Ethnic Discrimination and Authoritarian Rule:
An Analysis of Criminal Sentencing in China

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Abstract

This paper presents the first analysis of ethnic discrimination in sentencing patterns in the People's Republic of China, focusing on drug cases in Yunnan province. We posit the "problem minority" hypothesis, which holds that discrimination in an authoritarian system emerges when an ethnic group becomes associated with behavior that generates social instability. On average, minority defendants in Yunnan receive sentences that are about 1.4 to 7.5 months longer than Han defendants that have committed similar drug crimes. Further analysis of data from all provinces reveals that this bias is largest for groups heavily involved in the drug trade, and in provinces with significant minority populations and drugs.

Keywords: authoritarianism; ethnicity; China; drugs; judicial politics; courts; discrimination

[This version: June 17, 2021]

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1 Introduction

Across many developed democracies, the scales of justice are tipped against members of ethnic and religious minority groups (Alesina and La Ferrara 2014; Grossman et al. 2015; Mustard 2001; Rehavi and Starr 2014; Steffensmeier, Painter-Davis and Ulmer 2017; Ulmer and Johnson 2004). In the United States, African American defendants receive sentences that are about ten percent longer than white defendants (Rehavi and Starr 2014). Racial discrimination proves largest in areas where the black population is most concentrated (Alesina and La Ferrara 2014; Ulmer and Johnson 2004), consistent with the broader idea of "group threat" theory (Ulmer and Johnson 2004). Criminal justice systems are institutions of social control, and racial biases in sentencing arise when the majority group feels threatened, either physically or economically, by a minority population (King and Wheelock 2007). This leads to stereotyping and prejudice among jury members, prosecutors, and judges, who tend to be members of the dominant group (Abrams, Bertrand and Mullainathan 2012; Anwar, Bayer and Hjalmarsson 2012; Lim, Silveira and Synder 2016, Rehavi and Starr 2014; Starr and Rehavi 2013).

Our paper extends this line of research with the first analysis of ethnic discrimination in criminal sentencing outcomes in the People's Republic of China. China is a multi-ethnic state dominated by a single ethnic group—the Han—who represent 92 percent of the population. The state officially recognizes 55 ethnic minority groups, with a total population of about 110 million. The Chinese Communist Party (CCP) has followed the Soviet model of providing limited concessions to minority groups in the form of regional autonomy and policy privileges. On paper, China's ethnic policies focus on "preserving ethnic diversity and gradual, state-guided, development—allowing each group to progress toward socialist modernity on its own terms and at its own pace." (Leibold 2013, 6)

At the outset, it is unclear whether we should expect to observe ethnic discrimination in the Chinese judicial system. On the one hand, ethnic minority defendants were once thought to receive lighter sentences under the "two restraints (in arrests and executions) and one leniency (in treatment)" (两少一宽) policy, but this regulation became invalid around 2010 because of

demands for equal treatment from the Han population (Cui 2016). On the other hand, we know that the CCP has a free hand in how it "manages" minority groups. The treatment of ethnic Tibetans and Uyghurs would suggest that it errs on the side of repression and control (Greitens, Lee and Yazici 2020). Studies have also identified bias against ethnic minorities in public service provision and in the labor market (Distelhorst and Hou 2014; Hasmath 2011; Hou, Liu and Crabtree 2020).

Under what conditions will we observe ethnic discrimination in criminal sentencing in an authoritarian system? We know that criminal justice is deeply political (Alexander 2010), and authoritarian regimes often speak the language of social order and control (Gandhi and Przeworski 2007; Hassan 2017; Mattingly 2020; Pan 2020; Svolik 2012). In the criminal justice system, judges can use the law to promote "social harmony" through the sentencing process (Liebman 2014, 2015; Li 2015; Minzner 2011).

We term our overarching intuition the "problem minority" hypothesis, which builds on the ideas of group threat theory (King and Wheelock 2007; Ulmer and Johnson 2004). In contrast to "model minorities"—those that have largely assimilated and are viewed in good standing by the ethnic majority—"problem minorities" are involved in some behavior that has the ability to disturb public order (Porter and Washington 1993). The group itself becomes associated with a distinct social malady, and members may experience stigma and discrimination, even if they are not personally involved (Alexander 2010; Blair, Judd and Chapleau 2004; Greitens, Lee and Yazici 2020; Rehavi and Starr 2014).

The implication of this view is that in general, we expect to observe ethnic discrimination in authoritarian courts, but that discrimination should be heterogeneous across groups, issues, and space. When minorities are concentrated, and when they are disproportionately involved in an illicit activity that threatens stability, we expect the discriminatory logic to take hold. Harsher sentences will be meted out to members of the "problem minority" for those types of crimes. When these conditions are not met, discrimination should be nonexistent or less severe.

The paper tests this idea through an analysis of criminal sentencing patterns in drug cases

in Yunnan, a province in southwestern China of about 50 million people. Because Yunnan borders Myanmar, Laos, and Vietnam, it is considered the epicenter of China's drug problem, as large quantities of heroin, methamphetamine, and opium flow across the region (Dutton 1997; Yang 1993; Zhang and Li 2010). Some minority groups in Yunnan have kin populations in neighboring countries, and ethnic ties facilitate drug trafficking and the emergence of cartels. We consider this a "most likely" case for the theory (Levy 2008)—a well-defined social stability problem, associated with minority populations, and offenses that are amenable to quantification and comparison. If we do not observe ethnic bias in Yunnan on sentences for drug offenses, the theory is likely wrong.

The study of ethnic discrimination in Chinese courts has long been hampered by the lack of transparency and data in the judicial system. New national guidelines now require courts to upload documents on criminal and other cases to a centralized website, and the files provide detailed information about each case, including the nature of the crime, the defendant's demographic characteristics and criminal history, and the defendant's demeanor and defense strategy. We scraped and parsed over 300,000 drug case documents to create the data for this paper.

We attempt to measure discrimination through a conditioning approach, in line with the foundational studies in this literature (Rehavi and Starr 2014; Mustard 2001; Ulmer and Johnson 2004). Because ethnicity is not randomly assigned, it is impossible to definitively assert that being an ethnic minority has a causal effect on sentencing outcomes (Sen and Wasow 2016). We adopt the more modest aim of a.) first identifying whether there is indeed an association between ethnicity and sentence severity and b.) seeing whether that association still exists after accounting for a rich set of covariates that should affect sentences according to China's Criminal Law. Any "unexplained variation" is suggestive of ethnic discrimination in the system, though it is always possible that some unobserved confounder or sample selection issue could explain any discrepancy across ethnic groups.

Our analysis of the roughly 10,000 drug cases in the data from Yunnan (2014-2018) reveals a degree of ethnic discrimination. Minority defendants, on average, have sentences that are about

1.4 to 7.5 months longer than Han (the majority group) defendants that have committed similar crimes. Though the point estimates vary slightly, this general result holds across a range of conditioning strategies and covariate sets, including the incorporation of court or judge fixed effects. Ethnicity emerges as substantively and statistically significant predictor of sentencing even after we account for the defendant's crime type, drug quantity, criminal history, age, education, gender, and court of sentencing.

We test the generalizability of our Yunnan findings across the rest of the country by analyzing all publicly available drug cases in China, 167,091 cases in total. We have less confidence in this data, but nevertheless it allows for additional testing of the problem minority framework, as we can disaggregate the effects by province and group. This analysis reveals variation in discrimination across groups and jurisdictions (Ulmer and Johnson 2004). Groups that are more heavily involved in the drug trade face differentially harsher sentences in the criminal justice system—the number of cases per capita or drugs confiscated per capita strongly predict a groups' bias coefficient. Conversely, members of minority groups that are not highly involved in the drug trade do not appear to have harsher sentences than their Han counterparts that committed comparable crimes, with some exceptions. This suggests that the discriminatory logic is not simply about minority status per se, but about the reputation of one's group as it relates to the broader drug issue.

Our study makes two primary contributions. First, it expands the scope of the literature on racial and ethnic discrimination in criminal justice systems. Previous work has studied racial bias in criminal sentencing length (Rehavi and Starr 2014), capital sentencing (Alesina and La Ferrara 2014), and bail decisions (Arnold, Dobbie and Yang 2018). Most of existing research focuses on the United States. We provide a new, rich dataset and the first quantitative estimate of discrimination in China's criminal justice system, which has the second largest incarcerated population in the world. Our data also allows us to size and explore variation in the degree of discrimination across groups and regions in China, also a first for our field.

Second, it contributes to our understanding of ethnic politics under authoritarian rule, pro-

viding an original theoretical argument for how authoritarian regimes manage diverse populations and maintain stability (Greitens, Lee and Yazici 2020; Hassan 2017, 2020). States use a mix of assimilation, integration, cooptation and repression across a range of institutions to control different minority groups (Han and Mylonas 2014). In addition to taste-based biases against minority groups, one particular institutional reason to explain the identified bias is that Chinese judges use the law to promote "social harmony" and social order through the sentencing process (Liebman 2014, 2015; Li 2015; Minzner 2011). Not all minority groups are treated unfavorably in the criminal justice system. Using national-level data, we show that judges punish certain minority groups—"problem minorities"—more harshly than other groups.

2 Theory

Under what conditions do authoritarian regimes discriminate against ethnic minorities in the criminal justice system? Majority groups in government generally allow some minorities to assimilate while suppressing others (Cederman, Wimmer and Min 2010). The ethnic politics literature tells us that concentrated minority groups are seen as particularly threatening because they are more likely to mobilize and engage in civil conflict (Horowitz 1985; King and Wheelock 2007; Morelli and Rohner 2015).

In any political system, minorities can come to be viewed as threatening by members of the dominant group, which in turn use the criminal justice system for repression and control. Certainly this is the case in the United States, where many studies have observed racial biases in policing and sentencing (Alesina and La Ferrara 2014; Rehavi and Starr 2014; Knox, Lowe and Mummolo 2020), and where the crack epidemic in particular was used to justify the mass incarceration of African Americans (Alexander 2010). In authoritarian settings, a key dimension is the explicit demand of social order and control as a "top-down" mandate. Local officials are incentivized by the regime to promote social order, and they come to view certain minority groups as threatening to that order. In other words, it is not socially undesirable to discriminate or treat minority groups differently when state sanctions such behaviors. The observed

outcome of ethnic discrimination might be similar in democracies and non-democracies, but the underlying political dynamics are somewhat different.

