this, the CCP must prevent ethnic minorities from becoming ideologically and politically independent while also preserving their distinct characteristics and fostering their development, often resulting in ostensibly inconsistent policies. Given this, whether ethnic minorities receive privileged or punitive treatment, including in the judiciary, remains an ultimately empirical question.

2.2 China's Criminal Justice as an Instrument of state control

China's judiciary, particularly its criminal justice system, can inherently function as a tool for state control for two reasons (See Appendix B for details of China's criminal procedure). First, under the authoritarian political regime, the Chinese judicial system must support political goals set by the CCP to maintain social order. All judges at any court level are appointed by the government,[8] and their promotions and demotions are tightly managed by the CCP. Further, 85% of judges are CCP members, and all court heads must be party members.[9] Under these CCP's influences, the courts and their members are ex-

[7] The policies include mass surveillance and the incarceration of a significant number of Uyghurs and other Muslim minorities in internment camps. These actions have faced widespread international criticism, with accusations of crimes against humanity, cultural genocide, and physical genocide. See: UN human rights report and UN Panel

[8] In practice, they are appointed and removed by the corresponding level of the People's Congress, which is de facto fully controlled by the CCP

[9] See CCP's official statistics: `http://cpc.people.com.cn/pinglun/n1/2016/0615/c78779-28446750.html`

plicitly required to "pursue the political effects" in trial activities.

Second, judges in China hold enormous power in determining sentencing outcomes within the country's criminal justice system. China's legal system follows civil law traditions, where neither juries nor binding legal precedents are in place. Consequently, judges act as chief investigators, establish facts, apply relevant legal codes, and issue final rulings, granting them substantial discretion. These features may make China's criminal justice system an effective tool for state control. The judiciary may be politically motivated to maintain social order, and when so, it indeed has the authority to impose legal decisions that disproportionately affect ethnic minorities.

Ethnic minority issues in China's criminal justice system have gained massive attention from legal practitioners, humanitarian agencies, and policymakers worldwide. Today, more than 10.77 million individuals are held in penal institutions globally, and China accounts for about 1.69 million, corresponding to 15.7% of the total (Fair and Walmsley 2021). Furthermore, China's judicial system is unique as it follows the civil law traditions and is tightly tied to the CCP's authoritarian political regime. The Chinese government's potential violation of human rights is widely recognized as a key issue in promoting global human rights. Despite these, existing empirical evidence remains either qualitative observations or quantitative assessments using only a single crime-type data in a few provinces with mixed findings: existing studies find ethnic minorities receive harsher punishments for drug crimes in Yunnan province (Hou and Truex, 2022) while more lenient for theft crimes in 5 provinces (Peng and Cheng, 2022). This issue has been largely understudied by a lack of comprehensive and systematic quantitative evidence.

2.3 Sentencing Guidelines Reforms

China has undergone large-scale legislative reform aimed at enhancing transparency and fairness, which may also affect the judiciary's role in suppressing potential unrest. To address the long-standing criticisms of inconsistent and arbitrary sentencing, China introduced sentence guideline reforms, a cornerstone of its legislative overhaul (Chen, 2010). These reforms are, in spirit, similar to those adopted in the US, where such guidelines are found to be effective (Fischman and Schanzenbach, 2012; Yang, 2015; Cohen and Yang, 2019).[10] This reform provides detailed, fact-based sentencing guidelines that all the courts must follow, significantly reducing judicial discretion. After an initial pilot program, this

[10]Existing studies predominantly focused on the US, where the Federal Sentencing Guidelines were mandated in 1984 but became an "effective advisory" in 2005 as it held unconstitutional. Various papers suggest this modification enlarged racial disparities significantly (Fischman and Schanzenbach, 2012; Cohen and Yang, 2019).

reform was officially launched in 2017 and gradually rolled out to more provinces in a staggered fashion, as depicted in Figure A.1.

The sentencing guidelines provide specific instructions for common circumstances and cover 15 targeted crimes (see Appendix C for details). These crimes include traffic offenses, intentional harm, rape, robbery, and drug-related crimes. If we focus on drug-related crimes, judges' arbitrary appears to be significantly constrained. For example, prior to the guideline reform, individuals convicted of trafficking 10-50 grams of heroin were subjected to "fixed-term imprisonment of not less than seven years..." under Article 347 of the criminal law. This allowed judges considerable leeway in determining sentences within that broad range. The sentencing guidelines, however, reduce much of this ambiguity. They establish that possession of 10-50 grams of opium should begin with a "starting point" of 7 to 8 years of imprisonment for 10 grams, with 1 year added for every additional 5 grams. Consequently, possessing 20 grams results in 9 to 10 years of imprisonment, while 30 grams leads to 11 to 12 years. These detailed instructions apply to all targeted crimes, ensuring greater consistency in sentencing.

These guidelines could unintendedly weaken the function of criminal justice as a tool of repression. Even when local governments or courts are politically motivated to impose harsher penalties on ethnic minorities, these guidelines may constrain their ability to do so. The reforms primarily targeted sentencing biases among Han-majority criminals. At least, we found no evidence of documents indicating a focus on majority-minority inconsistency. These factors suggest that the dynamics of the judiciary's role in China may shift, though this remains an empirical question that has yet to be thoroughly explored.

3 Data

3.1 Universe of Criminal Court Verdicts

This paper assembles the most comprehensive dataset ever compiled on criminal sentencing verdicts in China from China Judgement Online (CJO, 2021; See Appendix A for the details and examples of verdicts). Since 2014, the Supreme People's Court of China has required all the courts to publish both contemporary and historical verdicts on this website, allowing us to construct a near-complete set of court decisions. We employ novel text-cleaning algorithms to extract a rich array of information from millions of complex, unstructured, and non-standardized text files. Additionally, we have automated the data assembly process on a daily basis to maintain completeness, as the website frequently

deletes large volumes of data without public notice.[11]

Our main dataset comprises approximately 4.0 million verdict cases from first-instance sentences. On the CJO, juvenile crimes and politically sensitive cases are not made public, and some cases from local courts are missing due to their capacity constraints.[12,13] The original dataset covers 11.78 million verdicts from 2014 to 2021, corresponding to 83% of the total cases officially reported.[14] Among them, 71% (8.4 million) were first-trial, 21% were commutation, 6.1% were second-trial, and the remaining 1.9% were modification. Our analysis focuses on first-instance sentences, as over 95% of second-instance trials result in no changes.

Our data contain an extensive set of variables about jurisdictions, defendants' backgrounds, a description of the criminal process and facts, and judgments of convictions, allowing us to compare cases that are observably highly comparable. The verdicts report courts (3,481 total) and judges (41,319 total) in charge and the year and month of sentencing. Using the deep-leaning method, we identify 8.7% of judges as belonging to ethnic minorities (See Appendix D for the detail). The defendants' demographic variables include age, gender, ethnicity, education, occupation, and criminal history.

In our dataset, all the cases are categorized into 485 distinct crime types, which is significantly more granular than previous papers. For example, drug-related offenses are divided into 13 categories, with cases involving illegal possession, trading, production, cultivation, harboring a drug offender, and abetting others treated as separate crime types.

Additionally, we collect case characteristics whenever sentencing includes descriptions recognized by criminal law as either aggravating or mitigating factors. Our dataset eventually encompasses about 200 sentencing factors, which are, once again, significantly more detailed than those in existing studies. For certain crimes, we gather key factors that characterize the severity, such as the number of individuals killed in homicides, the seriousness of injuries in assaults, the types and quantities of drugs involved in drug-related offenses, and the estimated monetary value in theft crimes, variables often overlooked in multi-crime studies. Common factors we collect include information on guilty pleas, voluntary surrender, the plaintiff's forgiveness, and details regarding defendants' attitudes, motives, mental disorders, and disabilities.

[11] Such deletion includes the major batch deletion in 2021.

[12] As reported by various media outlets, this issue is mainly concentrated in cases related to state security. Source: `https://www.rfa.org/mandarin/yataibaodao/renquanfazhi/ql-07162021074351.html`

[13] We find more data are missing in the early years, immediately after the website's launch. More than half of the cases are backlogs and added to the website later on.(Ahl et al., 2019; Liebman et al., 2020)

[14] According to the official reports from the Supreme People's Court of China, all levels of courts in China handled 13,303,442 cases in total from 2014 to 2021

Finally, we collect variables related to the judgments of convictions. Our primary sentencing outcomes include the duration of fixed-term imprisonment, life imprisonment, or the death penalty, where about 20% of crime types are subject to life imprisonment or the death penalty. Additionally, to examine prosecutor behavior, we collect data on their 'recommended sentences.' These recommendations are included in verdicts when the facts of the case are clear, the evidence is credible and sufficient, and all factors for imposing heavier, lighter, mitigating, or exempting punishment are taken into account. As a result, approximately 20% of cases include this information.[15]

3.2 Uyghur Conflicts in Xianjiang

We collect data on Uyghur protests and conflict events in Xinjiang, which we use as a variation in the threats of unrest in the rest of China. Xinjiang is one of five autonomous ethnic regions located in the far northwest of China, where the Uyghur, also known as the East Turkic ethnic group, make up a significant portion of the population. Historically, the government has pursued various ethnic assimilation policies, such as state-sponsored migration, the promotion of Chinese cultural unity, and the suppression of expressions of Uyghur identity, triggering a series of backlash. The Uyghur have long been involved in separatist movements, using both violent and non-violent tactics, which have, at times, resulted in deadly terrorist attacks and large-scale protests (Millward, 2004; Dwyer, 2005).

Our dataset includes 83 protest and conflict events in Xinjiang from 2014 to 2017, a part of the last 50 years of a local Uyghur separatist movement. The data are manually collected from various sources, including Wikipedia reports, publications from international human rights organizations, and media coverage.[16] Data collection extends through 2017, the year when the government dramatically escalated its repression, leading to no further reported incidents. For each event, we gather the date, location, and number of deaths, categorized by attackers, police, and others.

3.3 Promotion-seeking Prefectural Leaders

We gather information on prefectural political leaders who could hold significant influence over local courts and judges from 2014 to 2021. The data is collected from the résumés of city mayors and party secretaries, two key political figures at the prefecture

[15]This follows the rules jointly established in 2010 by the Supreme People's Court of China, the Supreme People's Procuratorate, the Ministry of Public Security, the Ministry of State Security, and the Ministry of Justice `https://www.spp.gov.cn/spp/xwfbh/wsfbt/202011/t20201105_484007.shtml#1`

[16]Data sources: Wikipedia: Uyghur Conflict, Human Rights Watch: China - Xinjiang, and BBC News: Xinjiang

level. To ensure accuracy, we cross-referenced this information with news articles on appointments and dismissals from government websites, verifying the timing of leadership changes across all prefectures. Our dataset includes 3,030 prefectural leaders.

We classify political leaders into ”politically motivated” and ”less motivated” groups based on their age by leveraging the unique promotion system in the Chinese bureaucracy. In China, once prefectural leaders reach the age of 55, they are required to ”step back from frontline duties,” even before reaching official retirement age. As a result, city mayors or party secretaries who are older than 55 at the start of their tenure are significantly less likely to be promoted, reducing the incentives to exert effort in areas such as promoting the local economy or maintaining social order. Previous research has shown that this shift in incentives is substantial (Yao and Zhang, 2015; Yu et al., 2016). Therefore, we categorize leaders younger than 55 as "politically motivated" and those older than 55 as "less motivated.

3.4 Criminal Sentencing Guideline Reforms

We collect information on sentencing guideline reforms from the official websites of the 15 provincial high courts identified as having adopted the mandated guidelines. The reform was initiated by the Supreme Court, which first published general guidelines. The higher provincial courts then adapted these into province-specific guidelines to account for local trial practices, although they are largely similar to one another. After the pilot program, this reform officially began in 2017 and gradually rolled out to more provinces in a staggered fashion. Each guideline includes the mandate’s effective timing, general sentencing principles, adjustments for common circumstances, and specific sentencing guidelines for various crimes.

3.5 Descriptive Statistics

Our analysis uses 4 million first-instance verdicts, with 0.31 million (7.9%) from ethnic minority groups. The death penalty and life imprisonment account for 0.3% and 0.2% of the total cases, respectively. We exclude sentences missing any main variables as some verdicts do not contain personal information due to varying local judicial practices or privacy concerns. As a result, 52% of the original data collected remains in our main dataset.

Table 1 reports the summary statistics, and we overall find that minority and majority criminal offenders differ in various aspects. Minority defendants tend to be younger, less educated and earn less, while criminal history is similar (Panel A). During court

trials, they are less likely to plead guilty, surrender voluntarily, receive forgiveness from their victims, and receive suspended sentencing, while the offense severity does not differ significantly. Regarding sentence outcomes, ethnic minority, on average, receives much harsher penalties than Chinese Han (Panel C). The unconditional mean length of confinement for ethnic minorities is 19.8 months, and that for the majority is 16.9 months. This observed discrepancy is even greater for more severe offenses. The probabilities of receiving life and death sentences are 0.263% and 0.147% for majorities, while they are 0.601% and 0.346% for minorities.

Figure 1 presents the time trends of the unconditional means for Han and minority offenders in terms of sentence length (Panel A), death penalty (Panel B), and life imprisonment (Panel C). On average, minority offenders receive harsher penalties than Han offenders. Additionally, the disparity appears to converge quickly over the study period, and we will explore the exact causes in the following sections.

4 Ethnic Minorities in China's Criminal Justice System

4.1 Measuring Conditional Ethnic Disparity in Criminal Sentencing

Our analysis starts with presenting the first comprehensive national analysis of ethnic minority issues in China's criminal justice system. We employ the selection-on-observables approach, following Rehavi and Starr (2014), Cohen and Yang (2019), and Feigenberg and Miller (2021) to compare criminal sentencing outcomes between defendants from the majority Han group and ethnic minority groups who committed identical crimes under similar circumstances, with their cases ruled in the same jurisdictions and by the same judges.

It is important to note that while recent papers have increasingly employed the random assignment of judges, this research design is unsuitable for our setting (Bhuller et al., 2020). In some studies, this method is used to instrument incarceration, but in our case, the treatment variable is ethnicity, which is inherently non-random. Additionally, the method proposed by Arnold et al. (2022) to assess racial discrimination requires to model the judiciary's objective function, which remains largely unclear within China's criminal justice system.[17] As such, studies focusing on sentencing disparity typically rely on selection-on-observables, and we improve this approach by utilizing our dataset with an

[17] These papers employ random judge assignments to estimate minority discrimination, particularly in bail decisions, where the primary legal objective is to maximize defendant releases while minimizing pretrial misconduct risks (Arnold et al., 2022). Unlike these papers, China's judiciary must pursue "legal effects, economic effects, and political effects," making such modeling extremely challenging.

extensive set of detailed variables. Our results of sentencing disparity, therefore, should not be directly interpreted as evidence of discrimination.

