The Relationship between Police Legitimacy and Collective Efficacy in China's Context

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Police-public relations has always been a key issue in policing research (Liu et al., 2018). Scholars have addressed the issues of trust in the police, willingness to cooperate with the police, and police legitimacy (Boateng & Buckner, 2019; Bottoms & Tankebe, 2012; Bradford & Jackson, 2011; Hawdon, 2008; Hough et al., 2013; Huq et al., 2017; Jackson et al., 2012; Kochel et al., 2013; LaFree, 1998; Lee & Cho, 2020; Liu, 2019; Liu & Liu, 2018; Liu et al., 2020; Mazerolle et al., 2010, 2013; Sun et al., 2004, 2010, 2017, 2018; Sunshine & Tyler, 2003; Tankebe, 2009, 2013; Tyler, 2004, 2006a, 2006b; Wu et al., 2021). The research on collective efficacy and police legitimacy is particularly striking. Western researchers have attempted to identify the relationship between police legitimacy and collective efficacy, and research has provided theoretical support for the relationship between collective efficacy and police legitimacy (Hawdon, 2008; Kochel, 2012, 2013, 2018a, 2018b; Kwak & McNeeley, 2017; LaFree, 1998; Nix et al., 2015; Sargeant, 2017; Weisburd et al., 2011). However, empirical research has found only a limited correlation between police legitimacy and collective efficacy (Kochel, 2012, 2018a).

In China, relations between the police and the public are an important issue for the government: policing requires support and understanding from the public, and the police

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force itself is composed of members of the public . Therefore, the relationship between the police and the public in China is an important aspect of a harmonious society.

Western empirical research has found only a limited relationship between police legitimacy and collective efficacy, and there has been relatively little Chinese empirical research on the subject. Furthermore, Western empirical research on collective efficacy has usually analyzed it as a summary measurement. However, Sampson et al. (1997) found that collective efficacy was formed by informal social control and social cohesion and trust. Few studies in the field have examined this concept by separating informal social control from social cohesion and trust.

Accordingly, my goal was to examine whether the Western model of police legitimacy and collective efficacy holds in China and what the Chinese police can do to increase their legitimacy if there is a relationship between police legitimacy and the two components of collective efficacy. I proposed the following four hypotheses:

H1: If the quality of police services improves, then police legitimacy increases.

H2: If police misconduct decreases, then police legitimacy increases.

H3: If police legitimacy increases, then the public is more likely to participate in informal social control.

H4: If police legitimacy increases, then neighborhood social cohesion and mutual trust increases.

This is the first empirical study to examine the Western model of police legitimacy and collective efficacy in the Chinese context.

Theoretical and Empirical Framework

Theoretical Discussions of Collective Efficacy

Basic Theoretical Assumption of Collective Efficacy

Social ecology studies have found that in the early 1970s, ecological conditions such as substandard housing, low incomes, and unrelated people living together were correlated with a high incidence of delinquency (Siegel, 2017). Other scholars have emphasized that in the 1980s, community deterioration and economic decline were correlated with crime (Siegel, 2017).

Sampson reviewed the research on neighborhoods and crime and found that although there was no direct relationship between poverty and crime, poverty combined with residential mobility, family disruption, and high population density was correlated with more violent crime (Vold et al., 2002). Sampson also argued that communities with many social relationships will have less crime.

Accordingly, the basic assumption of collective efficacy is that when social control efforts are weakened, crime increases, which weakens neighborhood cohesion (Liu et al., 2001).

Sampson's Theory of Collective Efficacy and Its Components

Collective efficacy, also called "neighborhood collective efficacy," is defined as neighborhoods' ability to maintain order in public places such as streets, sidewalks, and parks (Vold et al., 2002). The function of collective efficacy relies on a connection between "neighborhood social cohesion and trust" and "shared expectations for intervening in support of neighborhood social control" (Sampson & Raudenbush, 1999). In later research, this connection has been described as "social cohesion" and measured as "informal social control." According to Sampson, social cohesion involves "cohesion and mutual trust" (Vold et al., 2002) in the neighborhood and "informal social control,"

meaning willingness to assist with or participate in social control in the neighborhood (Vold et al., 2002). Interestingly, over the past two decades, the only changes to these two measurements have involved the inclusion of additional measurements according to the research topic.

Other studies have explained social cohesion as shared values, social connections (Parks et al., 2014), community norms and values (Sargeant, 2017), indifference and ability to act (Kleinhans & Bolt, 2014), residents' mutual trust (Jiang et al., 2013; Gerell, 2015), and a shared, working trust (Benier & Wickes, 2016). Informal social control has been explained as a social norm of proper behaviors and willingness to participate in social control (Wang et al., 2019), shared expectations of social control (Parks et al., 2014), residents' willingness to exercise informal social control (Kleinhans & Bolt, 2014), and the ability to influence informal social controls (Lavenda et al., 2017).

Theoretical Discussions of Police Legitimacy

Police legitimacy is often related to procedural justice (Liu & Wu, 2023; Sun et al., 2019). However, police legitimacy also involves four other issues: trust and policing styles, police–citizen interactions, police use of force, and accountability (Noppe et al., 2017).

Trust and policing styles involve how the police treat the public. For example, Jackson et al. (2012) and Tyler (2006a) have argued that when citizens believe the police are treating them fairly, they are more likely to obey their commands and more willing to cooperate with them even if the outcome is negative. Police–citizen interactions involve police officers' performance, including aspects such as voice, neutrality, respect, and dignity, and the trustworthiness of their motives when dealing with the public (Noppe et

al., 2017). These interactions often occur when police officers need to contact residents. The police's use of force may undermine police legitimacy even if it is legal, both because people may not always view the use of force as just and because the use of force is often perceived as aggressive (Noppe et al., 2017). Accountability refers to the idea that the work of police officers should be supervised by the state, society, and individuals (Noppe et al., 2017).

Scholars have proposed different opinions about the concept of legitimacy. Legitimacy, as defined by Weber (1947), refers to "the probability that certain specific commands (or all commands) from a given source will be obeyed by a given group of persons"; a basic criterion of legitimacy is a "minimum of voluntary submission." Weber (1978) added that legitimacy includes the notion of "the probability that to a relevant degree the appropriate attitudes will exist, and the corresponding practical conduct ensue." These concepts have been widely applied in many studies (Bottoms & Tankebe, 2012; Hawdon, 2008; Kochel, 2012; Kochel, 2018a; Kochel, 2018b; McLean & Nix, 2021; Sunshine & Tyler, 2003).

Tyler (1990) defined legitimacy as "acceptance by people of the need to bring their behavior into line with the dictates of an external authority." Sunshine and Tyler (2003) stated that legitimacy makes people feel that they should obey an authority or institution. Tyler (2004) also defined police legitimacy as the belief that the police have a duty to appeal to the public to obey the law and help fight crime, and the public has an obligation to cooperate with the police. From a psychological perspective, the term "legitimacy" refers to an authority, institution, or social arrangement that leads those connected to it to believe that it is appropriate, proper, and just, which means that legitimacy is also a

perceived obligation to authorities or regulations (Tyler, 2006b). Numerous recent studies have applied Tyler's definition of legitimacy and his process-based model (Huq et al., 2017; Jonathan-Zamir et al., 2021; Liu et al., 2020; Reisig et al., 2007, 2012; Reisig & Lloyd, 2009; Sun et al., 2018; Tankebe, 2009).

Tyler's Process-based Model and Tankebe's Revised Model

Tyler (1990) argued that police legitimacy is mainly influenced by whether people believe that the police follow fair and just procedures in their handling and decision-making during interactions between the police and the public. Police legitimacy is influenced by the fair distribution of police services. Distributive justice has been thought to play a less significant role than procedural justice in shaping police legitimacy (Sunshine & Tyler, 2003; Tyler & Huo, 2002). Another important factor in legitimacy is police effectiveness (Kochel et al., 2013; Sun et al., 2018; Tankebe, 2013). Following Tyler's definition of legitimacy, "a psychological property of an authority, institution, or social arrangement that leads those connected to it to believe that it is appropriate, proper, and just" (Tyler, 2006a), many studies have measured police legitimacy based on citizens' obligation to obey the police (Liu, 2019).

Based on Tyler's process-based model, Tankebe (2013) proposed a different view of police legitimacy, arguing that there was a difference between police legitimacy and the obligation to obey, and that they should be two different constructs. Accordingly, Tankebe (2013) proposed four dimensions of police legitimacy: procedural justice, distributive justice, lawfulness, and effectiveness. Tankebe (2013) also argued that police legitimacy can influence people's willingness to obey the law and that the sense of obligation created by police legitimacy influences their tendency to obey the law.

The Relationship between Police Legitimacy and Collective Efficacy

Police need the public to believe that they are legitimate so that they can obtain public cooperation and participation in controlling crime and maintaining the social order (Kochel, 2012). In the Chinese context, the police (or the People's Police) are responsible for enforcing the law and maintaining social stability, which means that policing in China has both law enforcement and political functions. The motto of the People's Police, *Serve the People*, expresses the traditions and political ideals that require the Chinese police to maintain close ties with the public.

LaFree's Legitimacy Theory

LaFree (1998) explored the role of legitimacy in police and other institutions' efforts to build social control and social capital, or what we now call collective efficacy. LaFree (1998) argued that social control efforts are related to the political institution of legitimacy. According to LaFree, although social control efforts can be either informal or formal, most researchers have found that informal efforts tend to be more effective. LaFree also explained that when people doubt the legitimacy of a political institution, even if they are law-abiding, they are unwilling to engage in social control efforts that affect others.

LaFree (1998) argued that social capital is related to the political institution of legitimacy, and that it accumulates in relationships of trust between the individuals in a society. In addition, LaFree noted that the more people view a political institution as legitimate, the greater the social capital and the easier it is for the public and the institution to achieve a common goal.

Hawdon's Four Types of Combination of Police Legitimacy and Social Capital

Hawdon (2008) identified four combinations of police legitimacy and social capital:

(a) high bridging and bonding capital, (b) low bridging and bonding capital, (c) high bridging and low bonding capital, and (d) low bridging and high bonding capital. Bridging capital refers to the relationship between police officers and residents, and bonding capital refers to the relationships between residents and other residents. High bridging capital means that residents have a high level of trust in the police and believe that the police are legitimate. High bonding capital means that residents create an environment that protects "insiders" (residents) from "outsiders" (police officers); in this situation, the police are viewed as untrustworthy and illegitimate.