Our argument builds on the idea of societal threat and requires some assumptions about the way governance works in places like China and other decentralized authoritarian systems (King and Wheelock 2007; Ulmer and Johnson 2004). First, we assume that the overarching goal of the regime is to stay in power and maintain control over society. This assumption motivates many of the workhorse models of authoritarian politics (Gandhi and Przeworski 2007; Gehlbach, Sonin and Svolik 2016; Svolik 2012). This is not to say that officials in authoritarian systems do not have policy preferences or ideological commitments, but simply that there is a stability imperative that underpins much of the political calculus.

The second assumption is that the everyday business of maintaining stability is delegated to lower level officials, who may have some discretion in how they make and implement policy (Hassan 2017, 2020). This "fragmented authoritarianism" is a core feature of the Chinese political system, and it is responsible for local variation in policymaking across a range of issues (Lieberthal 1992). With respect to the court system, judges may work in tandem with local officials to administer justice in a way they perceive will best foster social stability in that jurisdiction. The law itself is an institution of control (Liebman 2015; Minzner 2011; Ng and He 2017).

Existing studies on courts in the United States and other democracies show substantial sentencing disparities across different racial groups. These disparities may reflect prejudice or inferences made with imperfect information. For instance, judges, prosecutors, or juries may hold the belief that race is correlated with unobserved or imperfectly observed criminal conduct and use race as a characteristic to update their prior estimates and to make decisions (Lang and Spitzer 2020). These factors may also drive discrimination in authoritarian systems, but an additional dynamic arises when certain groups come to be viewed by the state as threats to social order. Some minority groups may be disproportionately involved in activities the government explicitly internalizes as destabilizing or unruly—separatism, violence, terrorism,

drug trafficking, and so forth (Greitens, Lee and Yazici 2020). Members of these "problem groups" are expected to experience harsher sentences.

In sum, we expect to observe discrimination in criminal courts against minorities in general only when certain conditions are met. Our core hypothesis is as follows:

> H_1: Compared to ethnic majority group members that have committed equivalent crimes, ethnic minority defendants will receive harsher sentences when a.) the crime is associated with the group itself and b.) the crime is part of a larger threat to social stability.

We also expect to observe geographic variation in discrimination:

> H_2: Discrimination in criminal sentencing against ethnic minorities will occur in areas where a.) minorities are concentrated; b.) the prevalence of the crime is acute; and c.) minorities are differentially involved in the crime.

In areas where minorities are sparse, or where the crime is not particularly relevant, we would not expect the "problem minority" logic to dominate the mindset of local officials. Discrimination is only likely to occur in localities that have the intersection of a large minority population involved in a destabilizing activity. Note that this activity need not be protest, separatism, revolution, or political activism. Lower level officials in authoritarian systems are often incentivized to maintain stability, and that term often carries a broad definition, encompassing anything that undermines law and order (Greitens 2016; Wang and Minzner 2015; Yang 2017).

3 Background

Our analysis focuses on criminal cases involving drug trafficking, transport, smuggling, manufacturing, and possession in China's Yunnan province. Below we provide some brief context on the nature of criminal justice and the drug problem in contemporary China.

3.1 China's Criminal Justice System

The Chinese legal system includes the people's courts, the people's procuratorate and the public security apparatus. The people's court system has four levels: the Supreme People's Court

(SPC), provincial high courts, intermediate courts (municipal-level), and basic courts (county and district-level). The SPC promulgates judicial interpretations and exercises "bureaucratic, ministry-like" authority over the lower judiciary (deLisle 2014, p. 226).

China's court system is the largest in the world. The total number of judges is 195,000, roughly 18.8 judges per 100,000 people. In comparison, the ratio for the United States is 5, 8.1 for France, 1.7 for Japan and 1.4 for India (Ng and He 2017). Courts and other legal institutions operate explicitly under the leadership of the Chinese Communist Party (CCP). The CCP selects and promotes judges and court personnel, and local party and government officials influence local courts through the CCP's Political-Legal Committee (Ng and He 2017, p. 19). Chinese courts work alongside the CCP and other government agencies in maintaining social stability (Ng and He 2017; Minzner 2011). Criminal law in China promoted as "collective social order," and crime is perceived as a significant threat to the success of economic reform and thus to the very legitimacy of the party-state (Trevaskes 2007a).

Defendants enjoy the right to appeal in China but are reluctant to do so. Appeals are generally unsuccessful, as higher level courts frequently review and approve sentences prior to the original trial, and sometimes the outcome of an appeal is more unfavorable to the defendant than the original verdict (LCHR 1996, 70–71). The role of defense attorneys in China's legal system also remains limited. Defendants have the right to counsel, though many do not seek representation. According to Lu and Miethe (2002), defense lawyers in China have "dual responsibilities of not only having to protect the rights of the accused, but also to help the state to seek the truth" (p. 269). In 2018, 99.994% of defendants tried for criminal offenses were found guilty.[1] When a Chinese citizen enters the criminal justice system, the legal question is not really one of guilt or innocence, but about the severity of the final sentence.

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[1]See data from the Supreme People's Court work report and the Chinese law year book, cited in Wang (2019), accessed Oct. 7, 2019.
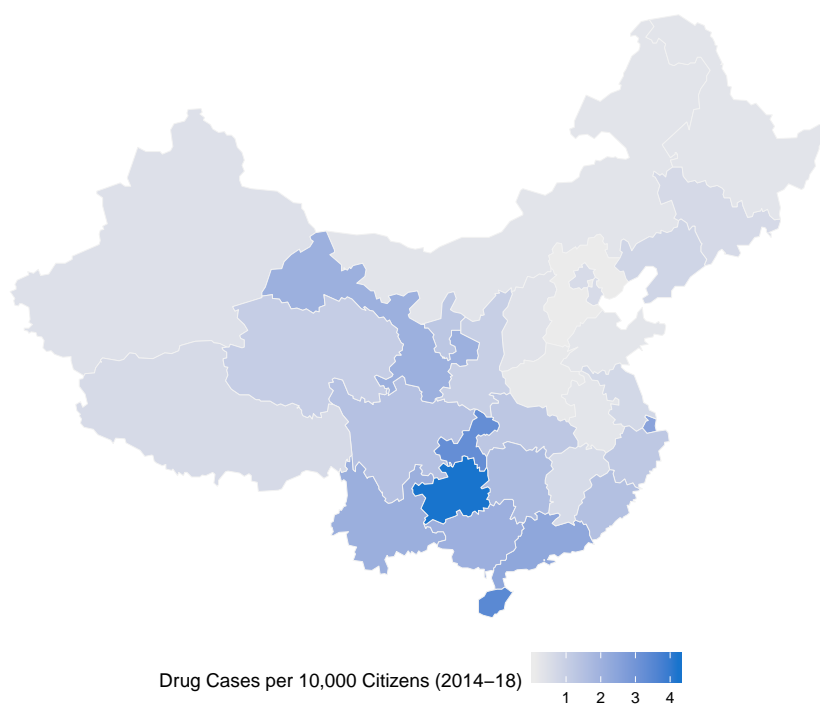
Figure 1: Severity of drug problem across China. Figure shows the number of drug cases per 10,000 citizens by province from 2014-2018. Dark blue provinces indicate areas where the drug problem is more severe. Figures constructed from authors' dataset and include only methamphetamine and heroin cases. Population figures are projected for 2017 from census data.

3.2 China's Drug Problem

The CCP has been waging a "People's War on Drugs" for the past three decades. This policy officially started 1989, when the State Council called for eradicating the "six evils" (六坏), including the production, use and trafficking of illegal drugs together with prostitution, gambling and other crimes (Wang and Minzner 2015; Yang 1993). A related nationwide anti-crime policy— the Strike Hard campaign (严打), includes "drug traffickers" as one of the main enemies of China's modernization process. The Strike Hard campaign promises to "strike heavy blows" at these targeted groups as a method of crime prevention and social control (Hou and Quek 2019; Trevaskes 2007a,b).

China's recreational drug market is growing substantially and is now an estimated \$82 billion (Levin 2015; Yang 1993). Drug-related offenses constituted 10.54% of all criminal cases in 2016, and their number is growing four times faster than other criminal cases (SPC 2017). Drug crimes are concentrated in China's southwestern provinces with large ethnic minority populations. The

urgency of the problem is reflected in government documents. According to the 2017 Supreme People's Court (SPC) report, drug problems in China are now "wide-spread," drug crimes are "peaking," and drug control work is "painfully demanding" (SPC 2017). Figure 1 shows the number of heroin and methamphetamine cases per capita across China using the court data scraped and analyzed for this project.

The sentencing guidelines for drug-related offenses in China are clear but allow for some judicial discretion. Articles 347 and 348 of China's Criminal Law map different drug quantities to sentencing outcomes (see text in Supporting Information). Drug trafficking, smuggling, manufacturing and transporting are all criminal offenses. Defendants found with more than 50 grams of heroin or methamphetamine "are to be punished by 15 years of fixed-term imprisonment, life imprisonment or death sentence." Intermediate quantities (10-50 grams) yield a minimum sentence of seven years fixed term imprisonment, and smaller quantities (less than 10 grams) are to be sentenced to no more than seven years. Sentences can be made more or less severe depending on the circumstances of the case—whether the defendant was involved in international drug trafficking, led or was involved in a criminal group, used arms or violence, or encouraged minors to commit offenses, among other factors. There are also special cases (e.g., pregnancy, mental illness) where defendants can receive a lighter sentence.[2]

4 Data and Research Design

In this section, we describe the data with a focus on potential data missingness problems and our proposed solutions. We then introduce the key variables and our empirical strategy.

