

Religious Institutions and the Impact of Inter-Ethnic Inequality on Conflict: the Case of Xinjiang, China

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Abstract: Grievances caused by between-group inequalities provide motivations for the disadvantaged group to revolt; but whether such motivations would translate into violence depends on the ways by which religious institutions bridge local population and the government. Religious institutions could help the disadvantaged group to overcome the collective action problem, therefore increase chances of conflict. However, they can also reduce violence by providing local public goods and by bridging local population and the government with information flows. We treat Xinjiang as a test case, using a unique county-level database of violent incidents. We measure local horizontal inequalities using education indicators from census data and the strength of religious institutions using local mosque density. We find a conflict-dampening effect of religious institutions: higher inter-ethnic inequalities are associated with increased ethnic violence only in areas with low and medium levels of mosque density.

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Introduction

This paper contributes to the literature of civil conflict, ethnic violence, and political and social unrest by focusing on the interactive effect between grievances and local institutions. One recent research agenda in conflict studies focuses on testing the marginal effect of grievances associated with collective actors, often measured by various types of horizontal inequalities (Barron et al. 2009; Blattman and Miguel 2010; Østby 2008; Cederman et al. 2011; Ostby 2013; Fjelde and Østby 2014). This paper brings in the conditional effects of social institutions: in our test case of Xinjiang, China, the role of religious institutions. Our theoretical expectation is that grievances caused by between-group inequalities provide motivations for the disadvantaged group to revolt; whether such motivations would translate into violence depends on the ways by which religious institutions bridge local population and the government. On the one hand, religious institutions could help the disadvantaged group to overcome the collective action problem, therefore increase chances of conflict. On the other hand, they can also reduce violence by first, providing local public goods, and second, facilitating information flows between local population and government.

We treat Xinjiang as a test case, using a unique, county-level, database of violent incidents: the Ethnic Violence in China database. We measure local horizontal inequalities using education indicators from the Chinese population census. We use local mosque density as a proxy for the strength of local religious institutions. The empirical analysis confirms the conflict-dampening effect of religious institutions: higher inter-ethnic inequalities are associated with increased ethnic violence only in areas with low and medium levels of mosque density. This empirical finding supports our general argument that instead of simply assuming a straightforward relationship between grievances and conflicts, we should explore when, how, and why horizontal inequality breeds conflict. We believe that our focus on the mediating effect of social institutions is an important step further in the study of ethnic violence and civil conflict which, according to Østby (2013), needs to explore the potential causal chains between grievances and conflicts rather than treating them as a “black box.”

This paper also makes important contributions to our understanding of ethnic violence in Xinjiang. A key factor affecting the internal security – and the political stability – of China is persistent violence in the Xinjiang Autonomous Region.² In the past several decades, Xinjiang has been the site of acute ethnic violence, often in the form of Uyghur riots and antigovernment terrorism perpetrated by Uyghur separatists. Unrest in this region poses the most imminent threat to internal security and to central government control over peripheral regions (Mackerras 2012). The Chinese government has implemented various policies to address violent unrest in the region, ranging from traditional policing and counterterrorism tactics to a recent move to send 200,000 civil servants to villages in Xinjiang to help develop local economy. None of these strategies, however, have successfully quelled the unrest or dampened tensions between ethnic minorities and the government.

The conflict in Xinjiang has security implications globally. Both Chinese and U.S. government authorities worry about growing transnational ties between Uyghur militants in Xinjiang and al Qaeda-oriented terrorists in South and Central Asia and the Middle East.³

² Tibet is another region of great importance. See Han and Paik (2014) for the 2008 Tibetan protest movements.

³ During a visit to China, U.S. National Security Advisor Susan Rice alleged that Uyghurs from Xinjiang had travelled to Iraq and Syria to fight in the ranks of the ISIS insurgency (Page 2014).

Jihadist groups in South Asia and the Middle East, including the Iraq and Syria-based Islamic State movement, have issued statements in support of Xinjiang's independence from China and integration into a global Islamic Caliphate, while Uyghur militants from China and Central Asia have joined and fought within a host of terrorist movements such as the Taliban and the Al Qaeda core (Potter 2014). The East Turkestan Islamic Movement (on the U.S. State Department's Foreign Terrorist Organizations list) is believed to have networks in Xinjiang and has been implicated in attacks within China and in third countries. Understanding what drives ethnic violence in Xinjiang helps provide leverage on the global jihadist picture.

The literature on conflict in Xinjiang speculates on several causal factors for ethnic violence in the region: economic inequality between Han Chinese and Uyghurs and other minority groups; a legacy of suppression of Uyghur cultural and religious life by Chinese authorities; political repression and underrepresentation of Uyghurs in provincial affairs and political life; excessive use of force by government agents during policing and counterterrorism efforts; and growing Uyghur nationalist and Islamist sentiment. However, we believe that scholarly and expert understanding of the contours and causes of ethnic violence in Xinjiang can be improved by using systematic data analysis to evaluate patterns and precipitants of violence. There is still much room left for us to better understand how and why ethnic violence occurs.⁴

Theory

Grievances and Collective Action: One long lasting theme in the literature on civil armed conflicts concerns the debate between the grievances and greed models. Grievances thesis posits that civil conflicts are often associated with ethnic or religious hatred, political repression, political exclusion, and economic inequalities. Conflict therefore is explained as a result of widely felt grievances among the relatively disadvantaged in the society. Inequality has often been the focus of this tradition including theories of ethnic conflict and structural inequality and relative deprivation (Galtung 1964; Feierabend and Feierabend 1966; Hechter 1975; Gurr 1970, 1993 and 2000).

The grievances thesis has been challenged both theoretically and empirically. For instance, Snyder and Tilly (1972) and Tilly (1978) argue that inequality and discontent are more or less always present in societies, and what really matters for the chances of conflicts and violence is financial and political opportunities for mobilization. Recent work such as Fearon and Latin (2003) and Collier and Hoeffler (2004) further frame the debate as whether civil conflicts are caused by grievances or by greed. According to the latter, rebellion can be conceptualized as an industry that generates profits from looting, so that the insurgents are indistinguishable from bandits or pirates (Grossman 1999). For instance, Collier and Hoeffler (2004) emphasize the importance of factors affecting opportunities for financing rebellion, such as extortion of natural resources, donations from diasporas, and subventions from hostile foreign governments. They also highlight opportunities arising from atypically low costs for rebellion such as low opportunity costs of enlisting as a rebel, unusually cheap conflict-specific capital such as military equipment, and weak government military capability.

Empirically, grievances thesis had also faced challenges until a recent shift in focus from vertical to horizontal inequalities (Østby 2008; Cederman et al. 2011). For instance, relying on

⁴ This paper is among the recent research efforts to explain conflicts in the region using systematic, subnational level analysis. The other two working papers that we are aware of are Hong and Yang (2015) and Liu (2016).

the Gini coefficient data, Collier and Hoeffler (2004) find no statistically significant effect for inequality and other proxies for grievances. Fearon and Laitin (2003) reach the same conclusion. More recent studies, however, quickly point out that the Gini coefficient type of measures (i.e., vertical inequalities) is based on individual measures and cannot capture income differences between collective actors such as ethnic groups. And yet ultimately, violent conflict often is a group phenomenon. In other words, there is a mismatch between individual-based measures of inequalities and the group-based theory on grievances. Properly testing the grievances argument requires inequality measures based on differences between collective actors. Moreover, given the fact that armed conflicts and ethnic violence are often local events, it is also important to measure inequalities at the subnational level. Part of the ongoing effort is to come up with better measures using geocoded data newly available to researchers such as Demographic and Health Surveys (DHS), spatial distribution of ethnic groups and GDP data, and census data (Østby 2013). Many then find empirical support for the grievances approach (Østby 2008; Barron et al. 2009; Fjelde and Østby 2014; Cederman et al. 2011).

However, we believe that new theoretical development is also needed. Many studies simply assume that there is such a relationship between grievances and conflicts and then go straight to the empirical analysis, which, according to Østby (2013), leaves an unexplored “black box” in the causal chain. We need to further explore the potential causal mechanisms on how, why, and maybe more importantly, *when* inequality breeds conflict (and when it does not). We posit that collective grievances do not automatically lead to violent actions. Whether grievances can be translated into real action is a function of many mediating factors. For instance, Muller and Seligson (1987) highlight the importance of collective action; they find that high level of agrarian inequality has no effect on domestic conflict because it is difficult to mobilize people in the rural area. Gurr (1993) argues that whether a group can mobilize is a function of internal and external opportunities: the former concerns the salience of group identity, networks among its members, and the extent of common grievances; the latter includes the character of the state and its resources, and whether the group has transnational kinship connections.

In this study, we explore the mediating effect of social institutions. We posit that grievances caused by between-group inequalities provide motivations for the oppressed group to revolt, but whether such motivations can be translated into real action is a function of existing social institutions. We bridge two important literatures in the study of ethnic violence and armed conflicts: one on grievances and inequalities and the other on the role of institutions. Note that studies concerning the effects of institutions are now legion, including those on clans as informal institutions (Collins 2003), the number of veto players (Cunningham 2006), political regime types and regime transitions (Hegre et al. 2001; Heger and Salehyan 2007; Cederman, Hug, and Krebs 2010; Maves and Braithwaite 2013), executive constraints (Colaresi and Carey 2008), pre-colonial institutions (Depetris-Chauvin 2015; Wig 2016), post-conflict power sharing institutions (Hartzell and Hoddie 2003; Gates et al. forthcoming), and political decentralization (Brancati 2006). These studies, however, often focus on the marginal effect of institutions while paying no attention to their potential mediating effects.

It is worth noting that religious institutions are only one of many institutions that can potentially connect grievances to chances of conflict. We choose to focus on religious institutions (mosques in Xinjiang) because they are the most important type of social institution in the region. Many ethnic minority groups in Xinjiang are Muslims and they are very religious: for instance, the total number of registered mosques in Xinjiang is around 24,300 in 2008.

Considering the size of the Muslim population (about 11.3 million), the density of mosques is very high (2.15 per thousand).⁵

Our focus on local mosques as the most relevant social institution builds on prior literature on ethnic violence that studies the effects of local social networks and civic associations. For instance, based on surveys and in-depth interviews, Scacco (2016) demonstrates that poverty provides motivations; social networks and peer pressures solve collective action problems for the poor to participate in Christian-Muslim riots in Nigerian cities. Focusing on Hindu-Muslim violence in Indian cities, Varshney (2002) shows that strong civic associations such as trade unions, political parties, and professional associations are able to control outbreaks of ethnic violence. Note that however, in the Chinese context, such civic organizations are often controlled by the government. Mosques, on the other hand, remain relatively independent.⁶

Do Religious Institutions Help to Translate Grievances to Conflict? Many argue that religious institutions can provide opportunity structure for mobilization (Fox 1999; De Juan, Pierskalla, and Vüllers 2015; Basedau, Pfeiffer, and Vüllers 2016).⁷ They often seek a dominant role in society, and they have considerable potential as outlets for popular opinion (Harpviken and Røislien 2008). For instance, the societal integration of organized religion was decisive when the Roman Catholic Church in Colombia became the grassroots arena for expressing opposition to the state and continued warfare. Similarly, in the early 1980s, Poland's Roman Catholic Church became an important channel for the voice of the people against state oppression. Therefore, religious organizations can provide an arena for aggregating and expressing public opinion. They serve as arenas for socialization of the local population and therefore increase social capital which in turn increases the chances of collective actions.