Specifically, we specify the following equation:

$$Sentence_{icpjt} = \alpha + \beta Minor_i + X_{icpjt} + \lambda_c + \gamma_p + \sigma_j + \delta_t + \epsilon_{icpjt} \quad (1)$$

where $Sentence_{ipctj}$ is the sentencing outcome of interest, either of sentence length in month, dummy of life imprisonment, or dummy of death penalty, for criminal defendant i sentenced by judge j in court c at province p, in year-month t. Since life sentences and death sentences can apply only to severe crime types, we use the subsets of data to explore ethnic disparity in these outcomes. $Minor_i$ denotes the offender's ethnicity and takes 1 if the offender belongs to one of the minority ethnic groups. ϵ_{ipctj} is the error term.

Our coefficient of interest is β, representing the average conditional sentencing disparities between the Han majority and ethnic minorities. To credibly estimate the coefficient, our specification includes an extensive set of fixed effects and controls. The court fixed effects (λ_c) and province fixed effects (γ_p) account for variations in legal practices across different jurisdictions and geographic regions, year-month fixed effects (δ_t) for national-level changes in legal practices and laws over time, and judge fixed (σ_j) for judge-specific, time-invariant characteristics and preferences, which may influence the behavior of defendants and defense attorneys in response to the judges. Additionally, our control variables (X_{icpjt}) include defendant and case characteristics, crime types, and detailed criminal environments, all of which are discussed in detail in the data section. Specifically, we utilize 485 crime types and about 200 sentencing factors, allowing us to estimate disparities within narrowly defined crime types and under similar criminal circumstances. Standard errors are clustered at court levels to account for arbitrally correlated shocks.

4.2 Five Stylized Facts about Ethnic Minorities in China's Judiciary

We present five stylized facts about ethnic minority issues in China's criminal justice system based on equation 1 that compares sentencing outcomes between ethnic minorities and observably similar Han offenders. The analysis suggests broader implications for how criminal justice contributes to maintaining social order. We present the results in Figure 2 and 3 and Table 2 as well as the full results in Table A.6 to A.10.

1. China's criminal justice system gives harsher penalties to ethnic minorities—First, China's ethnic minority defendants receive significantly harsher penalties than otherwise observably similar Han majority defendants. Our results in Figure 2 and Panel A in Table 2 (full results in Table A.6), which estimate the conditional sentencing disparity, indicate that

ethnic minorities receive 6.7% longer sentences (column (2) in Table 2) and face a 26.9% (column (4)) and 34.9% (column (6)) higher likelihood of receiving life imprisonment or the death penalty. The magnitude of these results is economically meaningful. Elimination of the disparity would have reduced total imprisonment lengths for ethnic minorities by 17,315 years and the number of life imprisonments and the death penalties by 375 and 314 that had been imposed solely on minority defendants. These results are comparable, or even slightly larger than, the Black-white sentencing disparities in the US. Studies in the US typically find that Black offenders receive sentences that are 10-20% longer than non-Black offenders (Anwar et al., 2012; Rehavi and Starr, 2014; Cohen and Yang, 2019; Feigenberg and Miller, 2021).

2. The minority penalty is greater in severe and organized crimes—Our subsample analysis in Figure 2 and Panel B in Table 2 (full results in Table A.7) indicates that the "minority penalty"—the additional penalties imposed on ethnic minorities compared to observably similar Han defendants—is more pronounced in severe crimes, such as sex crimes, violent crimes, and drug-related offenses. In China, drug crimes are particularly problematic, with ethnic minorities and their criminal syndicates disproportionately involved.[18] For example, minority-dominated villages in Yunnan province, which borders Myanmar—a country supplying over 90% of the heroin in Chinese markets—serve as key centers for drug trafficking. In such cases, the minority penalty is substantial: sentences are increased by 9.4% (column (2) in Table 2), with probabilities of life and death sentences rising by 48.5% (column (4)) and 47.9% (column (6)), respectively. By contrast, when minority defendants commit non-risky crimes, such as other offenses, they tend to receive penalties that are only slightly harsher or similar to those imposed on Han majority defendants.

3. China's criminal justice harshly penalizes less assimilated ethnic groups—Our analysis, utilizing subsamples based on ethnic groups, demonstrates that those less assimilated to the Han culture receive significantly harsher penalties in China's criminal justice system. Figure 2 and Panel C in Table 2 (full results in Table A.8) reveal sizable incremental punishments against ethnic groups practicing distinct religions. We focus particularly on Christianity and Islam, which originated from foreign societies, are active in organizing religious events, shape individual lifestyles and identities, and have "spiritual leaders,"

[18]These crimes are categorized as more serious offenses in Schanzenbach (2015). China's State Council has also classified them as "six evils" hindering the countrys economic development, including pornography, prostitution, drug use, and gambling (Biddulph, 2002). Among them, the number of drug addicts has increased annually in China since at least 1998 (Zhang and Chin, 2015)

often considered an ideological rival of the central government.[19] We show that minorities from Christian ethnic groups have a 36.5% (column (4) in Table 2) and 45.3% (column (6)) higher likelihood of receiving life imprisonment and death penalties than observably similar Han individuals and those from Muslim groups face 27.0% (column (4)) and 42.1% (column (6)) higher likelihood of receiving these sentences. In contrast, minorities practicing other religions (primarily Taoism) or agnostic have a lower increase in the likelihood of life imprisonment and death penalties, at 11.6% (column (4)) and 14.7% (column (6)). We also find that ethnic minority groups with a history of conflicts with the Han experience much more severe penalties, especially regarding life imprisonment and the death penalty.

4. Locations facing heightened social tensions face larger minority penalties—In Figure 2 and Panel D in Table 2 (full results in Table A.9), we examine whether the minority penalty correlates with local socio-economic conditions. Our findings show that in poorer, minority-dominant, and crime-prone prefectures, minorities face harsher incremental penalties.[20] These regional characteristics are closely correlated: minority-dominant areas are predominantly located in western and southern China, where the economy is less developed, and residents experience higher crime rates. Essentially, these locations also face a high risk of social unrest, as larger minority populations lower the cost of collective action and lower incomes reduce the opportunity cost of participating.Cantoni et al. (2019)

5. Han judges, rather than minority judges, explain most of the ethnic disparity—Figure 3 and Panel E in Table 2 (full results in Table A.10) reveals that a significant portion of the minority penalty is attributable to Han judges, who are generally more aligned with CCP's ideology. Across all three outcomes, Han judges impose substantially harsher penalties on ethnic minority defendants than on otherwise similar defendants, compared to minority judges. The coefficients for Han judges are roughly three times larger: for example, the Han judges generate 7.02% of sentencing disparity in sentence length, while minority judges generate 2.64% (column (2) in Table 2). As Han judges account for 91.1% in total, similar to the nation's population share, they contribute to the majority of the observed

[19]The CCP is officially atheist and the members of the CCP are prohibited from exhibiting their religious beliefs. Only Christian churches officially authorized by the central government are allowed to operate. In recent years, various media have reported indicative evidence of the nation cracking down on Islam and Christianity, suggesting that the government may informally regard religious minorities as a potential threat. For example, the Financial Times reports that China's crackdown on Islamic culture has extended beyond Xinjiang to almost every region of the country. Based on satellite imagery of over 2,300 mosques, they find that three-quarters of these mosques have been modified or destroyed since 2018. Source: `https://ig.ft.com/china-mosques/`

[20]Prefectures are divided into high and low groups using the median value, and the baseline equation is specified separately. Income and minority share are based on the 2010 census, and crime rates are calculated using case numbers from our dataset.

minority penalty. Nonetheless, ethnic minority judges also give harsher penalties to minority defendants, though the additional penalties are smaller. These findings suggest that minority judges also have motivations to punish minority defendants that outweigh the incentives typically associated with in-group bias (Anwar et al., 2012, Shayo and Zussman, 2011, Ash et al., 2021).[21]

Addtional Analysis—We conduct several supplementary analyses. First, we examine the role of prosecutors, other key actors in the criminal justice system, since judges alone may not account for the entire minority penalty in case outcomes (Rehavi and Starr, 2014; Tuttle, 2021). Leveraging our data built from millions of original verdicts, we analyze "prosecutor recommendations" to assess whether they contribute to the incremental penalties imposed on ethnic minorities, possibly through biased evidence collection or police charges (See the detail in Section 3.1). Results in Figure 3 and Panel F in Table 2 (full results in Table A.10), which use recommended sentences as outcome variables instead of final sentences, show that both agents are harsher on ethnic minorities. Prosecutors recommend 4.67% longer imprisonment (column (2) in Table 2), with a 15.9% higher likelihood of life sentences (column (4)) and 19.1% higher likelihood of death sentences (column (6)) for minorities compared to observably similar majorities. Although these effects are sizable, they are less extreme than the final sentences. For instance, the average judge imposes 6.7% longer sentences on minorities, which is greater in its magnitude ((column (2) in Panel A in Table 2). These findings indicate a systematic disparity, where ethnic minorities are treated less favorably at each stage of the criminal process.

5 Two Quasi-Experiments to Understand Judicial Incentives in an Autocratic System

We have demonstrated that China's criminal justice system imposes harsher penalties on ethnic minority defendants. These punitive sentencings are particularly pronounced for crimes considered problematic, for groups less assimilated into Han-majority society, in regions experiencing heightened social tensions, and in cases presided over by Han judges. While these findings are suggestive, the patterns are consistent. We show that harsher penalties are strongly associated with perceived risks of social unrest, highlighting the judiciary's critical role as an instrument of state control. This section leverages

[21] Existing studies generally find positive in-group bias in legal systems, where individuals tend to favor members of their own group in decision-making (Anwar et al., 2012; Shayo and Zussman, 2011; Ash et al., 2021; Choi et al., 2022), with a few exceptions (Lim et al., 2016). In-group bias is also evident in some Chinese jurisdictions.

two quasi-experiments to further examine the judiciary's role in the autocracy. First, we investigate how local courts respond to threats of unrest triggered by Uyghur separatist movements in Xinjiang province. Then, we examine how judicial decision-making is influenced by local governments' political motivations, focusing on the promotion incentives of local leaders.

5.1 Uyghur Unrest, Minority Population, and Minority Penalty

5.1.1 DDD Approach to Estimate Judicial Response to Threats of Unrest

Our first quasi-experiment examines how local jurisdictions respond to ongoing threats of unrest. When faced with potential threats, local governments have strong incentives to prevent collective actions, which is a central objective of autocratic regimes. If China's judiciary functions as an instrument of state control, we would expect it to imprison dissenters or impose harsh, exemplary punishments as a deterrent measure. To investigate this, we follow Wen (2024) and examine unrest triggered by the ongoing conflict between Uyghur separatists and the Chinese government in Xinjiang province. The Uyghur conflicts provide ideal variations in threats of social unrest in the rest of China, as they are highly visible, often deadly, and carry the potential to trigger spillover ethnic conflicts.

We employ a DDD estimator to investigate how sentencing outcomes are influenced by threats of unrest. The risk of spillover conflicts is likely more pronounced in regions with a higher proportion of ethnic minorities, as they are the actors triggering ethnic dissent. This naturally generates variations for a DDD: we utilize those in the defendant's minority status, in the minority population share across spaces (Panel A in Figure 4), and in the intensity of the Uyghur separatist movements over time (Panel B). Our analysis excludes the sample from Xinjiang province to isolate possible reverse causality that original Uyghur conflicts occur in response to authority's ethnic oppression, which can be correlated with severe sentencing punishments.

Specifically, we augment equation (1) and specify:

$$\begin{aligned} Sentence_{icpjt} = \alpha &+ \beta_1 Minor_i \times Unrest_t \times MinorPop_p \\ &+ \beta_2 Minor_i + \beta_3 Unrest_t + \beta_4 MinorPop_p \\ &+ \beta_5 Minor_i \times Unrest_t + \beta_6 Minor_i \times MinorPop_p \\ &+ \beta_7 Unrest_t \times MinorPop_p + X_{icpjt} + \lambda_c + \gamma_p + \sigma_j + \delta_t + \epsilon_{icpjt} \end{aligned} \tag{2}$$

where a dummy variable $Unrest_t$ indicates whether at least one conflict event occurs in Xinjiang province in year-month t. $MinorPop_p$ takes 1 if the share of minority populations in prefecture p is above median. The set of the fixed effects and control variables are

equivalent to equation (1). In practice, $Unrest_t$ and $MinorPop_p$ are absorbed by year-month fixed effects, δ_t and province fixed effects, γ_p.

We are interested in estimating β_1, the coefficient of $Minor_i \times Unrest_t \times MinorPop_p$, which measures how additional penalties imposed on ethnic minorities change during Uyghur conflicts in minority-dominant prefectures, compared to their impact in non-minority prefectures. By including all control variables and fixed effects in equation (1), we estimate the sentencing differences while controlling for a comprehensive set of covariates, such as defendant characteristics, criminal circumstances, and legal procedures. We expect β_1 to be positive, suggesting that the criminal justice system becomes harsher toward minorities as a preventive measure in response to a heightened risk of local unrest. Standard errors are clustered at the prefectural level.

5.1.2 Assessing Judicial Behaviors in Response to Ongoing Unrest

We present our results using the DDD estimator in Table 3. We find that China's jurisdiction imposes more severe penalties against ethnic minorities in response to ongoing threats of unrest. Our interest of coefficient (minority $\times$ unrest $\times$ minority share) is 0.301 (column (1)), meaning that sentence length for ethnic minorities becomes 0.301 months longer during the Uyghur separatist movement in minority-dominant prefectures compared to the corresponding difference in non-minority prefectures. The magnitude of this response is considerably large as the effect corresponds to about 26% of the baseline minority penalty we estimated (Panel A in Table 2). The results for life sentences and death sentences even show greater impacts with coefficients of 0.031 (column (5)) and 0.025 (column (6)), corresponding to about 37% and 44% of the baseline results.

The subsample analysis in columns (2) to (4) shows that younger males primarily drive our main results. The coefficient of the DDD interaction for males aged 20-59 is 0.344 (column (2)), which is similar to the baseline result in column (1). In contrast, the coefficients for females and elderly males are statistically indistinguishable from zero, with point estimates close to zero at 0.001 (column (4)) and -0.021 (column (5)). These findings are unsurprising, as younger males are more likely to engage in violence and collective actions, posing a greater threat of unrest. In other words, non-threatening groups do not face harsher penalties, even when the local judiciary perceives a potential risk of unrest. Note that we did not conduct the same subsample analysis for life and death sentences due to the limited number of cases; for example, fewer than 100 elderly males received life or death sentences.

Our results are unlikely to be driven by the "salience of group membership" (Shayo

and Zussman, 2011). While the salience of ethnicity may rise during Uyghur-related conflicts, our DDD approach accounts for this. The results are driven by differences in locations between minority-dominant prefectures and otherwise, conditional on the defendant being a minority and the occurrence of Uyghur conflicts. Furthermore, non-threatening groups, such as females and elderly males, do not face such harsher penalties despite being minority individuals, ruling out the mechanism.

