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Political Mobilization in Tibet

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Abstract: This paper aims to investigate the root of ongoing conflict between China and Tibetan regions for independence. By using the data collected from waves of protests in 2008 across Tibetan regions in China, it investigates the extent to which the physical Han Chinese presence led to political mobilization. The findings show that regions with stronger presence of Han population witnessed less protests, suggesting powerful influence of geography and ethnic integration on the spread of Tibetan Buddhism and independence movement over a long period of time. In order to explain the settlement patterns of Han Chinese in Tibet, the paper exploits the physiological differences between Tibetans and Han Chinese in their abilities to adapt to high altitudes.

Keywords: religion; geography; ethnic conflict; migration; China; Tibet

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1 Introduction

In 2008, ethnic Tibetan areas witnessed one of the largest waves of protest and social unrest in recent decades. These protests are notable for their scope and pervasiveness, as the movement spread far beyond Lhasa and was sustained for an extended period of time involving both monks as well as civilians and educated elites. It was also the very first time in Tibet when incident reports with detailed location information were recorded and made available, allowing for systematic analysis of the political mobilization in the region. Unlike previous accounts of protests that were mainly anecdotal with limited resources for verification, both the central Chinese government and the foreign press had reported detailed accounts of incidents that occurred throughout the year.[1] Tibet's independence movement has continued on to 2013, albeit at a smaller scale, often marked by grim incidents of self-immolation in protest of China's rule. The ongoing conflict between Tibetans and the Beijing administration continues to remind the rest of the world that ethnic integration will not be an easy process in China, especially when it comes to groups as distinct as Tibetans. The case study is also an important examination of more general perspectives on population dynamics and conflict, and collective action.

The history of Tibet and China goes back thousands of years, but only in the recent times has the issue of Tibetan independence come into question. This paper focuses on the physical Han Chinese presence in Tibetan areas as an important determinant of the ensuing conflict. Integration between two groups can lead to violent outcomes, especially when ethnic concentration is linked to collective action and political mobilization (Fearon 1998, Weidmann 2009, Toft 2002, Toft 2003, Wilkinson 2004, Petersen 2002). Due to increasingly heightened polar-

[1] Barnett (2009) for example notes that in 2008 the Chinese authorities enacted a new policy of having the official media responding to any report in the foreign press of a Tibetan incident, in an effort to gain control of representations. The media usually confirmed the outlines of the report but characterized it differently. This paper introduces a dataset mainly based on advocacy groups (the International Campaign for Tibet, TibetInfoNet and Central Tibetan Administration) but with reports from both foreign and Chinese media.

ization between the two groups, more protests may occur in areas in which these Han Chinese have lived. Over time, however, dilution of ethnic concentration can also weaken solidarity efforts. As a result, rather than inciting more conflict between the two groups, the presence of Han population in time may lead to less conflict. This paper shows that such is the case for the geographically isolated and salient Tibetans, who have maintained their independence and unique culture until the 1958 takeover by the Chinese Communist Party. Traditionally Buddhist monasteries in Tibet were the centers of Tibetan culture and consequently the driving force behind Tibetan nationalism. Integration between the two groups in several areas effectively reduced the spread of Tibetan independence movement in 2008, by gradually moving the population away from the Tibetan Buddhist influence. This paper finds that counties with higher concentration of Han population in 2000 were indeed *less* likely to experience protests in 2008.[2]

As common in studies of ethnicity and conflict, investigating whether Han integration in Tibetan regions was successful in reducing political mobilization faces estimation difficulties. For example, a large settlement of Han population may have had an effect on the likelihood of protests, as indicated above. Alternatively, however, latent hostility towards Han in certain regions may have influenced the choice of settlement locations among Han migrants. In order to address this concern, this paper uses the mean county-level elevation as an instrumental variable for the level of Han presence in each county by 2000. To explain why altitude should be strongly correlated with Han population concentration, but not other factors such as urbanization and education that could also lead to protest outcomes, the paper exploits the physiological difference between Han Chinese and Tibetans unique to the region. Specifically, the paper argues that the former are less capable of settling in certain regions due to altitude

[2] 2000 is the latest year for which China census published ethno-demographic information for its provinces at the county level.

illness, while the latter have encountered no such problem in their native lands. It also presents placebo tests to confirm that the altitude effect on political mobilization in 2008 is only through the level of Han concentration. Altitude is not correlated with the region's urbanization, education attainment, industry or government presence, to suggest that the main channel through which elevation influences protest movement may be through the physiological barrier for Han Chinese. Altitude illness is a well-known medical condition that occurs when a person ascends to high mountainous slopes and suffers from lack of oxygen (known as hypoxia). Numerous studies have shown that Tibetans and Han Chinese have different genetic compositions, and that certain genes carried by Tibetans allow them to adapt better to the thin air surroundings. A recent quasi-natural experiment has also shown that in Tibetan highlands, only the Han subjects showed symptoms of altitude illness despite a previous period of acclimatization, while the Tibetan counterparts showed no ailment. The genetic difference between the two groups likely comes from long term biological adaptation by Tibetans going back thousands of years, prior to the first emigration of outsiders. Consequently, the high altitude environment continues to set a natural separation between the two groups in Tibet and its surrounding areas.