However, do religious organizations do more than providing arena for socialization? Are they directly involved in the mobilization of local population? Do local religious leaders influence mass opinion in a way that leads to violence? Existing work on the ambivalence of religion suggests that religious organizations can choose to mobilize for violence, for peace, or not to mobilize at all.⁸ In *The Ambivalence of the Sacred*, Appleby shows that religion, having so often portrayed as inspiring, legitimating, and exacerbating deadly conflicts, can also be expected to contribute to peaceful resolution (Appleby 2000). Toft et al. (2011) show that while the Catholic Church in Poland, Brazil, and the Philippines and the Islamic movements in Indonesia participated in the struggle for political regime change, the Catholic Church in Uruguay and Argentina and Protestant hierarchy in East Germany played little role in their

⁵ Muslims accounts for 87.5% of non-Han population in Xinjiang. The largest non-Muslim ethnic minority group is Mongolians (about 177,000, 1.3% of the total non-Han population). Data are from http://news.xinhuanet.com/politics/2009-09/21/content_12090105.htm, accessed on March 31, 2016.

⁶ Other recent studies such as Wilkinson (2004) focus on the effects of electoral incentives on ethnic violence. Elections are not relevant in China given the nature of the political regime.

⁷ For discussion on the relative importance of theological doctrines vs. organizational structures, see Iannaccone and Berman (2006).

⁸ Isaacs (2016) analyzes 495 organizations representing religiously distinct groups and shows that these groups adopt religious rhetoric to solve the logistical challenges associated with violence. However, these groups are political actors such as political parties and protest organizations; they are not churches and mosques.

country's transition to democracy. They further argue that religious organizations that are more likely to mobilize for violence are those that became either suppressed altogether by the government or too cozy with either the regime or an opposition faction. From the secondary literature and our field work/elite interviews, our understanding is that in Xinjiang, religious organizations do not fit this "anti-government mobilization" profile: local mosques, while maintaining certain contact with local governments, remain relatively independent both in terms of revenues and management – a point we return to.

The economics of religion literature emphasizes religious competition as a key factor for the religious sources of social mobilization (Iannaccone 1996; Stark and Finke 2000). Assuming a membership, resources, and state protection maximizing clergy, social mobilization can be one effective means to win the hearts and minds in the religious market. Gill (1998) shows that in Latin America, in countries with more intense history of Protestant competition, the Catholic Church sided with the underprivileged and opposed the military rules. Trejo (2009) demonstrates that in Mexico's indigenous communities, the spread of Protestant competition motivated Catholic bishops and priests to promote communal organizations and social movements for poor people's contentious mobilization.⁹ However, he also points out that the religious competition hypothesis is often underspecified, a point shared by many earlier studies (Kalyvas 2000; Chesnet 2003), in the sense that facing competition, the established religious organization can take a host of actions that do not involve anti-government mobilization, for example, by lobbying state authorities to restrict religious challengers. In Xinjiang's Muslim communities, the established religious hierarchy has not seen strong religious competition. Wahhabism, a more conservative brand of Islam, has indeed increased in popularity in south Xinjiang since the 1990s (Bovingdon 2004). However, even in Hetian prefecture where Wahhabism expanded the most, only 10-15% population accepted this conservative brand of Islam by 1997 according to Li (2012).

Both the ambivalence of religion and economics of religion literatures do not predict active social mobilization by religious institutions in Xinjiang. Nevertheless, there are always anecdotal cases of local religious leaders who were involved in social mobilization against the government. But our sense is that despite their high visibilities in the media, these are often the few extreme cases, especially given the large overall size of the Islamic clergy in Xinjiang which, for instance, was 29.6 thousand in 1995 (Li 2014a).

How Religious Institutions Dampen the Effects of Grievances on Conflicts? Recent studies on religious institutions reveal potential pacifying or conflict-dampening effects. First, religious institutions often assist local population by providing public goods (Dhingra and Becker 2001; Caputo 2009; Davis and Robinson 2012; Warner et al. 2015).¹⁰ Religions such as Catholicism

⁹ Religious doctrines, changes in religious doctrines, and state-church conflicts are the other three religious sources of social mobilization discussed in Trejo (2009). However, these three mechanisms focus on national level explanatory factors: e.g., the religious doctrines thesis emphasizes the differences between religious traditions. Our analysis is at the subnational level.

¹⁰ Local public goods provision is associated with not only Islamic religious institutions, but other social institutions. Xu and Yao (2015) show that lineage groups are associated with increased local public goods expenditure in 220 Chinese villages from 1986 to 2005. In Tsai (2007), Chinese villages where solidarity groups exist are more likely to have better public goods provision than those without such groups.

and Islam generate substantial amounts of charitable donations and volunteer work which help to sustain themselves as organizations with important public goods provision functions such as health clinics, local schools, and natural disasters relief efforts.

Recent research regarding the effects of public goods on conflicts often focuses on public goods provided by the government (domestic or foreign). Often, the ability of the government to provide public goods is a crucial determinant of government control over local population. For instance, Berman et al. (2011) show that local population trades information about insurgents for government public goods. Thyne (2006) and Hechter (2013), on the other hand, suggest that increasing service provision signals to the local group that the government cares about their welfare, which can win the hearts and minds. However, periphery regions of many developing countries are often characterized by weak state capacity and poor government public goods provisions. Instead, such goods and services have been historically provided by local social institutions. For instance, mosque plays a significant role in the Islamic communities by providing public goods and welfares to the followers. Religious taxation and donation are the main sources of revenue. Mosques, for some, are a platform of local wealth redistribution.

Public goods and emergency aid provided by local religious institutions help to address grievances and to prevent desperate citizens from using extreme actions against the government and other ethnic groups. Moreover, local public goods can improve living conditions of the population. For instance, improved education and public health matter greatly for real household income which is a significant component for the opportunity cost to engage in ethnic violence. Increasing such opportunity cost reduces chances of violence (Brubaker and Laitin 1998; Fearon and Laitin 2003). Interview notes from our field work in Xinjiang mention cases that mosques provide financial aid to the poor, for instance, by paying for their medical costs:

“Before 1949, mosques were like schools, since there wasn’t school at that time. And now we have donations from ordinary people. And now we help people. There are several people coming to ask for help every day. For instance, we buy home tickets for them or we pay their medical costs when the condition is very critical.” (Interview II)

Public goods and emergency aid can also be used as a tactic to incentivize the local population to participate in civil protests, mass demonstrations, and riots. This is indeed the argument to explain the success of some insurgent groups in the Middle East (Berman and Laitin 2008; Cammett and Issar 2010). However, mosques in Xinjiang are no radical Islamic organizations such as Hamas and Hezbollah: they are established religious institutions that maximize membership, resources, and state protection.

The aforementioned public goods and financial assistance mechanism involves no direct contact between religious organizations and the government. Can mosques bridge local population and the government to lower the chances of violence? Here we focus on the role of information sharing. For each mosque in Xinjiang, in addition to Imams (worship leader of a mosque), there is also a management board which often has contacts with local governments. Inside each mosque, the administrations of religious affairs and the secular issues are separated; besides Imam, a management board is in charge of personnel matters and financial affairs; members of this board often include local elites.¹¹ It is important to note that although sometimes

¹¹ The full name of this board is Democratic Management Committee of Mosque, whose members are elected by the congregation of the mosque. This arrangement was adopted by Islamic communities in 1950s and became a nationwide formal institution in recent years.

management board members can have close ties with the authority, for instance, village chiefs or secretaries can be elected (these are people with large influence in the community), the management board itself is autonomous, since the government does not decide the creation of the committee nor sponsor the board financially. Indeed, the management board practice has a deep root in the Islam tradition in China. Mosque has been the center of Muslims' religious, political and social life. Each Muslim is affiliated with one ordinary mosque and one prestige mosque which can hold ceremonies of prayer on Friday and other important ceremonies. The administration of mosques is not only about religious issues, but also secular affairs, like the internal financial and personnel management of mosques, redistribution of wealth, and the settling of disputes among residents.

Our interview notes suggest that Imams, as local religious leaders, are not allowed to communicate with local governments; however, the management board can share information with the government ("Sometimes, the management board is allowed to do this [communicate with the government], but not Imam,"¹² in Interview I). Important information can travel from mosques to local government, particularly information on local grievances as government can provide financial assistance to prevent social unrest.

Information can also travel the other way, that is, from the government to local population, as highlighted by one interviewee:

"I believe mosque plays a very positive role for the society. First, mosque is a bridge between ordinary people and the government. We educate people and pass on the requirements and laws and regulations of the government. Second, we are broadcasters. As long as we speak, those words would be spread quickly in the society. For me, I would go to Kashgar and Hetian every week to disseminate policies of the state." (Interview II)

Earlier work on civil conflicts and violence has highlighted the importance of information to inter-group bargaining. This conflict/violence as bargaining failure approach often posits that because violence is costly, groups can be expected to invest in acquiring information on the preferences and capabilities of the opposing side; they bargain hard but often eventually reach an agreement, especially with full information. For instance, building on prior theoretical works on conflict between organized groups (Fearon 1993 and 1995), Lake and Rothchild (1996) argue that information failure is one of the three fundamental causes of ethnic conflict.¹³ In this case, information from the government to ethnic groups is important because for the local population, it increases transparency and reduces chances of miscalculation, therefore potentially reduces chances of violence given the same level of grievances (Walter 2009).

In sum, we expect that public goods provisions and information sharing (to and from the government) dampen the effects of grievances on ethnic violence. A related issue, however, is whether mosque is just another layer of government to control the local population. If this is case, even when we observe the conflict-dampening effect of mosques, the underlying causal mechanisms is more likely to be a state control and state co-optation story. Based on our field work and research on the role of mosques in Xinjiang, we think it is very unlikely that mosques have become part of the government apparatus. Our empirical analysis covers 1996 to 2005. However, even in more recent years during which the government has been tightening up control over the society, mosques still play relatively independent roles in religious and social life of the

¹² Content within [...] is added by authors.

¹³ The other two are credible commitment and incentives to use force preemptively.

local population. For instance, there have been reports that the provincial government appointed ethnic minority leading cadres at the deputy county level as liaison personnel to establish contacts with local mosques, reflecting the very fact that local mosques are far from being controlled by local governments.¹⁴ Furthermore, finance for mosques is mainly supported by donations from the local Muslim population and by revenues from mosques' properties. Only a small portion of religious figures receive allowances from the government.¹⁵

Data

Ethnic Violence in Xinjiang: The Ethnic Violence in China (EVC) database: the Xinjiang Region event data set includes events at the county-year level between 1990 and 2005 in Xinjiang.¹⁶ (Xinjiang has 15 prefecture units and about 100 county units.) We consider ethnic violence to be the intentional execution of violent acts, perpetrated by individuals or groups, with political motivations. Moreover, we only include violent events that at least involved one ethnic minority group. In other words, we do not include violent events that occur between members of the Han majority or events occurring between Han civilians and the government. Various types of events are included such as bombing, assassination, riot, arson, and armed attacks. Also included are variables on the time, location, perpetrators and targets, casualties, and event types.

As far as we know, this is the first event dataset on ethnic violence in Xinjiang. There were 213 ethnic violent events in the region between 1990 and 2005. Figure 1 shows the spatial distribution of the cumulated number of events between 1990 and 2005 for each county. The Yecheng county of the Kashgar prefecture (the darkest polygon, southwest of the region) experienced 17 ethnic violent events during this 16-year period, closely followed by the Kashgar county of same prefecture (14 events) and Yining county of the Yili prefecture (14 events). On the other hand, a number of counties in east and southeast of Xinjiang, such as Yiwu, Barkol Kazakh, Ruoqiang, and Qiemo, experienced no violence at all.

Insert Figure 1 and 2 about here.

Figure 2 displays the temporal trends. The top panel shows the provincial annual sums: we see the highest number of events in 1997. The bottom panel presents prefecture-level trends. Figure 2 also suggest that violence tends to be concentrated in four prefectures: Akesu, Hetian, Kashgar, and Yili.¹⁷ Note that for the regression analysis, we use a binary dependent variable,

¹⁴ <https://www.hrw.org/news/2005/04/12/china-religious-repression-ujghur-muslims>, accessed April 27, 2016.

¹⁵ According to Li (2014), up to 2005, only 20% of the Islamic clergy in Xinjiang received allowances from the government.