Our findings are consistent with those of Wen (2024), who employ a similar empirical strategy. Wen (2024) find that local governments use state-owned firms to hire ethnic minority males as a preventive measure when facing unrest threats. Similarly, we argue that the judiciary imposes harsher penalties on ethnic minorities to mitigate potential unrest. Both studies highlight mechanisms of state control in autocratic regimes, which are rarely examined quantitatively in a systematic fashion in the existing literature.

5.2 Local Governments, Courts, and Penalties against Minorities

5.2.1 DDD Approach to Estimate Influence of Local Governments on Judiciary

This section examines how rulings in China's criminal justice system are influenced by the incentives of local governments. One of the CCP's ultimate goals is maintaining social order, and local governments play a key role in preventing collective actions to support this objective. If the local judiciary functions as a tool of state control, political leaders may be motivated to leverage this function to maintain social order, potentially affecting sentencing outcomes for ethnic minorities.

Testing this idea requires variation in the "political motivation" of logal government, which we obtain by leveraging China's unique promotion system. Political leaders aiming for promotion are likely to exert more effort in fulfilling their responsibilities, including maintaining social stability, as the rewards are significantly greater. In China, a local leader's promotion prospects are heavily influenced by their age: those over 55 years old face the greatest loss of promotion opportunities (Yao and Zhang, 2015; Campante et al., 2023). Using this critical age threshold, we categorize political leaders into "politically motivated" and "less motivated" groups (See section 3.3 for the detail).

We again employ the DDD approach similar to equation (3). The political motivation for state control is expected to be more pronounced in minority-dominant regions, where collective actions are more likely to occur. Thus, we utilize variations in the defendant's minority status, the minority population share across regions, and the appointment of

promotion-seeking political leaders. We specify:

$$\begin{aligned} Sentence_{icpjt} = \alpha &+ \beta_1 Minor_i \times Motivated_{pt} \times MinorPop_p \\ &+ \beta_2 Minor_i + \beta_3 Motivated_{pt} + \beta_4 MinorPop_p \\ &+ \beta_5 Minor_i \times Motivated_{pt} + \beta_6 Minor_i \times MinorPop_p \\ &+ \beta_7 Motivated_{pt} \times MinorPop_p + X_{icpjt} + \lambda_c + \gamma_p + \sigma_j + \delta_t + \epsilon_{icpjt} \end{aligned} \tag{3}$$

where notations largely follow those in equation (3), with the only difference being the inclusion of $Motivated_{pt}$, a dummy variable indicating the appointment of "politically motivated" officials in prefecture p in year t. These officials are defined as being younger than 55 years old at the start of their tenure, which significantly increases their likelihood of promotion. In China, the two key prefectural leaders are the city mayor and the party secretary, and the variable takes a value of 1 if at least one of these leaders is politically motivated.

Our primary focus is on estimating β_1, which captures the impact of appointing politically motivated officials on the minority penalty in minority-dominant prefectures, compared to the impact in non-minority prefectures. A positive β_1 would imply that the local judiciary becomes harsher toward minorities under government influence, indicating the presence of government influence. Standard errors are clustered at the prefectural level.

5.2.2 The Impact of Local Governments' Political Motivations on the Judiciary

We present our results using the DDD estimator in Table 4. We find that the local criminal justice system imposes harsher penalties on minority defendants when the local government is politically motivated, which is induced by the promotion incentives in the bureaucracy. Our interest of coefficient is 0.09 for sentence length (Column (1)), corresponding to 8% of our baseline results. This means that switching to politically motivated leaders in minority-dominant prefectures increases the sentence length for ethnic minorities by 8%, relative to the corresponding impact in non-minority prefectures. The coefficients for life sentences and death sentences are 0.015 and 0.014, corresponding to 18% and 25% increases in the baseline minority penalty, suggesting that the impacts are non-negligible.

Our results should be interpreted with caution. Even when prefectural political leaders are less politically motivated due to limited promotion opportunities, they are still obligated to fulfill their duties, such as preventing unrest and maintaining social order. Therefore, our findings may not capture the full extent of local government influence, but they still indicates its presence.

The analysis underscores the unique political role of China's criminal justice system. We show that when prefectural leaders are incentivized to maintain social order, the local

judiciary imposes harsher penalties on minorities, suggesting government influence. In China, maintaining social order is a key objective, and local governments are strongly incentivized to support this goal. Consequently, the judiciary behaves as an instrument of state control under their influence. This sharply contrasts with democratic countries, where jurisdictions represent local citizens and judicial decisions are shaped by voter preferences (Lim, 2013; Berdejo and Yuchtman, 2013).

6 Sentencing Guidelines and Judiciary's Role in state control

We have documented that China's criminal justice system functions as a tool of state control and, at times, gives vicious penalties against ethnic minorities. In 2017, China dramatically shifted its ethnic policy toward harsher repression, raising intense international concerns and condemnations. This naturally fuels suspicions of unwarranted unfavorable treatment toward minority populations. Our data, however, reveal the opposite: the sentencing gap between majority and minority populations has narrowed substantially during our study period. In this section, we investigate the underlying causes behind the diminishing "minority penalty" in China's criminal justice system. Specifically, we explore how the nation's recent large-scale legislative reform affects the sentencing gap between Han majority and minority defendants.

Our focus is on the sentencing guideline reform introduced by the Supreme Court of China in 2017, which aimed to address long-standing accusations of inconsistent sentencing. Under this reform, judges are required to follow mandatory guidelines, which lean less on traditional qualitative methods and emphasize fact-based sentencing. This guideline limits judges' arbitrary significantly and, as a result, may weaken the role of China's criminal justice system in state control. Even if local governments or courts are inclined to alter sentencing outcomes for ethnic minorities, these compulsory guidelines may constrain such discretion.

6.1 Staggered DiD to Estimate the Effects of Sentencing Guidelines

We employ a staggered Difference-in-Difference (DiD) approach to compare the additional penalties imposed solely on minority defendants before and after the introduction of the reform. Taking advantage of the fact that the reform was rolled out in 15 provinces

(out of 33 provinces) in a staggered fashion, we augment equation (1) and specify:

$$\begin{aligned} Sentence_{icpjt} = \alpha + \beta_1 Minor_i \times Reform_{pt} + \beta_2 Minor_i + \beta_3 Reform_{pt} \\ + X_{icpjt} + \lambda_c + \gamma_p + \sigma_j + \delta_t + \epsilon_{icpjt} \end{aligned} \tag{4}$$

where a dummy variable $Reform_{pt}$ indicates whether the criminal case is executed with mandated guidelines in the treated province p and year-month t. The set of the fixed effects and control variables are analogous to equation (1). The coefficient β_2 represents the difference between the Han and the minority before the mandated guidelines are enacted and β_3 estimates the level changes in sentence outcomes before and after the reform, which are common to the Han and ethnic minorities.

Our interest is in estimating β_1, the coefficient of the interaction term between $Reform_{pt}$ and $Minor_i$, which captures the extent to which the compulsory guidelines reduce the additional penalties imposed on minorities. Since we include an extensive set of covariates, we estimate the impacts on the differences in sentencing outcomes between minority defendants and those otherwise observably similar to the Han majority. We expect the coefficient β_1 to be negative, indicating that the guidelines limit the judiciary's ability to arbitrarily impose harsher punishments on minorities.

Since the second part of the guidelines (crime-specific guidelines) targets 15 major crime categories (85 categories in our classification), accounting for approximately 48.5% of the cases in our data, we separately specify equation (4) for both targeted and non-targeted crimes. Moreover, the guidelines primarily focus on confinement lengths rather than life sentences or the death penalty.[22] Therefore, we expect the effects to vary across different sentencing outcomes.

For all the baseline results, including those using the event-study design, we account for heterogeneous treatment effects, following Sun and Abraham (2021) as we use the staggered adoption of the events. Furthermore, standard errors are clustered at province-by-crime levels to allow arbitrary correlation over time within the same crime type in the same province.

6.2 Measuring the effects of Sentencing Guideline Reform

Our results in table 5 suggest the effectiveness of the compulsory guidelines in reducing additional penalties solely imposed on ethnic minorities. Before the policy reform, the average gap between majority and minority was 0.707 months (coefficient of Minority in

[22]Sentencing guidelines provide more detailed instructions for sentencing decisions than criminal law. Criminal law already specifies the conditions for life imprisonment and the death penalty, so the guidelines play a minimal role in determining these outcomes.

column (1)), and it was reduced to 0.249 months (0.707 - 0.458), implying a 65% reduction in existing ethnic discrimination. The magnitude of the mandated guidelines is tremendous. Without the guidelines, ethnic minorities would have faced an additional 11,375 years of incarceration, which corresponds to 64 million USD in forgone income.

The effects of the mandatory guidelines are entirely driven by those for targeted crimes, such as sex crimes, drug crimes, theft, and fraud (Column (2)). For non-targeted crimes, we find the null effects, likely because the sentencing gap was already minimal, at just 0.04 months, even before the policy reform (Column (3)). Additionally, the effects on life imprisonment and the death penalty are small and statistically insignificant (Columns (5) and (6)). This is likely because these sentencing outcomes were not the main focus of the policy; criminal law already established thresholds for life sentences and the death penalty, so the guidelines had little impact on standardizing these decisions.

These results are not driven by the systematic differences between the treated and control provinces. Our results using the event-study approach in Figure 5 suggest a balanced pre-trend in ethnic sentence gap between the treated prefectures and otherwise (Panel A). The pattern is similar for targeted crimes, while that for non-targeted crimes is somewhat noisy (Panel B), suggesting that mandated guidelines, rather than differing trends, indeed contributed to shrinking the minority penalty.

Our findings are consistent with existing research on the effectiveness of sentencing guidelines, particularly in the context of racial discrimination in the U.S. In the US, the Federal Sentencing Guidelines were mandated in 1984 but became an "effective advisory" in 2005 as it held unconstitutional, and various papers suggest this modification enlarged racial disparities (Cohen and Yang, 2019; Scott, 2010; Fischman and Schanzenbach, 2012). Taken together, our findings contribute to an ongoing heated discussion on how to reduce unwarranted sentencing disparity. Our paper is the first to focus on guideline reforms in non-US countries, specifically China, and show that curtailing the judge's discretion can be key to promoting fair case resolution.

Lastly, these results also could have broader implications for the judiciary's dynamic role in the autocratic regime. Throughout the paper, we have documented that China's criminal justice system functions as a tool of state control and, at times, gives harsher penalties against ethnic minorities. However, with the introduction of these guidelines, the judiciary may lose some of its discretionary power. Consider a case involving the possession of 30 grams of heroin: before the reform, judges could arbitrarily choose sentences ranging from 7 to 15 years, but under the compulsory guidelines, the sentence must be 11 years. Even if a local political leader or the judiciary is motivated to push for harsher penalties in drug cases, deviating from the guidelines becomes too costly, as suggested

by our findings. This indicates that while the guidelines have effectively reduced the additional penalties imposed on minority defendants–promoting greater transparency and fairness in line with the rule of law–they may unintentionally limit the judiciarys discretion, which is, in China's case, used to support the autocratic regime to maintain social order.

7 Conclusion

This paper argues that autocratic governments use the judiciary to target perceived threats and prevent social unrest, a primary role of autocratic judiciary long recognized in the literature, but lacks systematic and comprehensive quantitative evidence. To test this, we focus on ethnic minority issues in China's criminal justice system, an issue that poses some of the greatest challenges to the nation's social stability. We provide the first national analysis of ethnic issues in China's criminal justice system. We then employ two quasi-experiments that alter the incentive of the judiciary to investigate its rule in autocratic regimes as an instrument of state control.

We utilize newly digitized data covering almost universal court verdicts in China, which is much more extensive and detailed than existing studies. Employing selection-on-observables, we find that China's criminal justice system imposes harsher penalties on ethnic minorities than those on observably comparable Chinese Han. Minorities receive 6.7% longer sentences and 26.9% and 34.9% higher likelihood of life imprisonment and the death penalty.

The heterogeneous patterns of this "minority penalty" are particularly striking. It is significantly more pronounced in cases that potentially threaten social stability. Specifically, the penalty is larger for drug-related crimes often associated with organized crimes, as well as for cases involving Christian and Islamic defendants, and for ethnic groups that have experienced civil conflicts with the Han majority in the history. This penalty is also greater in poorer, minority-dominant, and crime-prone prefectures where ethnic tensions are more likely to arise and unrest events are much more likely to occur.

Two quasi-experiments further suggest that China's criminal justice contributes to the CCP's goal of maintaining state control by imposing harsher penalties against ethnic minorities. When faced with potential threats, if the local judiciary serves as an instrument of social order, it should be incentivized to imprison dissenters or impose harsh, exemplary punishments as a preventive measure to deter collective actions. Our analysis indeed reveals that this is the case. By exploiting the variations in local risk of ethnic conflicts triggered by Uyghur separatist movements and the local minority population share

that proxies the potential of local collective actions, we employ difference-in-difference-in-differences (DDD) estimators. The results show that the penalties solely on minorities intensify when the local judiciary faces the perceived risk of social unrest.

Furthermore, our analysis suggests that judicial decision-making is heavily influenced by the political motivations of local governments. We test this by utilizing the promotion incentives of local political leaders, where promotion-seeking officials exert more effort to maintain local social order to advance in their careers. Our results show that switching to such promotion-seeking officials intensifies the penalties against minorities. This suggests that the judiciary can serve as a tool of state control for local governments when politically motivated.

Since 2017, however, the excessive penalties imposed on ethnic minorities have declined substantially. We discuss how recent large-scale legal reforms help narrow the majority-minority gap, focusing on sentencing guideline reforms that limit judicial arbitrary. Our analysis finds that such mandatory guidelines contributed to reducing about two-thirds of the majority-minority gap in sentencing. As intended, this is a remarkable improvement in transparency and fairness in the criminal justice system. However, given that it also plays a role in preventing social unrest by altering penalties against ethnic minorities, our results can also be interpreted as unintended consequences of weakening the judiciary's role in state control.

Overall, we provide the first comprehensive evidence of ethnic issues in China's criminal justice system. The incentives shaping judicial behavior in autocratic regimes seem just vastly different from those in democratic regimes. The factors driving the "minority penalty," its dynamics in response to ongoing threats of unrest, and its interactions with local governments all underscore the judicial's unique role in state control within an autocratic context. Such functions, however, have weakened dramatically since 2017, primarily due to the recent large-scale legal reform. The political economy of legislation in authoritarian still lacks rigorous and systematic evidence, warranting future research.