Kochel's Conceptual Model of Collective Efficacy and Police Legitimacy

Kochel (2012) built a conceptual model to show the relationship between collective efficacy and police legitimacy. In the model, Kochel explored how to improve the quality of police services and decrease police misconduct to promote police legitimacy, which promotes collective efficacy.

According to Kochel, there is not a significant correlation between police legitimacy and collective efficacy. Kochel presented two possible reasons for this result: the measurement of legitimacy and the difference between developing countries and Westernized countries. However, Kochel also found that the quality of police services and police misconduct had significant effects on both police legitimacy and collective efficacy.

Research Status in China

In China, although the issue of police legitimacy is a common topic in law-enforcement studies, it is difficult to find an empirical study that relates to collective efficacy and police legitimacy. However, Sun et al. (2017) tested Tyler's process-based model in China and found that China lacks comprehensive research on collective

efficacy's effect on residents' assessments of police. Their findings indicated that perceived community cohesion shapes Chinese perceptions of police legitimacy and cooperation.

Sun et al. (2018) studied police legitimacy and cooperation with the police, applying Tankebe's revised model. However, their study was criticized for blurring the distinction between empirical and normative legitimacy (Jackson & Bradford, 2019).

Measurement of Collective Efficacy and Police Legitimacy in Past Studies

Collective Efficacy

The classical measurements of collective efficacy are social cohesion and informal social control (Sampson et al., 1997). The difference between these two measurements relates to how collective efficacy is applied to them. Some scholars may have made changes because of their research environment. Sometimes, informal social control and social cohesion have been measured separately, and the correlation between the two has been reported (Hardyns et al., 2016, 2019; Leslie et al., 2015; Volker et al., 2016; Yoshizawa et al., 2009). In some studies, the measurement of collective efficacy may even have been split by, for example, only measuring social cohesion or informal social control (Jiang et al., 2010; Wickes et al., 2013). Commonly, collective efficacy has been measured in interviews or via questionnaires.

Messner et al. (2017) conducted a study in China and measured informal social control using items asking about the likelihood of neighborhood interventions to address problems in the community. Social cohesion was measured using items that asked respondents about getting along with their neighbors, exchanges of assistance, whether and to what extent the neighborhood was close-knit, shared concerns, and levels of trust.

Using these separate measurements, Messner et al. (2017) reported a Cronbach's alpha of 0.82. Similarly, Wang et al. (2019) measured informal social control as the likelihood of respondents' neighbors being willing to intervene in four scenarios of informal social control and social cohesion as four items that were identified by asking respondents about the relationships between their neighbors. Cho (2017), Guha et al. (2012), Kwak and McNeeley (2017), Jiang et al. (2013), and Yoshizawa et al. (2009) have also asked questions about people's opinions of neighborhood actions.

Xiao's (2016) measurement was very simple: the question "Do community owners care about the industry committee?" was treated as measuring social cohesion and the question "How many volunteer teams are there?" was treated as measuring informal social control.

Wang and Fowler (2019) applied only social cohesion and measured it using three items: reciprocity, the acquaintanceship network and interaction with neighbors, and social contact. Jiang et al. (2010) applied only informal social control to measure the likelihood of neighborhood residents intervening in five informal social control scenarios.

In sum, the characteristics of questions related to collective efficacy have been community-related and limited to quotidian issues. These questions have been very easy to answer and not considered awkward by respondents. They have included queries such as, "Will your neighbors intervene or report to the police if you are assaulted by kids in the neighborhood?" Such questions have commonly used interrogative sentences with yes/no answers. The Likert scale has also been commonly applied in research; however, unlike the classic Likert scale, in which "the scale consists of a set of statements," some studies used interrogative sentences as questions.

Police Legitimacy

As mentioned earlier, in Tyler's model, police legitimacy was measured by the obligation to obey the police and trust in police. Tankebe's revised model argued that procedural justice, distributive justice, effectiveness, and lawfulness were the components of police legitimacy. Tyler's model has been tested more frequently than Tankebe's revised model.

In Kochel's (2012) research, as explained above, because of the limited scope of the survey, only one question measured police legitimacy. However, in Kochel's (2018a) later work, the measurement of police legitimacy used four items that reflected social norms of obeying authority and respecting the law.

Weisburd et al. (2011) also used four questions to measure police legitimacy. They included whether respondents respected the police, whether they were proud of the police, whether they supported the police, and whether the police treated people fairly. In Liu and Liu (2018), police legitimacy was measured on four dimensions: procedural fairness, effectiveness, shared values, and distributive fairness. Sun et al. (2018) and Lee and Cho (2020) mentioned that police legitimacy has multiple dimensions: procedural justice, distributive justice, effectiveness, and lawfulness. Multiple and combined questions have commonly been applied to measure police legitimacy.

The issue of whether police legitimacy can be measured by both the obligation to obey the police and institutional trust or only the obligation to the obey police has been controversial. Generally, both the obligation to obey the police and institutional trust have been used to measure police legitimacy (Huq et al., 2017; Liu et al., 2020; Pina-Sánchez & Brunton-Smith, 2020; Reisig et al., 2007, 2012; Sunshine & Tyler, 2003). However,

some scholars have separated the obligation to obey the police from institutional trust when measuring police legitimacy (Hough et al., 2013; Kochel, 2012, 2018a, 2018b; Mazerolle et al., 2013; Reisig & Lloyd, 2009; Sargeant, 2017; Sun et al., 2017).

Some scholars have used their own methods of measuring police legitimacy. Sun et al. (2004) focused on perceptions of the services provided by the police when measuring perceptions of police legitimacy. Bradford and Jackson (2011) argued that taking a moral stand in favor of the police and the perceived duty to obey were two components of police legitimacy. Boateng and Buckner (2019), conducting research in Asia, measured police legitimacy using a single item: "How much confidence do you have in the police?"

Methodology

Sampling

In collaboration with Chongqing Police College and Southwest University of Political Science and Law, I conducted a survey in nine of Chongqing's core urban districts (Yuzhong, Jiangbei, Yubei, Nan'an, Ba'nan, Shapinba, Beibei, Dadukou, and Jiulongpo) from November 2020 to April 2021. The data obtained included 1,926 residents from 43 communities on 24 streets.

Chongqing, a city in southwestern China with a population of approximately 34 million, is one of China's four municipalities. According to the administrative division of Chongqing, each core urban district has several "streets" (*Jie Dao*), each of which has several residential areas, called "*Xiao Qu*."

In light of this multilevel administrative structure, I used stratified random sampling. The first step was to record all of the nine core urban districts' streets, as listed on Chongqing's official website. The majority of Chongqing's demographic and

socioeconomic groups are represented in the studied districts.

The second step was to use the random number method, in which two to six streets were randomly selected according to the demographic and socioeconomic characteristics of each core urban district. In other words, each core urban district produced two to six streets according to economic level, population density, and development level.

The third step was to contact the police station for each selected street to ask permission to conduct a questionnaire-based survey in two randomly selected residential areas served by the station. Next, I asked property managers for information about all of their apartment buildings. Then, based on the standard of conducting 80 questionnaires in each residential area, numerous apartment buildings were randomly selected. A survey was then conducted in each household in the selected apartment building that met the study's age requirements.

The participants were 12 years and above (i.e., the minimum age of criminal responsibility). Response rates for the sampled communities ranged from 4% to 89%, and the number of respondents sampled within the 43 communities ranged from 4 to 71. Cross-sectional data were applied, which means that the analysis tested only correlations of events, not causal effects.

The participants were personally surveyed in both Mandarin and Chengdu-Chongqing Chinese using a Chinese-language questionnaire. Participants who were illiterate or visually impaired were read the questions, and participants who could provide answers but were unable to write received help filling out the questionnaires.

To ensure respect for academic ethics, the questionnaires were reviewed by Chongqing Police College and the Political Section of the Dadukou District Branch,

Chongqing Public Security Bureau. All of the questionnaires were anonymous, and they did not violate the participants' privacy.

Measurement of Demographic Variables

I collected demographic data on gender, age, marital status, children in school, education level, religion, minority status, political identity, occupation, income, Hukou (a household registration system in mainland China), home ownership, and duration of local residence. Gender was coded as 1 for male and 0 for female. Age was a numerical variable. Marital status was measured by four categories: 1 = single, 2 = married, 3 = divorced, and 4 = widowed. During the statistical analysis, marital status was recoded as four dummy variables. Children in school was a dichotomous variable obtained by asking whether respondents had children in compulsory education, with the variable coded as 1 for yes and 0 for no. Education level was an ordinal variable measured using six categories: 1 (primary school or below), 2 (junior middle school), 3 (specialized middle school), 4 (senior middle school), 5 (higher vocational education), and 6 (bachelor's degree or above). It was then recoded as six dummy variables during the statistical analysis. Religion was coded as 1 for yes and 0 for no by asking whether respondents had a religious belief. Minority status was a dichotomous variable coded as 1 for a minority and 0 for not a minority. Political identity was a category variable measured by three categories: 1 = CCP (or CCYL) member, 2 = Democratic Party member, and 3 = ordinary masses. It was then recoded as three dummy variables. Occupation was a category variable measured by four categories: 1 = employed, 2 = freelancer, 3 = unemployed, and 4 = retired. It was then recoded as four dummy variables. The study conceptualized and operationalized the income variable as respondents' per-capita monthly income (the unit

of measurement was CNY), which was measured as an ordinal variable with five categories: $1 \in [0, 3000]$, $2 \in (3000, 5000]$, $3 \in (5000, 8000]$, $4 \in (8000, 10000]$, and $5 \in (10000, +\infty)$. Hukou was measured as a dichotomous variable with "have local Hukou" coded as 1 and "don't have local Hukou" as 0. Home ownership was a dichotomous variable coded as 1 for yes and 0 for no by asking respondents whether they owned their residence. Local residence time was a dichotomous variable coded as 1 for yes and 0 for no by asking respondents whether they had lived in their apartment for five years or more.

