Beyond Carrot and Stick: The Effect of Conflict Resolution on Crime Control in China

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Abstract: The question of what works in crime control has been frequently discussed over the past few decades. However, knowledge about and evidence from China is limited. This paper evaluates the effectiveness of three strategies of crime control – the “stick policy”, the “carrot policy”, and conflict resolution – in China, using a provincial panel data from 1988 to 2014. The results suggest that (1) the “carrot policy” with social welfare provision helps to prevent crime while the “stick policy” with increasing judicial expenditure does not have a significant effect; (2) conflict resolution functions as an effective strategy of crime control. The policy implication is that to prevent crime and maintain social order in a transitional society like China, government might need to shift its policy orientation away from strengthening coercive power to focusing on improving people’s livelihood and facilitating conflict resolution.

Keywords: crime control; conflict resolution; stick policy; carrot policy; China.
1 Introduction
As the largest developing country, China has experienced unprecedentedly fast economic growth in the past four decades. Behind the story of China’s economic miracle, less known is that the crime rate in China rose precipitously, increasing from 5.57 cases per ten thousand people in 1978 to 47.81 cases per ten thousand people in 2014 (China Law Society 2015). Some have warned the government and the public of the severe consequences of a rising crime wave: if this “social disease” is not properly treated, it would hinder economic prosperity, undermine law and order, and most importantly, damage people’s confidence in the government (Cohen and Bowles 2010). Meanwhile, China’s crime rates are still lower than those in many developed countries (Bakken 2005; Troyer and Rojek 1989). Despite an increasing trend, there might still be some successful components in China’s crime control practices. Hence, it is worthwhile to investigate how the Chinese state responded to rising crimes and to evaluate the effectiveness of its strategies to maintain social order and prevent crime.

Dealing with crime is not a unique challenge to China. Many other societies have encountered the same problem – one that comes with modernization (Shelly 1981). While countries have responded in different ways, most government policies related to crime control fall into two categories: “sticks” or “carrots.” Following the economic model of crime that regards criminal participation as a rational choice between its costs and benefits (Becker 1968), to fight against crimes, government should devise public policies that reduce the expected utility of committing a crime. “Sticks” should be used to increase the probabilities that a criminal will be detected, and the perpetrator arrested, convicted, and punished to deter crimes. Meanwhile, “carrots” should be used to improve the conditions of labor market and social welfare so that the opportunity cost of a crime is high.

In this paper, we argue that besides carrot and stick policies, conflict resolution is an effective yet often overlooked policy instrument. The communitarian theories of crime prevention posit that bolstered by a culture of social cohesion, mutual obligation, and common interest and moral value, informal group control and interpersonal trust can reduce the amount of crime that might not be easily controlled by public policies (Braithwaite 1989; Garland 2012; Hope 1995; Hughes 1998; Lasch 1996). Some Western scholars who investigate China’s social control system have noticed that it “weaves together a unique combination of formal and informal methods, with a strong emphasis on the latter” (Troyer and Rojek 1989: 3).

Among various social institutions that the state sponsored and utilized to engineer social stability, mediation committees are believed to play a crucial role in resolving interpersonal or intergroup conflicts at the grassroots level, thus preventing conflicts from metastasizing into violence, crime, collective action, and “feigned” suicide (Read and Michelson 2008; Wall and Blum 1991). According to official statistics for 2014, there were no fewer than 803,000 people’s mediation committees and 3,941,000 mediators nationwide. This extensive network of mediation organizations resolved more than 9,330,000 civil disputes, almost 1.12 times the number of civil cases accepted by courts (National Bureau of Statistics of China 2015). As a result, in China, conflict resolution can be perceived as the first line of defense in maintaining social stability (Michelson 2007).

“Stick policies” and “carrot policies” on crime reduction have been studied frequently (Cheong and Wu, 2015; Edlund et al. 2013). However, the effect of conflict resolution on

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1 For example, work units and the residents’ committees (Bray 2005; Heberer and Göbel 2011; Walder 1988; Zhong 2013).

2 In some disputes the disadvantaged party would claim to commit suicide in pursuit of justice, and sometimes suicides do happen.
crime prevention has rarely been empirically evaluated to date, despite its perceived role in maintaining social stability, one that is often praised in social media (especially on newspapers and TV shows) and government work reports in China. This paper addresses this gap in the literature by using provincial panel data to estimate the effect of conflict resolution on crime. The empirical analysis shows that increasing judicial spending (stick policy) does not have a significant effect on crime rate, while providing social welfare (carrot policy) works to prevent crime. More importantly, conflict resolution practices function as a highly effective strategy of crime control. These results help us better understand crime control policies and practice in contemporary China, enrich our knowledge about how well each strategy of crime prevention works, and further push us to think about what the right public policies should be in China and other parts of the world.