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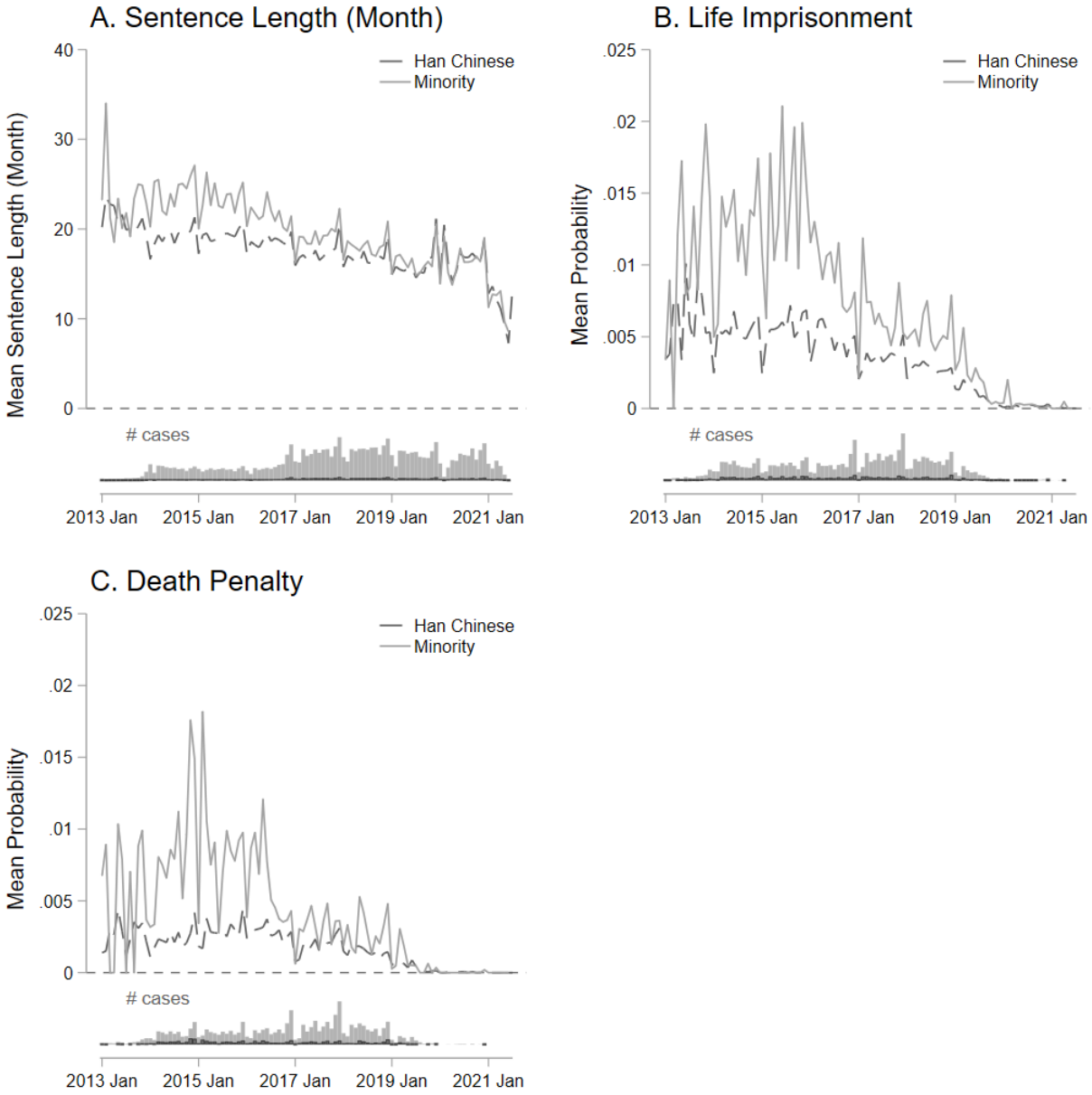
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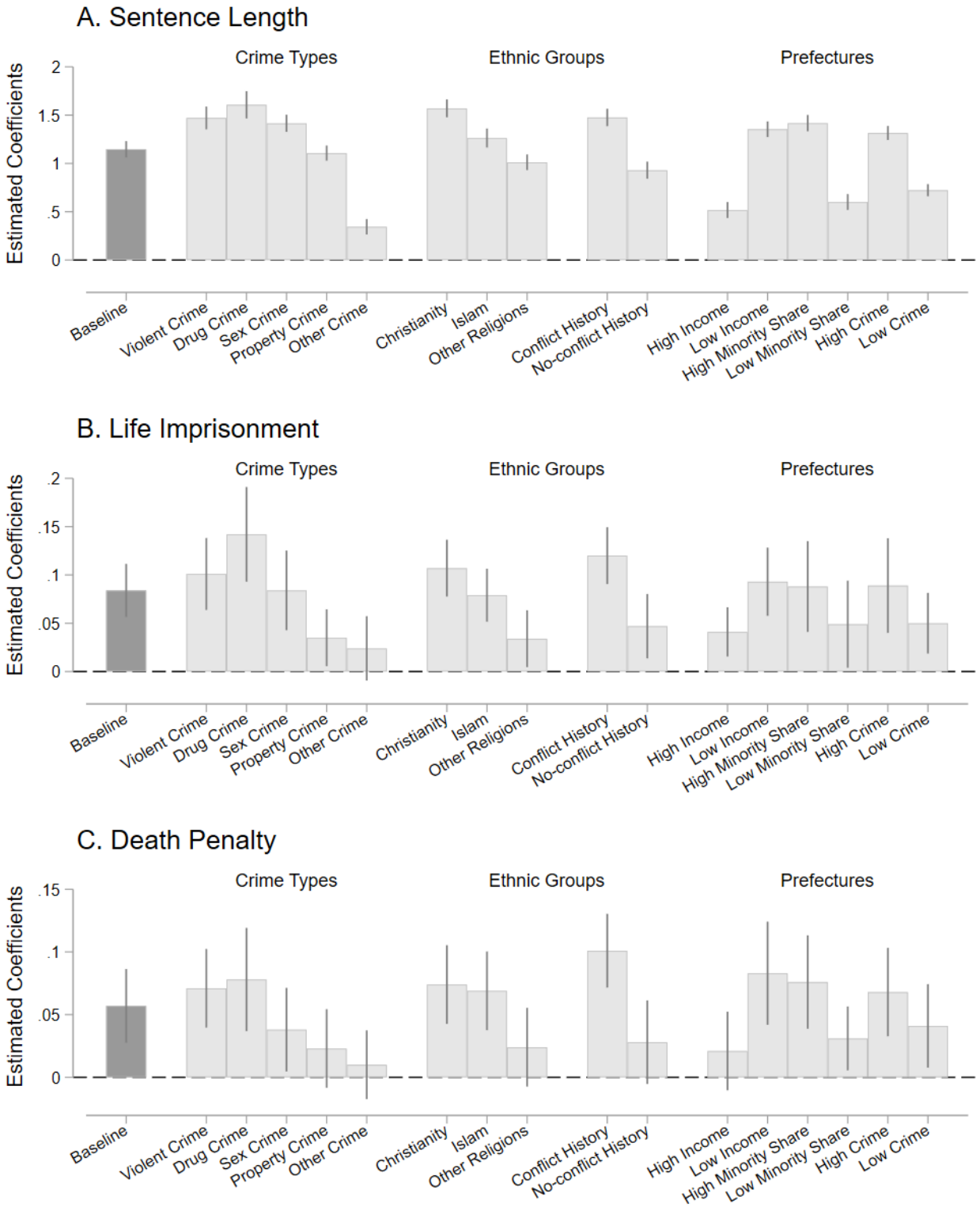
Figures and Tables

Figure 1: Time Trend of Average Sentencing Between Han and Minority



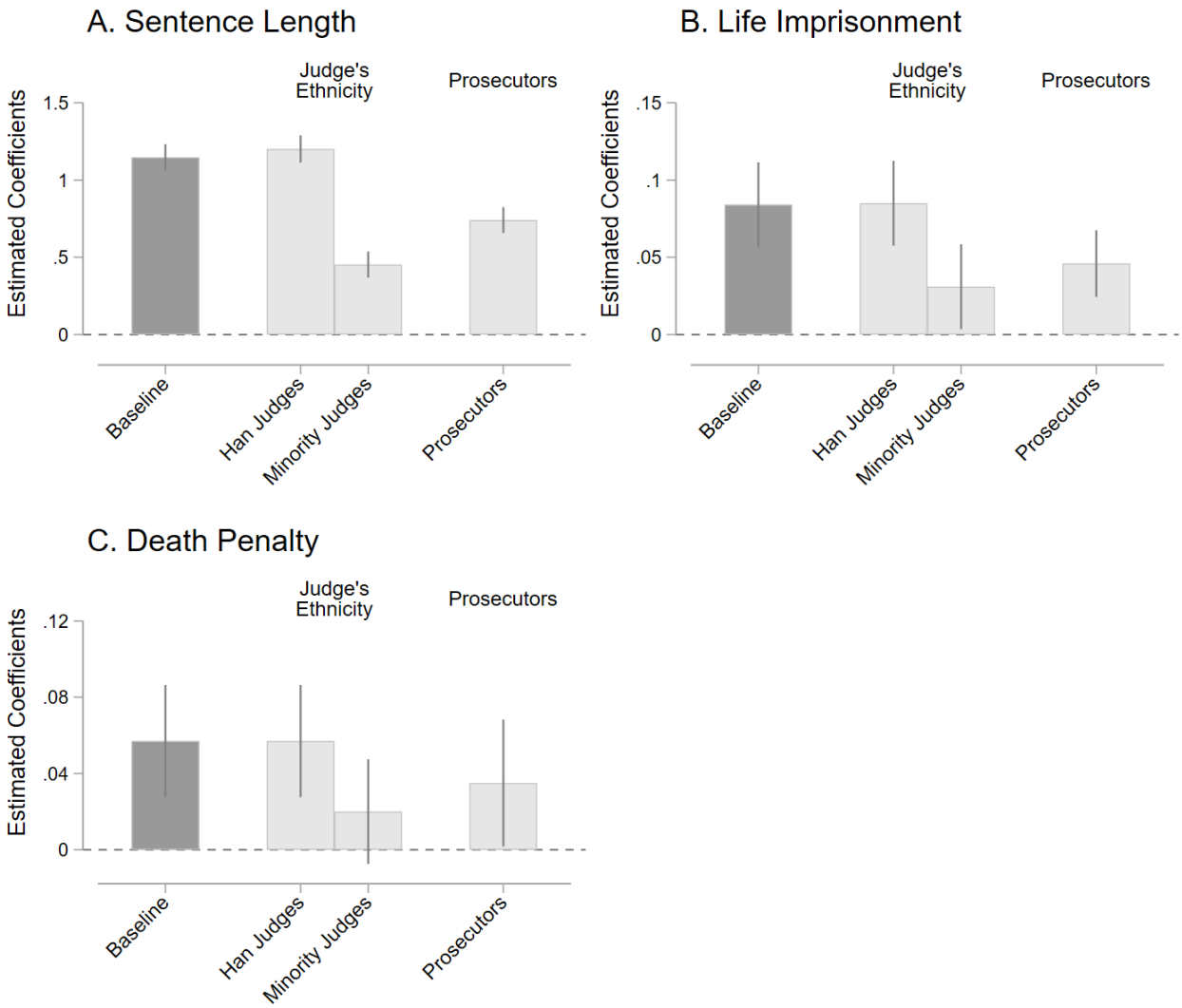
Notes: This figure plots the time trend of average sentencing outcomes between Han and Minority. Panel (a) demonstrates the average imprisonment sentencing and the number of corresponding cases. Panel (b) plots the average probability of getting the death penalty and the number of corresponding cases. Panel (c) presents the average probability of getting life imprisonment and the number of corresponding cases.

Figure 2: Stylized Facts about Ethnic Minority Issues in China's Criminal Justice System



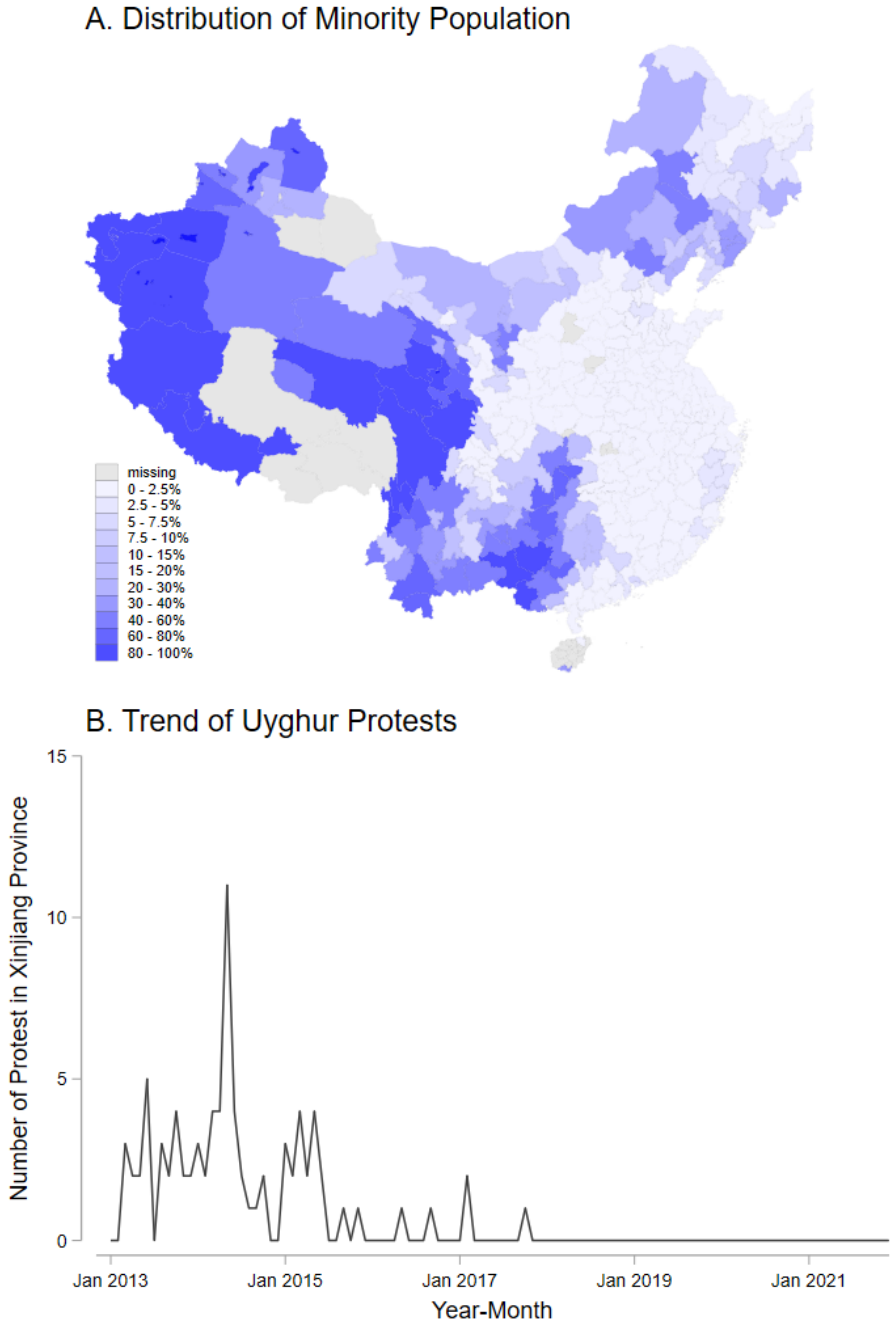
Notes: This figure presents a summary of key findings regarding average conditional sentencing disparities between the Han majority and ethnic minorities within China's criminal justice system. We focus on three different sentencing outcomes: 1) sentence length in Panel A; 2) life imprisonment in Panel B; and 3) the death penalty in Panel C. Specifically, we first plot the coefficients (along with 95% confidence intervals) for the overall disparities between the Han majority and ethnic minorities in darker colors (i.e. corresponding to regression results shown in Panel A of Table 2). Following this, we then present the coefficients (and their respective 95% confidence intervals) for analyses that investigate various forms of heterogeneity, including different crime types, ethnic groups, and local socio-economic conditions across prefectures (corresponding to regression results shown in Panel B, C, and D of Table 2).