Measurement of Exogenous Control Variables

"Membership in local organizations" was a dummy variable obtained by asking residents whether they participated in community organizations. "Negative police contact" was a dummy variable obtained by asking residents whether they were dissatisfied with their interactions with the police during the last year, and "positive police contact" was a dummy variable obtained by asking residents whether they were satisfied with their interactions with police during the last year. Both of these variables were encoded by 0 = no and 1 = yes. These two variables were encoded by asking residents whether they were satisfied with their police contact in the past year from 1 = no contact, 2 = very dissatisfied to 5 = very satisfied. Those who reported 2 or 3 received a 1 in "Negative police contact" and 0 in "Positive police contact." Those who reported 4 or 5 received a 1 in "Positive police contact" and 0 in "Negative police contact." Those who reported 1 received 0 in both of these variables.

Measurement of Key Variables

According to my research hypothesis, the variables *Police Misconduct* and *Quality of Police Services* were regarded as independent variables when studying H2 and H1,

respectively; both *Police Misconduct* and *Quality of Police Services* were regarded as control variables when studying H3 and H4; *Police Legitimacy* was regarded as a dependent variable when studying H1 and H2 and as an independent variable when studying H3 and H4; and *Informal Social Control* and *Social Cohesion* were regarded as dependent variables when studying H3 and H4, respectively. In the mediation analysis, *Police Misconduct*, *Quality of Police Services*, and *Police Legitimacy* were mediators.

Police Misconduct (PM)

The measurement of *Police Misconduct* was based on Tyler's (1990) measure of procedural justice and Kochel's (2012) measure of police misconduct. Police Misconduct was formed using a 5-item ordinal scale by asking residents' frequency of observing police stopping people on the street without good reason, using insulting language, and using excessive force. Response options were provided on a 4-item Likert scale ranging from 1 = not observed to 4 = often observed.

Quality of Police Services (QPS)

Quality of Police Services was similar to the measurement described in Kochel (2012). *Quality of Police Services* was formed using items reflecting police competence, manners, and interest in solving citizen problems. The response options were provided on a 5-item Likert scale ranging from 1 = strongly disagree to 5 = strongly agree.

Unlike Kochel (2012), my study did not use a question about whether the police accept payments. Under article 37 of the *People's Police Law of the People's Republic of China*, the People's Police receives public funding, and police funds shall be incorporated into central and local financial budgets according to the principle of the division of powers. Therefore, the police are forbidden to receive payment from citizens or other

organizations, and doing so would raise suspicions of corruption or solicitation of bribery.

Police Legitimacy (PL)

Many studies have used the obligation to obey the police and institutional trust to measure police legitimacy (Huq et al., 2017; Liu et al., 2020; Pina-Sánchez & Brunton-Smith, 2020; Reisig et al., 2007, 2012; Sunshine & Tyler, 2003). Recently, however, some scholars have distinguished trust from the obligation to obey the police when measuring police legitimacy (Hough et al., 2013; Kochel, 2012, 2018a, 2018b; Mazerolle et al., 2013; Reisig & Lloyd, 2009; Sargeant, 2017; Sun et al., 2017).

I used the obligation to obey the police to measure Police Legitimacy. Participants rated their level of agreement with three items, which were measured on a Likert scale ranging from 1 = strongly disagree to 5 = strongly agree. The questions were based on Kochel (2018a, 2018b), Huq et al. (2016), Sun et al. (2017, 2018), Reisig and Lloyd (2009), and Tankebe (2012).

Neighborhood Collective Efficacy (ISC & SC)

The measure of collective efficacy was based on the Project on Human Development in Chicago Neighborhoods (PHDCN) and included a link between informal social control and social cohesion and trust (Sampson et al., 1997). Four informal social control scenarios were used to test the likelihood of the respondents' neighbors being willing to intervene. Another four items were used to test the respondents' level of agreement about the social cohesion and trust in their communities. A 5-item Likert scale was applied to Informal Social Control (1 = very unlikely to 5 = very likely) and Social Cohesion and Trust (1 = strongly disagree to 5 = strongly agree).

Because my research was conducted in Chinese communities, all of the questions

were modified for the Chinese context. Furthermore, the pre-test was conducted in a limited area and generated results and suggestions from 90 subjects in Chinese communities. Based on my experience with and the results of the pre-test, two modifications were applied in the questionnaire.

The first modification changed the original question, “Was the fire station closest to their home threatened with budget cuts?” (Sampson et al., 1997) to “Has the government demolished convenient facilities or green spaces in the community?” This question was changed because before 2018, the fire station was led by the Fire Department of the Ministry of Public Security, and firemen were selected from the army. In 2018, the Ministry of Emergency Management assumed responsibility for firefighting and other emergency rescue work. Under the *Code for Design of Urban Fire Stations (GB51054-2014)*, fire stations should be close to places that are often crowded, such as hospitals, schools, kindergartens, nurseries, theaters, shopping malls, stadiums, and exhibition halls. Moreover, fire stations are regulated by the *Fire Control Law of the People’s Republic of China*, which requires fire stations to be included in urban and rural planning, and so it is quite unlikely that fire station construction would be threatened by budget cuts. Therefore, it would have been unrealistic to ask community residents’ opinions about their fire station being threatened by budget cuts. However, most residents care about their quality of life, including convenient facilities, bus stops, and green spaces. Therefore, the original question was modified to ask residents’ opinions about whether the government had demolished these convenient facilities or green spaces.

The second modification changed the question about whether “a fight broke out in front of their house” (Sampson et al., 1997) to whether “a fight broke out in the

community." This modification was made because of translation issues. In China, most residential buildings are like American apartment buildings, with a corridor or stairs in front of each apartment. According to Sampson's research in Chicago, however, the term "in front of their house" is usually understood to mean a street, road, or grassy area. Furthermore, in China, the use of the term "house" is usually understood to mean a villa or bungalow, which are very rare in most urban neighborhoods because villas tend to be unaffordable except to the rich, and bungalows are only found in the countryside. To take Chinese conditions into account and not deviate from the original author's meaning, the term "in front of their house" was modified to "in the community." Notably, most participants would have misunderstood the word "intervening" in the pre-test when asked this question, interpreting the word to refer to helping someone participate in a fight. Because this study related to police, "intervening" was defined as "query," "dissuade," "stop," "protest," and "call the police," and these expressions were also applied to the other three questions related to *Informal Social Control*.

Data Analysis and Results

Descriptive Statistics and Results

The descriptive analyses measured the frequencies, means, standard deviations, minimum scores, and maximum scores of the demographic and other control variables (Table 1), along with the dependent variables and independent variables (Table 2).

Table 1 summarizes the socioeconomic status variables (N = 1,926). The sample was approximately 47.82% male and 52.18% female. The age of the survey respondents was an interval variable with a mean score of 40.007 (SD = 13.054) and a range from 12 to 87 years of age. In addition, 76.64% (1,476) of the respondents were married,

17.81% (343) were unmarried and single, 4.41% (85) were divorced, and 1.14% (22) were widowed. In addition, 41.80% (805) of the respondents reported having children in compulsory education. More than half of the respondents had a bachelor's degree or above (31.57%) or had completed higher vocational education (27.05%). Nearly one-tenth of the respondents (199) had a religious belief. Han was the largest ethnic group in the sample; minorities accounted for approximately 4.21% (81) of the sample. Approximately three-quarters of the respondents had jobs, with 51.67% (994) employees and 25.75% (496) freelancers. Personal yearly income scores ranged from 1 to 5, with an average score of 2.786 (SD = 1.240).

Table 1

Descriptive statistics for the control variables (N = 1,926)

Control variables	f (%)	M	SD	Min	Max
q5 Membership in local organizations	317 (16.46%)	0.165	0.371	0	1
q19_1 Negative police contact	104 (5.40%)	0.054	0.226	0	1
q19_2 Positive police contact	983 (51.04%)	0.510	0.500	0	1
q27 Gender (Male = 1)	921 (47.82%)	0.478	0.500	0	1
q28 Age	---	40.007	13.054	12	87
q29 Marriage					
Single	343 (17.81%)	---	---	0	1
Married	1476 (76.64%)	---	---	0	1
Divorced	85 (4.41%)	---	---	0	1
Widowed	22 (1.14%)	---	---	0	1
q30 Children in school	805 (41.80%)	0.418	0.493	0	1
q31 Education					
Primary school or below	51 (2.65%)	---	---	0	1
Junior middle school	319 (16.56%)	---	---	0	1
Specialized middle school	146 (7.58%)	---	---	0	1
Senior middle school	281 (14.59%)	---	---	0	1
Higher vocational education	521 (27.05%)	---	---	0	1
Bachelor's degree or above	608 (31.57%)	---	---	0	1
q32 Religion	199 (10.33%)	0.103	0.304	0	1
q33 Minority	81 (4.21%)	0.042	0.201	0	1

q34 Political identity					
CCP (or CCYL) member	529 (27.47%)	---	---	0	1
Democracy Party member	13 (0.67%)	---	---	0	1
Ordinary masses	1384 (71.86%)	---	---	0	1
q35 Occupation					
Employed	994 (51.67%)	---	---	0	1
Freelancer	496 (25.75%)	---	---	0	1
Unemployed	169 (8.77%)	---	---	0	1
Retired	267 (13.86%)	---	---	0	1
q36 Per-capita monthly income	---	2.786	1.240	1	5
q40_1 Have local *Hukou*	1091 (56.65%)	0.566	0.496	0	1
q40_2 Own home	1528 (79.34%)	0.793	0.405	0	1
q40_3 Lived in community more than 5 years	1069 (55.50%)	0.555	0.497	0	1

In China, the term “political identity” indicates a person’s political affiliation and is used in personnel file management, social surveys, and public security household registration management. Therefore, political identity is a demographic factor that cannot be ignored. Of the respondents, 27.47% (529) reported being members of the CCP (the Chinese Communist Party) or the CCYL (the Chinese Communist Youth League), whereas only 0.67% (13) were Democracy Party members. The majority of respondents, approximately 71.86% (1384), were “ordinary masses,” or non-party members.

Hukou, a system of household registration used in mainland China, is another important demographic factor. Approximately 56.65% (1,091) of the respondents had local Hukou. Furthermore, 79.34% (1528) of the respondents owned their homes. More than half of the respondents had lived at their current residence for five years or more.