4.1 Data Sources and Missingness

The CCP is increasingly transparent in many areas of governance (Distelhorst and Hou 2017; Lorentzen, Landry and Yasuda 2013), and in some respects the granularity of the data that is now

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[2]Besides the Criminal Law, judges and lawyers also frequently consult with several other relevant Supreme People's Court documents. These include the Wuhan Conference Report (2015), the Dalian Conference Report (2008) and judicial interpretations of the Criminal Law issued in 2000, 2007, 2012, 2014 and 2016. These documents are not official laws, but they are regularly referred to by judges and other legal workers.

available in the court system exceeds what scholars have used in studies of sentencing in Western democracies (Liebman et al. 2020). Beginning in 2013, all courts in China became responsible for uploading judicial decisions onto a central website, "China Judgments Online," administered by the Supreme People's Court. As of October 2020, over 103.1 million court documents had been uploaded on the website, including over 9.3 million criminal proceedings. The website has been visited more than 49.6 billion times. These cases are written in a standardized format across provinces and emphasize outcomes and case facts (Liebman 2015).

For this paper, we scraped all first-instance court drug cases (n=14,853) judged by basic and intermediate courts in Yunnan province available on the China Judgments Online website as of October 2018.[3] We also parsed the full set of drug cases for the entire country (n=167,091) to use for additional analysis.[4]

This dataset is not a census of all drug cases in China, but rather a large convenience sample with unknown biases (Liebman et al. 2020). Lower level courts are legally required to post case files to the central government website, but they also have discretion to withhold cases for various reasons. Other scholars have estimated that the courts upload about 40 to 76% of cases (Liebman et al. 2020; Liu et al. 2019; Tang and Liu 2019), and this proportion varies substantially across jurisdictions.[5]

Our primary focus is drug cases in Yunnan province. According to the official news release of the Yunnan provincial high court, between January 2016 and October 2018, courts in Yunnan ruled a total of 19,103 drug offense cases.[6] Our dataset covering the same period includes a total of 9,227 cases, and we estimate the disclosure rate to be around 48.11%.

What accounts for the missingness in our data? SPC rules provide exemptions for cases

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[3]We removed cases if they had no identifying information about the crime type, if the case document had multiple defendants, if the ruling year was prior to 2014, or if the defendant did not possess either heroin or methamphetamine. This left us with 10,082 cases for the analysis. We developed an algorithm using rule-based regular expressions to explore patterns in these court documents, extract relevant information, and parse these cases into variable-based data from Yunnan.

[4]See Hou and Wang (2020) for another study using the nation-wide dataset.

[5]According to Tang and Liu (2019), the real disclosure rate of Chinese court decision in 2015 could be as high as 75.77% if excluding settlement cases whose disclosure is not required by the SPC.

[6]See an official report from the Yunnan government, "云南高院发布禁毒白皮书, 毒品犯罪重刑率已近7成", at http://m.yunnan.cn/system/2018/10/27/030103174.shtml, accessed Oct. 1, 2020.

involving state secrets, personal privacy, juvenile criminal cases, disputes resolved through mediation, and documents deemed "inappropriate" to publicize (Liebman et al. 2020). Drug cases usually do not fall into these categories. Another possibility is that more severe cases could be censored due to national security concerns. A report by Amnesty International finds that only a small fraction of death penalty cases between 2014 and 2016 were made public (N.d.). According to the Yunnan high court official news release, between 2016 and 2017, about 8,000 defendants received a sentence more severe than a 5-year fixed term imprisonment, and in our sample, there are 3,919 defendants who received a sentence more severe than a 5-year fixed term. The disclosure rate for severe cases is about 49%, similar to the overall disclosure rate we discussed above.

We interviewed several judges and lawyers who have first-hand experience with the criminal courts in China to further understand case missingness. Their consensus view is that cases involving minors are often censored to protect the identity of the defendant, but adult defendants do not usually bother to ask judges not to publish their cases online. One criminal defense lawyer comments that "these (criminal) defendants will have a criminal record on file, so they do not care if their names are made public in online documents" (Personal Interview Y2). Another ex-judge from a district-court in Southwest China comments that "normally we do not have privacy concerns when publishing drug cases, unless we feel the need to protect an undercover operation or informants" (Personal Interview Y5).

The SPC's case website began operating in 2013, and local courts are still adopting to the relatively new system and catching up on uploading cases. One estimate shows that the total disclosure rate for all cases in 2016 was 47% (Legal Weekly 2019). This number is similar to the disclosure rate in drug cases we examine (48.11%), which suggests that drug cases do not seem to have received differential treatment compared to other cases, including non-criminal ones. Interview subjects cited factors like the local government budget, total number of cases ruled in the court, and the professionalization of court staff as affecting disclosure rates (Personal Interviews Y2, Y5, and Y7).

Our interviews gave no reason for us to believe that the missingness issue is correlated with ethnicity, or that cases with certain outcomes were being censored for some ethnic groups and not others. Nevertheless, we try to address this issue in several ways. To account for disclosure differences across jurisdictions, we include court-level fixed effects or judge-level fixed effects so that we are only comparing cases ruled within the same court, or decided by the same judge.[7] We run robustness checks that exclude severe cases and cases that involve minors, which have a higher likelihood to have involved case elements that require more privacy. We also conduct specifications that subset the data to 2017, which has a higher disclosure rate (62%).[8]

As with many studies of the Chinese political system, our approach has been to do the best we can given the limited data that is available, rather than refrain from studying an important topic entirely. We hope readers are sympathetic to this mindset. Future research can replicate our findings if data quality further improves. As it is, our conclusions should be interpreted carefully: we are able to estimate the relationship between ethnicity and sentencing *on drug cases that are publicly available.*

4.2   Measurement and Empirical Strategy

The primary outcome variable is punishment severity. If a defendant received a fixed prison sentence, we coded the length of the sentence in months. To conduct the analysis, it is necessary to have different punishments on the same scale, and we did so by converting all other punishments to months using an existing standard from the literature (Yin and Li 2009): a life sentence equals 264 months, a suspended death sentence equals 288 months, and a death sentence equals to 360 months. The mean sentence in the Yunnan data was 91 months, and the median sentence was 49 months. For a secondary outcome variable, we also analyzed whether defendants received either life imprisonment, death, or a suspended death sentence. This punishment was given to

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[7]There is substantial variation across courts in their rate of disclosure. In Henan Province, for instance, the most transparent court published 83% of all cases in 2014, while the least transparent court published only 14% of all cases (Liebman et al. 2020).

[8]Official announcements specify the total number of drug cases for 2017 (n=7,239) but unfortunately not for other years. Our 2017 sample includes a total of 4,511 cases, yielding a disclosure rate of 62.32%. Because local courts seem to be uploading more newer cases than older cases and we downloaded all cases before October 2018, we believe the year with the best data quality is year 2017.

7.6% of the defendants in the Yunnan data.

We identify the ethnic identity of the defendant using the ethnic identity marker shown in the case documents. The document always includes an ethnic marker for all defendants, but these documents vary on how specific an identity is. For instance, there are 334 cases (2.25% of all Yunnan cases) where the ethnic identity marker are "ethnic minority" instead a more specific ethnic minority marker such as *huizu* (回族) or *buyizu* (布依族). About 72.56% cases involved a Han defendant.

Our empirical strategy is to use a conditioning approach to assess whether ethnicity is robustly associated with punishment severity (Mustard 2001; Rehavi and Starr 2014; Starr and Rehavi 2013; Steffensmeier, Painter-Davis and Ulmer 2017; Ulmer and Johnson 2004). Ethnicity is not randomly assigned, but the covariates in our dataset encompass all the relevant provisions in China's Criminal Law. This allows us to account for the primary legal and demographic factors that might be associated with ethnicity and confound the inference.

In addition to the defendant's ethnicity, we also code sex, education level, and age. We also identify whether the defendant had previous convictions, whether he was viewed by the court as having a "good attitude" (being cooperative and remorseful), and whether or not he pleaded guilty during or before the trial. In terms of the drug crime, we identify the type of the crime (i.e., trafficking, smuggling, transport, manufacture and possession), drug name (heroin, methamphetamine, marijuana, cocaine, and other types), and the drug quantity in grams. The location of the crime is also recorded. We also collect information on the court proceedings, including the date of the trial, name of the court, and the names of the judges. The Supporting Information section provides summary statistics for these variables and more information on the parsing process.

5 Results

This section summarizes our main results measuring the difference in sentencing outcomes between Han and ethnic minority defendants using data from Yunnan. We then assess the gen-

eralizability of our findings by expanding beyond Yunnan and present a few additional tests. We also compare the magnitude of bias we find in the Chinese context with those identified in several other countries.

5.1 Core Estimates

Figure 2 shows the raw data for all cases in the Yunnan data (n=10,082), comparing sentencing outcomes in months against the drug quantity in grams recorded in the court case press release. The grey boxes show the recommended sentence range for the drug quantity according to Articles 347 and 348 of China's Criminal Law. The red points indicate defendants identified as an ethnic minority and the blue points indicate Han defendants.

The gap between the red and blue lines indicates that minority defendants tend to fare worse than Han defendants that had equivalent quantities of methamphetamine/heroin. This provides some preliminary evidence of ethnic discrimination in criminal sentencing.

Further analysis is necessary to account for the influence of other factors that might affect sentencing outcomes. Table 1 reports the estimated effect of defendant ethnicity on two punishment outcomes—the sentence length and whether the defendant receives a life or death sentence —across a range of covariate sets. Model 1 includes just the various drug quantity indicators; Model 2 adds other attributes of the crime, namely, the type of the crime, whether the crime is an international crime, whether the crime involved any minors, and whether the defendant is a recidivist. Model 3 adds additional defendant demographics: education level, gender, age, and whether the defendant is mentally handicapped; Model 4 adds polynomial splines for all of the drug quantity variables; Model 5 adds fixed effects for the ruling year, and Model 6 adds court fixed effects. Model 7 includes additional defense attributes: whether the defendant pleaded not guilty and whether the defendant exhibited good attitude in court. Models 8 and 9 are the same as models Models 6 and 7 with judge fixed effects substituted for court fixed effects. All models are estimated with OLS.