Figure 3: Prosecutors, Ethnicity of Judges, and Minority Penalty



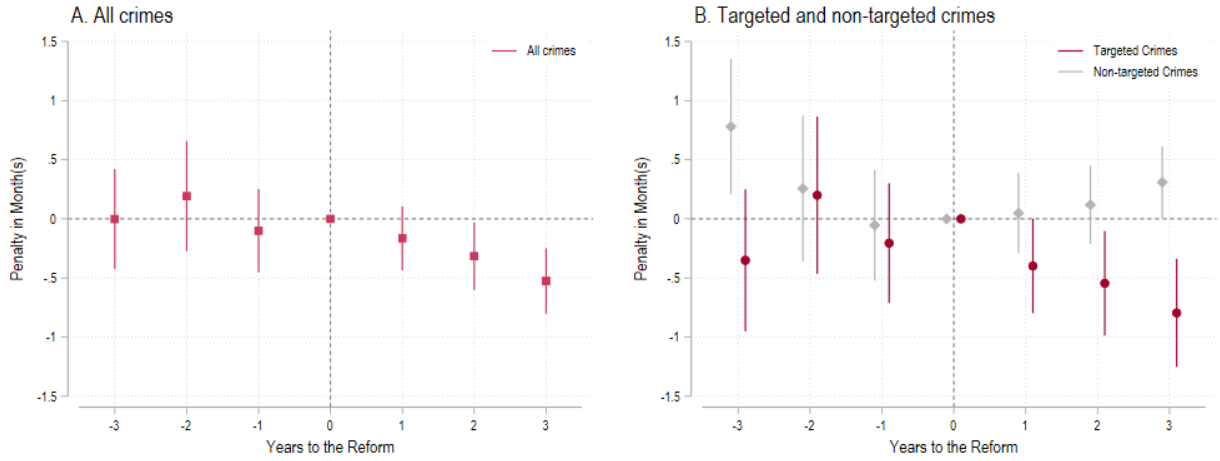
Notes: This figure summarizes the key results regarding the potential contributors to the conditional sentencing disparities between the Han majority and ethnic minorities within China's criminal justice system. Specifically, we begin by plotting the coefficients (along with 95% confidence intervals) for the overall disparities between the Han majority and ethnic minorities, using darker colors to correspond with the regression results presented in Panel A of Table 2. Next, we present the coefficients (and their respective 95% confidence intervals) for samples categorized by judges' ethnicity, distinguishing between Han judges and minority judges. Lastly, we plot the results using prosecutors' recommended sentences as outcome variables instead of judges final sentences. We focus on three different sentencing outcomes: 1) sentence length in Panel A; 2) life imprisonment in Panel B; and 3) the death penalty in Panel C.

Figure 4: Variations in DDD: Minority Share and Uyghur Protests



Notes: This figure demonstrates the variations that we utilized in the Uyghur unrest quasi-experiment design. Panel A plots the geographical distribution of minority ethnic groups in China. Panel B plots the time trend of Uyghur unrest in Xinjiang Province in China from 2013 to 2021.

Figure 5: Event Study of the Effects of Sentence Guideline Reforms on Sentencing Length



Notes: In Panel A, we plot the event study coefficients (and the corresponding 95% confidence intervals) for the sentencing guideline DiD results in column (1) of Table 5, following the approach suggested by Sun and Abraham (2021). In Panel B, we plot the event study coefficients (and the corresponding 95% confidence intervals) for the sentencing guideline DiD results by separating sample into reform-targeted crimes and non-targeted crimes, corresponding to the results in column (2) and (3) of Table 5.

Table 1: Summary Statistics of Key Variables

	Han Chinese (N = 3,685,669)		Ethnic minority (N = 315,782)		All (N = 4,001,451)	
	Mean (1)	S.D. (2)	Mean (3)	S.D. (4)	Mean (5)	S.D. (6)
A. Defendant characteristics:						
Age	37.8	(11.1)	34.8	(10.7)	37.5	(11.1)
Gender (male = 1)	.909	(.289)	.916	(.275)	.909	(.288)
Primary school and below	.277	(.447)	.415	(.482)	.288	(.452)
Secondary school	.487	(.486)	.410	(.473)	.481	(.483)
High school / junior college	.198	(.405)	.149	(.353)	.194	(.402)
Above 4-year college	.038	(.170)	.026	(.159)	.037	(.169)
High-paid Job (yes = 1)	.062	(.251)	.042	(.242)	.060	(.254)
B. Case characteristics						
Offense level (1-3)	1.524	(.639)	1.541	(.702)	1.525	(.642)
Crime History (yes = 1)	.156	(.363)	.159	(.397)	.157	(.366)
Guilty plea (yes = 1)	.085	(.276)	.069	(.253)	.084	(.275)
Surrender (yes = 1)	.384	(.478)	.362	(.470)	.382	(.474)
Confession (yes = 1)	.571	(.495)	.578	(.494)	.571	(.495)
Plaintiff Forgive (yes = 1)	.180	(.384)	.147	(.352)	.177	(.382)
C. Case resolution						
Sentence length (month)	16.9	(25.9)	19.8	(27.9)	17.1	(26.3)
Life imprisonment (yes = 1)	.003	(.050)	.006	(.079)	.003	(.055)
Death penalty (yes = 1)	.001	(.037)	.003	(.058)	.002	(.040)

Notes: This table reports summary statistics of key variables. Panel A presents the summary statistics for criminal defendants' personal characteristics extracted from court verdicts first section. Panel B shows the summary statistics of characteristics of criminal cases extracted from court verdicts second section. Panel C reports the summary statistics for different sentencing outcomes extracted from the final section of court verdicts.

Table 2: Stylized Facts about China's Criminal Justice System

	Sentence Length		Life Imprisonment		Death Penalty	
	Coef. (s.e) (1)	% in Mean (2)	Coef. (s.e) (3)	% in Mean (4)	Coef. (s.e) (5)	% in Mean (6)
Panel A. All						
All Crimes	1.15***	6.7%	0.08***	26.9%	0.06***	34.9%
	(0.04)		(0.01)		(0.02)	
Panel B. Crime Types						
Violent Crime	1.47***	8.6%	0.10***	34.5%	0.07***	43.6%
	(0.06)		(0.02)		(0.02)	
Drug Crime	1.61***	9.4%	0.14***	48.5%	0.08***	47.9%
	(0.07)		(0.03)		(0.02)	
Sex Crime	1.42***	8.3%	0.08***	28.7%	0.04**	23.3%
	(0.05)		(0.02)		(0.02)	
Property Crime	1.11***	6.5%	0.04***	11.9%	0.02	14.1%
	(0.04)		(0.02)		(0.02)	
Others	0.35***	2.1%	0.02	0.0%	0.01	6.1%
	(0.04)		(0.02)		(0.01)	
Panel C. Ethnic Group						
Christianity	1.57***	9.2%	0.11***	36.5%	0.07***	45.3%
	(0.05)		(0.02)		(0.02)	
Islam	1.26***	7.4%	0.08***	27.0%	0.07***	42.1%
	(0.05)		(0.01)		(0.02)	
Other Religions	1.01***	5.9%	0.03**	11.6%	0.02	14.7%
	(0.04)		(0.02)		(0.02)	
Conflict History	1.48***	8.7%	0.12***	41.0%	0.10***	62.0%
	(0.05)		(0.02)		(0.02)	
Non-conflict History	0.93***	5.5%	0.05***	16.1%	0.03	19.0%
	(0.05)		(0.02)		(0.02)	
Panel D. Locations						
High Income	0.52***	3.0%	0.04***	14.0%	0.02	12.9%
	(0.04)		(0.01)		(0.02)	
Low Income	1.35***	7.9%	0.09***	31.8%	0.08***	51.0%
	(0.04)		(0.02)		(0.02)	
High Minority Share	1.42***	8.3%	0.09**	30.1%	0.08***	46.7%
	(0.04)		(0.02)		(0.02)	
Low Minority Share	0.60***	3.5%	0.05***	16.7%	0.03***	19.0%
	(0.04)		(0.02)		(0.01)	
High Crime Rate	1.32***	7.7%	0.09***	30.4%	0.07***	41.8%
	(0.04)		(0.03)		(0.02)	
Low Crime Rate	0.72***	4.2%	0.05***	17.1%	0.04***	25.2%

(Continued)

	Sentence Length		Life Imprisonment		Death Penalty	
	Coef. (s.e) (1)	% in Mean (2)	Coef. (s.e) (3)	% in Mean (4)	Coef. (s.e) (5)	% in Mean (6)
Panel E. Ethnicity of Judges						
Han Judge	1.20***	7.0%	0.09***	29.0%	0.06***	35.0%
	(0.04)		(0.01)		(0.02)	
Minority Judge	0.45***	2.6%	0.03**	10.6%	0.02	12.3%
	(0.04)		(0.01)		(0.01)	
Panel F. Prosecutor's Recommended Sentences						
Prosecutors	0.74***	4.7%	0.05***	15.9%	0.04**	19.1%
	(0.04)		(0.01)		(0.02)	
Crime category FE	Yes	Yes	Yes	Yes	Yes	Yes
Case characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Defendant characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Year-month FE	Yes	Yes	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes	Yes	Yes
Court FE	Yes	Yes	Yes	Yes	Yes	Yes
Judge FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table presents a summary of stylized facts about conditional sentencing disparities between the Han majority and ethnic minorities within China's criminal justice system. We focus on three different sentencing outcomes: sentence length, life imprisonment, and the death penalty. Specifically, we first examine the overall disparities between the Han majority and ethnic minorities in Panel A. Following this, we then present results of heterogeneity analyses investigating how sentencing disparities changes across different crime types, ethnic groups, and prefectures with different local socio-economic conditions in Panel B, C, and D, respectively. In Panel E, we explore how judges' ethnicity correlated with sentencing disparities. In Panel F, we examine the role of prosecutors in contributing to the minority penalty using prosecutors' recommended sentences as outcome variables. Standard errors clustered at the court level are reported below the coefficients. * significant at 10% ** significant at 5% *** significant at 1%.

Table 3: Uyghur Unrest, Minority Population, and Minority Penalty

	Sentence Length				Life Imprisonment	Death Penalty
	(1)	(2)	(3)	(4)	(5)	(6)
	All	Male (20-60)	Male (60-)	Female	All	All
minority $\times$ **unrest** $\times$ **minority share**	0.301***	0.344***	0.001	-0.021	0.031**	0.025*
	(0.042)	(0.064)	(0.067)	(0.053)	(0.014)	(0.013)
crime category FE + case characteristics	Y	Y	Y	Y	Y	Y
defendant characteristics	Y	Y	Y	Y	Y	Y
year-month FE	Y	Y	Y	Y	Y	Y
province FE	Y	Y	Y	Y	Y	Y
court FE	Y	Y	Y	Y	Y	Y
judge FE	Y	Y	Y	Y	Y	Y
Observations	2,014,628	1,628,550	64,468	221,609	280,638	174,686
R-Squared	0.541	0.538	0.495	0.301	0.383	0.471

Notes: This table examines how minority penalty changes during Uyghur unrest in regions with higher minority population share. Standard errors clustered at the court level are reported below the coefficients. * significant at 10% ** significant at 5% *** significant at 1%.

Table 4: Local Governments, Courts, Minority Population, and Penalties against Minorities

	Sentence Length	Life Imprisonment	Death Penalty
	(1)	(2)	(3)
minority × high incentive × minority share	0.091***	0.015**	0.014*
	(0.031)	(0.074)	(0.072)
crime category FE + case characteristics	Y	Y	Y
defendant characteristics	Y	Y	Y
year-month FE	Y	Y	Y
province FE	Y	Y	Y
court FE	Y	Y	Y
judge FE	Y	Y	Y

Notes: This table examines how the disparity changes during Uyghur unrest in regions with higher minority populations. Standard errors clustered at the court level are reported below the coefficients. * significant at 10% ** significant at 5% *** significant at 1%.

Table 5: Sentencing Disparity and Sentencing Guideline Reform

	Sentence Length in Month			Life Imprisonment	Death Penalty
	(1)	(2)	(3)	(4)	(5)
	All	Targeted	Non-Targeted	All	All
Post Reform × Minority	-0.458***	-0.625***	0.101	-0.011	-0.009
	(0.087)	(0.114)	(0.129)	(0.026)	(0.018)
Minority	0.707***	0.986***	0.081	0.067***	0.048***
	(0.062)	(0.091)	(0.059)	(0.013)	(0.010)
Post Reform	-0.171***	-0.409***	0.034	0.024	0.015
	(0.037)	(0.090)	(0.063)	(0.017)	(0.016)
Crime Category FE	Y	Y	Y	Y	Y
Defendant and case characteristics	Y	Y	Y	Y	Y
Year-month FE	Y	Y	Y	Y	Y
Province FE	Y	Y	Y	Y	Y
Court FE	Y	Y	Y	Y	Y
Observations	4,001,451	1,813,021	2,188,430	501,103	329,015
R-Squared	0.415	0.306	0.490	0.312	0.401

Notes: This table investigates the effect of sentencing guideline reform. Standard errors clustered at the province level are reported below the coefficients. * significant at 10% ** significant at 5% *** significant at 1%.