¹⁶ Different sources were used to collect event data. These sources can be categorized into three broad categories: government documents (Xinjiang Public Security Gazette, government white papers, and county gazettes of Xinjiang), online event data sets and news search engines (The Global Terrorism Database (GTD), Minorities at Risk (MAR), and the WiseNews), and secondary data from existing scholarly work (Bovingdon 2010 and Ma 2002). More details about event data collection and simple applications of the data are in a research note, available from the authors upon request.

¹⁷ The Xinjiang Production and Construction Corps (XPCC) is a unique organization that combines functions of government, military and production. It has a hierarchical structure

that is, whether or not there were any ethnic violent events for a county year. Also, because of missing values from the right-hand side variables, our regression analysis covers 1996-2005.

Coding Inter-ethnic Inequalities Using Census Data: Educational attainment is widely used to measure inter-ethnic inequality. For example, Østby and Fjelde (2014) use education years provided by the DHS to calculate the relative wealth of the poorest and richest group at the subnational level; using census data, Barron et al. (2009) construct a district-level horizontal inequality index based on the ratio of group-level average education indicators. We use education attainments rather than direct measures on wealth also because the Chinese census data that we use does not contain information on wealth.

To measure the horizontal inequality, we use the 1% sample of the Chinese National Population Census of 1990.¹⁸ The only publicly available Chinese census sample data are from 1982 and 1990. We choose not to use the 1982 data in the main text because 1990 is much closer to the time period covered by our study (1996-2005). The 1% sample of 1990 census allows us to construct prefecture level inequality measures along ethnicity lines using information on individual-level educational attainments: the census data do not have county information so we have to measure horizontal inequality at the higher, prefecture, level. To the best of our knowledge, this dataset offers the most comprehensive, publicly available information to construct economic and social inequalities by ethnicity and location in Xinjiang (and in China in general).

We limit our sample to adults who were above 18 years old in 1990 to exclude individuals below certain educational attainments only because of their age. For the indicator of educational attainments, we use five categories as follows: less than primary completed, primary completed, lower secondary school completed, high school completed, and university completed.¹⁹ It is reasonable to use horizontal inequality measures from 1990 to explain conflicts in 1996-2005. First, since we measure the value of inequality in 1990, it makes this indicator exogenous to the following conflicts between 1996 and 2005. Second, there is a widely shared assumption that the temporary changes in horizontal inequalities are relatively slow (Tilly 1999; Stewart and Langer 2009; Deiwiiks et al. 2012). In fact, we created the same horizontal inequality measures using the 1982 1% census sample and checked their correlations with those using the 1990 data. The correlations for each of the eight pairs of horizontal inequality measures used in the main text (HI1-HI8, discussed in details in the following) are between 0.62 and 0.77: at least between 1982 and 1990, inter-ethnic horizontal inequality changes slowly.²⁰

composed of 14 divisions and 175 regiments and these administrative domains of XPCC spread across Xinjiang. The XPCC reports directly to the central government in Beijing, instead of to the provincial government. Hence, we separate XPCC from other prefectures as a single unit.

¹⁸ From Minnesota Population Center: <https://international.ipums.org/international-action/variables/samples?id=cn1990a>, accessed in June 2014.

¹⁹ The census data offers a 4-points ordinal variable which is a general version of international recoding of the Chinese educational attainments; the four categories of educational attainments are: less than primary completed, primary completed, secondary completed, and university completed. One problem of this variable is it merges *Lower Secondary School* with *Primary Completed*. We undo this and separate out lower secondary school completed.

²⁰ Please see the online Appendix A for detailed discussion on how horizontal inequality measures change between 1982 and 1990.

We construct a number of horizontal inequality (HI) measures using different thresholds of education attainments, choices of ethnic minority groups, and difference vs. ratio measures. More specifically, we use two education attainments thresholds: first, lower secondary education completed and above; second, high school education completed and above. We also use both difference in percentage measures and ratio measures: the former is the difference between the percentage of Han who were above an education threshold and that of the largest ethnic minority group/Uyghurs; the latter is the ratio between these two percentages.

For the choices of ethnic minority groups, we compare the Han majority to the largest ethnic minority group in a prefecture when we model all ethnic violent events; and we compare the Han majority to the Uyghur ethnic minority when we explain “Uyghurs only” ethnic violence.²¹ Despite media’s focus on the Uyghur population when it comes to violence in Xinjiang, ethnic violent events are not limited to this ethnic group. Among the 213 events between 1990 and 2005, there are 166 events (77%) that we are certain did involve the Uyghur ethnic group. Moreover, in 5 among 15 prefectures in Xinjiang, the largest ethnic minority group is not Uyghur. In prefectures such as Tacheng, Changji, Shihezi, and Aletai, Uyghurs are less than 5% of the local population. If we want to understand all ethnic violence, we should focus on the differences between Han and the largest ethnic minority group.

Insert Table 1 about here.

Table 1 summarizes these HI measures: HI1-HI4 are measures between Han and the largest minority group in a prefecture; HI5-HI8 are measures between Han and the Uyghur minority group in a prefecture. These HI measures are highly correlated (see Figure 3). As an example, Figure 4(a) presents HI1 values sorted from the highest to lowest values: this is the difference between Han and the largest minority group in prefectures in terms of the percentage of individuals who at least completed the lower secondary school. Figure 4(b) presents the spatial distribution of this HI1 measure in a map. It seems that prefectures characterized by high-level inter-ethnic inequalities tend to concentrate in the southern Xinjiang area.

Insert Figure 3 and 4 about here.

Mosque Density: We collect raw data on the numbers of mosques for each county. We use mosque density, that is, standardizing the number of mosques by the 1990 county-level non-Han population.²² The mosque data are from 81 Xinjiang official county gazettes published between the late 1980s and the early 2000s.²³ We code the variable based on the following criterion: since our regression analysis covers 1996-2005, we use mosque density of 1996 when the number of mosques in 1996 is available; for counties without 1996 mosque counts, we use the value from

²¹ In all 15 prefectures, the largest ethnic minority group is Muslim.

²² The overwhelming majority of non-Han population is Muslim, while few Han Chinese affiliate with Islam.

²³ The Spatial Religion Explorer from the China Data Online also provides mosque data (<http://chinadataonline.org/religionexplorer>). However, the Explorer data quality varies greatly from county to county. For counties in southern Xinjiang where the Muslim population concentrates, very few mosques are reported which contradicts what we found from county gazettes.

the most recent year between 1985 and 1995.²⁴ This strategy allows us to minimize missing data: if we only use the numbers of mosques in 1996, we would lose a large number of observations. Using 1996 and early years' mosque density also reduces concern for reverse causality, that is, violence affects the distribution of mosques.

However, this variable is a crude measure for the density of local religious institutions. For instance, the data from county gazettes do not allow us to further differentiate mosques attended by different Muslim ethnic groups such as Uyghur mosques vs. Kazak mosques. More importantly, there is the potential risk that the spatial distribution of mosques changed during the investigation period of 1996-2005. However, Li (2014b), one of the most authoritative studies on the development of mosques in Xinjiang, shows that since September of 1990, the government enforced a regulation on religious activities which strongly restricted, if not completely prohibited, the construction of new mosques in the region. As a result, the change in the number of mosques since late 1990 has been really small. For instance, there were 22.9 thousand mosques in Xinjiang in 1995, which is only about 600 (or 2.3%) more than in 1991 (Li 2014b).

Finally, both horizontal inequality and mosque density variables in our study are time-invariant variables. Therefore, they are unable to explain temporal changes in violent events shown in Figure 2. However, we also see a significant spatial variation in the distribution of such events (Figure 1) that time-invariant variables are able to explain.²⁵

Control Variables: Violence is more likely to happen in areas with higher population intensity (Hegre and Sambanis 2006; Raleigh and Hegre 2009), because population pressure exacerbates resource scarcity and worsens intergroup competition (Urdal 2008). *Xinjiang 50 Years* provides detailed annual statistics on county-level socio-economic variables, including population density data (Qiao 2005). Chances of ethnic conflict also depend on the size of local minority groups because large groups often are equipped with more resources for mobilization. We therefore include the county-year level largest ethnic minority group size, measured as a percentage of total county population, when we use all ethnic violent events to construct the binary dependent variable; when we explain Uyghurs only ethnic violent events, we replace this the largest ethnic minority group size variable with the percentage of Uyghur population at the county-year level.²⁶

Past studies have shown that income matters greatly for conflicts (Murshed and Gates 2005; Bohlken and Sergenti 2010). For example, Buhaug et al. (2011) find strong evidence for a negative correlation between per capita income and political violence. To control for the impact of low income and poverty, we include county-year GDP per capita. Data are from *Xinjiang 50 Years*; we adjust GDP per capita based on 1990 Xinjiang price index to account for inflation.

To control for ethnic fractionalization and polarization, we use county ethnic composition data from the *Statistical Yearbook of Xinjiang* 1990-2005. We construct the fractionalization index following Fearon and Laitin (2003): $fractionalization = \sum_{i=1}^N \pi_i (1 - \pi_i)$; and polarization indicator following Montalvo and Reynal-Querol (2005): $polarization = 4 \sum_{i=1}^N \pi_i^2 (1 - \pi_i)$; in both cases, π_i is the percentage of people who belong to ethnic group i in a given county-year, and N is the number of ethnic groups in that county-year. Intuitively, ethnic

²⁴ For example, if the mosques data are only available for a county in 1985, 1990, and 1993, we use the value from 1993.

²⁵ Many independent variables are time-variant, for example, GDP per capita and population density, both of which are strong predictors of ethnic violence according to our analysis.

²⁶ Data are also from *Xinjiang 50 Years*.

fractionalization captures the probability that two randomly selected individuals do not belong to the same group. The polarization index, on the other hand, aims to capture how far the distribution of ethnic groups is from the bipolar distribution which represents the highest level of polarization.

We also include a number of geographic variables: the distance to the provincial capital, the distance to the prefectural capital, and a dummy variable indicates whether the county is a border county. These variables often serve as proxies for state capacity (Fjelde and Østby 2014). For instance, the reach of the state declines as we move away from the center and into peripheral regions. Given the large size of Xinjiang, the distance to the provincial capital, Urumqi, may not fully capture state reach: this is the reason why we also include the distance to the prefectural capital.²⁷ National border has been identified as a determinant of civil conflict (Buhaug and Rod 2006). State boundaries can offer porous exits for insurgents to find sanctuaries in neighboring countries. Moreover, in the case of Xinjiang, border counties are often more exposed to the transnational diffusion of radical Islam movement that overwhelmed many central Asian states such as Afghanistan and Pakistan. To further control for the roles of local governments, we also calculate government expenditure as a percentage of GDP.²⁸

Many studies have found a robust association between natural resources, especially oil wealth, and the prevalence of civil violence (De Soysa 2002; Collier and Hoeffler 2004). The redistribution of natural resource bounties often exacerbates the grievances of local minorities since they are usually excluded from sharing these benefits. We have collected county-level data regarding the geographic distribution of oilfields in Xinjiang. These data are taken from the *General Chronicles of Xinjiang: Oil Industry* (1999). We code this variable as 1 when there was at least one oilfield in a county-year and 0 otherwise.

Finally, spatial dependence between the units of observations often poses a challenge to the analysis of conflict. For a binary dependent variable, it is often computationally challenging to address this issue (Weidmann and Ward 2010). Following Pierskalla and Hollenbach (2013), we construct a temporally lagged spatial lag of the dependent variable by dividing the number of neighboring counties with violent events at year $t - 1$ over the total number of neighboring counties. To account for temporal dependence, we follow Carter and Signorino (2010) and add cubic polynomial approximation (t, t^2, t^3): t is the number of years since last violent event. We have also included year fixed effects in all model specifications to take into account common exogenous shocks. We use logit models and all standard errors are clustered by county. To weaken the problem of reverse causality, all time-variant independent variables lagged by one year.