This paper follows closely the literature in ethnic demography and conflict (Montalvo & Reynal-Querol 2005, Fearon & Laitin 2003, Horowitz 1985, Posen 1993, Fearon 1998, Toft 2002, Toft 2003, Weidmann 2009, Wilkinson 2004, Petersen 2002). By providing a scientific case for why elevation may cause a natural divide between groups, it also builds on innovative works that aim to understand socioeconomic processes by looking at geography and genetic differences (Spolaore & Wacziarg 2009, Michalopoulos 2012, Miguel, Satyanath & Sergenti 2004, Acemoglu, Johnson & Robinson 2001, Putterman & Weil 2010). Finally in the Tibetan context, the paper complements seminal works by Fischer (2008), Goldstein (1997) and Barnett (2009), by employing quantitative methods to study a region that has hitherto lacked such analysis. It

builds upon the authors' historical accounts and largely qualitative analysis of Tibet's role on China's domestic stability and its territorial integrity, and the region's importance in China's diplomacy abroad.

The rest of the paper proceeds as follows: Section 2 gives a brief background history of the relation between Tibet and China. Section 3 describes altitude illness and genetic factors as causes for exogenous variation and natural separation between the two groups. Section 4 discusses the empirical strategy, Section 5 introduces the data, followed by the main findings in Section 6. Section 7 discusses several potential channels that led Han integration in lower-altitude regions to less violence over time. The paper concludes in Section 8 with historical references to integration, other ethnic groups in China, and a discussion on the long term consequence of integration policy in China.

2 Tibet and China: Past and Present

The history between Tibet and China has been written through the famous tea-horse trade between Chinese tea merchants and Tibetan horse traders, and other relations that the neighboring regions built with one another over millennia. The first known interaction between Tibet and China came in 640 A.D., when King Songtsan Gampo of Tibet married Princess Wencheng, a niece of the Tang Emperor Taizong. Jagou (2009) discusses in detail the travels of Liu Manqing, a well-known Sino-Tibetan woman who travelled from Nanjing to Lhasa in 1929 and paved the way for a new Sino-Tibetan relationship. Born of a Tibetan mother and a Chinese father, Liu's mission to Lhasa and her meetings with the 13th Dalai-lama were acknowledged as having prompted the official mission of a Tibetan abbot in Beijing.[3] In a rare study, Wang (2010) also examines Han migration and their peaceful integration with Tibetans

[3]Becoming an important member of the China Tibetan community and a specialist on frontier affiars for the Chinese government, she was even regarded as a reincarnation of the Tang princess.

through intermarriages in Zang-Yi Corridor, Jiulong County of Sichuan Province during the Qing Dynasty. The author notes numerous records of intermarriages between 1707 and 1917 in the county gazette, and gives an anecdotal case study of Han-Tibetan cultural integration.[4] Finally, Yodron (2010) describes the Chine-Tibetan integration process during Qing Dynasty in Batang, which is located in the border area of Sichuan, Yunan and Tibet. The author records intermarriages to first have taken place among commoners, but later among Tibetan aristocrats as well.[5]

The debate over Tibet's sovereignty is a relatively recent phenomenon resulting from changes in its political landscape; Tibetans were native to the highlands long before China's dominance over the region.[6] According to the official Chinese government stance Tibet became part of China during the Mongol Yuan Dynasty in the 13th century. In contrast, Tibetan nationalists allege the relationship between Tibetans and Mongols was a "priest-patron" one, and Tibet was only subjugated to the Mongols in the same way as China in a Mongol empire centered in China (Goldstein 1997, Pg. 4). The Manchu Qing Dynasty from the 17th century managed to induce subordination in Tibet, and Qing emperors introduced a series of reforms to reorganize Tibetan religious and political institutions. Manchu imperial residents (*amban*) were also stationed in Lhasa to "keep a close watch on the leaders of Tibet and oversee the garrison in Lhasa" (Goldstein 1997, Pg. 6). In 1912, Qing collapsed, and the last *amban* was banned from Tibet. For the next four decades, Tibet enjoyed de facto independence from China, as the Republic of China (ROC) government was unable to assert authority on Tibet, despite the

[4] During the interview, an elderly resident in Zang-Yi Corridor, who was of mixed-blood ancestry and a descendant of one of three Han migrant families during Qing Dynasty, recalled numerous cultural integration between the two ethnic groups. These included Chinese participation of *bu Zhe*, or village-wide meal gatherings with Tibetan neighbors, and Tibetans useing chopsticks and Chinese ovens.

[5] The author also mentions grain subsidies to soldiers who married Tibetan women during Qing Dynasty. In this regard, intermarriages were encouraged by government policies as well.