ONLINE APPENDIX

Ethnic Disparity in Criminal Sentences in China: Evidence from the Universe of Court Verdicts

Wenwei Peng and Takanao Tanaka*

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A Data Appendix

A-1 Criminal Verdicts

Criminal court verdicts typically consist of three parts, each containing case-specific information. We present an example of a verdict at the end of this section A. The first part introduces the jurisdiction responsible for the case and provides details about the defendant's background. Most verdicts include information such as the defendants gender, date of birth, ethnicity, education level, employment status, occupation, current residence, and arrest details.

The second part outlines the criminal charges and gives a detailed description of the alleged offense, the criminal process, any resulting damages, and other relevant facts. For instance, the example provides details about the crime, the type of drug involved, and its quantity.

The final part addresses the sentencing factors and concludes the case with a summary of the convictions and penalties. Typically, the verdict first presents evidence gathered by the police and prosecutors and verified by the courts. It then lists the offenses committed by the defendant and considers any factors that may affect sentencing. This is followed by the final decision on the charges and penalties. In the example case, the defendant is accused of drug trafficking involving less than 1 gram of a dangerous drug (Article 347). The sentence is mitigated by the fact that the defendant confessed (Article 67). Additional considerations include the defendant's role as the principal offender (Article 26) and the joint commission of the crime (Article 25). Fines are also imposed (Articles 52, 53, and 64). The sentencing outcome is 10 months of imprisonment and a fine. The verdict also records the judge's name and the date of the decision.

A-2 Criminal Court Verdicts: Example (Translated)

Part I

People's Court of Hepu County, Guangxi Zhuang Autonomous Region Criminal Judgment

Public prosecution agency: Hepu County People's Procuratorate, Guangxi Zhuang Autonomous Region.

Defendant Zhu Youchuan, a male who was born on July 12, 1984 in Hepu County, Guangxi, with Han ethnicity and junior high school education background. He was unemployed and lived in Hepu County, Guangxi Province when arrested. Due to drug abuse on January 17, 2018, he was administratively detained for 12 days by the Beihai City Public Security Bureau Yinhai Branch Office. On January 29, 2018, the Beihai City Public Security Bureau Yinhai Branch decided to conduct compulsory isolation and detoxification for two years for him. He was arrested on March 19, 2018, for being suspected of drug trafficking and was arrested on March 7, 2018, by the Beihai Municipal Public Security Bureau Yinhai Branch. He is currently detained at the Second Detention Center in Beihai City.

Part II

The Hepu County People's Procuratorate accused the defendant Zhu Youchuan of trafficking in dangerous drugs on the basis of the indictment of the Joint Public Prosecution [2018] No. 236, and filed a public prosecution on May 24, 2018. The court applied the simple procedure in accordance with the law, implemented a sole trial, and heard the case in public. The Hepu County People's Procuratorate appointed the procurator Pang Bin to appear in court to support the public prosecution. The defendant Zhu Youchuan went to court to participate in the lawsuit. It has now been accomplished.

After investigation, it was found that at around 14:00 on January 16th, 2018, Chen, a drug purchaser, contacted someone whose nickname is "Er Ge" to purchase 200 yuan of heroin and agreed to trade at the entrance of Hepu County People's Hospital. 'Er Ge' said that a person named "Twenty-six" took the heroin to the trading location. At about 14:30 on the same day, the defendant Zhu Youchuan (nicknamed 26) arrived at the entrance of Hepu County People's Hospital with heroin and called Chen to trade at the intersection of Dinghai Road and Pedestrian Street in Lianzhou Town, Hepu County, Guangxi Province. When the defendants Zhu Youchuan and Chen finished the trade at the above-mentioned location, they were arrested by the second brigade of the anti-drug detachment of the Beihai Municipal Public Security Bureau and the anti-drug brigade of the Yinhai Branch of the Beihai Municipal Public Security Bureau. They seized the two packets of heroin that the defendant Zhu Youchuan sold to Chen from Chen's body on the spot. The suspected drug was weighed and weighed 0.51 grams. They also seized 200 yuan of drug money and 6 packets of suspected drug heroin from the defendant Zhu Youchuan. After weighing, the net weight was 0.38 grams, 0.42 grams, 0.08 grams, and one mobile phone that was used to conduct crimes. It was identified that the seized suspected drug detected heroin.

Part III

The defendant Zhu Youchuan also had no objection about the above facts during the trial, and the facts could also be proved by a household registration certificate, a certificate of return, a call record, a transcript, a list of seized items, a transcript of the weighing, a testimony of the witness Chen, and the statement of the defendant Zhu Youchuan as well as the confession, the physical and chemical inspection report and the notice of appraisal opinion, the on-site inspection transcripts and photographs, the identification of transcripts and other evidence. All the above things were enough to identify the facts.

Our court held that the defendant Zhu Youchuan violated the state's regulations on drugs and illegally sold heroin to others. His behaviour constituted a crime of drug trafficking. The public prosecutor accused the defendant Zhu Youchuan of committing drug trafficking. In the crime of joint drug trafficking, the defendant Zhu Youchuan played the main role and was the principal offender. He should be punished according to the law for all the crimes he participated in. Since the defendant Zhu Youchuan confessed his crimes truthfully after returning to the case, he could be punished softly according to law. The mobile phone that was used for drug trafficking should be confiscated according to law. Considering the facts, nature, situation, and damage to the society of the defendant's crime, in accordance with line items 1 and 4 of Article 347, line item 1 of Article 25, items 1 and 4 of Article 26, Article 52, Articles 53, line item 3 of Article 67 and Article 64 of the Criminal Law of the People's Republic of China, the sentences are as follows:

1. The defendant Zhu Youchuan committed the crime of drug trafficking and was sentenced to 10 months in prison and fined RMB 2,000. (The term of imprisonment shall be counted from the date of execution of the judgment. If the sentence is executed before January 6, 2019. The fine is limited to the law of this judgment. Payment within 10 days from the date of effectiveness. We may conduct mandatory payment if the pay is overdue).

2. One mobile phone transferred with the case will be confiscated and turned over to the state treasury.

If you disagree with this judgment, you may appeal to the Beihai Intermediate People's Court of Guangxi Zhuang Autonomous Region through the court or directly within 10 days from the second day after receiving the judgment. In the case of a written appeal, the original copy of the appeal shall be submitted in duplicate.

Judge Liu Weipei
6 June 2018
Judge Assistant Chen Haijuan
Clerk Huang Chuntian

Example (Original)

Part I

广西壮族自治区合浦县人民法院
刑 事 判 决 书

（2018）桂0521刑初277号

公诉机关广西壮族自治区合浦县人民检察院。

被告人朱有传，男，1984年7月12日出生于广西合浦县，汉族，初中文化，无业，住广西合浦县。因吸毒于2018年1月17日被北海市公安局银海分局处以行政拘留12日；于2018年1月29日被北海市公安局银海分局决定强制隔离戒毒二年。因涉嫌犯贩卖毒品罪于2018年3月7日被北海市公安局银海分局刑事拘留，同年3月19日被逮捕。现羁押于北海市第二看守所。

Part II

合浦县人民检察院以合检公刑诉［2018］236号起诉书指控被告人朱有传犯贩卖毒品罪，于2018年5月24日向本院提起公诉。本院依法适用简易程序，实行独任审判，公开开庭审理了本案。合浦县人民检察院指派检察员庞滨出庭支持公诉，被告人朱有传到庭参加诉讼。现已审理终结。

经审理查明：2018年1月16日14时左右，购毒人陈某电话联系绰号叫“二哥”的人要购买200元毒品海洛因，并约定在合浦县人民医院门口交易，“二哥”说其叫一名绰号“二十六”的人拿毒品海洛因到交易地点。当日14时30分左右，被告人朱有传(绰号二十六)持毒品海洛因到达合浦县人民医院门口，并打电话给陈某，约定在广西合浦县廉州镇定海路与步行街交汇处进行毒品交易，当被告人朱有传和陈某在上述地点交易完成后，被北海市公安局禁毒支队第二大队与北海市公安局银海分局禁毒大队民警现场抓获，当场从陈某身上缴获被告人朱有传贩卖给其的疑似毒品海洛因2小包，经称重，净重0.51克，并从被告人朱有传身上缴获毒资人民币200元和6小包疑似毒品海洛因，经称重，净重0.38克，0.42克，0.08克，作案手机一台。经鉴定，缴获的疑似毒品检出海洛因。

Part III

上述事实，被告人朱有传在开庭审理过程中也无异议，并有户籍证明，归案证明，通话记录，提取笔录，扣押物品清单，称量笔录，证人陈某的证言，被告人朱有传的供述，理化检验报告及鉴定意见通知书，现场勘验笔录及照片，辩认笔录等证据证实，足以认定。

本院认为，被告人朱有传违反国家对毒品的管理规定，非法向他人销售毒品海洛因，其行为构成贩卖毒品罪，公诉机关指控被告人朱有传犯贩卖毒品罪罪名成立。在共同贩卖毒品犯罪中，被告人朱有传起主要作用，是主犯，依法应按其所参与的全部犯罪处罚。被告人朱有传归案后如实供述自己的犯罪事实，依法可以从轻处罚。贩卖毒品使用的手机依法应当予以没收。根据被告人犯罪的事实、性质、情节和对社会的危害程度，依照《中华人民共和国刑法》第三百四十七条第一款和第四款、第二十五条第一款、第二十六条第一款和第四款、第五十二条、第五十三条、第六十七条第三款、第六十四条之规定，判决如下：

一、被告人朱有传犯贩卖毒品罪，判处有期徒刑十个月，并处罚金人民币2000元。

（刑期从判决执行之日起计算。判决执行以前先行羁押的，羁押一日折抵刑期一日，即自2018年3月7日起至2019年1月6日止；罚金限于本判决发生法律效力之日起十日内缴纳，逾期则强制缴纳）。

二、随案移送的手机一台，予以没收，上缴国库。

如不服本判决，可在接到判决书的第二日起十日内，通过本院或者直接向广西壮族自治区北海市中级人民法院提出上诉。书面上诉的，应提交上诉状正本一份，副本二份。

审 判 员　刘伟培

二〇一八年六月六日

法官助理　陈海娟

书 记 员　黄春添

Table A.1: Summary of Mitigating and Aggravating Factors

Crime Type	Variables	Sources
A. General Factors		
Variables Mentioned in Criminal Law	Committing a crime due to negligence, Mental illness, Deaf/dumb/blind, Preparation for the crime, Attempted crime, Discontinued crime, Leading role in the crime, Secondary role in the crime, Coerced into committing the crime, Abetting others to commit crimes, Social impact of the crime, Repeat offenses, Voluntarily surrendering, Providing useful information in solving the crime	CLPRC (2011)
Variables Not Mentioned in Criminal Law	Voluntary confession, Good attitude in confession, Regret for committing the crime, Compensation to the victim, Forgiveness from the victim, Good behavior in custody, Criminal settlement agreement, Targeting vulnerable people, Committing crimes during disasters, Large subjective malignancy, Small subjective malignancy, Bad motivation for committing the crime, Reasonable motivation for the crime, Using cruel methods, Crime committed in public, Severe consequences	GOSPPC (2017), IBCP (2010)
B. Crime-specific Factors		
Theft	Value of stolen items, Stealing from a home, Pickpocketing, Repeated theft, Stealing with weapons	CLPRC (2011)
Drug Trafficking	Type of drug, Weight of the drug, Being the key player, Armed trafficking, Resisting arrest with violence, International drug trafficking, Selling drugs to minors, Exploiting minors in trafficking, Recommitting drug-related crimes, Hired to transport drugs, Induced to sell higher quantities by authorities, Low drug content	CLPRC (2011)
Assault	Number of slightly injured people, Number of minor injuries (Class 1 & 2), Number of serious injuries (Class 1 & 2), Number of deaths	CLPRC (2011)
Homicide	Number of deaths	CLPRC (2011)

Notes: Data Source CLPRC (2011): Criminal Law of the People's Republic of China (2011 Amendment); GOSPPC(2017): Guiding Opinions on the Sentencing Procedures of the People's Courts (2017 Version); IBCP(2010): Implementing a balanced criminal policy of severity and leniency in cases of intentional homicide, injury, and organized crime with mafia-like characteristics (2010)

Table A.2: Balance Check: Comparing the Original Data and Main Sample

	All (N = 7,615,283)		Baseline sample (N = 4,001,451)		
	Mean (1)	S.D. (2)	Mean (3)	S.D. (4)	Dif (5)
A. Defendant characteristics:					
Age	37.6	(11.2)	37.6	(11.2)	0.004
Gender (male = 1)	.909	(.288)	.908	(.288)	0.001
Primary school	.29	(.454)	.284	(.451)	0.005
Secondary school	.481	(.5)	.484	(.5)	-0.004
High school or junior college	.198	(.398)	.201	(.401)	-0.002
Above 4-year college	.031	(.173)	.0303	(.171)	0.006
B. Case characteristics					
Offense level 1	0.82	(.381)	0.821	(.383)	-0.001
Offense level 2	0.158	(.367)	.159	(.366)	-0.001
Offense level 3	0.0194	(.137)	.0195	(.138)	-0.001
Guilty plea (yes = 1)	0.083	(.265)	.0828	(.276)	0.002
Surrender (yes = 1)	.399	(.49)	.382	(.486)	0.016
Confession (yes = 1)	.597	(.491)	.57	(.495)	0.027
Plaintiff Forgive (yes = 1)	.182	(.386)	.179	(.383)	0.003
C. Case resolution					
Sentence length (month)	17.2	(25.7)	17.4	(26.1)	-0.210
Life imprisonment (yes = 1)	.00277	(.0526)	.00306	(.0552)	0.000
Death penalty (yes = 1)	.0029	(.0538)	.0029	(.0538)	0.000

Notes: XX

B Criminal Procedure

In China's criminal justice system, the police department (People's Security Bureau), prosecutors (People's Procuratorates), and courts (People's Courts) each carry out their specific duties while also collaborating with one another. Our analyses focus on discrimination after the entry into the criminal justice system.

China's criminal proceedings typically begin with the police department's investigations. When criminal activity is detected by the police or reported to them, they assess the criminal situation and determine whether to file the case for investigation, in which the policies gather evidence and possibly detain the suspected individuals. Once the police assemble sufficient evidence to conclude that the suspect is guilty, they write the prosecution opinions and submit them to the prosecutors, otherwise cases are dismissed.

The prosecutors then review the case and the evidence thoroughly. Based on this review, they decide whether to proceed with an arrest or to dismiss the case. If they conclude that the case constitutes a violation of criminal law, they officially charge the individuals involved and bring the case to the courts for trial with the relevant case materials and evidence. During this process, the files prepared by the prosecutors often include the "recommended sentences" that outline the plausible penalties. In China, all arrests lead to formal court charges, precluding the possibility of discrimination based on an extensive decision to charge accusations.