Table 1 also shows the characteristics of some of the other control variables. Of the respondents, 16.46% (317) participated in at least one local organization. With respect to police contacts during the past year, 5.40% (104) of the respondents reported having

negative or unpleasant contact, 51.04% (983) reported having positive contact, and the remainder had no contact.

Table 2 presents the descriptive statistics for both the independent and dependent variables in the theoretical framework. All of the variables measuring people's attitudes had scores ranging from either 1 to 4 or from 1 to 5. As shown in Table 2, all of the items had mean scores between 3 and 4, except for the scales of Police Misconduct, whose items had average scores between 1 and 2. This indicates that most of the respondents reported that they either did not observe or rarely observed police misconduct.

Table 2

Descriptive statistics for key variables (N = 1,926)

Key variables	Type	M	SD	Min	Max
Police misconduct					
q6_1	Scale	1.157	0.447	1	4
q6_2	Scale	1.118	0.391	1	4
q6_3	Scale	1.113	0.382	1	4
Quality of police services					
q8_4	Scale	3.914	0.568	1	5
q8_5	Scale	3.886	0.611	1	5
q8_6	Scale	3.750	0.690	1	5
q8_8	Scale	3.909	0.621	1	5
Police legitimacy					
q10_3	Scale	3.875	0.744	1	5
q10_4	Scale	3.528	0.877	1	5
q10_5	Scale	3.503	0.871	1	5
Informal social control					
q1_2	Scale	3.646	1.066	1	5
q1_3	Scale	3.199	1.127	1	5
q1_4	Scale	3.452	1.218	1	5
q1_5	Scale	3.867	1.066	1	5
Social cohesion					
q2_1	Scale	3.807	0.733	1	5
q2_2	Scale	3.802	0.756	1	5

q2_3	Scale	3.437	0.701	1	5
q2_5	Scale	3.436	0.809	1	5

Factor Analysis

Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were applied to examine the factor structure of all of the latent variables and confirm discriminant validity using STATA 16. Table 3 provides the questions associated with each factor.

Table 3

Factor indicators of latent variables

Latent Variable	Item	Indicator Wording
Police misconduct (PM)	q6_1	Police stop people without reason.
	q6_2	Police use insulting language.
	q6_3	Police use excessive force.
Quality of police services (QPS)	q8_4	Police properly carry out their duties.
	q8_5	Police treat people with dignity and respect.
	q8_6	Police help solve problems.
	q8_8	Police are always polite when dealing with people.
Police legitimacy (PL)	q10_3	I should obey police decisions because that is the proper or right thing to do.
	q10_4	I should obey the directives of police even when I do not understand the reason for them.
	q10_5	I should obey the directives of police even if I do not agree with them.
Informal social control (ISC)	q1_2	Children were spray-painting graffiti on a local building.
	q1_3	Children were showing disrespect to an adult.
	q1_4	The government demolishes convenient facilities or green spaces in the community.
	q1_5	A fight broke out in the community.
Social cohesion (SC)	q2_1	People around here are willing to help their neighbors.
	q2_2	This is a close-knit neighborhood.
	q2_3	People in this area can be trusted.

q2_5	People in this neighborhood can share the same values.

The use of the Kaiser–Meyer–Olkin (KMO) test and Bartlett's test of sphericity were the prerequisites for EFA, which can be used to confirm whether data can be used for factor analysis (Munro, 2005). Field (2013) suggested that a KMO value greater than 0.5 indicated sufficient sampling. Pallant (2020) suggested a higher value of 0.6. Kaiser (1974) suggested a minimum KMO value of 0.5 and an ideal value of 0.9 or above (Hutcheson & Sofroniou, 1999). Bartlett's (1951) test of sphericity is used to test whether the correlation between variables in the correlation matrix is an identity matrix—in other words, to test whether each variable is independent. If the result is significant ($p < 0.05$), the data are spherically distributed, and each variable is independent of each other variable, at least to an extent.

The scales' reliability was established by testing Cronbach's α, for which value ranges from 0.70 to 0.79 are acceptable and 0.80 or higher is preferred (Cortina, 1993). J. F. Hair et al. (2010) required each item to have a factor loading higher than 0.70. However, other studies have reported that factor loadings of 0.5 or greater represent a good result (Hulland, 1999; Truong & McColl, 2011). Some researchers have also suggested a standardized factor loading of 0.6 or above for all items (Chin et al., 1997; E. Hair et al., 2006). Furthermore, there have been suggestions in related fields that any individual item should be deleted if its factor loading is less than 0.4 (Hinkin, 1998; Pituch & Stevens, 2015).

EFA Analysis Results

Table 4 shows the results of the EFA analysis of *Police Misconduct*, *Quality of Police Service*, *Police Legitimacy*, and the two components of collective efficacy. For the

measurements of *Police Misconduct* and *Quality of Police Services*, the factor PM explained 75.9% of the variance (KMO = 0.702, χ^2 = 2489.000, p = 0.000), and the factor QPS explained 72.1% of the variance (KMO = 0.822, χ^2 = 3787.019, p = 0.000). As a result of the rotated varimax, the three items (q6_1, q6_2, q6_3) belonging to Police Misconduct were all retained and extracted into one component, and the same was done for the four items (q8_4, q8_5, q8_6, q8_8) belonging to *Quality of Police Services*. Their factor loadings ranged from 0.808 to 0.897. Cronbach's α was 0.759 for PM and 0.721 for QPS, indicating good and consistent reliability.

Table 4

Summary of reliability, validity and EFA results for Police Misconduct, Quality of Police Service, Police Legitimacy, and the two components of collective efficacy (N = 1,926)

Factor	Item	Factor loading	KMO and Bartlett's test	Cronbach's α	Cumulative variance contribution rate
PM	q6_1 q6_2 q6_3	0.819 0.834 0.897	KMO = 0.702; χ^2 = 2489.000, p = 0.000.	0.834	0.759
QPS	q8_4 q8_5 q8_6 q8_8	0.846 0.882 0.808 0.858	KMO = 0.822; χ^2 = 3787.019, p = 0.000.	0.868	0.721
PL	q10_3 q10_4 q10_5	0.813 0.912 0.895	KMO = 0.691; χ^2 = 2664.794, p = 0.000.	0.846	0.764
ISC	q1_2 q1_3 q1_4 q1_5	0.784 0.764 0.735 0.730	KMO = 0.734; χ^2 = 1726.858, p = 0.000.	0.744	0.568
SC	q2_1 q2_2	0.799 0.845	KMO = 0.786; χ^2 = 2424.741,	0.805	0.633

q2_3	0.776	$p = 0.000$
q2_5	0.759	

For the measurements of *Police Legitimacy*, factor PL explained 76.4% of the variance (KMO = 0.691, $\chi^2 = 2664.794$, $p = 0.000$). All of the items (q10_3, q10_4, q10_5) had factor loadings of more than 0.800, and the lowest factor loading is 0.813. The analysis of internal consistency reliability showed that Cronbach's α for *Police Legitimacy* equaled 0.846, indicating an adequate level of internal consistency.

For the collective efficacy items, four items (q1_2, q1_3, q1_4, and q1_5) constituted the factor "informal social control" (ISC) and four items (q2_1, q2_2, q2_3, and q2_5) constituted the factor "social cohesion" (SC). The total variance explained by ISC was 56.8% (KMO = 0.734, $\chi^2 = 1726.858$, $p = 0.000$) and the total variance explained by SC was 63.3% (KMO = 0.786, $\chi^2 = 2424.741$, $p = 0.000$). The factor loadings of the ISC items were all above 0.700 (0.784, 0.764, 0.735, 0.730), and the factor loadings of the SC items were all above 0.750 (0.799, 0.845, 0.776, 0.759). Cronbach's α was 0.744 for ISC and 0.805 for SC.

CFA Analysis Results

The CFA was conducted using maximum likelihood estimation. As suggested by Kline (2015), at minimum, the model chi-square, RMSEA, CFI, and SRMR indices should be reported. The model chi-square is used as an absolute fit index by testing a specified model vs. a saturated model and a baseline model vs. a saturated model, with a low chi-square value relative to the degrees of freedom (and higher *p*-value) indicating better model fit (Alavi et al., 2020). However, the chi-square statistic for the best model fit is sensitive to sample size, and a large sample size will lead the model to be rejected

(Hooper et al., 2008). Because there were 1,926 samples, the chi-square statistic may not have been suitable to represent the model fit in this study.

For RMSEA, some scholars have suggested that values of less than 0.05 are good, values between 0.05 and 0.08 are acceptable, values between 0.08 and 0.1 are marginal, and values greater than 0.1 are poor (Fabrigar et al., 1999; Xia & Yang, 2019).

Earlier studies have considered a CFI value of 0.90 or greater to be acceptable for model fit. However, a more recent study proposed that a value greater than 0.90 is required to ensure that an erroneous model will not be mistakenly considered acceptable (Hu & Bentler, 1999). Just as Kline (2015) recommended a CFI value greater than approximately 0.95 to indicate a preferable model fit, Hu and Bentler (1999) recommended a 0.95 or higher value.

SRMR is a value ranging from 0.0 to 1.0. A value of less than 0.05 indicates a well-fitting model (Byrne, 1998; Diamantopoulos & Siguaw, 2000). However, a value of 0.08 is acceptable (Hu & Bentler, 1999).

Some studies have assessed convergent validity by evaluating composite reliability (CR) and average variance extracted (AVE). I obtained the CR and AVE values using the AVECR program (Sun, 2016) in STATA (see Appendix A). A CR value of equal to or greater than 0.6 is considered adequate (Fornell & Larcker, 1981; J. F. Hair et al., 2018). AVE should be higher than 0.5, but 0.4 can be acceptable (J. F. Hair et al., 2018). Even if AVE is less than 0.5, the convergent validity of the construct remains adequate if CR is higher than 0.6 (Fornell & Larcker, 1981).

As a supplement, I added the Tucker–Lewis index (TLI) as one of the fit indices. TLI exceeding 0.95 indicates a good model fit (Hu & Bentler 1999).

Table 5 presents the results of the CFA analysis of *Police Misconduct*, *Quality of Police Services*, *Police Legitimacy* and the two components of collective efficacy. The specific models are presented in Figures 1, 2, and 3.