Note that the final few variables could plausibly be considered post-treatment variables. For example, it is possible (although unlikely) that minorities are encouraged to plead not guilty, or
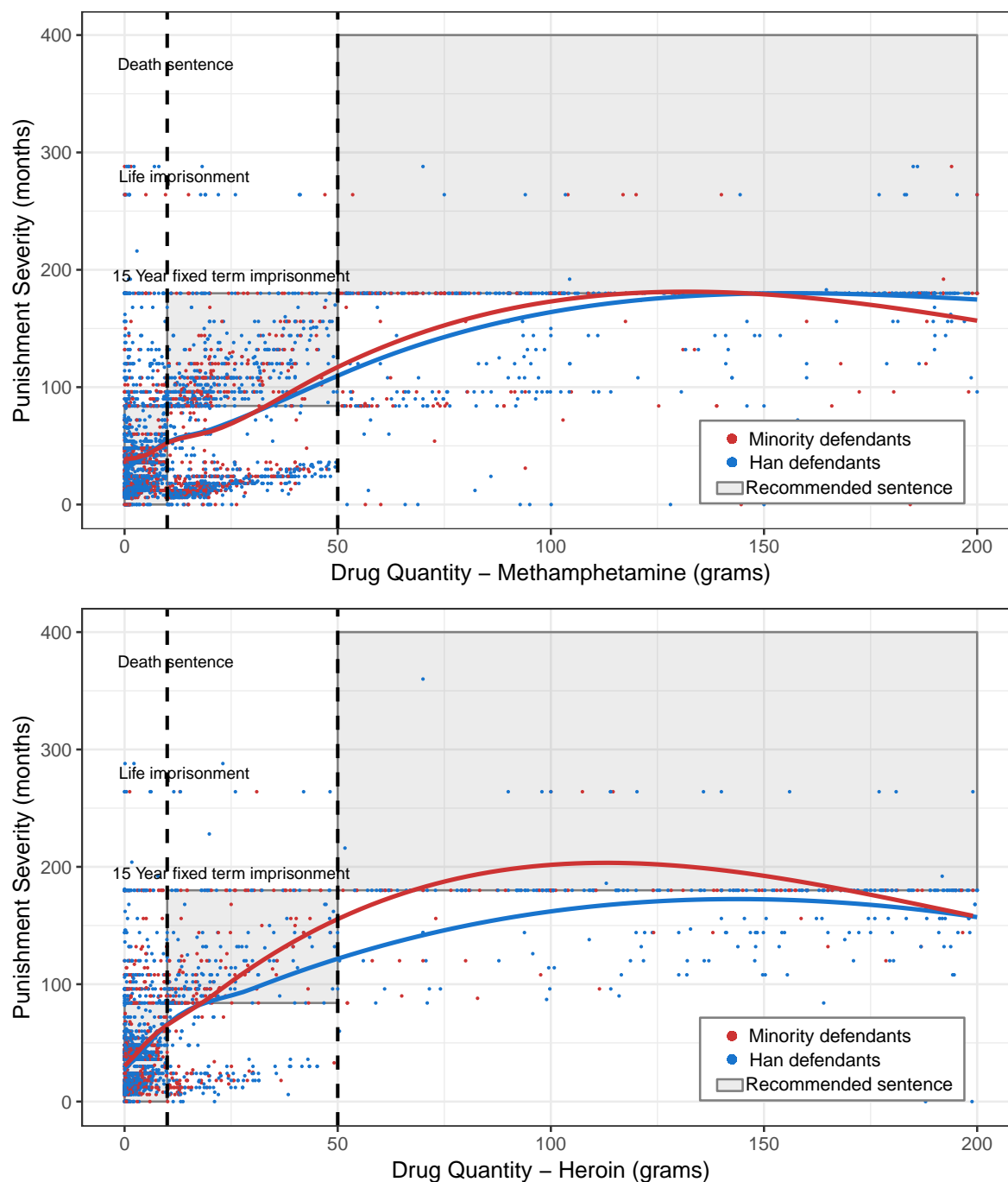
Figure 2: Drug Quantities, Ethnicity, and Sentencing Outcomes in Yunnan. Figure shows the drug amount of methamphetamine and heroin (grams) against the sentencing outcome (months) for 10,082 drug manufacturing, smuggling, transport, and trafficking cases from 2014–2018. The blue points and line correspond to defendants of the Han majority; red indicates defendants of an ethnic minority group. The lines are fitted using Loess smoothing. The shaded grey boxes show the recommended sentencing levels for the drug quantity according to China's Criminal Law. Points below those boxes indicate leniency; points above that line indicate severity.

Table 1: Effect of Minority Status on Sentencing

	Covariates	severity	life or death	Obs
M1.	meth amt + heroin amt + cocaine amt	-4.844**	0.009*	10,147
	+ marijuana amt + other amt	(1.727)	(0.006)	
M2.	M1. + crime type + international crime	7.474***	0.025***	10,147
	+ involved minors + recidivist	(1.029)	(0.005)	
M3.	M2. + education + age + gender	6.782***	0.022***	8,026
	+ mental handicap	(1.201)	(0.006)	
M4.	M3. + all drug amt (cubic splines)	2.861***	0.014***	8,026
		(0.879)	(0.005)	
M5.	M4. + ruling year (fixed effects)	2.422***	0.012**	8,026
		(0.869)	(0.005)	
M6.	M5. + court (fixed effects)	1.737**	0.012**	8,026
		(0.872)	(0.006)	
M7.	M6. + plead not guilty + good attitude	1.727**	0.012**	8,026
		(0.870)	(0.006)	
M8.	M5. + judge (fixed effects)	1.458**	0.010*	8,026
		(0.909)	(0.007)	
M9.	M8. + plead not guilty + good attitude	1.445**	0.010*	8,026
		(0.908)	(0.007)	

Note: Table shows coefficient estimates from regressions of the defendant's sentence length (in months) and whether she received a life or death sentence on minority status across specifications. M4 is the "baseline specification" referred to throughout the paper. Data come from Yunnan filtered dataset, which includes all heroin/methamphetamine cases in the `wenshu.court.gov.cn` website from 2014-2018. Robust standard errors shown in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

that they are less likely to be deemed to have a "good attitude" (Lu and Miethe 2002). These are important background factors to consider and should impact sentencing according to the Criminal Law, and so we are hesitant to omit them entirely from the analysis. Our approach is to simply assess whether their inclusion affects the substantive conclusions of the analysis. For the purposes of discussion, we will refer to M4 as the "baseline model."

The coefficient estimates are relatively stable and suggest a degree of ethnic discrimination in Yunnan. The minimalist specification M1 produces an estimate of -4.8 months for the punishment severity outcome measure, but this is likely because the analysis does not incorporate

other relevant case attributes and nonlinearities in the relationship between drug quantity and sentencing. Specifications M2 through M9 yield estimates ranging from about 1.4 to 7.5 months. Minority defendants are also more likely to be sentenced to death or life imprisonment. The coefficient estimates here range from 1-2.5 percentage points, which is substantively important given that the baseline rate of this sentence is only 7.6%.

Next, we run the same set of analyses on cases that only involved drug quantities below 50 grams and exclude cases that involved minors. As discussed in the Data and Research Design section, cases that were severe could be considered "state secrets" or "inappropriate to publicize," and cases that involved minors might also receive exemptions. Therefore, this sample should have suffered less from data censoring. Results are shown in Table 2. In this sample, ethnic minority defendants receive sentences that are 1 to 4 months longer than their Han counterparts.

We also restrict the analysis to cases that were judged in 2017, the year we believe has the least amount of missingness. The total number of cases in this analysis is 3,236. Results are shown in Table A3. In 2017, minority defendants receive sentences that were 2.3 to 10.2 months longer than their Han counterparts.

5.2 Generalizability and Additional Tests

We next apply our parsing algorithm to the text from the relevant drug case files for the entire country—166,770 observations in total. We have less confidence in the full country data. There is some variation in reporting standards across provinces (e.g., how drug quantities are reported), and as a result, our processed dataset for other provinces has higher item-level missingness. The analysis in this section should be considered less definitive, but it nevertheless allows us to map geographic and group level variation, and to see whether ethnic discrimination in China is a Yunnan specific phenomenon. Columns 3 and 4 in Table A2 show the estimates of ethnicity on sentencing outcomes for the pooled country dataset. The coefficient for the core analysis of punishment severity hovers around 0.7 to 8.5 months, in line with what we observed in Yunnan.

This aggregate analysis masks important variation in sentencing patterns, which are not uniform across provinces and groups. Theoretically, we expect discrimination in criminal sen-

Table 2: Effect of Minority Status on Sentencing: Non-severe Cases with No Minors

	Covariates	severity	Obs.
M1.	meth amt + heroin amt + cocaine amt	-0.390	6,530
	+ marijuana amt + other amt	(0.883)	
M2.	M1. + crime type + international crime	1.993**	6,530
	+ recidivist	(0.657)	
M3.	M2. + education + age + gender	3.801***	4,025
	+ mental handicap	(0.839)	
M4.	M3. + all drug amt (cubic splines)	1.941**	4,025
		(0.794)	
M5.	M4. + ruling year (fixed effects)	1.867***	4,025
		(0.797)	
M6.	M5. + court (fixed effects)	1.208	4,025
		(0.959)	
M7.	M6. + plead not guilty + good attitude	1.103	4,025
		(0.859)	
M8.	M5. + judge (fixed effects)	1.158	4,025
		(0.893)	
M9.	M8. + plead not guilty + good attitude	1.078	4,025
		(0.895)	

Note: Table shows coefficient estimates from regressions of the defendant's sentence length (in months) and whether she received a life or death sentence on minority status across specifications. Data come from Yunnan filtered dataset, which includes all heroin/methamphetamine cases with drug quantities below 50 grams. The analysis also excludes cases that involved minors. Robust standard errors shown in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

tencing in drug cases to arise under a certain set of circumstances: an ethnic minority becomes associated with the drug problem, and that problem is particularly severe. The Yunnan case perfectly fits this description. What other provinces in China might be candidates? And what groups might be most affected?