2 Strategies of Crime Control
2.1 The “stick policy”
The deterrence theory assumes that more judicial resources will improve the work performance of the criminal justice system by increasing the probabilities that criminals will be discovered, convicted, and punished; crimes, therefore, will be deterred. However, the effect of this policy instrument is often questionable in empirical studies due to reverse causality. For example, using methods such as Two-Stage Least Square and Granger causality test, some studies find that there is a negative relationship between police expenditure/force and crime rate (Howsen and Jarrell 1987; Marvell and Moody 1996). Yet some other studies find a positive relationship (Greenberg and Kessler 1982; Huff and Stahura 1980; Jacob and Rich 1980). A third category of studies either find that there is no relationship between police force and crime rate (Chamlin and Langworthy 1996; McCrery 2002; Loftin and McDowall 1982) or this relationship varies across regions (Van Tulder 1992) or by different types of crime (Corman and Joyce 1990; Humphries and Wallace 1980).

The Chinese state is a follower of the “deterrence theory.” The central government’s budget for law and order was larger than that for the military spending. It reached nearly US$95 billion in 2011. Since the early 1980s, the state has initiated five waves of “strike-hard campaign” (Yanda) nationwide which targeted serious crimes (homicide, rape, robbery, assault, bombing, kidnapping, arson, drug, and organized crimes). Provincial governments have also spent more and more on public security and law enforcement (Chen and Yi 2009; Greitens 2017). These practices indicate the determination and preference of the Chinese state to enforce law and social order through coercion. Often, the government secures the loyalty of its coercive organs by incorporating public security department chiefs into the

3 That is, while more judicial resources may reduce crime, higher crime rates may also stimulate policymakers to allocate more judicial resources.
4 More recent studies employ instrumental variables or external shocks associated with changes in police force to identify its causal effect on reducing crimes (Di Tella & Schargodsky, 2004; Draca, Machin & Witt, 2011; Evans & Owens, 2007; Levitt, 1996 and 1997; Klick & Tabarrok, 2005).
5 At the start of the parliamentary session in 2011, the planned budget on law and order was 624.4 billion yuan ($95.0 billion), higher than the budget, 601.1 billion yuan ($91.5 billion), for People’s Liberation Army. Buckley, C.: “China internal security spending jumps past army budget,” 2011, March 5, from The Thomson Reuters: https://www.reuters.com/article/us-china-unrest/china-inner-security-spending-jumps-past-army-budget-idUSTRE7222RA20110305.
decision-making circle at each level of the government. The government also strategically monitors the workforce and provides more police funding in the regions where formal social control by the public sector is weaker (Wang 2014a).

While it remains a question of how well the “stick policy” works in Western societies, studies that explain China’s crime rates sometimes do not include judicial resources as an independent variable. More often, researchers would use the percentage of judicial expenditure of total government expenditure or the judicial expenditure per capita as a measure of the “stick policy.” This practice does not address the aforementioned reverse causality problem. Such studies also often do not control for related policing strategies such as the strike-hard campaigns. As a result, studies using provincial panel data show that judicial expenditure is either positively associated with crime rates (Chen and Yi 2009; Chen et al. 2010; Zhang et al. 2011) or it has no significant influence (Wu and Rui 2011; Chen 2012).

2.2 The “carrot policy”
Many believe that good social policies work as the most effective criminal justice policies (Gallo and Kim 2016; Jasch 2013). Social policies eliminate or reduce the social conditions for crime. The “carrot policy” moves people away from illegal activities to accumulate human capital, participate in honest work, and earn a decent income. This is often accomplished by helping the less fortunate to live without the fear of inadequate food, clothing, and shelter. Broadly speaking, “carrot policy” includes social welfare programs that support citizens with provisions for housing, medical care, food subsidy, education, unemployment benefit, job training, and subsistence income to low-income families.

Existing studies often find that the provision of social welfare reduces crime (DeFronzo 1983; Devine et al. 1988; Hannon and DeFronzo 1998). For instance, Zhang (1997) finds that among various welfare programs in the United States, generous assistance in public housing has a greater effect than those aimed primarily at women’s welfare; Medicaid and school lunch programs, however, have little effect. In their study of crime and economic restructuring, Grant and Martinez (1997) control for the effect of social policies and find a negative relationship between the Aid to Families with Dependent Children (AFDC) payments and both property and violent crime. Fishback et al. (2010) find that the New Deal not only provided the unemployed with job and income opportunities, but greatly reduced property crime.