The model of *Police Misconduct* and *Quality of Police Services* is illustrated in Figure 1. The model yielded a chi-square fit index with χ^2_{ms} = 2664.794, df = 13, p = 0.000, and χ^2_{bs} = 2664.794, df = 21, p = 0.000. Other fit measures of this model were found to be good: RMSEA = 0.035; CFI = 0.995; TLI = 0.992; SRMR = 0.017. All of the items had factor loadings above 0.650. Each factor's calculated AVE (0.647 and 0.630) and CR (0.845 and 0.872) satisfied the criteria (AVE > 0.4 and CR > 0.6).

Table 5

CFA analysis of Police Misconduct, Quality of Police Services, Police Legitimacy, and the two components of collective efficacy (N = 1,926)

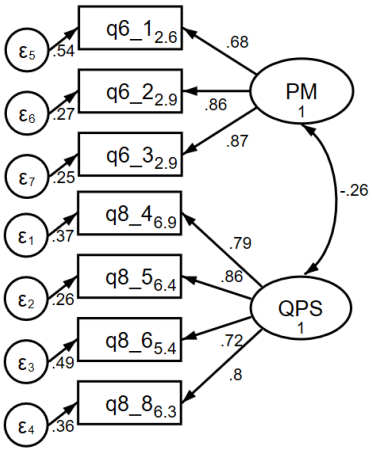
Factor	Item	Unstandardized (estimate)	Standardized (loading)	AVE	CR	Model Fit
PM	q6_1	1.000	0.676	0.647	0.845	χ^2_{ms} = 44.396, df = 13, p = 0.000; χ^2_{bs} = 6398.850, df = 21, p = 0.000; RMSEA = 0.035; CFI = 0.995; TLI = 0.992; SRMR = 0.017.
	q6_2	1.109 ***	0.856			
	q6_3	1.097 ***	0.868			
QPS	q8_4	1.000	0.793	0.630	0.872	
	q8_5	1.165 ***	0.859			
	q8_6	1.097 ***	0.716			
	q8_8	1.102 ***	0.800			
PL	q10_3	1.000	0.663	0.661	0.852	χ^2_{ms} = (not valid), df = 0; χ^2_{bs} = 2668.720, df = 3, p = 0.000; RMSEA = 0.000; CFI = 1.000; TLI = 1.000; SRMR = 0.000.
	q10_4	1.619 ***	0.910			
	q10_5	1.495 ***	0.846			

ISC	q1_2	1.000	0.727	0.426	0.747	χ^2_{ms} = 152.510, df = 19, p = 0.000; χ^2_{bs} = 2664.794, df = 28, p = 0.000; RMSEA = 0.060; CFI = 0.968; TLI = 0.953; SRMR = 0.029.
	q1_3	1.005 ***	0.691			
	q1_4	0.932 ***	0.593			
	q1_5	0.811 ***	0.589			
SC	q2_1	1.000	0.729	0.514	0.808	
	q2_2	1.153 ***	0.816			
	q2_3	0.880 ***	0.671			
	q2_5	0.968 ***	0.640			

*p < 0.05, **p < 0.01, ***p < 0.001

Figure 1

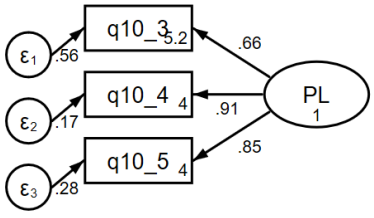
CFA analysis of Police Misconduct and Quality of Police Services



Model Fit (N = 1926):
chi-square (model vs. saturated) = 44.396, df = 13, p = 0.000
chi-square (baseline vs. saturated) = 6398.850, df = 21, p = 0.000
CFI = 0.995
TLI = 0.992
RMSEA = 0.035
SRMR = 0.017

Figure 2

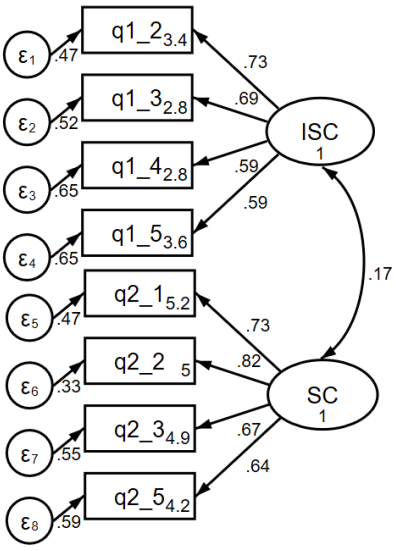
CFA analysis of Police Legitimacy



Model Fit (N = 1926):
chi-square (model vs. saturated): not valid, df = 0
chi-square (baseline vs. saturated) = 2668.720, df = 3, p = 0.000
CFI = 1.000
TLI = 1.000
RMSEA = 0.000
SRMR = 0.000

Figure 3

CFA analysis of collective efficacy



Model Fit (N = 1926):
chi-square (model vs. saturated) = 152.510, df = 19, p = 0.000
chi-square (baseline vs. saturated) = 4226.105, df = 28, p = 0.000
CFI = 0.968
TLI = 0.953
RMSEA = 0.060
SRMR = 0.029

For the police legitimacy model (Figure 2), the three items had factor loadings above 0.650 (0.663, 0.910, and 0.846), and the calculated AVE (0.661) and CR (0.852) index indicated excellent convergent validity. However, the single-factor model in Figure 2 only had three indicators, implying that the model has only one solution, which is a set of parameter estimates that perfectly reproduces the observed covariance matrix; in other words, it was a "just-identified" model (Kline, 2015). The model indicated zero degrees of freedom (df = 0) with no chi-square, which means that the specified model was equal to the saturated model. The fit indices showed a good model fit (χ^2_{ms} = not valid, df = 0; χ^2_{bs} = 2668.720, df = 3, p = 0.000; RMSEA = 0.000; CFI = 1.000; TLI = 1.000; SRMR = 0.000).

For the collective efficacy model (Figure 3), eight items clearly loaded on two factors. The model fit index indicated a good fit of the data (χ^2_{ms} = 152.510, df = 19, p = 0.000; χ^2_{bs} = 4226.105, df = 28, p = 0.000; RMSEA = 0.060; CFI = 0.968; TLI = 0.953; SRMR = 0.029). The informal social control factor had loadings ranging from 0.589 to 0.727, and the social cohesion model had loadings ranging from 0.640 to 0.816. Each

factor's calculated AVE (0.426 and 0.514) and CR (0.747 and 0.808) also satisfied the criteria. The low correlation coefficient between informal social control and social cohesion (r = 0.169, $p < 0.001$) indicated that it is impossible to build a second-order factor for collective efficacy.

Most studies have treated collective efficacy as a summary of informal social control and social cohesion (Bruinsma, 2013; Chen, 2015; Cho, 2017; Darawshy & Haj-Yahia, 2018; DeKeseredy et al., 2003; Frimpong et al., 2018; Gerell, 2017; Grant et al., 2015; Guha et al., 2012; Jiang et al., 2013; Kochel, 2012, 2013, 2018a, 2018b; Kwak & McNeeley, 2017; Madigan et al., 2016; Mazerolle et al., 2010; McNamara et al., 2013; Messner et al., 2017; Nix et al., 2015; Parks et al., 2014; Sampson et al., 1997; Sargeant, 2017; Skrabski et al., 2004; Sutherland et al., 2013; Waverijn et al., 2017; Wickes, 2010; Wickes et al., 2013; Wu et al., 2021). However, it is inappropriate to simply measure collective efficacy as the summary scale of informal social control and social cohesion while ignoring the individual characteristics of these two measures. In addition, some studies have measured collective efficacy by separating informal social control and social cohesion (Hardyns et al., 2016; Hardyns et al., 2019; Leslie, 2015; Volker et al., 2016; Yoshizawa et al., 2009; Zhang et al., 2009), whereas others have conducted research on only one of the two components of collective efficacy (Jiang et al., 2010; Wickes et al., 2013).

Therefore, there was an opportunity to discover how police legitimacy improves collective efficacy by improving informal social control, improving social cohesion, or both. Here, collective efficacy was divided into ISC and SC.

Measuring Model Testing

Before testing the structure model, I applied CFA to test the measuring model of *Police Misconduct*, *Quality of Police Services*, *Police Legitimacy*, and the two components of collective efficacy.

Figure 4 and Table 6 show the CFA results for the measuring model of the dependent and independent variables. Each of the items had a factor loading above 0.550. Based on these good factor loadings, the calculated values of AVE (0.647, 0.630, 0.663, 0.426, and 0.515) and CR (0.845, 0.0872, 0.854, 0.747, and 0.808) satisfied the recommended criteria (AVE > 0.4 and CR > 0.6).

In general, the fit of the measuring model was good. The model was not a perfect fit for the data because of the large sample size (χ^2_{ms} = 555.449, df = 125, p = 0.000; χ^2_{bs} = 14411.644, df = 153, p = 0.000). However, the model fit index indicated that the model provided a good fit to the observed data (RMSEA = 0.042; CFI = 0.970; TLI = 0.963; SRMR = 0.037).