Finally, the case proceeds to local courts for adjudication. China adopts the "two instances of trial" principle, meaning that all the cases are resolved after the second trial. Criminal cases are handled by the criminal divisions in one of the four hierarchical levels of courts: basic (county and district level), intermediate (municipal level), provincial high, and the Supreme Courts, with initial criminal trials being, in principle, conducted at the basic or intermediate courts. For the first instance, one to three judges are randomly assigned depending on the case's complexity and severity. Judges impose sentences based on the charges and relevant facts, and cases are typically resolved in court hearings as an open trial. If the defendants or prosecutors oppose the sentences imposed in the first instance, the second instance is convened.

China's criminal justice system is unique in two ways. First, Chinese judges play a central role in trial decisions. China's legal system largely follows civil law traditions that lack juries or legally binding precedents, which grants considerable discretion to judges. To make the final rulings, judges establish facts and apply remedies found in criminal law. In this process, criminal law clearly directs penalties but allows considerable judicial discretion, especially before introducing the mandated sentencing guidelines. For example,

regarding opium possession, Articles 347 and 348 of criminal law describe that individuals with opium of not less than 1000 grams shall be sentenced to "fixed-term imprisonment of 15 years, life imprisonment or death..." and with 201-1000 grams to "fixed-term imprisonment of not less than seven years..." However, judges are authorized to finalize penalties for different weights within the range, like 300 against 500 grams. Moreover, the penalties could be harsher, e.g., if the defendant aids and abets minors in committing offenses, but judges have discretion over deciding whether to apply the related criminal codes and over the extent of the additional penalties.

Lastly, it is important to note that the plea bargaining system in China differs significantly from that in the United States. In the U.S., the majority of cases are resolved through plea bargaining, where the defendant can decide whether or not to appear in court. In contrast, China lacks a comparable bargaining process. Defendants may "confess" to their crimes, admitting guilt during the prosecution stage, which can generally lead to less severe sentencing outcomes. Still, all defendants are required to appear in court, yet there is no negotiation with juries or judges regarding sentencing. While China's plea bargaining system has seen increased use in recent years,[1], we account for this variation by including a related control variable in our analysis.

[1]https://www.chinalawtranslate.com/en/a-plea-for-greater-reform-and-engagement/

C Sentencing Guideline Reform

This section provides a detailed explanation of China's sentencing guidelines. The reform was initiated by the Supreme Court of China, which first issued the template guidelines. Provincial high courts then adapted these templates into region-specific versions, though they remain largely similar. The sentencing guidelines consist of two key components: instructions for commonly encountered circumstances and guidelines for specific crimes.

*Commonly Seen Circumstances*The first element of the guidelines addresses policies related to commonly seen circumstances, such as attempted crimes, accomplices, voluntary surrender, confessions, and meritorious service. The guidelines provide more detailed instructions on these factors than the criminal law. For example, the guidelines specify that the base sentence may be reduced by up to 50% for attempted crimes, whereas Article 23 of the criminal law only regards these as mitigating factors (Table **??**). Similarly, accomplices, voluntary surrender, and meritorious service are also considered mitigating factors in criminal law, but without quantitative guidance on punishments, leaving judges to decide the extent of penalty reductions arbitrarily. The guidelines reduce this ambiguity by specifying exact mitigation amounts. We describe the details in table **??**.

Crime Specific Guildelines—The second element of the guidelines provides instructions for specific crime categories, including traffic crimes, intentional harm, rape, unlawful imprisonment, robbery, theft, fraud, seizing property, encroachment in public office, blackmail or extortion, obstructing public functions, gathering crowds to fight, provocation and causing a disturbance (picking quarrels), covering up or concealing criminal proceeds, receiving benefits from criminal proceeds, and smuggling, trafficking, transporting, or manufacturing drugs.

For instance, prior to the guideline reform, Article 347 governed the sentencing for drug-related crimes, such as smuggling, trafficking, transporting, or manufacturing. According to the law, individuals caught with at least 50 grams of heroin were subject to "fixed-term imprisonment of 15 years, life imprisonment, or death," while those with between 10 and 50 grams faced "fixed-term imprisonment of not less than seven years." However, judges had discretion in how to handle different quantities, such as distinguishing between 20 and 30 grams when finalizing a sentence. Moreover, harsher penalties could be imposed in cases where the defendant aided and abetted minors, though the criminal law lacked precise instructions on these penalties.

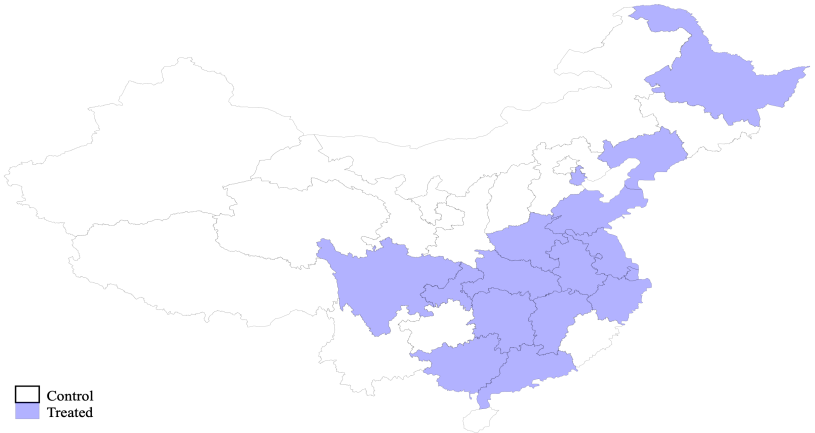
The mandated sentencing guidelines eliminate some of these ambiguities. For example, the guidelines specify that for a defendant smuggling 10 to 50 grams of heroin, a sentence of 7 to 8 years should serve as the "starting point," with an additional year added

for every 5 grams over 10 grams. Thus, possession of 20 grams of heroin would result in 9 to 10 years of imprisonment, while 30 grams would lead to 11 to 12 years, ensuring that sentencing is more standardized by these instructions. Additionally, defendants who abet minors in committing offenses will see their base sentence increased by 10% to 30%. Further details are presented in figure A.4.

In the case of robbery, the criminal law does not clearly specify additional penalties for mitigating or aggravating factors such as monetary loss, injury, or repeated offenses. In contrast, the guidelines provide detailed instructions on these factors, as shown in figure A.5.

For most crimes, the guidelines have limited influence on standardizing penalties for life imprisonment or death sentences. This is because the criminal law already establishes clear thresholds for such severe penalties, and these thresholds are rarely altered by the guidelines. Therefore, the guidelines are expected to have minimal impact on decisions involving life sentences or the death penalty.

Figure A.1: Rollout of Sentencing Guideline Reform



Notes: Treated provinces are in light purple.

Table A.3: Example of Guildeline Reforms: Robbery

Factors	Penalties
A. Criminal Law	
Attempted Crimes	• *(Article 23)* An offender who attempts to commit a crime may, in comparison with one who completes the crime, be given a lighter or mitigated punishment.
Accomplices	• *(Article 27)* An accomplice shall be given a lighter or mitigated punishment or be exempted from punishment.
Voluntary Surrender	• *(Article 67)* Any criminal who voluntarily surrenders may be given a lighter or mitigated punishment. The ones whose crimes are relatively minor may be exempted from punishment.
Meritorious Service	• *(Article 68)* Any criminal who performs such meritorious services as exposing an offence committed by another, which is verified through investigation, or producing important clues for solving other cases may be given a lighter or mitigated punishment. Any criminal who performs major meritorious services may be given a mitigated punishment or be exempted from punishment.
A. Guildeline	
Attempted Crimes	• The basic sentence may be reduced by less than 50% in comparison with completed crimes, taking into account the degree of implementation of the criminal act, the extent of the damage caused, the reasons why the crime was not successful, etc.
Accomplices	• Their status and role in the joint crime should be taken into account, and they should be given lenient punishment, reducing the basic sentence by 20%-50%; for minor crimes, the basic sentence may be reduced by more than 50% or exempted from punishment according to law.
Voluntary Surrender	• For voluntary surrender, the basic sentence may be reduced by less than 40% in comparison with completed crimes, taking into account the motive, time, method, severity of the crime, degree of truthful confession of the crime, and remorse, etc.; for minor crimes, the basic sentence may be reduced by more than 40% or exempted from punishment according to law.
Confession (covered under ”Voluntary Surrender” in criminal law)	• For confession, the extent of leniency shall be determined by taking into account the stage, degree, severity of the crime, and degree of remorse of the truthful confession of the crime. (1) If a person truthfully confesses his crime, the basic sentence may be reduced by less than 20%; (2) If a person truthfully confesses a relatively serious crime of the same kind that the judicial organ has not yet grasped, the basic sentence may be reduced by 10%-30%; (3) If a person truthfully confesses his crime and avoids particularly serious consequences, the basic sentence may be reduced by 30%-50%."

Continued: Example of Guildeline Reforms: Robbery

Factors	Penalties
Guilty Plea (covered under "Voluntary Surrender" in criminal law)	• For those who voluntarily plead guilty in court, the basic sentence may be reduced by less than 10% based on the nature of the crime, the severity of the crime, the degree of confession, and the expression of remorse.
Meritorious Service	• The degree of leniency shall be determined by comprehensively considering the size, number, content, source, effect, and severity of the meritorious service. (1) For ordinary meritorious service, the basic sentence may be reduced by less than 20%; (2) For major meritorious service, the basic sentence may be reduced by 20%-50%; for minor crimes, the basic sentence may be reduced by more than 50% or exempted from punishment according to law.

Definition—*Attempted Crimes*: A case where an offender has already started to commit a crime but is prevented from completing it for reasons independent of his will (Article 23); *Accomplices*: Any person who plays a secondary or auxiliary role in a joint crime (Article 27); *Voluntary Surrender*: The act of voluntarily delivering oneself up to justice and truthfully confessing one's crime after one has committed the crime.....If a criminal suspect or a defendant under compulsory measures or a criminal serving a sentence truthfully confesses his other crimes that the judicial organ does not know, his act shall be regarded as voluntary surrender. (Article 67). Data Source—*Criminal Law*: `http://www.npc.gov.cn/zgrdw/englishnpc/Law/2007-12/13/content_1384075.htm` and *Guildeline*: `http://gongbao.court.gov.cn/Details/0b0f4c58cf4a9d00abdf5ffa0b3eb5.html`

Table A.4: Example of Guildeline Reforms: Drug Crime

Factors	Penalties
A. Criminal Law (Article 347)	
less than 10g	• less than 3 years. • If circumstances are serious, 3 to 7 years
10 to 50g	• 7-15 years
over 50g	• 15 years, life imprisonment, or death penalty
B. Guideline (Beijing's High Court)	
Less than 1g	• The Starting sentence is 4 months to 1 year. • + 3 months for each additional gram
1-5 grams	• The starting sentence is 3 to 4 years. • + 3 months for each additional gram
5-10 grams	• The starting sentence is 4 to 7 years. • + 1 year for each additional gram
10-50 grams	• The starting sentence is 7 to 8 years. • + 1 year for each additional 5 grams
50 grams or more	• 15 years, life imprisonment, or death penalty

(Continued:) Mitigating or Aggravating Factors for Drug Crimes

Factors	Penalties
A. Criminal Law (Article 347)	
Using or involving minors in drug crimes	• Heavier punishment
Repeat drug offenses	• the quantity of drugs involved will be calculated cumulatively
B. Guideline (Beijing's High Court)	
Using or involving minors in drug crimes	• +10% to +30%
Repeat drug offenses	• +10% to +30%
Smuggling by state employees	• +6 months to 1 year
Trafficking drugs in rehabilitation facilities or to minors	• +6 months to 1 year
Selling to more than 3 people or committing the crime multiple times	• +6 months to 1 year
Using pregnant women, people with serious illnesses, etc.	• +10% to +30%
Drug content is low	• Up to 30% reduction
Hired to transport drugs	• Up to 30% reduction

Table A.5: Example of Guildeline Reforms: Robbery

Factors	Penalties
A. Criminal Law (Article 347)	
Robbery	3 to 10 years imprisonment and a fine
Serious Robbery	If one of the following condition is met, the penalty is not less than 10 years imprisonment, life imprisonment, or death penalty + plus a fine or confiscation of property • Robbing by intruding into another person's residence • Robbing on public transportation • Robbing a bank or financial institution • Committing multiple robberies or stealing large sums of money • Causing serious injury or death during robbery • Impersonating a serviceman or policeman to rob • Robbing with a gun • Robbing military materials or emergency relief materials
B. Guideline (Beijing's High Court)	
Robbery	Starting sentence: 3.5 - 6 years • Robbery involving property worth at least 1,000 yuan, with an additional 1 month for each 1,000 yuan stolen • Repeat robbery: Add 1 to 3 years • Slight bodily injury caused: Add up to 6 months • Minor injury caused: Add 6 months to 1 year
Serious Robbery	Starting sentence: 10 - 13 years • Additional 1 month for every 6,000 yuan stolen beyond 60,000 yuan • Add 2 to 3 years for each robbery after the third occurrence • Slight bodily injury inflicted: Add up to 6 months • Minor injury inflicted: Add 6 months to 1 year • Serious injury inflicted: Add 1 to 3 years • Disabilities (level 6 to 3): Add 6 months to 1 year per level • Disabilities (level 2 to 1): Add 2 to 3 years per level

D Judge Ethnicity Prediction

Because the verdicts only provide the judges' names, we apply a deep-learning approach to predict the judge's ethnicity. Although all the judges are appointed and removed by the CCP, some judges are from ethnicities rather than the Chinese Han, politically majority group. In so doing, we first use the census data that includes millions of pairs of names and ethnicities identified to build prediction algorithms: the algorithms return the plausible ethnicities when names are given as inputs. Then, using the judge's names in the verdicts, we assign the ethnicity predicted by our algorithms. We check the accuracy of the predictions in various ways.

D-1 Building Algorithms

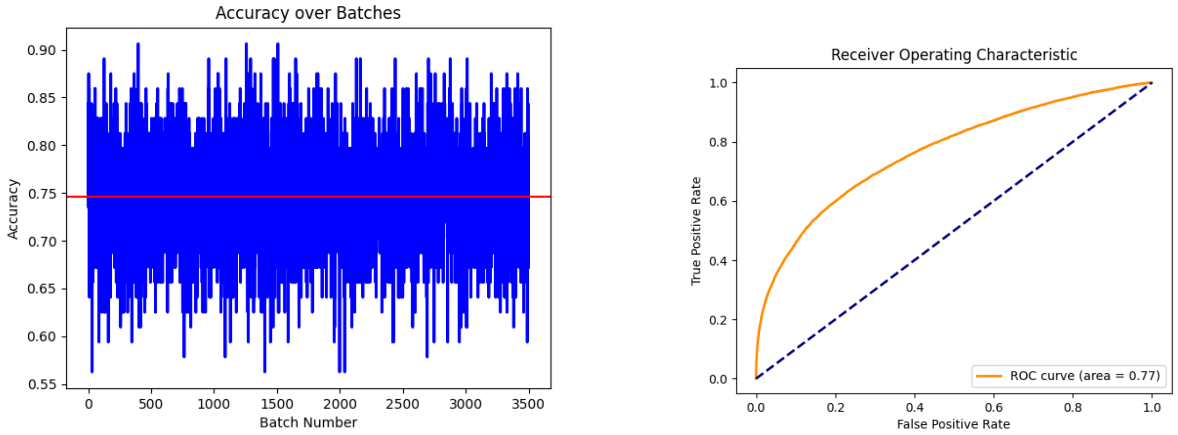
To build prediction algorithms, we use the 2005 census that includes nearly 13 million individuals with names and ethnicities identified. We first exclude individuals whose surnames are predominantly associated with Han Chinese. Our algorithms are used to classify about 2.5 million of the rest of the surnames that are used by both the ethnic minorities and the Han majority.