Researchers also tested “carrot policy” with cross-national time-series data or in data from non-western societies. Using data from 25 nations for 13 years, Savage et al. (2008) find that countries with more generous social welfare programs have lower crime rates of both homicide and theft. Like findings from the western societies, the Unemployed Heads of Household Program (UHHP), the largest poverty alleviation program lunched by the Argentinean government, is found to have a negative impact on property crimes like larceny and robbery (Meloni 2014). Evidence from China also suggests that increasing social welfare expenditure is useful to address crime issue at the root (Chen et al. 2010; Mao 2011).

2.3 Conflict resolution: another way out?
Are there any other policy choices in the government’s toolkit to fight crimes? Some suggest that we should pay more attention to what happens before crime occurs and find out what brings in peace and justice.

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7 Wang (2014b) find that when the provincial head of public security department has access to decision-making, the judicial budget is larger.
O’Brien and Sampson (2015) use hundreds of thousands of 911 calls and requests for non-emergency services in Boston from 2011 to 2012 to extract measures for public disorder and private conflict (e.g., domestic violence and tenant-landlord disputes). They find that although the role of public disorder was emphasized by the traditional interpretations of the “Broken Windows Theory,” private conflict most strongly predicts future crime. Therefore, they suggest a social escalation model where future crime and disorder emerge from private conflict within the community. A report on violent death by the US Department of Health and Human Services/Centers for Disease Control and Prevention (CDC) indicates that interpersonal conflict is becoming a primary precipitating factor for homicides (34.9 percent) and suicides (15.5 percent) (Jack et al., 2018).

Interpersonal conflict is also a common precipitating factor of crime and violence in China. Practitioners of law and criminal justice have noticed that in the 1980s, large proportions of violent crimes, especially homicides, are related with interpersonal conflicts and civil disputes. Statistics in the new century show that the situation has not fundamentally changed. Knowing that personal conflict often precedes crime, CDC reports suggest to implement programs that foster problem solving, conflict resolution, and individual coping skills and cultivate supportive relationships. In other words, resolving disputes, reducing provocations, and removing excuses at various settings are important measures to prevent conflict escalation thus reducing violence and crimes.

There are several possible linkages between conflict resolution and reduced crime. First, a successful action of conflict resolution often mobilizes the social ties and neighborhood networks within the community to achieve peaceful settlement of interpersonal conflicts. Numerous previous studies have shown that higher levels of social capital are associated with more effective informal control and lower crime rates (Black 1976; Hirschi 2017; Kornhauser 1978; Putnam 2001; Sampson 2012; Sampson and Groves 1989; Sampson et al. 1997). Collins (2008) argues that there are “not violent individuals, but violent situations.” This theory emphasizes that it is the situations of violence and crime that shape the emotions and acts of the individuals. Therefore, avoiding or changing certain kinds of situation and interaction is the key to make effective the societal control of violence and crime. This is exactly what conflict resolution does with an intervening third party on the scene.

The second link between conflict resolution and crime is the fact that they are often substitute to each other, both used by individuals to address grievances in life. Black (1976, 1983) develop a theory of law and social control regarding how to handle human conflict:

The theory’s subject matter is present wherever there are moral disputes, wherever one person has a grievance against another, wherever one person defines another’s behavior as deviant. Conflict may occur wherever there is social life, then, and it may lead to arrests, restraining orders, suicides, thefts, boycotts, protests, revolutions, and numerous other responses...According to

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8 This theory states that visible signs of crime, anti-social behavior, and civil disorder create an urban environment that encourages further crime and disorder.
9 Around 60 percent of the violent crimes were related with marital conflicts, adultery, squabbles, and neighborhood disputes; more than 80 percent of murders had their roots in personal conflicts.
10 E.g., in the first half of 2006, nearly 36 percent of homicide cases nationwide are caused by disputes about land, debt, and marriage; from 2003 to 2007, more than half of the homicide cases in Fujian province are caused by personal conflicts; strikingly, in Jilin province 73 percent of the 15,633 criminal cases, from 2005 to 2007, are caused by disputes.
11 Social capital is broadly defined as a set of rules, norms, obligations, reciprocity and trust embedded in social relations, structures, and institutions, enables members to achieve their individual and community objectives (Coleman 1994)
Black’s theory, this kind of variation—variation in social control, or the handling of conflict—can be explained sociologically. (Campbell 2011)

When grievance and conflicts appear, there are diverse responses one can make. For the socially disadvantaged, when a dispute is not resolved or when legal protection fails, crime can be characterized as self-help to seek justice (Black 1983). Simply put, the effort and organization of conflict resolution is an important variable that sociologically explains the outcome of peace or crime. Successful conflict resolution would reduce the likelihood of revenge-seeking and crimes because justice is done.