Figure 4

Measuring model (standard) for Police Misconduct, Quality of Police Services, Police Legitimacy, and the two components of collective efficacy

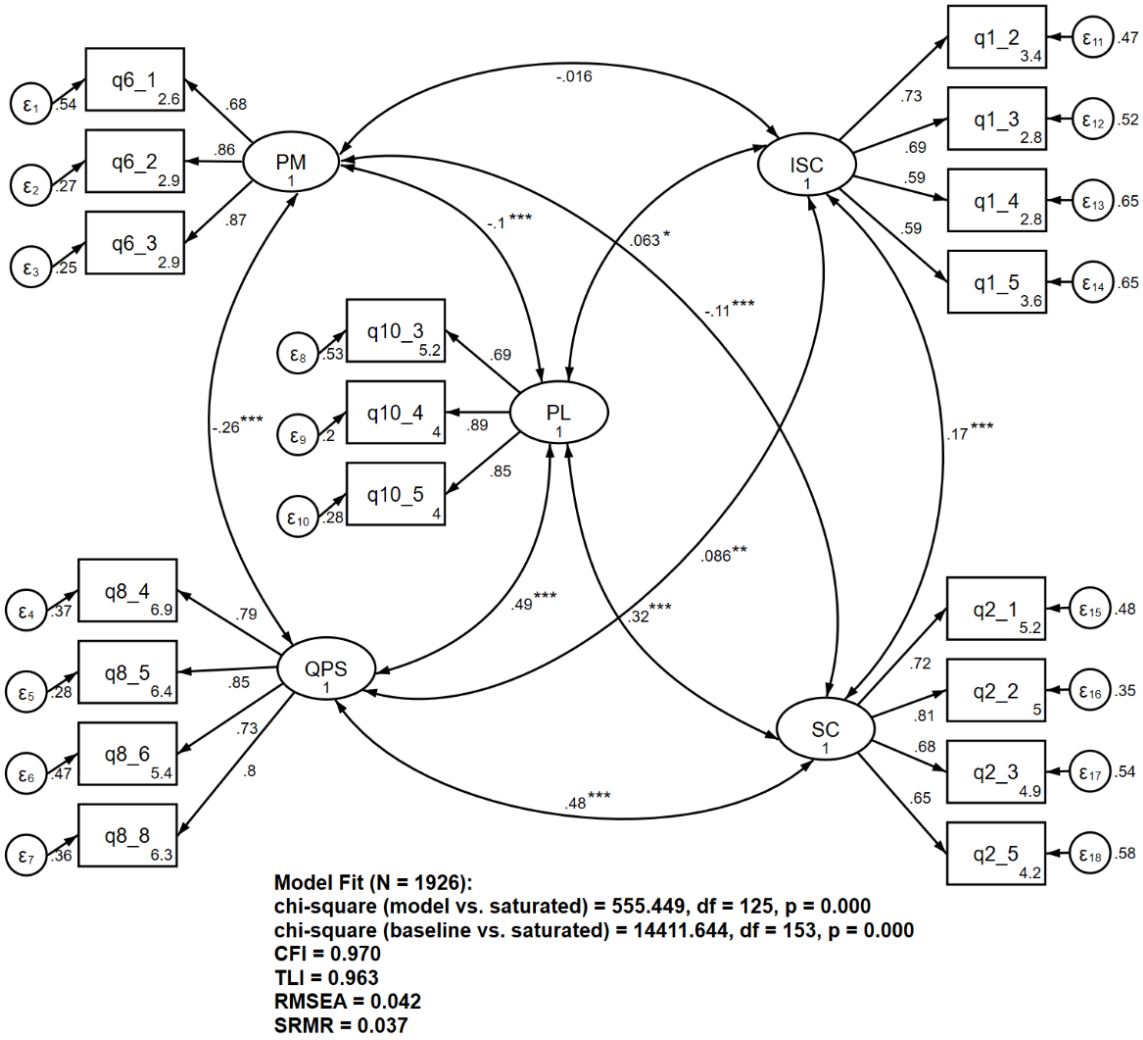


Table 6

CFA results for the measuring model of Police Misconduct, Quality of Police Services, Police Legitimacy, and the two components of collective efficacy (N = 1,926)

Factor	Item	Unstandardized (estimate)	Standardized (loading)	AVE	CR	Model Fit
PM	q6_1	1.000	0.676	0.647	0.845	χ^2_{ms} = 555.449, df = 125, p = 0.000; χ^2_{bs} = 14411.644, df = 153, p = 0.000; RMSEA = 0.042; CFI = 0.970; TLI = 0.963; SRMR = 0.037
	q6_2	1.109 ***	0.855			
	q6_3	1.097 ***	0.868			
QPS	q8_4	1.000	0.795	0.630	0.872	
	q8_5	1.150 ***	0.850			
	q8_6	1.109 ***	0.726			
	q8_8	1.101 ***	0.801			
PL	q10_3	1.000	0.685	0.663	0.854	

	q10_4	1.536 ***	0.893		
	q10_5	1.453 ***	0.851		
ISC	q1_2	1.000	0.727	0.426	0.747
	q1_3	1.005 ***	0.691		
	q1_4	0.931 ***	0.593		
	q1_5	0.811 ***	0.589		
SC	q2_1	1.000	0.723	0.515	0.808
	q2_2	1.149 ***	0.806		
	q2_3	0.899 ***	0.681		
	q2_5	0.992 ***	0.650		

*$p < 0.05$, **$p<0.01$, ***$p < 0.001$

Table 7 shows the matrix of the correlation coefficients. The correlation between the two independent variables (r = -0.261, $p < 0.001$) indicated a lower degree of linear correlation between *Police Misconduct* and *Quality of Police Services*. ISC and SC had a lower degree of linear correlation (r = 0.169, $p < 0.001$), meaning that I could not build a second-order factor for collective efficacy.

Table 7

Correlation coefficient matrix

		1	2	3	4	5
1	Police misconduct	1.000				
2	Quality of police services	-0.261 ***	1.000			
3	Police legitimacy	-0.103 ***	0.486 ***	1.000		
4	Informal social control	-0.016	0.086 **	0.063 *	1.000	
5	Social cohesion	-0.111 ***	0.482 ***	0.318 ***	0.169 ***	1.000

*$p < 0.05$, **$p<0.01$, ***$p < 0.001$

Table 7 also indicates that there was a slight but significant correlation between Police Misconduct and *Police Legitimacy* (r = -0.103, $p < 0.001$) and a significant

correlation between *Quality of Police Services* and *Police Legitimacy* (r = 0.486, $p < 0.001$).

Table 7 indicates that there was an extremely weak linear correlation (r = 0.063, $p < 0.05$) between *Police Legitimacy* and ISC. However, there was a significant linear correlation (r = 0.318, $p < 0.001$) between *Police Legitimacy* and SC.

Structural Equation Modeling Analysis and Results

Given the design of the research (multiple dependent variables), structural equation modeling (SEM) was applied to examine the relationship between the independent and the dependent variables.

SEM involves not only statistical techniques to examine relationships between variables but also a multivariate technique that allows estimation of a system of equations. It is possible that there were variables in the model that could not be measured directly.

Figure 5 and Table 8 show the results for the structural model of the independent and dependent variables. The results also showed how residents' opinions about the quality of police services and police misconduct correlated to *Police Legitimacy* and the correlation between *Police Legitimacy* and collective efficacy.

The model explained 23.91% of the variance for *Police Legitimacy*, 0.93% for ISC, and 25.36% for SC (see Appendix B). In general, the fit of the structural model was good. The model was not a perfect fit for the data because of the large sample size (χ^2_{ms} = 876.156, df = 223, $p = 0.000$; χ^2_{bs} = 14878.295, df = 261, $p = 0.000$). However, the model fit indices suggested that the model design provided a good fit for the observed data (RMSEA = 0.039; CFI = 0.955; TLI = 0.948; SRMR = 0.042).

Figure 5

Structural model for Police Legitimacy and the two components of collective efficacy (standardized) (N = 1,926)

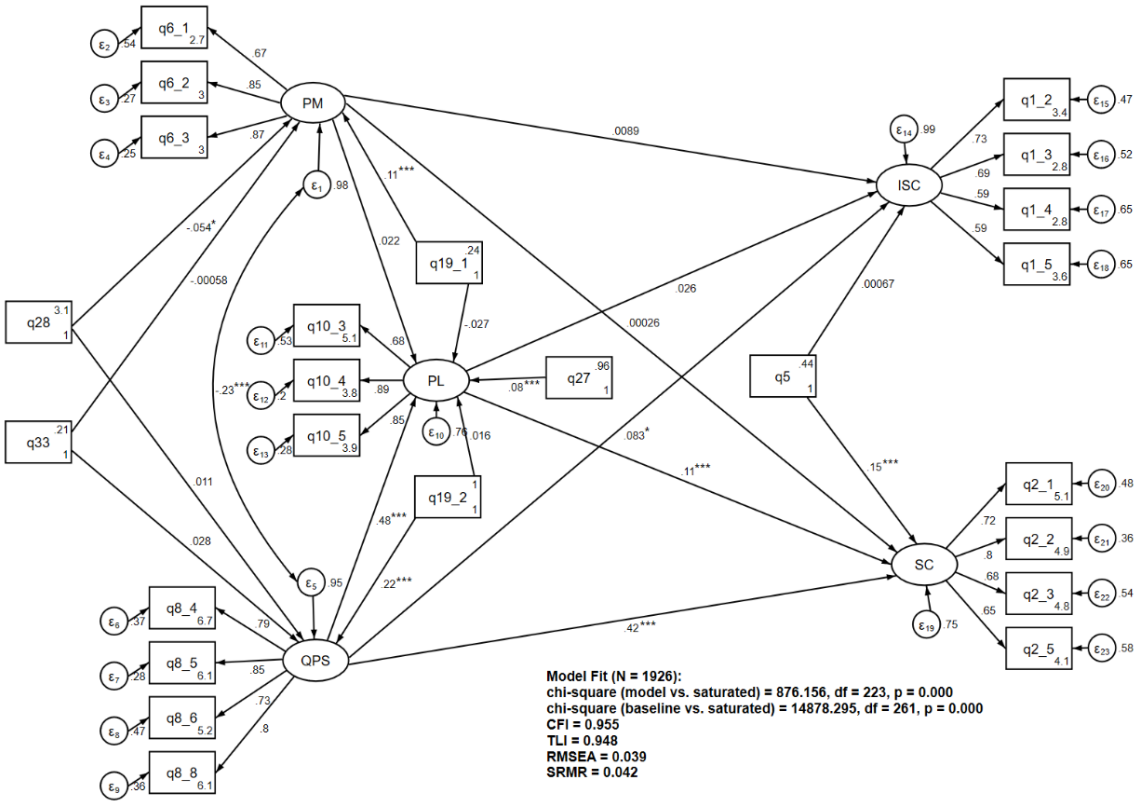


Table 8

Results of the structural model for Police Legitimacy and the two components of collective efficacy (N = 1,926)

IV	DV	Standardized	Unstandardized		z	*p*	Model Fit
		Beta	B	Std. Err.			
q19_1	PM	0.114	0.151	0.033	4.64	***	χ^2_{ms} = 876.156,
q28	PM	-0.054	-0.001	0.001	-2.21	*	df = 223,
q33	PM	-0.001	-0.001	0.036	-0.02	0.981	*p* = 0.000;
							χ^2_{bs} = 14878.295,
q19_2	QPS	0.219	0.197	0.021	9.68	***	df = 261,
q28	QPS	0.011	0.000	0.001	0.45	0.650	*p* = 0.000;
q33	QPS	0.028	0.064	0.053	1.20	0.231	RMSEA = 0.039;
							CFI = 0.955;
PM	PL	0.022	0.037	0.042	0.90	0.371	TLI = 0.948;
QPS	PL	0.480	0.541	0.034	20.82	***	SRMR = 0.042

q19_1	PL	-0.027	-0.060	0.052	-1.15	0.248
q19_2	PL	0.016	0.016	0.024	0.67	0.503
q27	PL	0.080	0.081	0.022	3.64	***
PM	ISC	0.009	0.023	0.075	0.30	0.762
QPS	ISC	0.083	0.143	0.059	2.42	*
PL	ISC	0.026	0.039	0.050	0.77	0.439
q5	ISC	0.001	0.001	0.055	0.03	0.980
PM	SC	0.000	0.000	0.045	0.01	0.992
QPS	SC	0.417	0.488	0.038	14.59	***
PL	SC	0.110	0.114	0.030	3.83	***
q5	SC	0.146	0.208	0.033	6.43	***

*$p < 0.05$, **$p<0.01$, ***$p < 0.001$

Public Perception of Police

In this model, several covariates were related to the public's perception of police. *Police Misconduct* and *Quality of Police Services* may have had different effects depending on whether residents reported negative contact or positive contact with the police in the past year.