Table 3 presents the rank order of ethnic groups by the degree to which they are afflicted by the drug problem, according to our dataset. Column 3 shows each groups' share of the population according to the 2010 census, and Column 5 shows the groups' share of the total drugs confiscated (2014-2018) according to our full country data. The ratio column simply divides the drug share by the population share—ratios greater than 1 indicate that the group

was found with more drugs than their share of the population. For example, the Yi minority comprises only 0.654% of the population (8,714,393 people), but had 4.56% of the total drugs confiscated (367,443 grams of methamphetamine/heroin), yielding a ratio of 6.97.

The groups most affected by the drug problem are primarily located in Yunnan province, most notably the Dai and Hani people, but also smaller groups like the Jingpo, Blang, Lahu, and Wa. The Dongxiang minority group, a Mongolic people concentrated in an autonomous prefecture in Gansu province, had drug quantities over 24 times their proportion of the population. The minority-drug nexus is less prominent but still present in other provinces—notably Sichuan (Lisu and Yi peoples), Guizhou (Yi), Guangxi (Yao, Gin, Mulao, Zhuang), and Ningxia (Hui).

Table 3: Ethnic Groups and the Drug Problem (select groups)

Group	Population		Drugs		Ratio	Location
	Total	%	Total	%	(5)/(3)	
	(2)	(3)	(4)	(5)		
1. Blang	119,639	0.009	48,665	0.60	66.67	Yunnan
2. Dai	1,261,311	0.095	445,749	5.53	58.21	Yunnan
3. Jingpo	147,828	0.011	41,623	0.52	47.27	Yunnan
4. Dongxiang	621,500	0.047	92,827	1.15	24.47	Gansu
5. Lahu	485,966	0.036	57,213	0.71	19.72	Yunnan
6. Wa	429,709	0.032	29,483	0.37	11.56	Yunnan
7. Hani	1,660,932	0.125	105,744	1.31	10.48	Yunnan
8. Yi	8,714,393	0.654	367,443	4.56	6.97	Sichuan, Yunnan, Guizhou
9. De'ang	20,556	0.002	1,144	0.01	5	Yunnan
10. Gin	28,199	0.002	1,059	0.01	5	Guangxi
11. Salar	130,607	0.010	4,146	0.05	5	Qinghai, Gansu
12. Lisu	702,839	0.053	13,752	0.17	3.21	Yunnan, Sichuan
13. Jino	23,143	0.002	400	0.005	2.5	Yunnan
14. Nakhi	326,295	0.024	4,825	0.06	2.5	Yunnan
15. Bai	1,933,510	0.145	24,936	0.31	2.14	Yunnan, Guizhou, Hunan
24. Han	1,220,844,520	91.643	6,299,900	78.20	0.85	All provinces
29. Tibetan	6,282,187	0.472	18,942	0.24	0.51	Tibet
40. Uyghur	10,069,346	0.756	7,293	0.09	0.12	Xinjiang

Note: Table shows top 15 ethnic groups in China most afflicted by drug problem, as well as other ethnic groups of interest (Han, Tibetans, Uyghurs). Population totals are drawn from the 2010 census. Drug figures are aggregated from individual court case data from the SPC website (2014-2018). Groups with a ratio of 1 have drug quantities in proportion to the population. Ratios greater than 1 indicate ethnic groups with a greater share of drugs than share of the population.

We can replicate the same quantitative analysis as above, this time substituting in indicators for the 55 different ethnic groups in place of the aggregated minority variable.[9] Han Chinese represent the excluded category. The coefficient estimate on each group can serve as a measurement of ethnic bias, with coefficients greater than zero indicating that minorities in that group

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[9]This analysis was not feasible in the Yunnan analysis given the low number of observations in many of these ethnic groups.
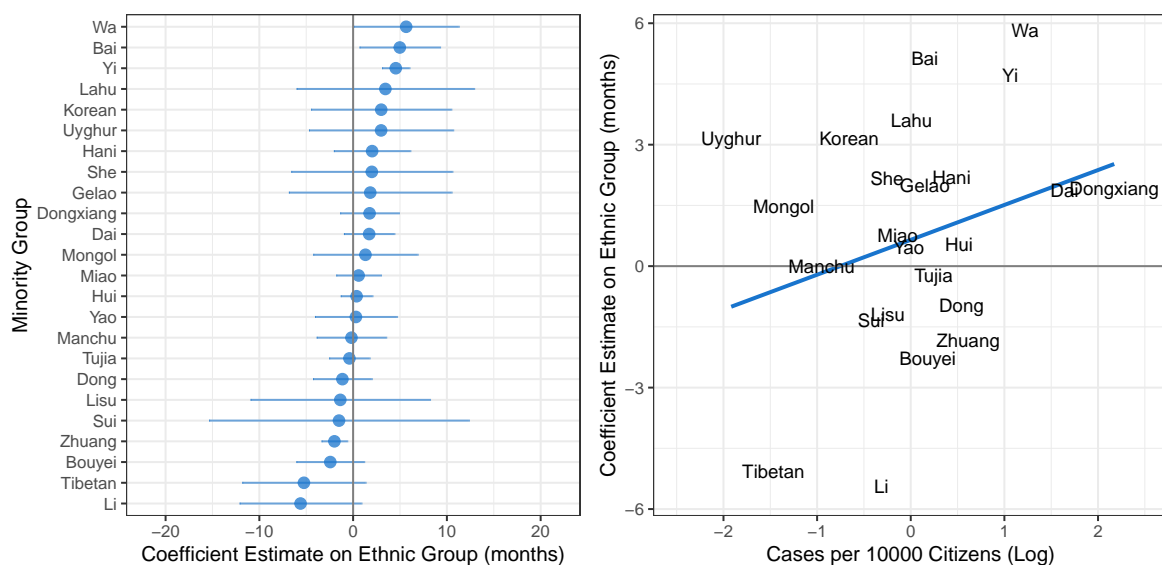
Figure 3: Testing the "problem minority" framework. The left panel of the Figure shows coefficient estimates from regressions of *pun.severity* (months) on dummy variables for each minority group. The excluded category is Han. Point estimates to the right of zero indicate the minority group is on average treated more harshly the Han defendants. The estimates employ the baseline specification (M4) which includes all demographic and crime level characteristics in the dataset as well as polynomial splines for each drug quantity variable. Segments are 95% confidence intervals. The right panel shows these estimates arrayed against that group's involvement in the drug trade, as measured by the number of cases per 10,000 citizens. The line is a linear fit of the two variables.

fare systematically worse compared to Han defendants that have committed comparable crimes.

The left panel of Figure 3 presents these disaggregated estimates, employing the baseline specification (M4). The figure excludes estimates where there were less than 25 cases of defendants from that ethnic group or where the group itself has less than 400,000 members.

Many of the coefficient estimates lack precision, reflecting the small number of cases for each group. Most of the estimates are positive (14/24) but only three groups show definitive evidence of discrimination—the Bai, Yi, and Dongxiang peoples. One group—the Zhuang people—appears to benefit from leniency. Figures A3 and A4 in the Supporting Information assess the robustness of these estimates.

These estimates, though noisy, are consistent with the "problem minority" hypothesis posed above. The right panel of Figure 3 plots the coefficient estimate on the group—a proxy for discrimination—against the group's involvement in the drug trade (the log case rate per 10,000 citizens). We find a strong positive relationship between the drug problem and punishment

severity. The more a defendant's group is involved in the drug trade, the harsher the sentence that person receives.

Figure A6 in the Supporting Information arrays the different Chinese provinces based on the concentration of minorities and the severity of the drug problem. The shaded grey box shows provinces with large minority populations that are highly afflicted by the drug problem. The provinces highlighted with bold blue text are those where there is relatively robust evidence of discrimination. We observe that discrimination does tend to cluster in the areas predicted by the theory—Ningxia, Yunnan, Guizhou, Gansu, and Chongqing all meet the conditions of Hypothesis 2. But we were surprised to find weak or no evidence of discrimination in certain provinces that meet our conditions—notably Guangxi and Sichuan—and strong evidence of discrimination in provinces that do not have large minority populations involved in the drug trade. Because we have less confidence in the quality of our data for provinces outside of Yunnan, we refrain from drawing definitive conclusions here. Variation in sentencing discrimination between provinces is an area that merits further research.

6   Discussion

It is important to note the limitations of our analysis. First, we have only been able to assess ethnic discrimination in the sentencing process, for individuals that have formally entered into the criminal justice system and been charged with a crime. It is possible that biases (in either direction) are present in which individuals get stopped by police, how they are treated by police, what evidence is collected, what type of crime they are charged with, what legal options are presented to them, and the quality of representation they are given. There is empirical evidence of racial discrimination in the United States in these stages, and discrimination at one stage may affect whether discrimination manifests itself at another (Anwar and Fang 2006; Fryer 2019; Knox, Lowe and Mummolo 2020; Rehavi and Starr 2014).

Unfortunately a "whole of process" approach, whereby bias is mapped at each stage and selection is fully modeled, is currently not possible in the Chinese case because of data con-

straints. Thus when we observe that anti-minority bias is stronger for some groups than others, this conclusion should be read and interpreted narrowly, as about bias in the criminal sentencing process. We are unable to assert anything about biases elsewhere in the criminal justice system.[10]

Second, as we noted in the Data and Research Design section, the data we analyze is not a census of all drug cases in China, but rather a large convenience sample with unknown biases (Liebman et al. 2020). Lower level courts are legally required to post case files to the central government website, but they also have discretion to withhold cases for various reasons. We believe our data represents about 50% of all cases for the time period we analyze. Our core results largely hold up when we restrict the sample by year or case type to improve coverage, and we have no reason to believe that missingness would be correlated with ethnicity in a way that would affect the core results. Nevertheless, we encourage readers to interpret our findings cautiously, as pertaining to the relationship between sentence severity and ethnicity *for publicly available cases.* We hope that future research can further verify our findings if data quality improves.

Third, as with any observational research design, it is possible that our findings are driven by some omitted confounding variable. Assessments of the causal effect of race or ethnicity are particularly fraught, as such identities are immutable and are causally prior to effectively all other variables (Sen and Wasow 2016). This makes standard conditioning strategies problematic (Rehavi and Starr 2014). It is possible that minority defendants are committing crimes that are slightly different in ways that are not captured in our data, which in turn drives the discrepancy in sentencing.