Empirical Findings

Table 2 presents the results when we use inter-ethnic education differences between Han and the largest ethnic minority group in a prefecture (HI1-HI4). For each horizontal inequality measure, we use two model specifications: one without and one with an interaction term with the mosque density variable. Across model specifications, the mean coefficient estimates and their statistical significance levels are often quite similar. We therefore only use one model specification to

²⁷ To calculate the distance between each county and provincial prefectural capital, we use *Google Map* to find the latitude and longitude of each county office building in Xinjiang.

²⁸ The government spending variable is from the *National Prefecture and County Finance Statistics Compendium*, 1994–2005.

illustrate the substantive effects associated with the independent variables. We use the first model specification which uses HI1 as the measure for horizontal inequality: HI1 is constructed as the *difference*, between Han and the largest minority group, in the percentage of individuals who at least completed lower secondary school. We simulated the change in probability of a county-year experiencing ethnic violence given a one standard deviation increase from the mean of an independent variable, when holding all other variables at their mean levels.²⁹ The rope ladders in Figure 5 are 95% confidence intervals of the simulated probability changes. Horizontal inequality stands out in terms of the substantive effect: holding other variables at their mean levels, one standard deviation increase from the mean of this horizontal inequality variable (HI1) results in an increase in the probability of ethnic violence for a county-year by more than 0.04. This is a substantively important effect because ethnic violent events do not occur often in the region; indeed, between 1996 and 2005, the mean of our dependent variable is only 0.083.

Insert Table 2 about here.

Other variables that affect the chances of ethnic violence include GDP per capita, population density, and the spatial lag. Interestingly, we find that GDP per capita increases the chances of violence, which contradicts some recent studies on political violence. Many believe that economic prosperity reduces chances for violence because it alleviates ethnic competition by offering more resources; higher per capita income also presents higher opportunity cost for violence; economic development may also mitigate the level of grievances among marginalized groups (Buhaug et al. 2011). This positive effect of GDP per capita agrees with other recent studies though. For instance, in the context of the collapse of Soviet Union, Beissinger (2002) finds that the level of urbanization (a proxy of economic development) increases the frequency of protests over ethno-nationalist issues because economic development often fosters the very condition for local minorities to form nationalist networks which increase the chances of violence (Gellner and Breuilly 2008). Furthermore, we find that population density increases ethnic violence, confirming previous findings from earlier conflict studies. Finally, a statistically significant spatial lag suggests between-county diffusion of ethnic violence in Xinjiang.

Insert Figure 5 and 6 about here.

Table 2 also reports the results from four interaction models which show strong negative interactive effects between all four measures of horizontal inequality (HI1-HI4) and mosque density. To further illustrate the conditional effect of the mosque density variable, we simulate and plot the substantive, interactive effect in Figure 6 using the second model specification in Table 2: for a given value of mosque density (x-axis), we simulate and calculate the change in probability of ethnic violence as a function of one standard deviation increase in this horizontal inequality variable (HI1) while holding other variable at their means levels; the simulated changes in probabilities are summarized by a 95% confidence interval which is represented by a

²⁹ For year fixed effects, it is hard to interpret the results if we use the mean level, which is 0.1, for the simulations in Figure 5 and 6. We therefore choose to use the latest year for our investigation period, 2005, for the simulations. Using other years changes the magnitudes of predicted probabilities, but the shapes of the rope ladders do not change much. Simulation figures using other years are available upon request from the authors.

vertical, gray line in Figure 6; we also plot the mean value of the simulated changes in probabilities by a black dot. We repeat this simulation exercise from the minimum value of the mosque density value to its maximum value, by an interval of 0.1.³⁰ Figure 6 shows that when mosque density is low, increase in one standard deviation in the inequality variable raises chances of conflicts, but the magnitude decreases when increasing the value in mosque density. When mosque density reaches the level around 2 per thousand non-Han local population, 95% confidence intervals start to overlap with zero, suggesting statistically insignificant effect. Indeed, the average predicted change in probability turns negative around 2.7 mosques per thousand non-Han population, though the associated 95% confidence intervals often include zero after this point.³¹

Insert Table 3 about here.

Because of media's focus on the Uyghur population when it comes to violence in Xinjiang, Table 3 reports the results when we use educational attainment differences between Han and Uyghur instead of between Han and the largest minority group as measures of horizontal inequalities. Note this time the dependent variable only includes events involving the Uyghur population; in other words, these events are a subset of all ethnic violent events. Accordingly, we replace the Largest Minority Group Percentage_{t-1} variable with Uyghur Percentage_{t-1}, which measures the percentage of Uyghurs in the local population. We use the same mosque density variable: this is problematic because some mosques can be operated by other Muslim ethnic groups; however, the mosque data we have simply do not allow us to further distinguish between Uyghur and non-Uyghur mosques. Other variables are the same as those used in Table 2. Table 3 shows that the negative interactive effect between horizontal inequality and mosque density is always statistically significant.

One potential problem of using educational attainment to construct inter-ethnic inequality measures is that in Xinjiang, the school system is sometimes a dual track one, with Chinese schools using Chinese as the language of instruction and ethnic schools using a particular ethnic language. This raises an empirical question: does a high school diploma with Chinese language education correlates with the same level of future wealth as a high school diploma with an ethnic language education. As far as we know, there is no direct test from the literature. Hannum and Xie (1998), however, do suggest that education levels, regardless of the language of instruction, strongly predict high-status occupation attainments in Xinjiang. To address this concern, in

³⁰ Figure 6 also shows a histogram for the distribution of mosque density.

³¹ HI1 and HI3 use lower secondary school completion as the threshold for education attainment, which we think better fit the Chinese context. Despite China's "nine years" compulsory education system which requires a student to finish lower secondary school, the implementation of this national policy has been far from being ideal, especially in periphery regions like Xinjiang. Therefore, measures using lower secondary school completion as the threshold for education attainment better serve as proxies for wealth and income. Interestingly, in model specifications without an interaction term with mosque density, horizontal inequality only has a statistically significant and positive effect on conflicts when we use HI1 and HI3; not when we use H2 and H4: HI2 is the Han vs. largest ethnic minority group education difference in the percentage of individuals who at least completed high school; HI4 is the ratio measure using the same threshold.

online Appendix B, we construct a host of occupation-based measures of HI using the same census data: HI measures based on education (HI1-HI8 used in the main text) and those on occupation categories (used in appendix) are highly correlated, often around 0.8. Table B2 of Appendix B presents regression results using occupation-based HI measures: we find similar statistically significant and negative interactive effects across all model specifications.

Finally, we have included more robustness tests in online Appendix C, using additional variables to capture the effects of local state capacity. We use XPCC presence (binary variable) and local government coercive spending as a percentage of GDP as two measures of coercive state capacity; we use total local taxation as a percentage of GDP as a measure of fiscal/extractive state capacity (Hendrix 2010). We find that none of these state capacity measures affects chances of ethnic violence, regardless of whether we model all ethnic violence or Uyghur only conflicts. At the same time, the interactive effects between horizontal inequalities and mosque density are negative and statistically significant.

Conclusion and Discussion

In this paper, we argue that social institutions matter for the chances that grievances can be translated into violence. Religious institutions can help the disadvantaged group to overcome the collective action problem, therefore increasing chances of conflict. However, they can also reduce the chance for violence by providing local public goods and by bridging local population and the government with information flows. Empirically, we find that among all variables included in the analysis, local inter-ethnic horizontal inequality has the most important substantive marginal effect on the chances of ethnic violence. Once we add in the interactive effect between horizontal inequality and mosque density, we find that this effect of horizontal inequality is only present for counties characterized by low and medium levels of mosque density. The empirical analysis, therefore, confirms the conflict-dampening effect of religious institutions.

We believe that this paper contributes to the study of grievances and social institutions in the literature of civil conflict, ethnic violence, and political unrest. Aiming to address the greed-grievances debate, recent scholarly efforts focus on better testing the effects of grievances of collective actors at the subnational level (Barron et al. 2009; Blattman and Miguel 2010; Østby 2008; Cederman et al. 2011; Fjelde and Østby 2014). At the same time, past studies have shown that political and social institutions affect domestic conflicts. For instance, De Juan, Pierskalla, and Vüllers (2015) find that religious institutions reduce communal conflicts in Indonesian villages. This paper explores the potential causal mechanisms on when, how, and why inequality breeds conflicts. We believe that our focus on the mediating effect of social institutions, religious institutions in our test case of Xinjiang, is an important step further in exploring the potential causal chains between grievances and conflicts.

This paper also helps us better understand ethnic and political violence in Xinjiang which has profound policy implications for the internal political stability of China and potentially the global war on terrorism. For instance, the greed model of civil war often treats natural resources such as oil and natural gas as factors leading to conflicts. We find no effect for the oil variable, suggesting that ethnic violence in the region probably is probably not primarily driven by

between-group competition for resources.³² On the other hand, horizontal inequality between Han and minority groups greatly affect ethnic violence, suggesting that long-term policy interventions to address the issue of relative deprivation of minority groups is of vital importance to prevent future conflicts in the region.

The conflict-dampening effect of mosque density also seems to suggest religious institutions as a stabilizing factor for the region. One challenge for future research, however, is to differentiate underlying causal mechanisms associated with this mediating effect. Our elite interviews provide anecdotal evidence and insider perspectives; they suggest that the public goods provision mechanism and the information mechanism are both very plausible. But whether they can be generalized beyond the cases mentioned in the interviews and the personal experience of the interviewees is a question that we cannot answer in this paper.

At the same time, there are many questions still to be answered. For instance, our mosque density measure cannot capture “underground” mosques which many believe to be gaining importance in local minorities’ religious life. Note this could cause omitted variable bias only when it is correlated with the mosque density variable used in our analysis. Underground mosques data are extremely hard to collect, even for a small cross-section of counties. We also have no *a priori* knowledge on whether underground mosques and mosques in our data are substitutes (which implies a negative correlation between them) or complements (a positive correlation) in local religious affairs.

Finally, we use the census data from 1990 to construct measures of horizontal inequality to explain conflicts in 1996-2005. Other than the fact that the value of inequality in 1990 is exogenous to the following conflicts,³³ we defended our choice by citing a common assumption in the conflict literature that the temporary changes in horizontal inequalities are relatively slow (Tilly 1999; Stewart and Langer 2009; Deiwiks et al. 2012) and by checking with 1982 census data. However, China in the 1990s and 2000s was going through dramatic social and economic changes that might increase the speed in the temporal change of between-group inequalities. While more research is certainly needed, we hope this paper has provided a solid foundation for this new and exciting area of future research.

³² There are other types of natural resources (e.g., gold) or cash crops (e.g., cotton) in the region. Future research should look at the effects of these resources; though collecting data at county-year level for those resources is more challenging than the case of oil and natural gas.

³³ Aggregated census data from other years are available, for example, for year 2000. Unfortunately, they do not have education attainment or any other income-proxies at the ethnicity-county level.