The third link would be a by-product of conflict resolution on crime. Conflict resolution, especially mediation with a third-party, not only seek to settle the disputes, but also aims at educating the disputing parties, possible offenders, and the general public about the moral principles, the value of peace, and the right ways to behave (Fei 1992). In doing so, social norms are taught and learnt. Consequently, those involved will develop a higher level of conscience and self-control.

As scholars’ interest in alternative dispute resolution grows in the western world (Ellickson 1991), mediation, the major form of conflict resolution in China, has also attracted increasing attention. With abundant field work and archival studies, researchers have found that mediation not only has a long history, but still functions as a widely used practice (Clark 1989; Huang 1993, 2006, 2009; Palmer 1989). The reasons for the popularity are at least fourfold. First, judicial resources, especially trained lawyers and judges, have historically been in short supply while mediation by a third-party with authority is much more accessible to ordinary people. Indeed, historically, the Chinese legal system has relied heavily on non-legal institutions (e.g., communities, work-units, and mediation committees) (Li 1978). Second, mediation is less costly compared to litigation, and so is the implementation of recommended resolution which ensures “that no further flare-ups occur” (Li 1978: 61). Third, cultural values and social customs emphasizing harmony make mediation more desirable. For instance, Li (1978) shows that persuasion and education, rather than coercion and punishment, are preferred for the Chinese to prevent peers from falling off “the edge the cliff” and committing a crime. Finally, mediation, in accordance with the “mass line,” is endorsed by the state. There are hundreds of thousands of mediation groups at the grassroots level. In the Hu Jintao era when harmonious society was promoted, mediation was considered an important means to maintain social stability (Hu 2011; Hu and Zeng 2015; Ieong 2016).

Recent studies of Chinese mediation have centered on institutional evolution and characteristics (Cohen 1966; Lubman 1997), techniques and strategies (Wall and Blum 1991), prevalence and importance (Diamant 2000; Wall et al. 2000), desirability compared to other strategies (Michelson 2008; Tang 2009), and relationship with litigation and the rule of law (Ng and He 2014; Woo and Gallagher 2011). Its effectiveness is rarely evaluated with systematic data. To fill this gap in the literature, this paper studies the effect of conflict resolution on crime with controls for stick and carrot policies as well as other relevant factors.

3 Data and Method
3.1 Data
Dependent Variable
Measuring the true extent of criminality is difficult, especially at the subnational level. The number of suspects, which the procuratorate accused or approved of arrest, is often used as

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12 Some notable exceptions include Read and Michelson (2009) which report respondents’ assessment of third-party dispute resolution, and Tang (2009) which discusses the impact of past dispute results on political attitudes. However, these works mainly focus on the subjective influence of mediation.
the estimates of crime rates because these numbers are available on the annual work reports of each Chinese provincial procuratorate and they can be systematically collected during the study period from 1988 to 2014. Based on these reports, we built a panel dataset of 837 observations (31 provinces and 27 years). To compare the plausibility of alternative measures of crime rate, both the number of suspects that the procuratorate accused and the number it approved to arrest are used as dependent variables even though these two measures are highly correlated (at 0.90). The first section of the online appendix provides a much more detailed discussion on the collection of crime data.

There are several characteristics of the procuratorate data that make it suitable for this study. First, suspects are only accused when prosecutors find evidence of criminal activities clear enough to result in imprisonment. So, the measurement errors of crime levels due to misconduct are small. Moreover, while the official figures of crime reported by the police, the procuratorate, and the court are highly correlated, the procuratorate data is more comprehensive. For instance, even though the Law Yearbooks of China also compile provincial court reports on crime, they do not cover all 31 provinces: e.g., there are 16 provinces reported for 2014. Chen (2012) collected and compared all the available crime statistics from the police, the court, and the procuratorate between 1989 and 2008 and finds that for the same period, the numbers of observations were 276 from police reports, 365 from court reports, and 596 from procuratorate reports.