In our defense, our analysis does take into account all factors relevant to sentencing as identified in China's Criminal Law, so if there are any reasons why judges in China are systematically giving minorities harsher sentences for equivalent crimes, they are not justified in the law. The granularity of our crime and demographic variables is on par or exceeds those used in

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[10]See Biddulph (2008) for an analysis on coercive drug rehabilitation and Sapio (2010) on arbitrary detention in China.

existing seminal work on discrimination (Mustard 2001; Rehavi and Starr 2014; Steffensmeier, Painter-Davis and Ulmer 2017; Ulmer and Johnson 2004).

Finally, it is worth noting that the extent of discrimination in China appears comparable, if not slightly lower, to the magnitudes of bias identified in a few democratic systems (see Table 4). For instance, Rehavi and Starr (2014) find that black defendants receive 10% longer sentences than white defendants in federal criminal courts, and our estimate is between 1.6 and 8.8%. In absolute terms, Cohen and Yang (2019) find that black defendants in the U.S. receive sentences that are 3.8 to 7.3 months longer. Such comparisons should be taken with caution, as each study looks at a different type of crime, a different level of court and a different outcome.

Table 4: Estimates of Ethnic Discrimination in Different Court Systems

Country	Comparison	Estimate	Sample	Study
U.S.	black v. white	22.73% more likely convicted	felony jury trials, Florida county	Anwar, Bayer and Hjalmarsson (2012)
U.S.	black v. other	10% longer sentences for blacks	federal - criminal	Rehavi and Starr (2014)
U.S.	black v. non-black	black defendants get 3.8-7.3 more months	federal - criminal	Cohen and Yang (2019)
Israel	Arab v. Jewish	claims 11.7%-15.5% less likely to be accepted	small claims - civil	Shayo and Zussman (2011)
Kenya	Kikuyu v. other	8.7% more likely favorable ruling by a Kikuyu judge	criminal appeal - High Court	Choi, Harris and Shen-Bayh (2020)
China	Han v. other	1.6-8.8% longer sentences for minorities, 1.5-7.5 more months	local - drug cases	Authors

Note: Table reports results from studies of racial or ethnic discrimination in different criminal systems in the U.S., Kenya, Israel and China.

7   Conclusion

Using drug cases from Yunnan province, we estimate that minority defendants, on average, receive sentences that are about 1.4 to 7.5 months longer than Han defendants who have committed similar drug-related offenses. The magnitude might seem small in light of the events in Xinjiang (Greitens, Lee and Yazici 2020), but our argument is that not all minorities are treated the same under authoritarian rule, and that discrimination is not uniformly severe. Discrimination is targeted against "problem minorities" most heavily involved in the drug trade. These findings are consistent with an authoritarian stability maintenance logic, whereby the judicial system becomes an institution through which local governments exercise control (Liebman 2014; Minzner 2011; Wang and Minzner 2015; Yang 2017).

The next step in this research agenda is to identify whether ethnic discrimination exists in other issues areas in China beyond drug offense sentencing, and to further test the scope conditions of the "problem minority" hypothesis for minorities in other authoritarian systems. Some of the great wrongs in human history have come when an authoritarian regime dominated by a single ethnic group comes to view an ethnic minority as threatening. By understanding the political conditions through which discrimination arises, we can contribute to its elimination.

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A   Supporting Information

The Supporting Information includes the following materials:

A.1 Data Collection and Data Parsing

Table A1: Variable Definitions and Descriptive Statistics

Data Parsing Procedure

A.2 Missingness and Data Quality

Figure A2: Drug Cases in China Judgments Online

A.3 Robustness Checks and Additional Analyses

Figure A3: Robustness of Minority Group Estimates (1/2)

Figure A4: Robustness of Minority Group Estimates (2/2)

Figure A6: Exploring Variation Across Provinces (1/3)

Figure A7: Exploring Variation Across Provinces (2/3)

Figure A8: Exploring Variation Across Provinces (3/3)

Table A2: Effect of Minority Status on Sentencing: All Provinces

Table A3: Effect of Minority Status on Sentencing: Year 2017

A.4 China's Criminal Law

Criminal Law of the People's Republic of China: Section 7: Crimes of Smuggling, Trafficking in, Transporting and Manufacturing Narcotic Drugs

A.1 Data Collection and Parsing

Table A1: Variable Definitions and Descriptive Statistics

Variable	Description	Mean
pun.severity	fixed imprisonment length (months)	36.4
pun.lifedeath	sentenced to death/life imprisonment (indicator)	0.013
def.minority	defendant minority (indicator)	0.095
def.age	defendant age (years)	36.9
def.female	defendant female (indicator)	0.15
def.mental	defendant mentally handicapped (indicator)	0.00
def.recid	defendant recidivist (indicator)	0.32
drug.pooled.quantity	quantity of heroin + meth (grams)	48.9
international	crime transnational in nature (indicator)	0.00
minors	crime involves minors (indicator)	0.00
pleadnotguilty	defendant pleads innocent (indicator)	0.00
goodattitude	defendant deemed cooperative (indicator)	0.95
crime.act	possession, smuggling, trafficking, transport	NA
court.name	court (fixed effects)	NA
ruling.year	year of case ruling (fixed effects)	NA

Note: Table shows definitions and descriptive statistics for all variables used in core regression analysis. Data come from full filtered dataset, which includes all heroin/methamphetamine cases in the wenshu.court.gov.cn website from 2014-2018 for all provinces.

Data Parsing Procedure

We processed the raw and unstructured text files of court ruling in the following steps. First, we sampled 1,449 drug cases country wide as our training set. Based on the Article 347 of the Criminal Law regarding drug crimes and our reading of these cases, we labeled court rulings manually into variable-based annotated data. We then developed a parsing algorithm of rule-based regular expressions to explore patterns in these court documents, extract relevant information, and label our variables automatically. When the text was not structured as expected, we used named entity recognition (NER)—an extraction process that takes a string of text as input and identifies relevant variables (e.g., defendant name, birthday, and sex).[11]

Next, we sampled 300 cases from two provinces and used them as our validation set. We trained the algorithm until most of the binary variables reached an accuracy rate of 95% as measured by an F1 score for both the training set and the validation set. We then applied the algorithm to the rest of the Yunnan drug cases and the countrywide dataset. Figure A1 is an example of how the parsing algorithm extracts relevant information from an unstructured court document.
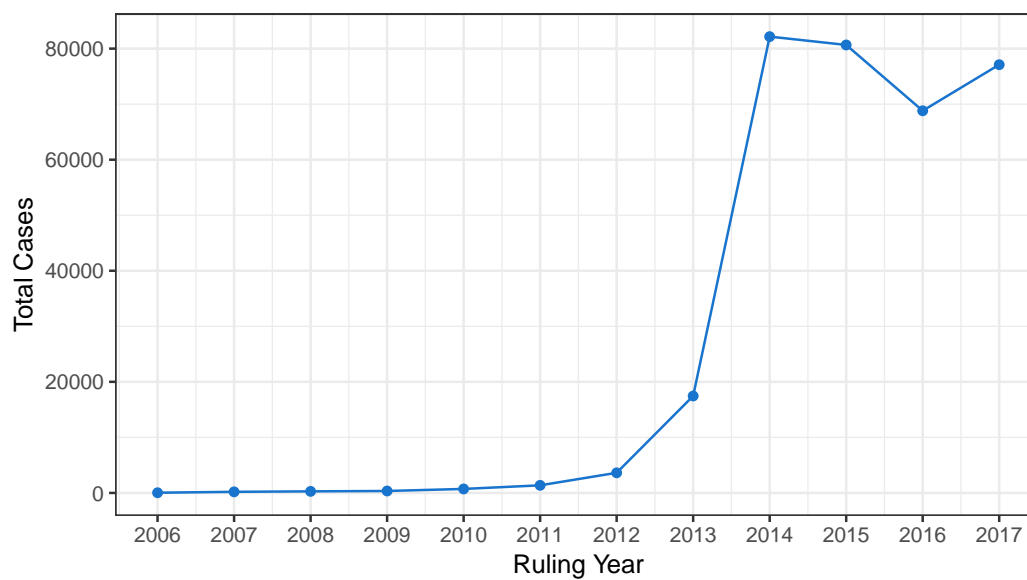
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[11]For more on NER, see the Stanford Natural Language Processing Group webpage at `https://nlp.stanford.edu/software/CRF-NER.html`.

Figure A1: Parsing Example

A.2 Missingness and Data Quality
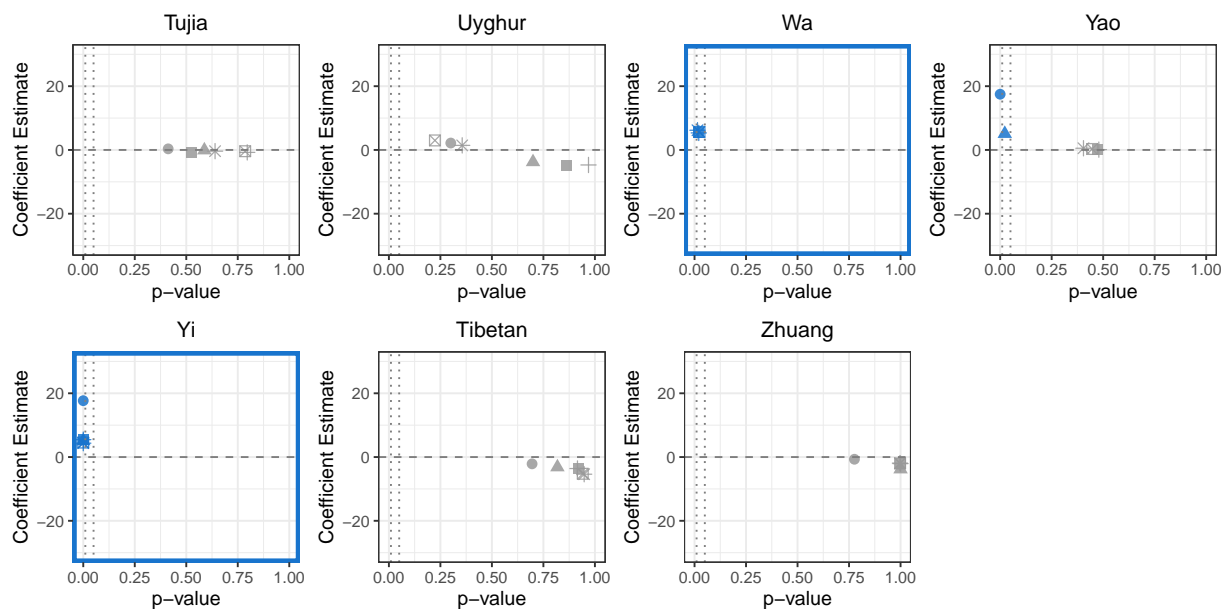
Figure A2: Drug Cases in China Judgments Online

Note: Figure shows the total number of drug cases in the China Judgements Online database. The case coverage appears to improve dramatically in 2014; the analysis in the paper is therefore limited to cases from 2014-2018.