Police Misconduct

The results showed that people who had recently had negative contact with the police reported observing more police misconduct in their neighborhood. In Chongqing, China, a recent negative contact with the police played an important role across these predictors ($\beta = 0.114$, $p < 0.001$). Age ($\beta = -0.054$, $p < 0.05$) and minority status ($\beta = -0.001$, $p = 0.981$) had almost no predictive effect for individuals' perceptions of police misconduct. Although age had a significant negative relationship with *Police Misconduct*, it was too small to affect residents' perceptions of police misconduct.

Quality of Police Services

Residents who had recently had positive contact with the police gave higher ratings

to *Quality of Police Services* (β = 0.219, $p < 0.001$). High scores implied that residents were more satisfied with the services provided by the police. They believed that the police in their neighborhoods were competent, respectful, and willing to help people solve their problems. The results also indicated that age (β = 0.011, $p = 0.650$) and minority status (β = 0.028, $p = 0.231$) were not significantly correlated with *Quality of Police Services*.

Relationship between Police Misconduct and Quality of Police Services

The results showed that residents' perceptions of *Quality of Police Services* and *Police Misconduct* had an inverse relationship ($r = -0.234$; $p < 0.001$). When residents observed police misconduct, their evaluation of *Quality of Police Services* was significantly reduced; residents who highly rated *Quality of Police Services* reported less police misconduct.

Police Legitimacy

In Figure 5, both negative (β = -0.027, $p = 0.248$) and positive police contact (β = 0.016, $p = 0.503$) did not have a direct, significant relationship with *Police Legitimacy*. However, gender (β = 0.080, $p < 0.001$) had a positive significant relationship with *Police Legitimacy*, which means that males were more likely to view the police as legitimate. This result showed that only *Quality of Police Services* (β = 0.480, $p < 0.001$) was highly correlated with *Police Legitimacy*. When residents observed the police providing higher-quality services, they also tended to believe that the police were legitimate. Surprisingly, *Police Misconduct* (β = 0.022, $p = 0.371$) was positively related to *Police Legitimacy*, however, it is not significant, and it had a limited effect on individuals' view of *Police Legitimacy*.

Collective Efficacy

Theoretically, higher collective efficacy means that residents believe that their communities have close neighbor relationships. Neighbors share common values and find it easy to get along with each other. Their communities also have relatively high levels of informal social control.

Informal Social Control

The data shown in the upper right of Figure 5 indicated that residents who believed their neighborhoods had a relatively high level of ISC also reported that the police provided a good *Quality of Police Services* ($\beta = 0.083$; $p < 0.05$), however, the findings regarding residents reporting membership in local organizations ($\beta = 0.001$; $p = 0.980$) and seeing more police misconduct ($\beta = 0.009$; $p = 0.762$) in their neighborhoods were not significant. These results indicated that *Quality of Police Services* played an important role in promoting ISC.

However, the results did not significantly support the expected relationship between *Police Legitimacy* and ISC ($\beta = 0.026$; $p = 0.439$). LaFree's model indicated that people who view legal authority as legitimate will be more enthusiastic agents for the social control of others (LaFree, 1998). However, the insignificant *p*-value indicated that there was not a correlation between the two structures. The positive coefficient indicated a weak relationship between *Police Legitimacy* and ISC, which means that individuals who believed the police were legitimate reported higher levels of ISC in the neighborhood.

Social Cohesion

The data shown in the lower right of Figure 5 indicated that residents who reported higher levels of neighborhood social cohesion and trust also reported that the police provided a relatively high *Quality of Police Services* ($\beta = 0.417$; $p < 0.001$) and that they

were members of local organizations (β = 0.146; $p < 0.001$); however, the findings regarding residents reporting seeing more *Police Misconduct* (β = 0.000; $p = 0.992$) in their neighborhoods were not significant. These results suggested that *Quality of Police Services* played a role in promoting ISC.

The results, as expected, significantly supported the relationship between *Police Legitimacy* and SC (β = 0.110; $p < 0.001$). A significant *p*-value indicated that the two constructs were correlated. The positive coefficient indicated that people who believed that the police were legitimate reported higher levels of social cohesion in the neighborhood.

Mediation Analysis and Results

Because the SEM analysis results showed many possible mediation effects, I conducted a mediation analysis based on the SEM model to analyze the indirect, direct, and total effects.

Typology of Mediations and Non-mediations

Baron and Kenny (1986) stated that a full mediation refers to a strong indirect effect but no direct effect and that a partial mediation refers to both indirect and direct effects. After summarizing the flaws in Baron and Kenny's logic, Zhao et al. (2010) proposed a decision tree and a step-by-step procedure for testing mediation, classifying its types, and interpreting findings.

Zhao et al. (2010) noted that there were three concepts of mediation and two concepts of non-mediation: complementary mediation, competitive mediation, indirect-only mediation, direct-only non-mediation, and no-effect non-mediation. Table 9 shows the classifications of the different types of mediations.

Table 9

Classifying types of mediations

Type of Mediations	Indirect effect	Direct effect	Total effect
Complementary mediation	Significant	Significant	Positive
Competitive mediation	Significant	Significant	Negative
Indirect-only mediation	Significant	Not significant	-
Direct-only non-mediation	Not significant	Significant	-
No-effect non-mediation	Not significant	Not significant	-

An insignificant indirect effect indicated either a direct-only non-mediation or a no-effect non-mediation. The former needed a significant direct effect, whereas the latter needed an insignificant direct effect. If the indirect effect was significant, then when the direct effect was significant, it would have been a complete mediation or a competitive mediation; when the direct effect was not significant, there would have been an indirect-only mediation. A complete mediation required a positive coefficient for the total effect and a competitive mediation required a negative coefficient.

According to Zhao et al. (2010), complementary or competitive mediation indicates that some mediators may not be considered. Indirect-only mediation indicates that all of the possible mediators were consistently identified. Direct-only non-mediation indicates a problematic mediator in the mediation model, and no-effect non-mediation indicates a wrong mediation model.

Classification and Analysis of Mediation Effects

As shown in Table 10, path q19_2 (positive police contact)-QPS-PL ($\beta = 0.107$; $p < 0.001$) and path QPS-PL-SC ($\beta = 0.062$; $p < 0.001$) had significant indirect effects, and the rest did not have significant indirect effects.

Table 10

Mediation analysis and results (N = 1,926)

IV	Me	DV	Indirect Effect		Direct Effect		Total Effect	
			B (SE)	*p*	B (SE)	*p*	B (SE)	*p*
q19_1	PM	PL	0.006 (0.006)	0.378	-0.060 (0.052)	0.248	-0.055 (0.052)	0.293
q19_2	QPS	PL	0.107 (0.013)	***	0.016 (0.024)	0.503	0.122 (0.025)	***
PM	PL	ISC	0.001 (0.002)	0.557	0.023 (0.075)	0.762	0.024 (0.075)	0.747
PM	PL	SC	0.004 (0.005)	0.382	0.000 (0.045)	0.992	0.005 (0.045)	0.916
QPS	PL	ISC	0.021 (0.027)	0.439	0.143 (0.059)	*	0.164 (0.051)	***
QPS	PL	SC	0.062 (0.016)	***	0.488 (0.038)	***	0.550 (0.034)	***

*$p < 0.05$, **$p<0.01$, ***$p < 0.001$

Path q19_1 (positive police contact)-PM-PL (β = -0.060; $p = 0.248$), path PM-PL-ISC (β = 0.023; $p = 0.762$), and path PM-PL-SC (β = 0.000; $p = 0.992$) did not have significant direct effects. These paths can be defined as no-effect non-mediation. However, both path QPS-PL-ISC (β = 0.143; $p < 0.05$) and path QPS-PL-SC (β = 0.488; $p < 0.001$) had significant direct effects. Therefore, path QPS-PL-ISC was defined as direct-only non-mediation. Because path q19_2 -QPS-PL (β = 0.107; $p < 0.001$) did not have significant direct effects, this path was defined as indirect-only mediation, and the mediation effect accounted for 87.70% of the total effect.

The coefficients of the indirect and direct effects from path QPS-PL-SC (0.062*0.488) were multiplied. The positive results indicated that the path was complementary mediation, and the mediation effect accounted for 11.27% of the total

effect.

In sum, path q19_2 -QPS-PL, as an indirect-only mediation, showed that the more positive the police's contact with citizens, the higher people's perceptions of *Quality of Police Services* and *Police Legitimacy* were. The mediation effect accounted for 87.70% of the total effect, indicating that the increase in *Police Legitimacy* was primarily improved by the increased *Quality of Police Services* brought about by more positive contact between the police and citizens. However, the result also indicated that it is not possible to improve *Police Legitimacy* by only improving positive police contact with citizens.