However, measures of crime rate are almost never perfect. First, assessing the “dark figure of crime,” or the number of committed crimes that are never reported/detected has been a significant methodological problem in any society (Coleman and Moynihan 1996). Second, procuratorate crime data from China, similar to crime data from other government sources, might be subject to manipulation, ad-hoc crime-control campaigns, or changes in the definition of crime and how crime is reported. For example, the historical legacy of Maoist political movement as well as the leaders’ policy priority and perception of social order might lead to campaign-style anti-crime enforcement, which often increases the number of crimes detected and punished (Tanner 1999, 2000, and 2005). Similarly, a double standard of criminal justice and the politicized pattern of enforcement are two major issues that hampered the official effort to control corruption (Manion 1998). Unfortunately, measurement and analysis of crimes can only be built upon imperfect official data.

In addition to acknowledging these potential limitations of the official crime data, we use a few strategies in the empirical analysis to alleviate the concerns. For instance, we include a national strike-hard campaign variable to control for the effects of ad-hoc crime-control campaigns. Moreover, we include fixed-year effects to control for the potential effect associated with changes in the definition of crime: since China has only one criminal code for all the provinces, in the same year, the definition of crime is consistent and comparable across the provinces; therefore, we should expect the change or inconsistence in the scope of crime, as a function of changes in the definition of crime, to be mainly temporal.

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13 The work reports of provincial procuratorates from 1988 to 2012 are compiled in the Procuratorial Yearbooks of China, 1989-2013, published by the China Procuratorial Press. For 2013 and 2014, these reports can be found on the official websites of provincial People’s Procuratorates.

14 No imputation for missing data was implemented: the only missing value is for accusations of Guangdong 2012.

15 Cases never reported or discovered, mistakes of the statisticians, manipulation by the officials, and lack of clear or consistent standards for crimes are all possible causes for under-reporting.

16 We also tested the effect of provincial level ad-hoc crime-control campaigns in the third section of the online appendix.
(over time) rather than spatial (between provinces) – such temporal inconsistency can be captured by year-fixed effects.17

Key Explanatory Variables
There are three sets of independent variables, each measuring the carrot, stick, and mediation policies at the province-year level. The measure for “carrot policy” is the social welfare spending per capita. Likewise, the measure for “stick policy” is the per capita judicial expenditure in provincial government’s annual budget.18 However, judicial expenditure might be endogenous due to the reverse causality between crime rate and allocation of judicial resources. To address this potential reverse causality issue, first, we use one-year lagged judicial expenditure per capita.

Second, we also use an instrumental variable method. Chen (2012) uses the political qualification of provincial secretary of political and legal affairs commission as an instrument for judicial expenditure per capita. With the data we use in the paper, this turns out to be a weak instrumental variable.19 Instead we use the mean value of the judicial expenditure per capita in the neighboring provinces (defined as sharing border) as our preferred instrument for judicial expenditure of the target province: it is correlated with judicial resources of a target province but does not directly affect its crime rates. In other words, there is no reason to believe that neighboring provinces’ judicial resources have a direct effect on the target province’s crime rate. Meanwhile, the level of judicial resources provision by neighbors might influence policy-makers’ decision on judicial budget for their own province because of policy learning and emulation between neighboring provinces.

We use two variables to measure conflict resolution policy: the density of mediation organization and the performance of individual mediators. The density of mediation organization is measured by the number of mediation organization per ten thousand people: all else equal, a higher density is an indicator for more self-governance and social capital that would facilitate conflict resolution. For the performance of individual mediators, we measure the annual performance of individual mediator with the number of cases they have successfully dealt with: higher individual performance should more effectively prevent crime.

Control Variables
The control variables include unemployment rate (measured by the official registered urban unemployment rate), level of economic development (GDP per capita) and economic growth (the annual GDP growth rate). We also control for the number of disputes (measured by the number of civil disputes/conflicts mediated per 10,000 people):20 this is important because it

17 If provinces have different interpretations of the crime definition, which results in between-province differences, such differences should be partly captured by the fixed province effects used in the analysis. In the second section of the online appendix, we plotted the time series data for crime rates. We identified a few observations that look like sudden jumps in the crime time series. We then re-ran our regression analysis after removing these observations, our results do not change (Table A1 of the online appendix).
18 We use judicial expenditure, instead of the number of staffs in law enforcement, to measure government’s ‘stick policy’ simply because data on police personnel is not publicly available.
19 We followed Chen (2012) and used the year of party membership of each provincial secretary of political and legal affairs commission as an instrument of judicial expenditure. The correlation between these two variables is low (-0.06) and is not significant at the 0.1 level. Also, the results from the first-stage regression show that political qualification is not a significant predictor of judicial expenditure.
20 The provincial departments of justice report these figures in a table titled “Mediation” at the end of provincial statistics yearbook regarding social management, social organization, and law and politics.
serves as a baseline for disputes; without controlling this baseline, density of mediation organization and mediators’ performances might simply be a function of the density of disputes.