A.3   Robustness Checks and Additional Analyses

Figure A3: Robustness of Minority Group Estimates (1/2)

Note: Figure shows coefficient estimates and p-values from a one sided hypothesis of no effect from regressions of $pun.severity$ (months) on dummy variables for each minority group across six different covariate sets. Each facet shows the results for a different minority. M4 is the "baseline specification" referred to throughout the paper. Data come from filtered dataset, which includes all heroin/methamphetamine cases in the wenshu.court.gov.cn website from 2014-2018. Estimates shown in blue represents where p<0.05, and groups highlighted in blue are those where there is robust evidence of discrimination.

Figure A4: Robustness of Minority Group Estimates (2/2)

- ● M1. drug.quantity
- ▲ M2. M1 + crime.act + def.recid
- ■ M3. M2 + amt cubic spline
- ＋ M4. M3. + Year FE
- ⊠ M5. M4 + def.mental + def.female + def.age + def.edu.low
- ✳ M6. M5 + def.pleadnotguilty + def.goodattitude

Note: Figure shows coefficient estimates and p-values from a one sided hypothesis of no effect from regressions of *pun.severity* (months) on dummy variables for each minority group across six different covariate sets. Each facet shows the results for a different minority. M4 is the "baseline specification" referred to throughout the paper. Data come from filtered dataset, which includes all heroin/methamphetamine cases in the wenshu.court.gov.cn website from 2014-2018. Estimates shown in blue represents where p<0.05, and groups highlighted in blue are those where there is robust evidence of discrimination.

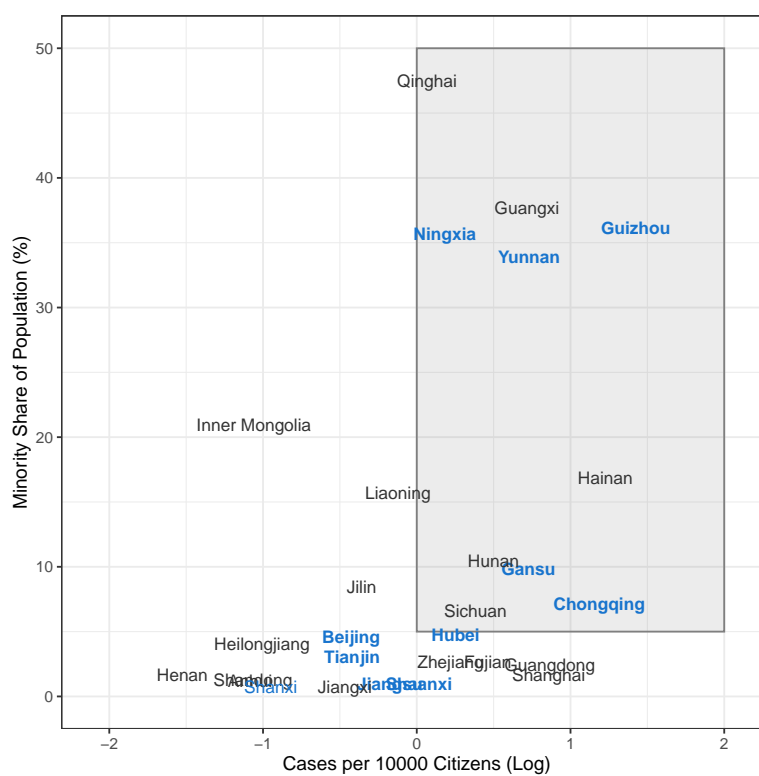Figure A5: Exploring Variation Across Provinces (1/3)

Figure A6: Exploring variation across provinces. Figure shows the minority share of population against the the log of the total drug cases (2014-2018) per 10,000 citizens for each province. The grey shaded area indicates provinces with a high concentration of drugs and minority groups. The provinces named with bold blue text are those with robust evidence of discrimination. See Figures A7 and A8 in the Supporting Information for full province estimates.

Figure A7: Exploring Variation Across Provinces (2/3)
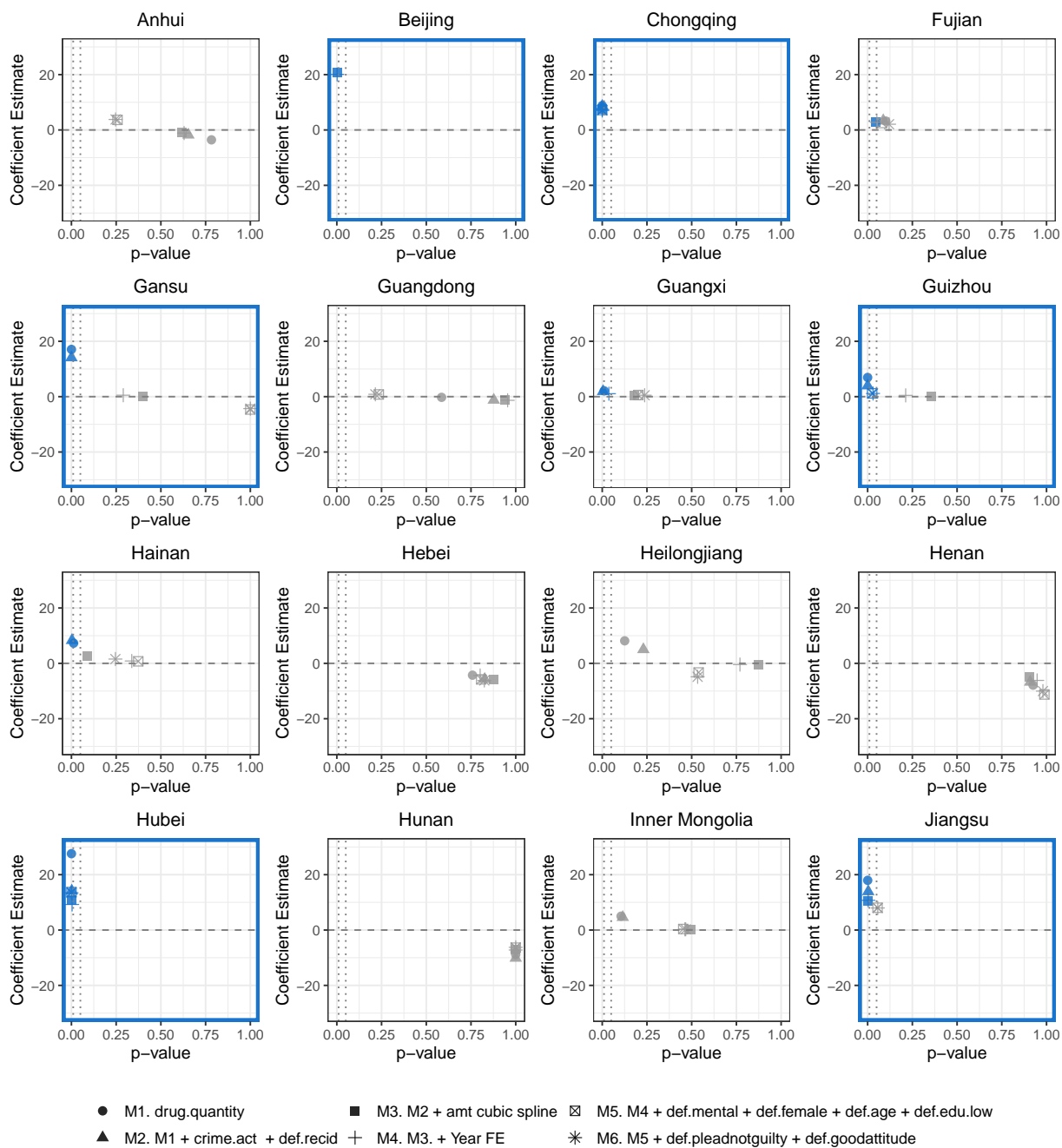
Note: Figure shows coefficient estimates and p-values from a one sided hypothesis of no effect from regressions of *pun.severity* (months) on *def.minority* across six different covariate sets. Each facet shows the results for a different province. M4 is the "baseline specification" referred to throughout the paper. Data come from filtered dataset, which includes all heroin/methamphetamine cases in the wenshu.court.gov.cn website from 2014-2018. Estimates shown in blue represents where p<0.05, and provinces highlighted in blue are those where there is robust evidence of discrimination against minorities.