Because path QPS-PL-ISC represented direct-only non-mediation, the higher the *Quality of Police Services*, the more ISC mechanisms there were in the community. The improvement did not cause the improved *Police Legitimacy* brought about by higher *Quality of Police Services*.

Finally, path QPS-PL-SC, as a complementary mediation, showed that the higher the *Quality of Police Services*, the higher the people's perceptions of *Police Legitimacy*, and the higher the SC. However, higher *Quality of Police Services* also had the ability to directly improve SC. The mediation effect accounted for 11.27% of the total effect, showing that improvement in SC was primarily attributable to the *Quality of Police Services*. Only a small proportion of the improvement was caused by the improved *Police Legitimacy* brought about by higher *Quality of Police Services*.

Discussion

I advanced current research in the field of police legitimacy and collective effectiveness by exploring how various factors of police legitimacy affected both

components of neighborhood collective effectiveness. However, because of my use of cross-sectional data, the causal effect between police legitimacy and collective efficacy could not be explained, and the limited research area did not represent all of the districts in China. Nevertheless, I examined the possibility of applying Western research in this area to China by quantitatively exploring the relationship between police legitimacy and collective effectiveness in the Chinese context.

The results implied that police behavior plays an important role in shaping police legitimacy (Sun et al., 2021; Wu & Liu, 2021). In particular, the quality of police services correlates (to varying degrees) to the two components of collective efficacy. However, the results only support the proposition that the police can improve social cohesion by promoting police legitimacy; promoting police legitimacy cannot promote informal social control (Jiang et al., 2014).

Unlike other related research, Kochel (2012) reported that police legitimacy did not correlate to collective efficacy. Sargeant (2017) found that the obligation to obey the police was not correlated to collective efficacy. Shortly thereafter, Kochel (2018a) reported no direct correlation between police legitimacy and collective efficacy. It is noteworthy that past studies treated collective efficacy as a whole variable, and their results proved only that police legitimacy cannot promote collective efficacy. Here, I separated collective efficacy into two parts: ISC and SC. Furthermore, in Kochel's (2012) study, a single item about the obligation to obey the police was used to measure police legitimacy, which, as Kochel acknowledged, was a limitation of his study. However, I also used the obligation to obey the police to measure police legitimacy, using three items from past studies.

I explored which aspects of collective efficacy could be improved by police legitimacy. The results showed that people's perception of police legitimacy can improve their mutual trust and make an insignificant improvement in their willingness to intervene to promote a good community environment and atmosphere.

There are several possible reasons for the insignificant improvement in ISC through police legitimacy. First, we have the statistical reason that the sample size is not large enough to represent the overall situation in Chongqing. Second, we have a cultural reason. In ancient China, it was said that it is meddlesome for a dog to try to catch mice. Chinese people trust the police and treat them like Superman: they believe that police can solve all the problems they are given without the people's help. The police propagate this myth, counseling people to "Ask the police when you are facing difficulties," which causes people to believe that it is the police's duty to control crime and maintain social order. Third, we have the historical reason that some people may continue to be influenced by the "strike-hard" policing of the past. Before 1978, Chinese policing was guided by the masses. The police–public relationship of that era can be described as "The police are fish, and the public are water," meaning that the police needed the public's support (Zhong, 2009). Furthermore, there was low population mobility, which provided good conditions for the police to encourage the public to participate in public security management (Sun & Wu, 2010). After 1978, Chinese policing remained guided by the masses, but police–public relations deteriorated because of strike-hard policing practices (Du, 1997). This situation has since improved. To improve police–public relations, community policing was adopted in 2002 (Zhong, 2009). Fourth, we have an economic reason. Since China initiated the reform and opening-up in 1978, it has experienced rapid economic growth,

and people have become increasingly concerned about their own personal interests. For this reason, people are now unwilling to expend their own time and energy actively participating in crime control and maintaining social order (Lu et al., 2022). Furthermore, the economic reform caused more criminal behavior. Messner and Rosenfeld (2012) stated that if the market or economy were not restricted by social intuitions, crime would result.

I also applied mediation analysis to find possible mediation effects. The results implied that police legitimacy plays a limited role in improving collective efficacy. Future studies may consider the role of other aspects of police and policing, such as the quality of police services.

My study has several limitations. First, as noted above, I used cross-sectional data, which only reflect a certain point in time. The data were used to examined how police legitimacy improved collective efficacy. However, they were inadequate to explain the cause-and-effect relationship between police legitimacy and collective efficacy. Therefore, future studies should use longitudinal data when exploring the cause-and-effect relationship between police legitimacy and collective efficacy.

Second, there are limitations related to the dataset applied in EFA and CFA. Most research has performed EFA and CFA using two separate datasets. However, my study was based on prior theory and empirical work. Thus, my model was previously tested. The purpose of this study was not to build or construct a new theory or a model. Instead, it attempted to determine whether the model fit the Chinese context, so both EFA and CFA were conducted using the same dataset to confirm the data.

Third, there are limitations related to the measurement of police legitimacy. As

mentioned above, the question of how to measure police legitimacy remains subject to debate. Here, the obligation to obey the police was used to measure police legitimacy, but what cannot be ignored is that different measurements of police legitimacy may have different effects on collective efficacy. Future studies related to police legitimacy and collective efficacy should discuss other possible measurements of police legitimacy.

Fourth, there are limitations related to an uncontrollable factor, the COVID-19 pandemic. It is unfortunate that this study was conducted during the pandemic, during which all work was heavily restricted by China's Epidemic Management Regulations. The government's active response to the epidemic affected people's views of government, including the police, and for that reason, my results were obtained against the background of a public health emergency and lost their universality after the pandemic. However, my results remain meaningful to China's post-epidemic society and the social changes that have resulted.

Conclusion

I examined the proposition that police legitimacy improves collective efficacy. Overall, the findings indicated that police legitimacy is not significantly linked to informal social control, but it does improve social cohesion. These findings point to directions for future studies to continue to explore the role of police legitimacy in policing, including cooperation with police (Sun et al., 2018) and compliance with the law (Liu & Liu, 2018), and to explore the different effects on collective efficacy resulting from different measurements of police legitimacy.

In China, the masses play an indispensable role in all aspects of social governance, including policing. The smooth implementation of policing is inseparable from citizen

cooperation. Therefore, to encourage the public to participate in social management and fight crime, it is particularly important for the Chinese police to strengthen their legitimacy and regulate their behavior.

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Appendix A

STATA Code of Average-Variance-Extracted & Composite-factor-Reliability

```
*!avecr version: 1.0
*!Date: 23.Oct.2018
*!Author: Frank Sun (franksun@ynufe.edu.cn) based on program "condisc" of Mehmet Mehmetoglu,
*!Contributor: Thanks to Mehmet's greate contribution on "condisc"!
capture program drop avecr
program avecr
    version 1.0
    di ""
    di in blue "Average-Variance-Extracted & Composite-factor-Reliability:"
    di ""

    /*takes the average of AVEs for each factor*/
    qui estat framework
    mat L = r(Gamma) //Lambda matrix
    local obsstripes : rowfullnames L
    local latstripes : colfullnames L
    //di "`obsstripes'"
    //di "`latstripes'"
    local nu = wordcount("`e(oyvars)'")
    //di `nu'
    qui estat eqgof
    mat R = r(eqfit)
    //mat list R
    mat ldr = R[1..`nu', 5]
    //mat list loader
    mat R2 = R[1..`nu', 4]
    //mat list R2
    local latent "`e(lxvars)'"
    foreach lat of local latent {
        local sumve = 0
        local sumldr = 0
        local sumerr = 0
        local i = 0
        foreach obs of local obsstripes {
            if L[rownumb(L, "`obs'"), colnumb(L,"`lat'")] !=0 {
                local sumve = `sumve' + R2[rownumb(L,"`obs'"), 1]
                local sumldr = `sumldr' + ldr[rownumb(L,"`obs'"), 1]
                local sumerr = `sumerr' + 1 - R2[rownumb(L,"`obs'"), 1]

                local ++i
```

```
            }
        }
        tempname ave
        tempname cr
        scalar `ave' = `sumve'/`i'
        scalar `cr' = `sumldr'^2/(`sumldr'^2 + `sumerr')

        di as text %10s abbrev("AVE_`lat':",10) as result %7.4f `ave' /
    //
            "    " as text %10s abbrev("CR_`lat':",10) as result %7.4f
    `cr'
    }
end
```

Appendix B

Equation-level goodness of fit

depvars	fitted	Variance predicted	residual	R-squared	mc [a]	mc2 [b]
observed						
q6_1	0.199	0.091	0.108	0.455	0.675	0.455
q6_2	0.152	0.111	0.041	0.729	0.854	0.729
q6_3	0.145	0.109	0.036	0.751	0.867	0.751
q8_4	0.322	0.203	0.119	0.629	0.793	0.629
q8_5	0.372	0.269	0.104	0.722	0.850	0.722
q8_6	0.475	0.250	0.225	0.527	0.726	0.527
q8_8	0.384	0.247	0.137	0.643	0.802	0.643
q10_3	0.552	0.258	0.294	0.467	0.684	0.467
q10_4	0.766	0.609	0.157	0.795	0.892	0.795
q10_5	0.755	0.547	0.208	0.724	0.851	0.724
q1_2	1.136	0.599	0.537	0.527	0.726	0.527
q1_3	1.269	0.607	0.662	0.479	0.692	0.479
q1_4	1.482	0.522	0.961	0.352	0.593	0.352
q1_5	1.136	0.394	0.742	0.347	0.589	0.347
q2_1	0.534	0.278	0.257	0.520	0.721	0.520
q2_2	0.567	0.365	0.202	0.644	0.803	0.644
q2_3	0.488	0.226	0.263	0.462	0.680	0.462
q2_5	0.651	0.275	0.375	0.423	0.650	0.423
latent						
PM	0.091	0.001	0.089	0.016	0.128	0.016
PL	0.258	0.062	0.196	0.239	0.489	0.239
ICS	0.599	0.006	0.593	0.009	0.096	0.009
SC	0.278	0.070	0.207	0.254	0.504	0.254
QPS	0.203	0.010	0.193	0.049	0.221	0.049
overall				0.100		

[a] correlation between depvar and its prediction. [b] the Bentler-Raykov squared multiple correlation coefficient