More controls such as educational spending per capital and a dummy variable for the years of national “strike-hard campaign” are added in the robustness tests. All variables come from national and provincial yearbooks. Table 1 presents more details of these variables and their descriptive statistics.

3.2 Method
This paper estimates the effects of different crime control strategies using a panel data of 31 provinces in China over the period from 1988 to 2014. Following Cornwell and Trumbull (1994) and Baltagi (2006), we adopt Two-Way (province and year) Fixed Effects Models: fixed effects capture the unobservable province-specific characteristics and year-specific effects. Furthermore, we include a time trend variable to control for the exogenous increase in crime rates.

All variables are logged except for dummy variables. The estimated coefficient for each predictor can be interpreted as elasticity, that is, the percentage change in crime rate when an independent variable changes by one percent. Moreover, all explanatory variables are lagged by one year to reduce reverse causality. For regressions using an instrumental variable for judicial spending, the instrumental variable is the mean spending level of neighboring provinces.

4 Results
4.1 Main Findings
Several regressions were conducted first using the number of suspects accused (per 10,000 population) as the dependent variable. Results are reported in Table 2. Model 1 only includes the control variables. Measures for the carrot, stick, and the mediation policies are added to Model 2, 3, and 4. Though Model 5 and 6 are both full models that includes all explanatory variables, the former uses ordinary least squares (OLS) and the latter a two-stage-least-square (TSLS), using the mean value of the judicial expenditure per capita in the neighboring provinces to instrument a province’s judicial expenditure. All six models in Table 2 yield consistent results.

Regarding the effect of the “carrot policy,” in Model 2, the elasticity of social welfare spending is statically significant at the 0.01 level; a 10 percent increase will bring down the crime rate by 0.83 percent. This effect grows bigger – a 10 percent increase of social welfare reduces the crime rate by 0.98 percent – when all other variables are controlled in Model 6.

Different from the carrot policy, we do not find consistent evidence supporting the idea that stick policy works for crime control. In Model 5 the estimated elasticity of judicial spending (lagged by one year) is 0.21 and attains statistical significance at the 0.01 level; but this is not consistently so across model specifications, especially in model specification 3 and 6 in which we use an instrumental variable approach to deal with the endogeneity problem.

In some cases, we looked for these numbers in their work summaries in the local gazetteers.

21 We tested the effect of provincial strike-hard campaigns in the third section of the online appendix.

22 Time series of provincial crime rates can also be found in Figure A1 in the online appendix.
By using the mean value of the neighboring provinces as an instrument, the elasticities of judicial spending in Model 3 and 6 are no more statistically significant. Note that model 5 and 6 include the same set of control variables, the different coefficient estimates of the judicial expenditure variable between a simple OLS (model 5) and TSLS (model 6) suggests that not addressing the endogeneity issue would produce misleading information when evaluating the effectiveness of the “stick policy.”

We use two variables measuring different dimensions of conflict resolution. Both variables have the expected signs. The density of mediation organization does not attain statistical significance, however. The performance of the individual mediator, by contrast, has the expected (negative) sign that is highly statistically significant. Its elasticity is -0.08, predicting that the crime rate will be reduced by 8 percent if the average number of cases a mediator resolved can be doubled, or increases by 100 percent in one year.

The coefficient estimates for control variables are consistent through model specifications. The estimated elasticity for dispute intensity is 0.10 to 0.12 in Model 4 to 6, statistically significant at the 0.01 level, implying that personal conflicts do escalate and result in violence and crime. Unemployment rate does not have a significant effect. Level of economic development, measured by GDP per capita, has an estimated coefficient of 0.50 in Model 6. This may be because in richer areas, the economic gains of illegal activities, especially property crimes are higher. It is also noteworthy that economic growth has a significant elasticity of -0.07. It is likely that the economic growth gives people confidence in the future and influences the perception of the relative cost of crime.

Table 3 displays the regression results using the number of suspects arrested (per 10,000 population) as an alternative dependent variable. Detailed reports of the results from Model 1a to 6a are omitted because they are highly similar to those from Model 1 to 6 in Table 2. To summarize, the main findings suggest that while the stick policy does not have the expected effect to deter crime, the carrot policy and the mediator performance aspect of the conflict resolution practices work in crime control.