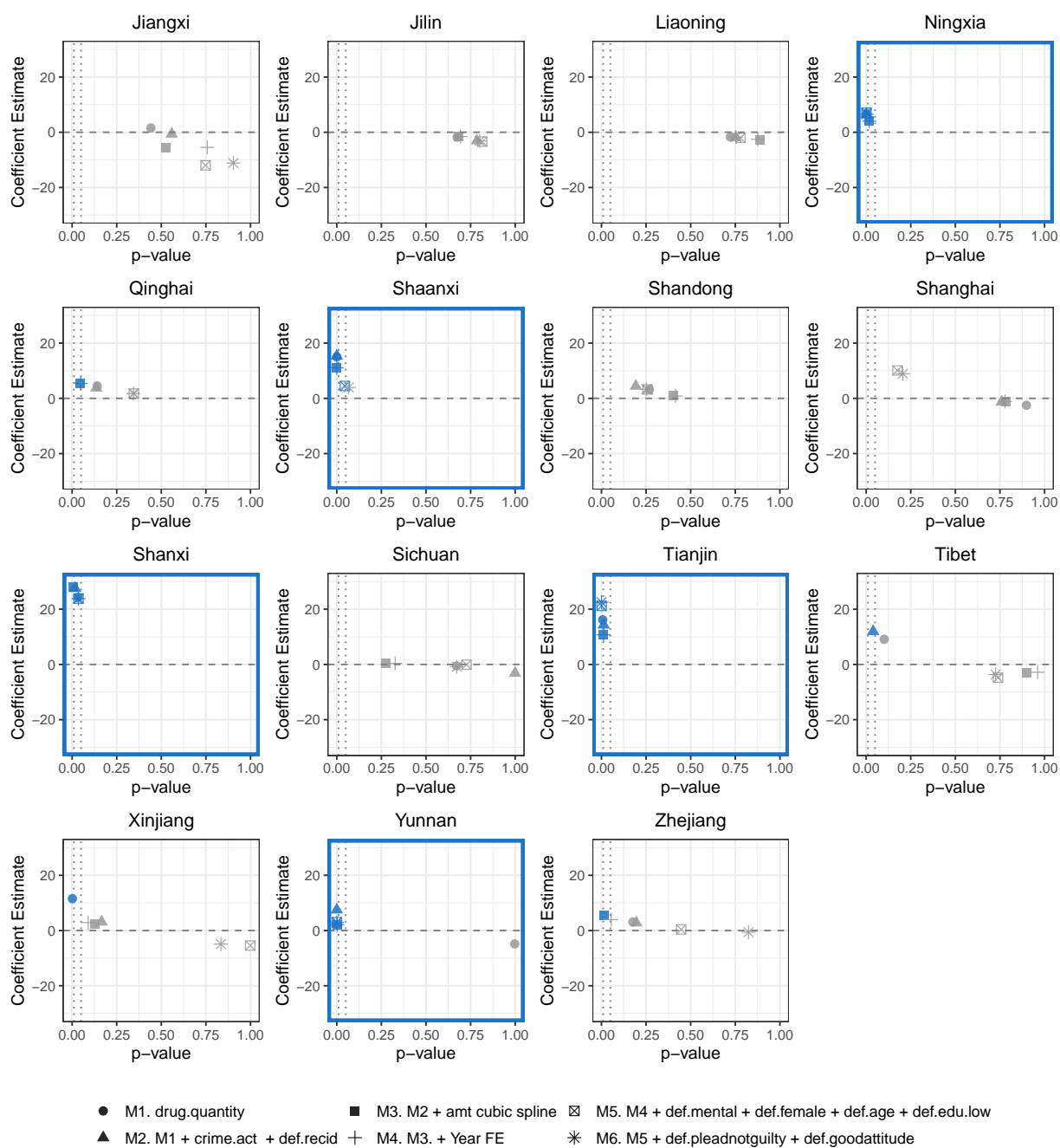Figure A8: Exploring Variation Across Provinces (3/3)

- ● M1. drug.quantity
- ▲ M2. M1 + crime.act + def.recid
- ■ M3. M2 + amt cubic spline
- ＋ M4. M3. + Year FE
- ⊠ M5. M4 + def.mental + def.female + def.age + def.edu.low
- ✳ M6. M5 + def.pleadnotguilty + def.goodattitude

Note: Figure shows coefficient estimates and p-values from a one sided hypothesis of no effect from regressions of $pun.severity$ (months) on $def.minority$ across six different covariate sets. Each facet shows the results for a different province. M4 is the "baseline specification" referred to throughout the paper. Data come from filtered dataset, which includes all heroin/methamphetamine cases in the wenshu.court.gov.cn website from 2014-2018. Estimates shown in blue represents where p<0.05, and provinces highlighted in blue are those where there is robust evidence of discrimination against minorities.

Table A2: Effect of Minority Status on Sentencing: All Provinces

Covariates		Outcome and Sample			
		Yunnan province		Full country	
		severity	life or death	severity	life or death
M1.	meth amt + heroin amt + cocaine amt	-4.844**	0.009*	8.610***	0.016***
	+ marijuana amt + other amt	(1.727)	(0.006)	(0.419)	(0.001)
M2.	M1. + crime type + international crime	7.474***	0.025***	2.358***	0.008***
	+ involved minors + recidivist	(1.029)	(0.005)	(0.351)	(0.001)
M3.	M2. + education + age + gender	6.782***	0.022***	1.728***	0.007***
	+ mental handicap	(1.201)	(0.006)	(0.422)	(0.001)
M4.	M3. + all drug amt (cubic splines)	2.861***	0.014***	0.678**	0.006***
		(0.879)	(0.005)	(0.319)	(0.001)
M5.	M4. + ruling year (fixed effects)	2.422***	0.012**	0.686**	0.006***
		(0.869)	(0.005)	(0.320)	(0.001)
M6.	M5. + court (fixed effects)	1.737**	0.012**	1.462***	0.004***
		(0.872)	(0.006)	(0.356)	(0.001)
M7.	M6. + plead not guilty + good attitude	1.727**	0.012**	1.385***	0.004***
		(0.870)	(0.006)	(0.353)	(0.001)
M8.	M5. + judge (fixed effects)	1.458**	0.010*	1.833***	0.004***
		(0.909)	(0.007)	(0.363)	(0.001)
M9.	M8. + plead not guilty + good attitude	1.445**	0.010*	1.688***	0.004***
		(0.908)	(0.007)	(0.360)	(0.001)

Note: Table shows coefficient estimates from regressions of the defendant's sentence length (in months) and whether she received a life or death sentence on minority status across six different covariate sets. M4 is the "baseline specification" referred to throughout the paper. Data come from Yunnan filtered dataset, which includes all heroin/methamphetamine cases in the wenshu.court.gov.cn website from 2014-2018. Robust standard errors shown in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A3: Effect of Minority Status on Sentencing: Year 2017

	Covariates	severity	life or death	N
M1.	meth amt + heroin amt + cocaine amt	-10.514***	0.004	3,236
	+ marijuana amt + other amt	(2.772)	(0.008)	
M2.	M1. + crime type + international crime	10.241***	0.020***	3,236
	+ involved minors + recidivist	(1.874)	(0.008)	
M3.	M2. + education + age + gender	8.512***	0.015	2,510
	+ mental handicap	(2.221)	(0.010)	
M4.	M3. + all drug amt (cubic splines)	2.344	0.013	2,510
		(1.699)	(0.010)	
M5	(Year FE: irrelevant here)			
M6.	M4. + court (fixed effects)	4.005**	0.024*	2,510
		(1.949)	(0.013)	
M7.	M6. + plead not guilty + good attitude	3.954**	0.024**	2,510
		(1.794)	(0.011)	
M8.	M4. + judge (fixed effects)	3.796*	0.028*	2,510
		(2.130)	(0.014)	
M9.	M8. + plead not guilty + good attitude	3.821*	0.027*	2,510
		(2.126)	(0.014)	

Note: Table shows coefficient estimates from regressions of the defendant's sentence length (in months) and whether she received a life or death sentence on minority status across specifications. Data come from Yunnan filtered dataset and from only the year 2017. Robust standard errors shown in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

A.4 China's Criminal Law

Section 7 Crimes of Smuggling, Trafficking in, Transporting and Manufacturing Narcotic Drugs

Article 347: Whoever smuggles, traffics in, transports or manufactures narcotic drugs, regardless of the quantity involved, shall be investigated for criminal responsibility and given criminal punishment.

Whoever smuggles, traffics in, transports or manufactures narcotic drugs and falls under any of the following categories, shall be sentenced to fixed-term imprisonment of 15 years, life imprisonment or death and also to confiscation of property:

1. persons who smuggle, traffic in, transport or manufacture opium of not less than 1,000 grams, heroin or methamphetamine of not less than 50 grams or other narcotic drugs of large quantities;

2. ringleaders of gangs engaged in smuggling, trafficking in, transporting or manufacturing narcotic drugs;

3. persons who shield with arms the smuggling, trafficking in, transporting or manufacturing of narcotic drugs;

4. persons who violently resist inspection, detention or arrest to a serious extent; or

5. persons involved in organized international drug trafficking.

Whoever smuggles, traffics in, transports or manufactures opium of not less than 200 grams but less than 1,000 grams, or heroin or methamphetamine of not less than 10 grams but less than 50 grams or any other narcotic drugs of relatively large quantities shall be sentenced to fixed-term imprisonment of not less than seven years and shall also be fined.

Whoever smuggles, traffics in, transports or manufactures opium of less than 200 grams, or heroin or methamphetamine of less than 10 grams or any other narcotic drugs of small quantities shall be sentenced to fixed-term imprisonment of not more than three years, criminal detention or public surveillance and shall also be fined; if the circumstances are serious, he shall be sentenced to fixed-term imprisonment of not less than three years but not more than seven years and shall also be fined.

Where a unit commits any crime mentioned in the preceding three paragraphs, it shall be fined, and the persons who are directly in charge and the other persons who are directly responsible for the offense shall be punished in accordance with the provisions of the preceding three paragraphs respectively.

Whoever makes use of minors or aids and abets them to smuggle, traffic in, transport or manufacture narcotic drugs or sells narcotic drugs to minors shall be given a heavier punishment.

With respect to persons who have repeatedly smuggled, trafficked in, transported or manufactured narcotic drugs and have not been dealt with, the quantity of narcotic drugs thus involved shall be computed cumulatively.

Article 348: Whoever illegally possesses opium of not less than 1,000 grams, or heroin or methamphetamine of not less than 50 grams, or any other narcotic drugs of large quantities shall be

sentenced to fixed-term imprisonment of not less than seven years or life imprisonment and shall also be fined; whoever illegally possesses opium of not less than 200 grams but less than 1,000 grams, or heroin or methamphetamine of not less than 10 grams but less than 50 grams or any other narcotic drugs of relatively large quantities shall be sentenced to fixed term imprisonment of not more than three years, criminal detention or public surveillance and shall also be fined; if the circumstances are serious, he shall be sentenced to fixed-term imprisonment of not less than three years but not more than seven years and shall also be fined.