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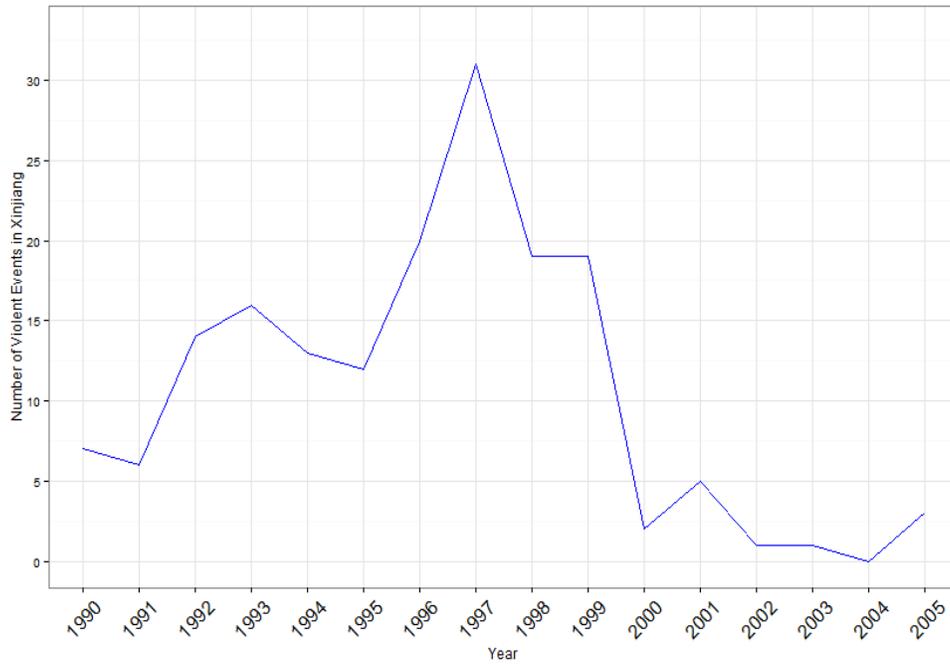
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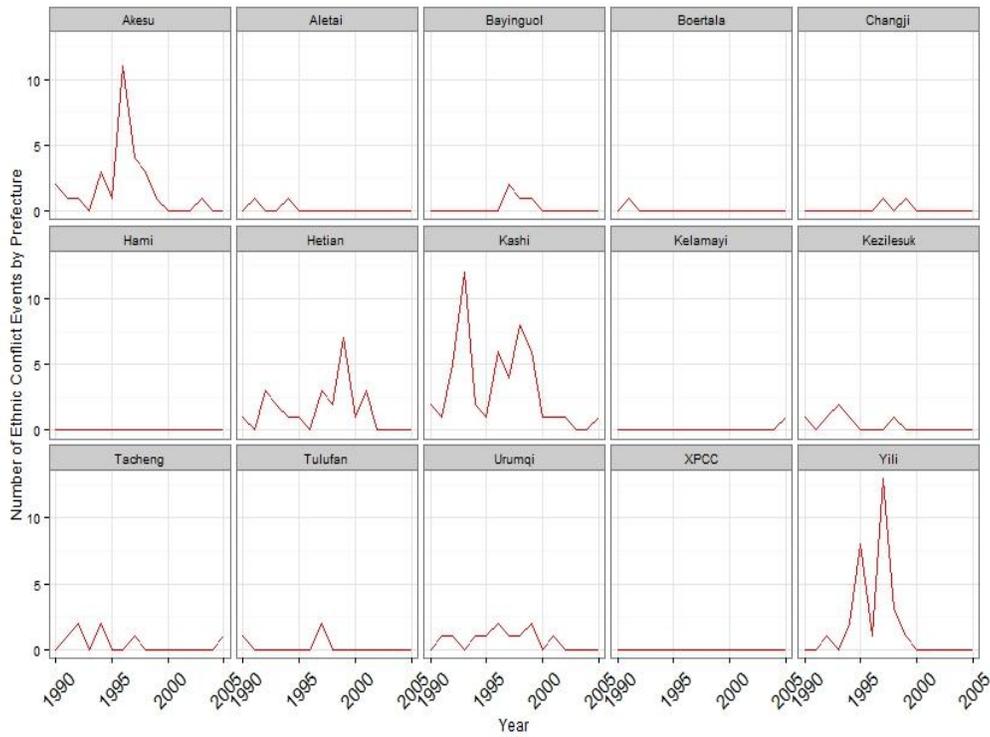
Figure 1: Distribution of Ethnic Violent Events in Xinjiang, 1990-2005.



Figure 2: Annual Violent Events in Xinjiang, Provincial and Prefectural Trends.



(a) provincial level trend



(b) prefecture level trends

Figure 3: The Correlation Matrix of Different Measure of Horizontal Inequality.

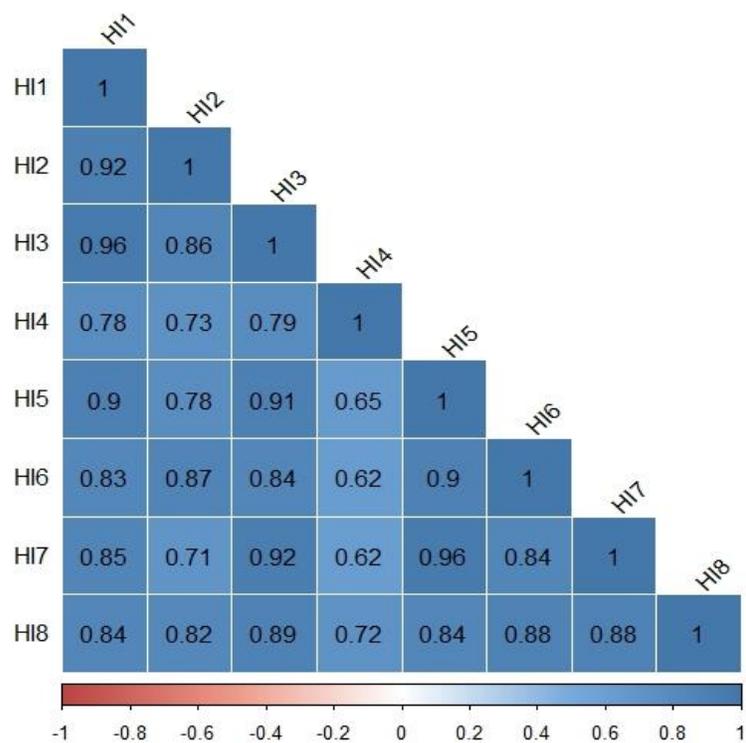
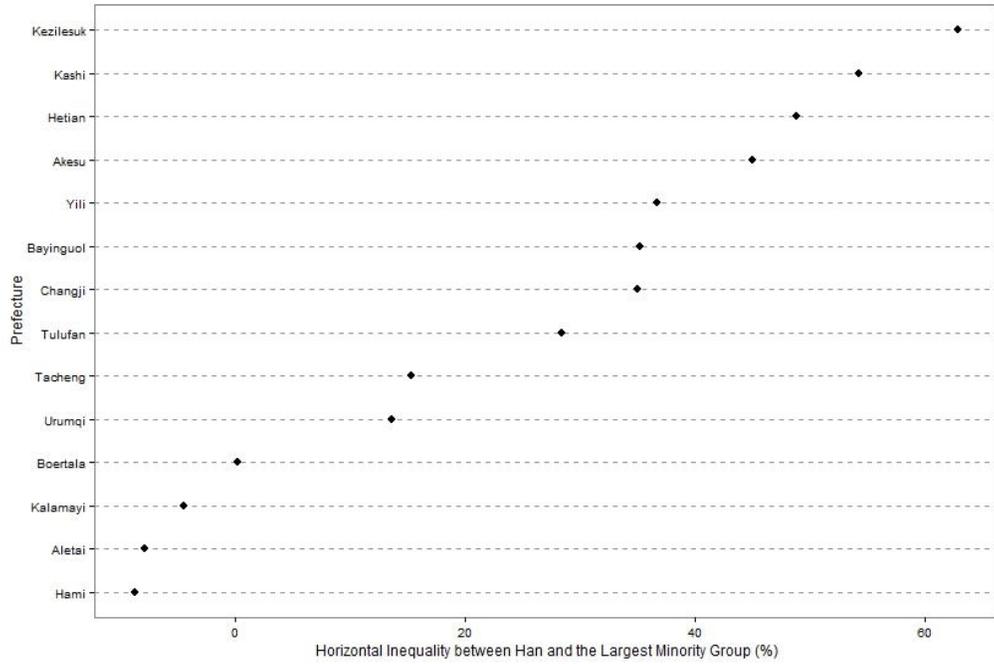
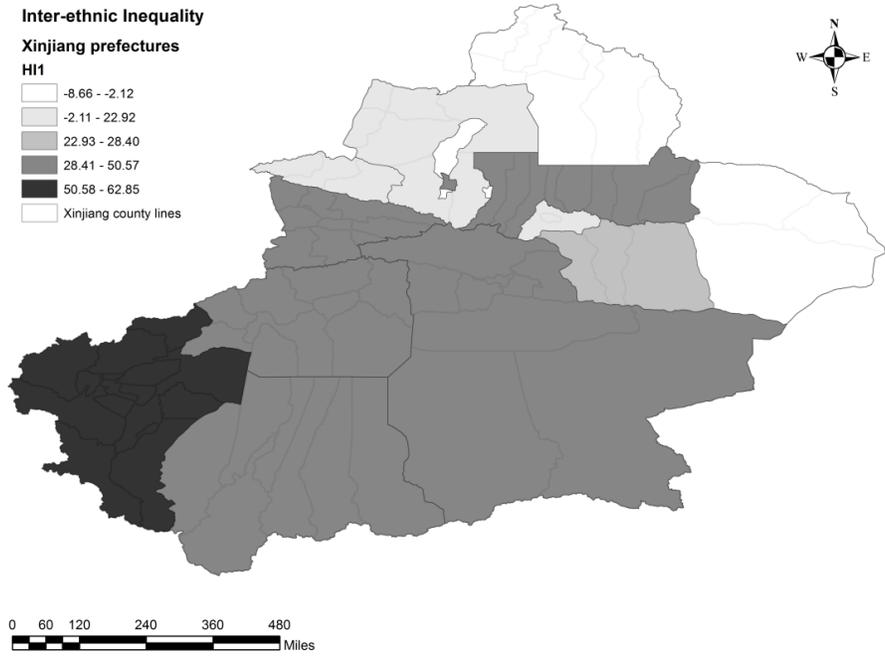


Figure 4: Horizontal Inequality by Prefecture in 1990 Using HI1 (Differences in Terms of the Percentage of Individuals who at least Completed the Lower Secondary School).



(a): HI1 sorted



(b): HI1 in space

Figure 5: Change in Probability of Ethnic Violence Given One Standard Deviation Increase from the Mean of a Variable (based on the second model specification from Table 2).

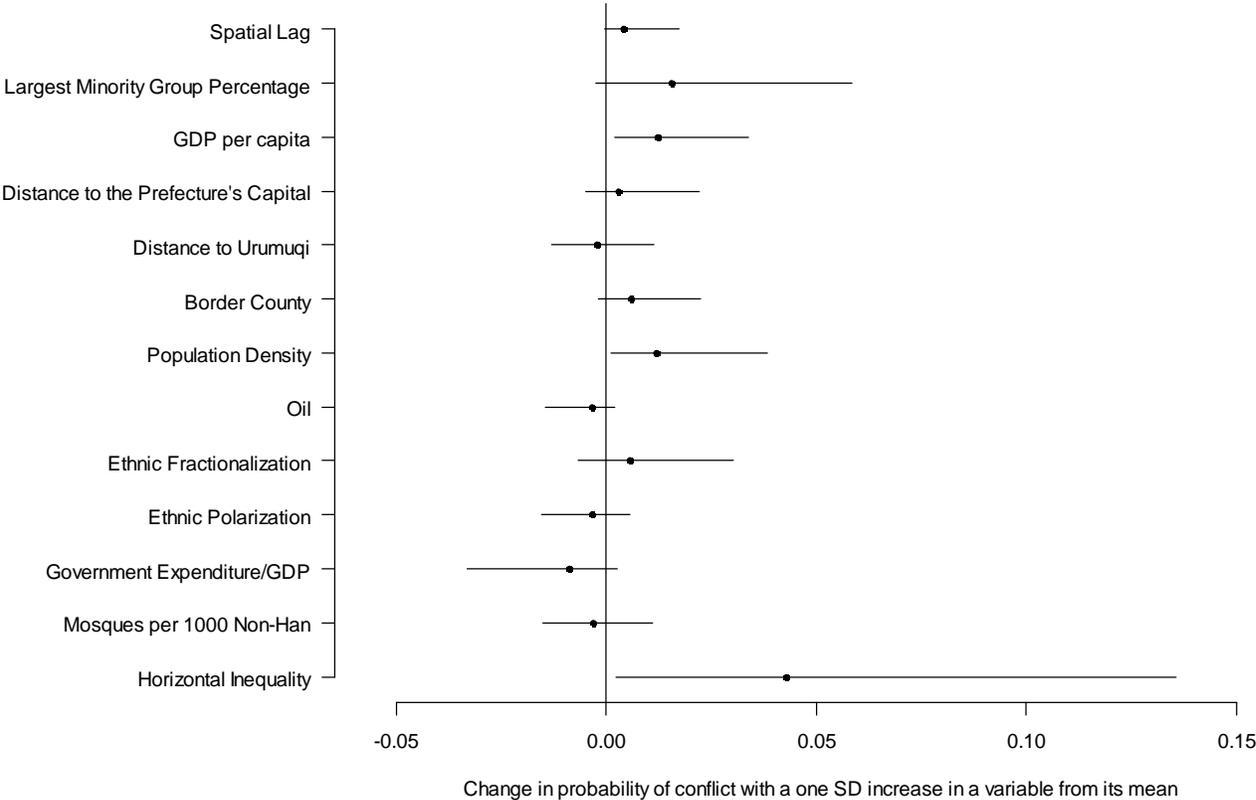


Figure 6: Effect of Horizontal Inequality (HI1: difference in percentage, lower secondary school and above) Conditional on Religious Institutions.