[Table 3]

4.2 Robustness Checks
We conduct robustness checks by adding/removing regressors and using alternative measure for some key independent variables. First, since the density of mediation organization does not have a significant effect on crime rate, we remove this variable to test whether the main results would change (Model 7 in Table 4). Second, we use educational spending per capita as a second measure of welfare provision in Model 8 of Table 4, because education can also be considered part of the “carrot policy.” The effect of education on crime rate is not yet clear in previous studies and need to be examined in the Chinese context. On the one hand, education may help to reduce crime: more education will generally lead to higher levels of human capital and economic payment, and discourages people from illegal activities (Lochner and Moretti 2004); higher quality of education can reduce crime by building better social networks and avoiding contacts with bad peers (Deming 2011); and education keeps the young people occupied with their studies and thus away from crimes (Anderson 2014). On the other hand, more educated people may have greater ambitions and higher

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23 The F-statistic for the hypothesis that the instrumental variable has a zero coefficient is 96.99 with a p-value smaller than 0.01 in the first-stage equation. The Cragg-Donald Wald F-statistic of 70.44 exceeds Stock and Yogo’s critical value of 16.38, implying that if one is willing to accept a maximal weak instrument bias of 10 percent, the hypothesis of weak instrument bias is rejected. For the under-identification test, the Anderson Lagrange multiplier statistic is 70.44 with a p-value smaller than 0.01.
expectations. If they are not fulfilled, one might become discontent, disappointed, and even direct their anger towards society, which can raise the risks of crime, terrorism, and social unrest (Benmelech and Berrebi 2007; Berrebi 2007; Krueger 2008; Krueger and Malečková 2003).

Third, Model 9 includes a dummy variable for the years of national “strike-hard campaign” during which the criminal policy puts an emphasis on the severity and celerity of punishment. In Model 10 the one-year lagged campaign dummy is included to examine whether there is a lagged effect. Finally, Model 11 puts together all the new regressors and re-estimates the results. In all models, we instrument judicial spending using neighboring provinces’ averaged judicial spending.

Overall, the coefficient estimates of key explanatory variables, i.e., welfare spending, judicial spending, organization density, and mediator performance, do not change. For instance, dropping the organizational density variable does not change the results. Model 8 and 11 control for educational spending as an extended form of welfare provision, but its coefficient is not significant, which is consistent with what some previous studies have found (Chen et al. 2009; Cheng et al. 2016).

With dummy for national strike-hard campaign included as extra measure for the “stick policy,” the coefficients of welfare spending and organization performance remain statistically significant. In addition, the elasticity of strike-hard dummy is 0.31 to 0.39, indicating such campaigns are associated with more suspects accused and arrested. This makes sense because, first, under the current political system, supervisors and higher-level governments usually evaluate the performance of the police and judicial system with simple crime figures. This may become more radical during the strike-hard campaigns when higher goals or quotas are set, hence the law enforcement system have strong incentives to display their competence by meeting the requirements from the top. Second, as the strike-hard campaign also emphasizes celerity of punishment, the time intervals between detection, arrest, and prosecution are shortened that more cases would be processed.  

5 Discussion and Conclusion
Using a provincial panel data from 1988 to 2014 in China, this paper studies the effectiveness of three types of government crime control policies. The empirical analysis suggests that the “stick policy” of increasing judicial spending does not have a significant effect on crime rates while providing social welfare, that is, the “carrot policy,” reduces crime. Moreover, conflict resolution is found to be an effective strategy of crime control.

It is difficult to decompose China’s “stick policy” to fully test the central hypothesis of the deterrence theory, that is, crime can be prevented when punishment is certain, severe, and quick. Our analysis examines its two components – certainty and celerity of punishment – by including measures of judicial spending and criminal policy (i.e., the strike-hard campaigns). The effect of judicial spending does not attain statistical significance when we adopt an instrumental variable approach. However, this result does not necessarily mean that the government should stop investing in judicial resources to strengthen the police and law enforcement system. Moreover, regarding the influence of strike-hard campaigns, in the

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24 Since the strike-hard campaign variable only captures the national campaigns, we also collect data on provincial level strike-hard campaign and re-run the regressions (Table A2 in the online appendix). While the main results still hold, the local strike-hard campaigns, unlike the national ones, do not have significant effect on crime rates.

25 For example, higher-quality human resources, better equipment, and wider use of more advanced technologies.
short term, they push the law enforcement and judicial system to work harder in fighting crime. But if the criteria for performance evaluation, and therefore the incentive structure of the officers were not changed, the consequence would be more arrests and accusations, which might be the opposite of the policy orientation for reducing measurable crimes. With the time limit of the campaign, quick punishment might also lead to less careful investigation by the police and poorer decision of the court, putting the legitimacy of the government at risk.