We adopt the Long Short-Term Memory (LSTM) neural networks, a common method for building prediction algorithms. The target variable of this prediction is a binary label indicating whether an individual belongs to an ethnic minority or the Han, while the input is each individual's name. The LSTMs are highly efficient for processing sequential data because of their unique architecture with 'gates' regulating information flow. These gates selectively retain crucial historical information, discarding irrelevant details and allowing the network to make decisions by considering an extended context rather than solely relying on recent inputs (Hochreiter and Schmidhuber, 1997).[2] To train the data, we randomly divide this census data into a 90% training set and a 10% test set. The testing

[2]We use the following model architecture. *Embedding Layer*: This layer transforms each character of name indices into dense vectors of a fixed size. It facilitates the model's understanding of character semantics. *Dropout Layer*: Implements a dropout rate of 10% to reduce overfitting. *LSTM Layer*: Processes the embedded characters, capturing the sequential dependencies within the names. *Linear and Activation Layers*: Consists of two linear layers with a ReLU activation in between. These layers map the LSTM's output to an intermediate representation and then to the final output size, corresponding to the number of ethnic categories. *Softmax Layer*: Converts the final linear layer's output into a probability distribution across different ethnic labels.

process takes a batch size of 64 and runs over 3,500 iterations.[3]

Overall, we find that our algorithms can accurately predict binary ethnicity. Our final model achieved a 75% overall accuracy as Panel A in Figure A.2 shows the accuracy rate over the iterations. Because our predictions are only applied to surnames that can both used by ethnic minorities and Han majority, the precision for the entire population should be much higher. The precision is comparable to Ash et al. (2021), whose accuracy rate is about 80% and 74% for the defendants' religions and gender and 96% and 98% for judges in India. We also obtain the AUC (Area Under the Curve) at 0.77 on the test set as depicted in Panel B. This figure plots the true positive rate on y-axis and the false positive rate on x-axis, in which the top left corner implies the AUC of 1 with 100% true positive rate and 0% false positive rate, while the 45-degree lines show the AUC of 0.5 which assigns positive complete randomely.



(A) Accuracy over Batches **(B)** Receiver Operating Characteristic

Figure A.2: Model Performance Evaluation

D-2 Predicting Judges' ethnicities

We use our algorithms to predict the ethnicity of each judge from the name in our main dataset. To ascertain the preciseness, we calculate the Han ethnicity rates of judges across

[3]We use the following training process. *Standardization and Tokenization*: Names are standardized and tokenized using ANSI encoding to make them suitable for input into the neural networks. *Resampling for Imbalance*: Due to the imbalanced label distribution in the training data, with minority ethnic groups representing only 7.2%, a PyTorch sampler "ImbalancedDatasetSampler" is implemented to ensure a more balanced representation of ethnic labels in each batch. *Model Training and Loss Calculation*: The model processes names and predicts ethnicities in each iteration. We use Focal Loss, a modified loss calculation method targeted at imbalanced datasets (Lin et al., 2017), to compute the difference between predicted and actual values. Model parameters are updated accordingly based on this loss.

provinces and compare these with those based on the 2005 census data. Figure A.3 shows the strong and positive correlation between the predicted judge's Han rate and that based on the entire population with its R-square at 0.898. If we plot these on the map in Figure A.4 with Panel A depicting our predicted spatial distribution of Han judges and Panel B the census data, these two maps largely coincide.

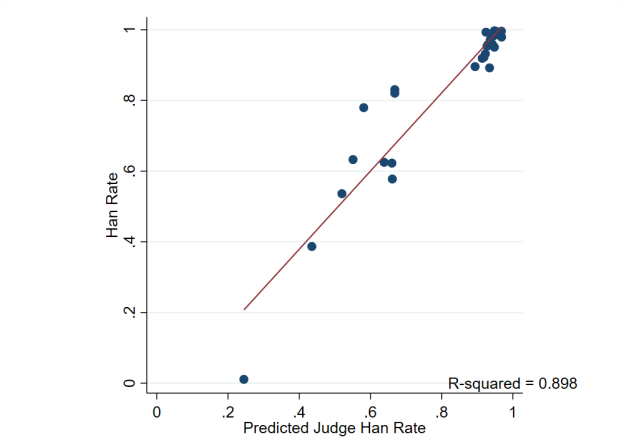
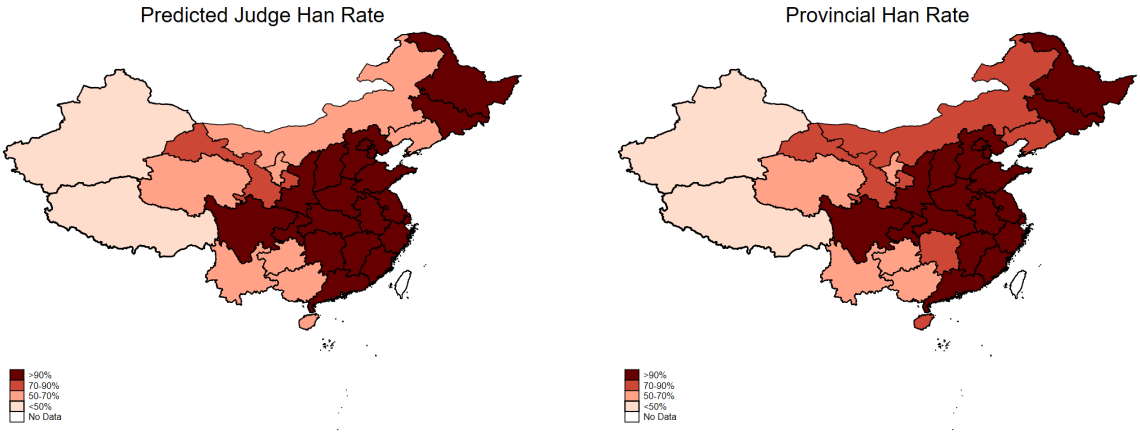


Figure A.3: Comparison between Actual vs. Predicted Ethnicity Distribution



(A) Prediction Result **(B)** Distributions in Census

Figure A.4: Model Performance Evaluation by Maps

E Appendix Tables

Table A.6: Stylized Facts: Minority Penalty in Criminal Sentencing

	Sentence Length (1)	Life Imprisonment (2)	Death Penalty (3)
minority	1.147***	0.084***	0.057***
	(0.043)	(0.014)	(0.015)
% in control mean	6.7%	26.9%	34.9%
obs	3,414,623	474,531	295,427
Crime category FE	yes	yes	yes
Case characteristics	yes	yes	yes
Defendant characteristics	yes	yes	yes
Year-month FE	yes	yes	yes
Province FE	yes	yes	yes
Court FE	yes	yes	yes
Judge FE	yes	yes	yes

Notes: This table reports the results of our baseline estimations. Panel A, B, and C focus on sentence length, life imprisonment, and the death penalty, respectively. Standard errors clustered at the court level are reported below the coefficients. * significant at 10% ** significant at 5% *** significant at 1%.

Table A.7: Heterogeneity of Ethnic Disparity in Criminal Sentencing – Crime Type

	Dependent Variable: Sentence Outcomes				
	Violent Crime (1)	Drug Crime (2)	Sex Crime (3)	Property Crime (4)	Others (5)
A. Effects on sentence length in month					
minority	1.471***	1.607***	1.415***	1.107***	0.345***
	(0.060)	(0.072)	(0.045)	(0.040)	(0.041)
% in control mean	8.6%	9.4%	8.3%	6.5%	2.1%
obs	680,707	394,093	82,401	931,494	1,481,462
B. Effects on life imprisonment (yes = 1)					
minority	0.101***	0.142***	0.084***	0.035***	0.024
	(0.019)	(0.025)	(0.021)	(0.015)	(0.017)
% in control mean	34.5%	48.5%	28.7%	11.9%	0.0%
obs	93,958	50,124	15,233	132,680	172,119
C. Effects on death penalty (yes = 1)					
minority	0.071***	0.078***	0.038**	0.023	0.010
	(0.016)	(0.021)	(0.017)	(0.016)	(0.014)
% in control mean	43.6%	47.9%	23.3%	14.1%	6.1%
obs	56,795	35,023	9,781	91,503	115,372
Crime category FE	Yes	Yes	Yes	Yes	Yes
Case characteristics	Yes	Yes	Yes	Yes	Yes
Defendant characteristics	Yes	Yes	Yes	Yes	Yes
Year-month FE	Yes	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes	Yes
Court FE	Yes	Yes	Yes	Yes	Yes
Judge FE	Yes	Yes	Yes	Yes	Yes

Notes: This table replicates our baseline exercises by splitting sample into different crime types. Panel A, B, and C focus on sentence length, life imprisonment, and the death penalty, respectively. Standard errors clustered at the court level are reported below the coefficients. * significant at 10% ** significant at 5% *** significant at 1%.

Table A.8: Heterogeneity of Ethnic Disparity in Criminal Sentencing – Religions and Conflict History

	Dependent Variable: Sentence Outcomes				
	Christianity (1)	Islam (2)	Other Religions (3)	Conflict History (4)	No-conflict History (5)
A. Effects on sentence length in month					
minority	1.570***	1.263***	1.012***	1.476***	0.930***
	(0.047)	(0.050)	(0.041)	(0.046)	(0.045)
% in control mean	9.2%	7.4%	5.9%	8.7%	5.5%
obs	3,247,762	3,239,701	3,541,506	3,385,679	3,456,509
B. Effects on life imprisonment (yes = 1)					
minority	0.107***	0.079***	0.034**	0.120***	0.047***
	(0.015)	(0.014)	(0.015)	(0.015)	(0.017)
% in control mean	36.5%	27.0%	11.6%	41.0%	16.1%
obs	445,476	444,370	485,767	461,478	476,051
C. Effects on death penalty (yes = 1)					
minority	0.074***	0.069***	0.024	0.101***	0.028
	(0.016)	(0.016)	(0.016)	(0.015)	(0.017)
% in control mean	45.3%	42.1%	14.7%	62.0%	19.0%
obs	286,035	274,301	310,418	307,958	310,798
Crime category FE	Yes	Yes	Yes	Yes	Yes
Case characteristics	Yes	Yes	Yes	Yes	Yes
Defendant characteristics	Yes	Yes	Yes	Yes	Yes
Year-month FE	Yes	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes	Yes
Court FE	Yes	Yes	Yes	Yes	Yes
Judge FE	Yes	Yes	Yes	Yes	Yes

Notes: This table replicates our baseline exercises by dividing sample into different ethnic groups. Panel A, B, and C focus on sentence length, life imprisonment, and the death penalty, respectively. Standard errors clustered at the court level are reported below the coefficients. * significant at 10% ** significant at 5% *** significant at 1%.

Table A.9: Local Socio-economic Characteristics and Minority Penalty

	Dependent Variable: Sentence Outcomes					
	Income		Minority Share		Crime Rate	
	High (1)	Low (2)	High (3)	Low (4)	High (5)	Low (6)
A. Effects on sencence length in month						
minority	0.518***	1.354***	1.417***	0.601***	1.315***	0.723***
	(0.0417)	(0.0412)	(0.0426)	(0.0417)	(0.0373)	(0.0321)
obs	1,648,710	1,516,142	1,546,584	1,625,013	1,171,562	1,804,560
B. Effects on life imprisonment (yes = 1)						
minority	0.041***	0.093***	0.088**	0.049***	0.089***	0.050***
	(0.013)	(0.018)	(0.024)	(0.023)	(0.025)	(0.016)
obs	231,561	239,160	241,024	229,816	221,074	245,606
C. Effects on death penalty (yes = 1)						
minority	0.021	0.083***	0.076***	0.031***	0.068***	0.041***
	(0.016)	(0.021)	(0.019)	(0.013)	(0.018)	(0.017)
obs	160,315	144,469	151,536	149,891	143,461	164,901
Crime category FE	Yes	Yes	Yes	Yes	Yes	Yes
Case characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Defendant characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Year-month FE	Yes	Yes	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes	Yes	Yes
Court FE	Yes	Yes	Yes	Yes	Yes	Yes
Judge FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table replicates our baseline exercises by dividing the sample based on local socio-economic characteristics: GDP per capita, minority population share, and crime rate. Panel A, B, and C focus on sentence length, life imprisonment, and the death penalty, respectively. Standard errors clustered at the court level are reported below the coefficients. * significant at 10% ** significant at 5% *** significant at 1%.

Table A.10: Judge's Ethnicity and Prosecutors

	Sentencing Outcomes		Recommended Sentences
	Han Judge (1)	Minority Judge (2)	Prosecutors (3)
A. Effects on sentence length in months			
minority	1.201***	0.453***	0.741***
	(0.045)	(0.043)	(0.0425)
% in control mean	7.02%	2.64%	4.67%
obs	3,039,014	317,560	701,853
B. Effects on life imprisonment (yes = 1)			
minority	0.085***	0.031**	0.046***
	(0.014)	(0.014)	(0.011)
% in control mean	29.01%	10.58%	15.92%
obs	431,823	42,233	184,125
C. Effects on death penalty (yes = 1)			
minority	0.057***	0.02	0.035**
	(0.015)	(0.014)	(0.017)
% in control mean	34.96%	12.27%	19.13%
obs	271,793	25,702	129,186
Crime category FE	Yes	Yes	Yes
Case characteristics	Yes	Yes	Yes
Defendant characteristics	Yes	Yes	Yes
Year-month FE	Yes	Yes	Yes
Province FE	Yes	Yes	Yes
Court FE	Yes	Yes	Yes
Judge FE	Yes	Yes	Yes

Notes: This table replicates our baseline exercises by dividing the sample based on the judge's ethnicity. Column (3) uses recommended sentences by prosecutors to judges rather than sentencing outcomes. Panel A, B, and C focus on sentence length, life imprisonment, and the death penalty, respectively. Standard errors clustered at the court level are reported below the coefficients. * significant at 10% ** significant at 5% *** significant at 1%.