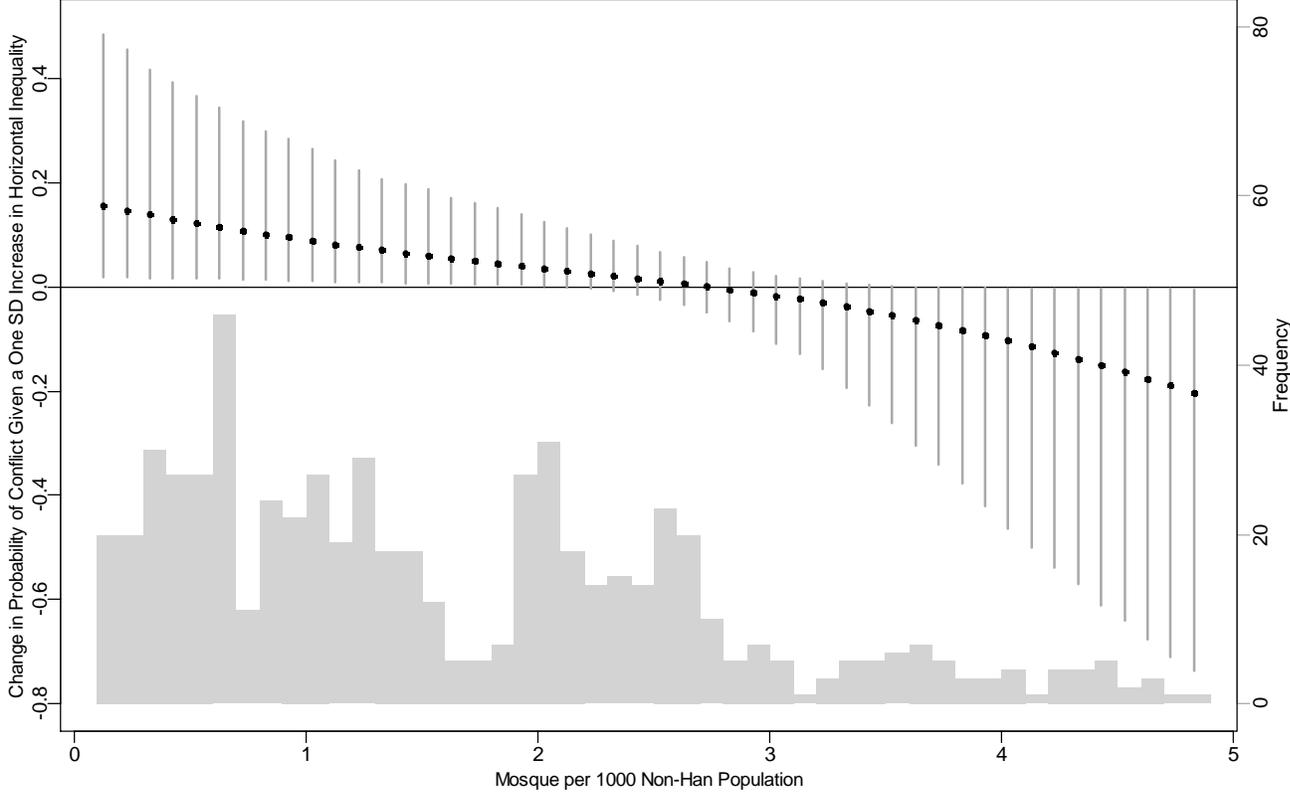


Table 1: Define Horizontal Inequalities (HI) Using Census Education Data.

Criterion Measure	Percentage by Category	Years of Education	Ratios	Differences	Han vs Uyghur	Han vs the largest ethnic minority group	High School and above as the threshold	Lower Secondary School and above as the threshold
HI1	✓			✓		✓		✓
HI2	✓			✓		✓	✓	
HI3	✓		✓			✓		✓
HI4	✓		✓			✓	✓	
HI5	✓			✓	✓			✓
HI6	✓			✓	✓		✓	
HI7	✓		✓		✓			✓
HI8	✓		✓		✓		✓	

Table 2: Explaining Ethnic Violence using HI1-HI4 (Han and largest ethnic minority group education differences), Mosque Density, and their Interactive Effect.

	All Ethnic Conflicts							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Spatial Lag	1.478 [*] (0.857)	1.482 [*] (0.848)	1.642 [*] (0.869)	1.398 (0.847)	1.701 ^{**} (0.801)	1.611 [*] (0.806)	1.872 ^{**} (0.771)	1.411 [*] (0.728)
<i>Largest Minority Group Percentage</i> _{t-1}	0.021 (0.013)	0.005 (0.014)	0.018 (0.012)	0.002 (0.016)	0.017 (0.012)	0.0001 (0.015)	0.014 (0.013)	0.004 (0.014)
<i>GDP per capita</i> _{t-1}	1.283 ^{**} (0.511)	2.255 ^{***} (0.665)	1.140 ^{**} (0.449)	2.154 ^{***} (0.655)	0.858 ^{**} (0.417)	1.668 ^{***} (0.490)	0.617 [*] (0.348)	1.076 ^{***} (0.360)
Distance to the Prefecture's Capital	0.001 (0.003)	0.002 (0.003)	-0.0002 (0.003)	0.002 (0.003)	0.001 (0.002)	0.001 (0.002)	0.0004 (0.002)	0.003 (0.002)
Distance to Ürümqi	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.0003 (0.001)	0.001 (0.001)	0.0003 (0.001)	0.002 (0.001)
Border County	0.706 (0.476)	1.064 ^{**} (0.468)	0.798 [*] (0.471)	1.189 ^{***} (0.430)	0.545 (0.492)	0.632 (0.511)	0.434 (0.498)	0.261 (0.532)
<i>Population Density</i> _{t-1}	0.375 ^{**} (0.152)	0.514 ^{***} (0.138)	0.373 ^{**} (0.157)	0.568 ^{***} (0.143)	0.389 ^{**} (0.157)	0.506 ^{***} (0.162)	0.434 ^{***} (0.151)	0.678 ^{***} (0.184)
<i>Oil</i> _{t-1}	-0.563 (0.472)	-0.711 (0.496)	-0.695 (0.500)	-0.931 [*] (0.516)	-0.424 (0.434)	-0.379 (0.448)	-0.341 (0.458)	-0.258 (0.462)
<i>Ethnic Fractionalization</i> _{t-1}	1.776 (2.148)	1.657 (1.919)	2.194 (2.144)	2.708 (1.839)	0.242 (2.165)	0.196 (2.085)	-0.389 (2.330)	0.395 (2.141)
<i>Ethnic Polarization</i> _{t-1}	-1.602 (1.482)	-2.060 (1.326)	-2.079 (1.605)	-2.829 ^{**} (1.351)	-0.657 (1.441)	-1.499 (1.452)	-0.341 (1.505)	-1.025 (1.482)
<i>Government Expenditure / GDP</i> _{t-1}	-0.066 (0.043)	-0.043 (0.029)	-0.065 (0.044)	-0.044 (0.029)	-0.063 (0.047)	-0.049 (0.030)	-0.065 (0.047)	-0.061 [*] (0.035)
Mosques per 1000 Non-Han	-0.342 (0.357)	3.481 ^{**} (1.355)	-0.314 (0.361)	4.394 ^{**} (1.832)	-0.199 (0.292)	2.018 ^{***} (0.738)	-0.056 (0.241)	1.924 ^{***} (0.643)

H1	0.075** (0.034)	0.213*** (0.075)						
H3			1.192** (0.550)	3.799*** (1.378)				
H2					0.034 (0.030)	0.176*** (0.062)		
H4							-0.012 (0.093)	0.462** (0.170)
HI1 × Mosques per 1000 Non-Han		-0.077*** (0.027)						
HI3 × Mosques per 1000 Non-Han				-1.316*** (0.482)				
HI2 × Mosques per 1000 Non-Han						-0.082*** (0.025)		
HI4 × Mosques per 1000 Non-Han								-0.377*** (0.113)
t	-0.258 (0.312)	-0.203 (0.305)	-0.221 (0.304)	-0.204 (0.298)	-0.261 (0.315)	-0.209 (0.316)	-0.249 (0.312)	-0.275 (0.318)
t^2	0.022 (0.057)	0.020 (0.055)	0.016 (0.055)	0.025 (0.054)	0.014 (0.056)	0.018 (0.057)	0.010 (0.055)	0.029 (0.056)
t^3	-0.0003 (0.003)	-0.0001 (0.003)	-0.0001 (0.003)	-0.0004 (0.003)	0.0002 (0.003)	-0.0001 (0.003)	0.0003 (0.003)	-0.001 (0.003)
Constant	-8.724*** (2.312)	-16.588*** (3.376)	-8.847*** (2.320)	-19.300*** (4.124)	-6.775*** (2.382)	-11.213*** (2.716)	-6.942*** (2.408)	-13.128*** (3.290)
Year Fixed Effects	included	included	included	included	included	included	included	included
Observations	620	620	620	620	620	620	620	620
Log Likelihood	-112.053	-107.375	-112.175	-106.328	-114.857	-108.449	-115.479	-109.872
Akaike Inf. Crit.	276.106	268.749	276.350	266.655	281.713	270.898	282.959	273.745

Note: * p<0.1; ** p<0.05; *** p<0.01; standard errors are in parentheses below the coefficients.

Table 3: Explaining “Han-Uyghur Only” Ethnic Violence using HI5-HI8 (Han and Uyghur group education differences), Mosque Density, and their Interactive Effect.