“Carrot policy” works in crime control. Increasing social welfare spending not only prevents people from despair and helplessness, but also keeps them away from criminal activities. The evidence supports the proposition that social policies are good criminal policies. Hence, the government should provide a (stronger) social safety net for ordinary people to strike at the roots of crime.

One major contribution of this paper is its focus on conflict resolution as a useful strategy of crime control. We find evidence supporting the idea that conflict resolution helps maintain peace and order, thus reducing crime. We can draw three policy implications here. First, while more conflicts may result in more crimes, it does not mean the government should introduce a “zero-tolerance” policy and try to eliminate every potential conflict. This is because conflicts are a normal, natural, and inevitable part of human life. Second, the result that density of mediation organization does not have a significant effect suggests that more attention should be paid to the operational side, not the structural side, of conflict mediation. Finally, since the performance of individual mediator is associated with reduced crime, government should provide training or rewards for mediators.

Beyond testing the three strategies of crime-reduction, this paper further examines the relationship between crime and modernization in China. Previous research finds that relative deprivation, ascendance of secular over traditional values, and pecuniary nexus accompanying modernization may increase criminality (Shelly 1981). Our results confirm the positive relationship between per capita GDP and crime rate in China (Bai 2014). But there is another part of the Chinese story that might be overlooked in previous studies: higher economic growth, surprisingly, is found to be associated with lower crime rates. It is possibly because high economic growth motivates people to improve their livelihood through honest work, or because it is easier for people to find well-paid jobs during the economic boom. This may also imply that when individuals make decisions about participation in illegal activities, the expectation about future may matters.

The findings of this paper may also apply to other parts of the world. Conflict resolution, which relies on peer pressure, social criticism, and various forms of group self-enforcement, is not unique to China (Li 1978); many forms of alternative dispute resolution, such as conciliation, mediation, and arbitration, are widely used in other countries. Hence, future studies may test the effect of conflict resolution in different contexts. Moreover, there are also variations in both the stick and mediation policies, whose effects remain to be explored. For the former, the use of newer policing strategies, including hot-spot policing (Sherman et al. 1989; Sherman and Weisburd 1995), problem-oriented policing (Braga et al. 1999; Braga and Weisburd 2012), focused deterrence (Pogarsky 2002), and police crackdowns (Nagin 1998; Sherman 1990), may play an important role in deterring crime. For the latter, neighbor watch and community conference in some Western countries function like mediation groups in China. Their influences on crime prevention should be examined in future research. Finally, since the effectiveness of conflict resolution in China may be bolstered by the traditional culture, it is interesting to find out whether the values for peace and harmony also helps to explain low criminality in other Asian societies such as Japan, Singapore, and South Korea.
References


Coleman, C. and Moynihan, J. (1996), *Understanding Crime Data: Haunted by the Dark Figure*. Open University Press.


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*Notes: a: the maximum number of observations for our panel is 837 (31 provinces multiplied by 27 years); b: the mean for the strike-hard campaign dummy, 0.19, is calculated as the number of province-years with national strike-hard campaigns divided by the total number of province-years.*
<table>
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<tr>
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Notes: All variables are logged, and the independent variable are lagged by one year. Standard errors are in parenthesis. *** p<0.01, ** p<0.05, * p<0.1.

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<td>0.478*** (0.061)</td>
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<td>0.438*** (0.062)</td>
<td>0.295*** (0.071)</td>
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Notes: All variables are logged, and the independent variable are lagged by one year. Standard errors are in parenthesis. *** p<0.01, ** p<0.05, * p<0.1.
### Table 4: Robustness of Different Policies’ Influence on Crime (Arrest) Rate in China, 1988-2014.

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<tr>
<th></th>
<th>Model 7 (IV) judicial per capita</th>
<th>Model 8 (IV) judicial per capita</th>
<th>Model 9 (IV) judicial per capita</th>
<th>Model 10 (IV) judicial per capita</th>
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<td>-0.062** (0.027)</td>
<td>-0.043* (0.024)</td>
<td>-0.062** (0.026)</td>
<td>-0.062** (0.026)</td>
<td>-0.043* (0.024)</td>
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<td>Judicial per capita</td>
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<td>0.110 (0.147)</td>
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<td>0.311*** (0.059)</td>
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<td>-0.044* (0.025)</td>
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<td>0.004 (0.022)</td>
<td>0.012 (0.022)</td>
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<td>0.347** (0.137)</td>
<td>0.347** (0.137)</td>
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Notes: All variables (except the strike-hard dummy) are logged, and the independent variable are lagged by one year without special mentioning. Standard errors are in parenthesis; ***, p<0.01, **, p<0.05, *, p<0.1.