	Uyghur Only Conflicts							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Spatial Lag	1.654 [*] (0.867)	1.859 ^{**} (0.848)	1.817 [*] (0.902)	1.869 ^{**} (0.831)	1.710 [*] (0.845)	1.830 ^{**} (0.896)	1.653 [*] (0.854)	1.540 [*] (0.865)
<i>Uyghur Percentage</i> _{t-1}	0.036 ^{**} (0.015)	0.015 (0.020)	0.036 ^{**} (0.015)	0.012 (0.021)	0.038 ^{**} (0.017)	0.009 (0.022)	0.037 ^{**} (0.016)	0.014 (0.021)
<i>GDP per capita</i> _{t-1}	1.042 ^{**} (0.486)	1.693 ^{**} (0.753)	0.902 ^{**} (0.415)	1.383 ^{**} (0.584)	0.712 [*] (0.420)	1.454 ^{**} (0.548)	0.640 [*] (0.361)	0.999 ^{**} (0.404)
Distance to the Prefecture’s Capital	0.001 (0.003)	0.0004 (0.003)	-0.001 (0.003)	-0.001 (0.003)	0.002 (0.003)	0.001 (0.003)	0.002 (0.003)	0.002 (0.002)
Distance to Ürümqi	-0.001 (0.001)	-0.0004 (0.001)	-0.001 (0.001)	-0.001 (0.001)	0.00000 (0.001)	0.001 (0.001)	0.001 (0.002)	0.001 (0.002)
Border County	0.577 (0.558)	0.541 (0.578)	0.636 (0.546)	0.545 (0.573)	0.589 (0.552)	0.285 (0.603)	0.544 (0.574)	0.382 (0.617)
<i>Population Density</i> _{t-1}	0.308 [*] (0.166)	0.418 ^{**} (0.159)	0.292 [*] (0.170)	0.438 ^{**} (0.169)	0.357 ^{**} (0.171)	0.423 ^{**} (0.186)	0.390 ^{**} (0.182)	0.505 ^{**} (0.220)
<i>Oil</i> _{t-1}	-0.592 (0.608)	-0.379 (0.655)	-0.695 (0.622)	-0.416 (0.704)	-0.681 (0.607)	-0.233 (0.635)	-0.614 (0.588)	-0.430 (0.591)
<i>Ethnic Fractionalization</i> _{t-1}	2.098 (2.182)	1.692 (2.087)	2.741 (2.274)	2.370 (2.066)	1.169 (2.347)	0.974 (2.419)	0.625 (2.601)	1.490 (2.480)
<i>Ethnic Polarization</i> _{t-1}	-1.615 (1.512)	-2.214 (1.555)	-2.318 (1.849)	-2.901 [*] (1.685)	-0.814 (1.553)	-2.166 (1.679)	-0.392 (1.825)	-1.980 (1.888)
<i>Government Expenditure / GDP</i> _{t-1}	-0.073 (0.057)	-0.048 (0.042)	-0.071 (0.055)	-0.044 (0.040)	-0.078 (0.058)	-0.066 (0.045)	-0.077 (0.056)	-0.067 (0.046)
Mosques per 1000 Non-Han	-0.660 [*] (0.338)	2.837 [*] (1.638)	-0.728 [*] (0.397)	3.339 [*] (1.850)	-0.524 [*] (0.289)	1.775 ^{**} (0.869)	-0.480 (0.315)	1.595 [*] (0.917)

H5	0.059 (0.039)	0.185* (0.102)						
H7			1.122 (0.765)	3.308** (1.487)				
H6					0.001 (0.040)	0.168* (0.085)		
H8							-0.125 (0.290)	0.830 (0.536)
HI5 × Mosques per 1000 Non-Han		-0.070** (0.033)						
HI7 × Mosques per 1000 Non-Han				-1.114** (0.504)				
HI6 × Mosques per 1000 Non-Han						-0.086*** (0.030)		
HI8 × Mosques per 1000 Non-Han								-0.419** (0.183)
t	-0.084 (0.326)	-0.043 (0.315)	-0.076 (0.328)	-0.102 (0.321)	-0.045 (0.314)	-0.016 (0.321)	-0.059 (0.315)	-0.102 (0.342)
t^2	-0.015 (0.057)	-0.020 (0.054)	-0.013 (0.059)	-0.003 (0.056)	-0.027 (0.054)	-0.024 (0.056)	-0.023 (0.054)	-0.010 (0.060)
t^3	0.002 (0.003)	0.003 (0.003)	0.002 (0.003)	0.002 (0.003)	0.003 (0.003)	0.003 (0.003)	0.003 (0.003)	0.002 (0.003)
Constant	-7.618*** (2.487)	-14.041*** (4.359)	-7.750*** (2.452)	-15.560*** (4.337)	-6.839** (2.715)	-10.115*** (3.143)	-7.195** (2.928)	-11.112*** (3.616)
Year Fixed Effects	included	included	included	included	included	included	included	included
Observations	620	620	620	620	620	620	600	600
Log Likelihood	-93.640	-90.758	-93.167	-89.945	-94.869	-90.182	-94.560	-91.053
Akaike Inf. Crit.	239.280	235.515	238.333	233.890	241.738	234.364	241.120	236.107

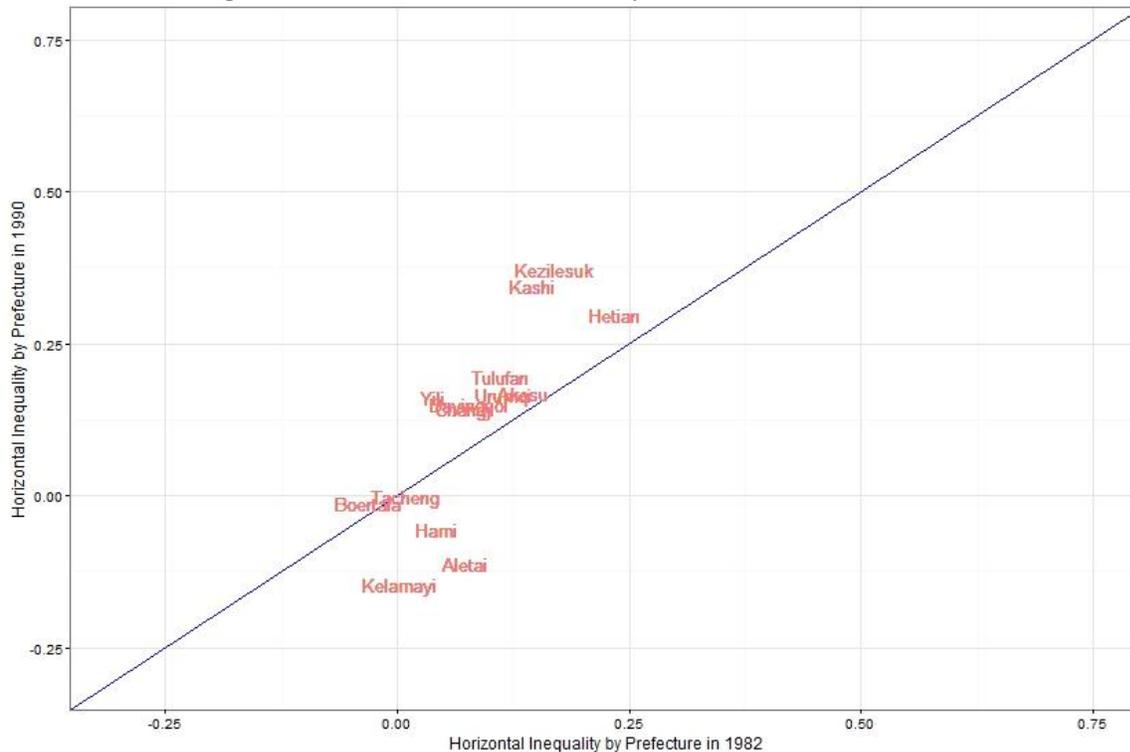
Note: * p<0.1; ** p<0.05; *** p<0.01; standard errors are in parentheses below the coefficients.

Appendix A: Does Horizontal Inequality Change Quickly Over Time.

To study the temporal change in inter-group inequalities of Xinjiang, we examine the levels of horizontal inequality (HI) in 1982 the same way we measure HI in 1990. We use the 1% sample of the Chinese National Population Census of 1982. Following the same approach used in the main text, we limit our sample to adults who were above 18 years old in 1982; this gives us a database of over 66,000 respondents.

As in the case of constructing HI indicators of 1990, we employ a number of measures using different thresholds of education attainments, choices of ethnic minority groups, and difference vs. ratio measures. Consequently, there are eight different measures from HI1 to HI8 that are following the same coding rule for the year of 1990. The correlations between HI measures of 1982 and 1990 are as follows: from HI1 to HI8, they are 0.773, 0.767, 0.767, 0.624, 0.642, 0.735, 0.683, and 0.730. These are high correlations, suggesting HI measures do not change quickly between 1982 and 1990.

Figure A1: Scatter Plot of HI1 by Prefecture in 1982 and 1990.



Using HI1 as an example, Figure A1 shows the changes across all 15 prefectures between 1982 and 1990. The x-axis of Figure 1 indicates the level of HI1 in 1982 whereas the y-axis the values in 1990. The solid line of the diagram is a 45-degree line: if HI1 are exactly the same between 1982 and 1990, prefecture names should all fall on this line. This seems to be the case or close to be the case for a few prefectures such as Tacheng and Boertala. Other prefectures are also close to the 45-degree line. Moreover, the figure also shows that quite a few prefectures were characterized by higher HI1 values in 1990 than in 1982. This general pattern holds up for other measures of HI within this period.

Appendix B: Using Census Occupation Data to Create Horizontal Inequality Measures

One potential problem of using of educational attainment as a measurement for inter-ethnic inequality, one might argue, is that in the Chinese context, in some ethnic minority regions of Xinjiang, the school system is sometimes a dual track one, with Chinese schools where the language of instruction is Chinese, and ethnic schools where the language of instruction is a particular ethnic language. One empirical question, for example, is whether a high school diploma with Chinese language education correlates with the same level of wealth as a high school diploma with an ethnic language education. As far as we know, there is no direct test from the literature. Hannum and Xie (1998), however, do suggest that education levels, regardless of the language of education, strongly predict high-status occupational attainment in Xinjiang analyzing 1% samples of the census data from 1982 and 1990.

To address this concern on our measures of HI used in the main text, we also construct a host of occupation-based measures on HI. Therefore, we limit our sample to adults who were employed in 1990, which gives us a sample size of 71,600 respondents. Follow the operationalization approach taken by Hannum and Xie (1998), we collapse occupational categories from Chinese census data into four groups: 1) *Professional and Managerial*, 2) *Clerical, Sales, and Service*, 3) *Manufacturing and Transportation*, and 4) *Agricultural*. Both existing literature and anecdotal evidence show that the group of *Professional and Managerial* lies at the top of the status/income hierarchy whereas those working in the agricultural sector are at the bottom.

Using the occupation data across ethnic groups, we generate four occupation-based measures of HI: 1) *prof: Han-largest* refers to the difference between the percentage of Han who were in the Professional and Managerial occupational category and that of the largest ethnic minority group; 2) *prof: Han-Uyg* refers to the difference between the percentage of Han who were in the Professional and Managerial occupational category and that of Uyghurs; 3) *nonagr: Han-largest*, refers to the difference between the percentage of Han who were not in Agriculture and that of the largest ethnic minority group; and 4) *nonagr: Han-Uyg* refers to the difference between the percentage of Han who were not in Agriculture and that of the Uyghurs.

Table B1 presents a correlation matrix for HI measures based on education (used in the main text) and occupation (in this appendix) in 1990. It shows that these two types of measures are highly correlated. Table B2 presents results using occupational based HI measures to test the interactive effects of inter-ethnic inequalities and local mosque density: we find similar statistically significant and negative interactive effects across all model specifications.

Table B1: Correlation Matrix of HI Measures Based on Education and Occupation in 1990.

	HI1	HI2	HI3	HI4	HI5	HI6	HI7	HI8
<i>nonagr: Han-largest</i>	0.884	0.814	0.878	0.796	0.847	0.821	0.821	0.855
<i>prof: Han-largest</i>	0.734	0.833	0.721	0.534	0.709	0.864	0.687	0.732
<i>nonagr: Han-Uyg</i>	0.876	0.758	0.888	0.779	0.843	0.797	0.842	0.861
<i>prof: Han-Uyg</i>	0.729	0.760	0.734	0.520	0.719	0.831	0.726	0.743

Table B2: Explaining Ethnic Violence using Occupational Difference, Mosque Density, and their Interactive Effect.

	All Ethnic Conflict				Uyghur Only Conflicts			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Spatial Lag	1.752 ** (0.819)	1.649 ** (0.785)	1.916 ** (0.800)	1.745 ** (0.783)	1.690 ** (0.830)	1.634 * (0.810)	1.851 ** (0.859)	1.870 ** (0.884)
<i>Largest Minority Group Percentage</i> _{t-1}	0.014 (0.013)	0.010 (0.015)	0.013 (0.012)	-0.002 (0.015)				
<i>Uyghur Percentage</i> _{t-1}					0.032 * (0.016)	0.026 (0.019)	0.032 ** (0.015)	0.005 (0.020)
<i>GDP per capita</i> _{t-1}	0.975 ** (0.374)	1.164 *** (0.375)	0.608 * (0.308)	1.031 ** (0.384)	0.914 ** (0.383)	1.117 *** (0.393)	0.618 * (0.342)	0.943 ** (0.433)
Distance to the Prefecture's Capital	0.002 (0.002)	0.002 (0.002)	0.0005 (0.002)	-0.0002 (0.002)	0.002 (0.002)	0.003 (0.002)	0.002 (0.003)	0.0002 (0.003)
Distance to Ürümqi	-0.0001 (0.001)	0.0004 (0.001)	0.0005 (0.001)	0.001 (0.001)	-0.0001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.002 (0.002)
Border County	0.716 (0.465)	0.714 * (0.416)	0.440 (0.472)	0.535 (0.528)	0.620 (0.477)	0.582 (0.445)	0.530 (0.490)	0.198 (0.568)
<i>Population Density</i> _{t-1}	0.494 *** (0.148)	0.573 *** (0.148)	0.451 *** (0.162)	0.508 *** (0.161)	0.364 ** (0.150)	0.454 ** (0.172)	0.391 ** (0.166)	0.424 ** (0.190)
<i>Oil</i> _{t-1}	-0.701 (0.470)	-0.675 (0.481)	-0.342 (0.442)	-0.247 (0.430)	-0.818 (0.559)	-0.781 (0.590)	-0.663 (0.597)	-0.158 (0.589)
<i>Ethnic Fractionalization</i> _{t-1}	3.935 (2.536)	2.382 (2.257)	-0.330 (2.076)	-0.837 (2.213)	3.873 (2.661)	2.825 (2.454)	0.921 (2.176)	0.371 (2.494)
<i>Ethnic Polarization</i> _{t-1}	-2.998 * (1.751)	-2.519 (1.543)	-0.393 (1.416)	-0.630 (1.626)	-2.644 (1.884)	-2.527 (1.732)	-0.843 (1.576)	-1.576 (1.875)
<i>Government Expenditure / GDP</i> _{t-1}	-5.955 (4.172)	-4.336 (3.338)	-6.456 (4.644)	-4.847 (3.350)	-7.447 (5.484)	-6.027 (4.661)	-7.516 (5.426)	-6.699 (4.533)
Mosques per 1000 Non-Han	-0.229 (0.282)	1.186 (0.725)	-0.013 (0.282)	1.189 * (0.586)	-0.563 * (0.310)	0.858 (0.730)	-0.367 (0.289)	1.064 (0.746)
<i>nonagr: Han-largest</i>	0.025 ** (0.011)	0.046 ** (0.019)						

<i>prof: Han-largest</i>			-0.008 (0.022)	0.097* (0.053)				
<i>nonagr: Han-Uyg</i>					0.018 (0.013)	0.042* (0.021)		
<i>prof: Han-Uyg</i>							-0.026 (0.030)	0.105 (0.078)
<i>nonagr: Han-largest</i> × Mosques per 1000 Non-Han			-0.021** (0.010)					
<i>prof: Han-largest</i> × Mosques per 1000 Non-Han				-0.052** (0.022)				
<i>nonagr: Han-Uyg</i> × Mosques per 1000 Non-Han						-0.022** (0.010)		
<i>prof: Han-Uyg</i> × Mosques per 1000 Non-Han								-0.061** (0.028)
<i>t</i>	-0.280 (0.310)	-0.261 (0.315)	-0.239 (0.309)	-0.155 (0.305)	-0.182 (0.342)	-0.139 (0.347)	-0.135 (0.333)	-0.039 (0.339)
<i>t</i> ²	0.020 (0.055)	0.019 (0.056)	0.009 (0.054)	0.005 (0.054)	-0.008 (0.058)	-0.015 (0.059)	-0.015 (0.055)	-0.027 (0.058)
<i>t</i> ³	-0.0001 (0.003)	-0.0001 (0.003)	0.0004 (0.003)	0.0005 (0.003)	0.002 (0.003)	0.003 (0.003)	0.003 (0.003)	0.003 (0.003)
Constant	-8.867*** (2.288)	-11.067*** (2.377)	-7.253*** (2.454)	-9.253*** (2.657)	-7.306*** (2.392)	-9.777*** (2.850)	-7.172** (2.725)	-8.589** (3.209)
Year Fixed Effects	included	included	included	included	included	included	included	included
Observations	620	620	620	620	620	620	620	620
Log Likelihood	-113.400	-111.424	-115.419	-110.677	-93.427	-91.880	-93.694	-90.175
Akaike Inf. Crit.	278.800	276.848	282.838	275.355	238.854	237.759	239.388	234.349

Note: * p<0.1; ** p<0.05; *** p<0.01; standard errors are in parentheses below the coefficients.

Appendix C: Robustness Checks Using Indicators of Local State Capacity.

State capacity is often a hard concept to measure, especially at the local level. Moreover, local state capacity could be an important confounding factor if it correlates with our measures of horizontal inequalities and/or mosque density. In the main text, we have used a number of proxies for state capacity such as those measuring state reach including the distance to the provincial capital (Urumqi), the distance to the prefectural capital and border county status. We have also controlled for total government spending as a percentage of GDP.

In this appendix, we included robustness tests using additional variables to capture the effects of local state capacity: we use a XPCC binary variable and local government coercive spending as a percentage of GDP as two measures of coercive state capacity; we use total local taxation as a percentage of GDP as a measure of fiscal/extractive state capacity (Hendrix 2010). More specifically, the Xinjiang Production and Construction Corps (XPCC) is a unique organization that combines functions of government, military and production. It has a hierarchical structure composed of 14 divisions and 175 regiments and these administrative domains of XPCC spread across the whole area of Xinjiang. XPCC can serve as an instrument of government control in the region. We include a dummy variable to indicate whether there was a XPCC administrative unit in a given county: note this is a time-invariant variable.³⁴

To further control for coercive state capacity, we include a measure that captures the county-level government spending on coercive apparatuses including the police, the public security bureau, the public prosecution, and the courts. We use the ratio of coercion spending to local GDP. We use a one-year lag of this variable (*Coercion Expenditure / GDP*_{*t*-1}). Finally, we measure the local fiscal state capacity using the percentage of total taxation as a share of the local GDP. Specifically, we calculate a sum of 10 different types taxes including industrial-commercial tax, value added tax, business tax, personal income tax, urban maintenance and construction tax, enterprise income tax, agricultural and animal husbandry tax, agricultural specialty products tax, farmland use tax, and dividends/deed tax. We employ a one-year lag for this variable as well (*Taxation / GDP*_{*t*-1}).

We conducted robustness checks using these measures of state capacity and the results are reported in Table C1. We find that none of these state capacity measures affects chances of ethnic violence, regardless of whether we model all ethnic violence (model 1-3) or Uyghur only conflicts (model 4-6). At the same time, the interactive effects between horizontal inequalities and mosque density are still negative and statistically significant.

³⁴ The full list is taken from the following link <http://baike.baidu.com/view/38528.htm>, accessed on September 21, 2016.

Table C1: Explaining Ethnic Violence using Various Indicators of Local State Capacity.

	All Ethnic Conflict			Uyghur Only Conflicts		
	(1)	(2)	(3)	(4)	(5)	(6)
Spatial Lag	1.474 [*]	1.001	1.192	1.824 ^{**}	1.372	1.571
	(0.847)	(0.861)	(0.932)	(0.846)	(0.869)	(0.941)
<i>Largest Minority Group Percentage</i> _{t-1}	-0.0003	0.012	0.010			
	(0.016)	(0.012)	(0.012)			
<i>Uyghur Percentage</i> _{t-1}				0.013	0.017	0.015
				(0.020)	(0.015)	(0.014)
<i>GDP per capita</i> _{t-1}	2.165 ^{***}	1.532 ^{**}	1.485 ^{**}	1.635 ^{**}	1.217 [*]	1.124 [*]
	(0.690)	(0.617)	(0.592)	(0.774)	(0.638)	(0.623)
Border County	1.087 ^{**}	0.780	0.724	0.570	0.274	0.218
	(0.466)	(0.474)	(0.431)	(0.575)	(0.520)	(0.470)
<i>Population Density</i> _{t-1}	0.585 ^{***}	0.646 ^{***}	0.608 ^{***}	0.449 ^{**}	0.627 ^{***}	0.592 ^{***}
	(0.166)	(0.169)	(0.152)	(0.180)	(0.211)	(0.203)
<i>Oil</i> _{t-1}	-0.730	-0.733	-0.776	-0.396	-0.669	-0.693
	(0.475)	(0.440)	(0.477)	(0.639)	(0.513)	(0.550)
<i>Ethnic Fractionalization</i> _{t-1}	0.549	-0.063	0.206	1.202	0.334	0.405
	(2.326)	(2.022)	(2.100)	(2.357)	(2.241)	(2.438)
<i>Ethnic Polarization</i> _{t-1}	-1.852	-0.746	-0.787	-2.121	-1.058	-0.918
	(1.402)	(1.452)	(1.533)	(1.574)	(1.665)	(1.849)
Distance to the Prefecture's Capital	0.003			0.001		
	(0.003)			(0.003)		
Distance to Ürümqi	-0.0004			-0.0003		
	(0.001)			(0.001)		
<i>Government Expenditure / GDP</i> _{t-1}	-4.215			-4.793		
	(2.926)			(4.227)		
XPCC	-1.447			-0.638		
	(1.132)			(0.963)		
<i>Coercion Expenditure / GDP</i> _{t-1}		0.159			0.191	
		(0.134)			(0.137)	
<i>Taxation / GDP</i> _{t-1}			-0.009			-0.010
			(0.020)			(0.024)
H1	0.205 ^{**}	0.158 ^{**}	0.165 ^{**}			
	(0.076)	(0.064)	(0.065)			
H5				0.180 [*]	0.179 ^{**}	0.188 [*]
				(0.103)	(0.088)	(0.094)
Mosques per 1000 Non-Han	3.587 ^{**}	2.645 ^{**}	2.778 ^{**}	2.859 [*]	3.031 [*]	3.228 [*]
	(1.360)	(1.151)	(1.158)	(1.586)	(1.579)	(1.638)
HI1 × Mosques per 1000	-0.079 ^{***}	-0.065 ^{**}	-0.067 ^{***}			
	(0.027)	(0.024)	(0.024)			
HI5 × Mosques per 1000				-0.070 ^{**}	-0.078 ^{**}	-0.080 ^{**}
				(0.032)	(0.032)	(0.034)
<i>t</i>	-0.198	-0.336	-0.297	-0.036	-0.297	-0.143

		(0.306)	(0.367)	(0.393)	(0.317)	(0.470)	(0.478)
	t^2	0.018	0.065	0.053	-0.022	0.083	0.038
		(0.055)	(0.068)	(0.075)	(0.055)	(0.140)	(0.136)
	t^3	0.00002	-0.003	-0.002	0.003	-0.005	-0.002
		(0.003)	(0.004)	(0.004)	(0.003)	(0.011)	(0.010)
	Constant	-16.679 ^{***}	-16.715 ^{***}	-16.155 ^{***}	-14.003 ^{***}	-17.581 ^{***}	-17.093 ^{***}
		(3.426)	(3.655)	(3.657)	(4.353)	(5.069)	(5.498)
	Year Fixed Effects	included	included	included	included	included	included
	Observations	620	503	503	620	503	503
	Log Likelihood	-106.946	-90.678	-91.246	-90.673	-76.176	-76.916
	Akaike Inf. Crit.	269.892	229.356	230.491	237.347	200.352	201.831

Note: * p<0.1; ** p<0.05; *** p<0.01