[6] In this regard, explaining the geographic origin of Tibetans may differ from other ethnic groups located in remote regions. For example, Scott (2009) suggests that in the case of Southwest China those living in the highlands may be more hostile towards those living in the valleys and lowlands, since they made a conscious choice to avoid integration with the central state by moving to mountain slopes.

ROC government's claim of sovereignty (Lin 2006, Goldstein & Rimpoche 1989). Nevertheless, Tibet's claim for independence during this period did not receive international recognition. The Silma Convention signed between Tibet and Britain "declared that Tibet would be autonomous from China, but also acknowledged Chinese suzerainty over Tibet" (Goldstein 1997, Pg. 33). The ambiguous relationship between Tibet and China was to be cleared when the Chinese Communist Party (CCP) came into power. After the CCP achieved victory in the Chinese Civil War in 1949, the new communist regime made clear its mission to reunify China according to the territory boundary of the Qing. The CCP ensured that the annexation of Tibet was one of the main tasks for the People's Liberation Army (PLA), and in October 1950 the PLA captured Eastern Tibet. With its demonstration of military prowess, the PLA however did not immediately march towards Lhasa. Instead, Mao Zedong intended to use negotiation to peacefully bring Tibet into fold. With the Tibetan government failing to secure international support through its first appeal to the United Nations in 1950, the government decided the best option was to start serious negotiations with Beijing (Goldstein 1997, Pg. 95). On May 23, 1951, the famous Seventeen-Point Agreement was signed, which formally ended Tibet's de facto independence.

A series of protests ensued after Tibet lost its independence. The first widespread revolts in ethnic Tibetan regions occurred in Sichuan, Qinghai and Gansu provinces in 1956, and met with severe repression from the PLA troops. In March 1959, a popular revolt among Tibetans in Lhasa followed after a rumor had spread of the Dalai Lama potentially being kidnapped by the PLA. Afterwards Tibetan guerilla fighters established a base in Mustang, Nepal and the clandestine resistance army continued for a decade, despite the limited success in making inroads into Tibet itself. Within Tibet, during the Cultural Revolution, another main revolt occurred in Nyemo in 1969, which was characterized by extreme brutality against the Chinese

presence. Under the leadership of a Tibetan nun Thrinley Choedron, a small guerrilla war was waged against the Chinese state, but was quickly defeated by the PLA (Goldstein, Jiao & Tanzen 2009). Between 1987 and 1989, Tibet yet again witnessed mass protests and unrest in Lhasa, starting with monks marching from Drepung monastery to the capital city Lhasa to stage a pro-independence demonstration. Throughout the 1990s and 2000s, sporadic protests waged by Tibetans in China occurred, leading up to the protests in 2008.

In October 2007, when monks at Drepung Monastery in Lhasa attempted to celebrate the awarding of the US Congressional Gold Medal to the Dalai Lama, several monks were reportedly arrested by the Chinese security forces (ICT 2008). On March 10, 2008, the 49th anniversary of the Tibet uprising in 1959, monks in several monasteries in Lhasa marched through the center of the city, demanding the release of the previously arrested monks, but also shouting pro-independence slogans and waving the Tibetan snow lion flag (Topgyal 2011). The protests in 2008 spread from Lhasa, the capital city of Tibet Autonomous Region (TAR), to other ethnic Tibetan areas in Sichuan, Gansu, and Qinghai Provinces (collectively called Tibetan Autonomous Prefectures, or TAP). They continued for several months from March well into the summer of 2008, right before the start of the Beijing Olympic Games. With calls for support for the Tibetans and outcries against Beijing's hard-line crackdown, the global Olympic torch rally in many Western societies became the stage of pro-Tibet protestors clashing with pro-China nationalists, emboldening Tibetans' understanding of the amount of international support they would garner. Severe crackdown from the Chinese state followed, which again led to further resistance protests targeting the sending of patriotic education teams or paramilitary troops into local monasteries (Barnett 2009, Pg. 14). Throughout the spring, there were more than 100 protests in ethnic Tibetan areas. The demonstrations have continued in a smaller scale to 2013, with reports of self-immolation covered by the international media.

3 Altitude and Genes

Altitude illness is a collective term that encompasses major conditions caused directly by hypobaric hypoxia, or lack of oxygen due to falling in partial pressure oxygen in high altitudes (Murdoch, Pollard & Gibbs 2006). It is the only condition in which traditional technology is incapable of mediating its effects among the various environmental stresses that modern humans have encountered and succeeded in overcoming (Yi & et al. 2011). Deprivation of adequate oxygen supply leads to severe physiological stress, leading to a number of symptoms including headache, loss of appetite, nausea, vomiting, fatigue, weakness, dizziness, light-headedness or sleep disturbance. Murdoch et al. (2006) describes the general impact of oxygen decrease as one ascends mountain slopes; in the range between 1500 and 2500 meters there is a decrease in exercise performance and ventilation, but arterial oxygen saturation remains above 90 percent. Between the 2500 and 3500 meter range, the illness becomes common, and past between 3500 and 5800 meters, arterial oxygen saturation falls below 90%, below the normal range of 93 to 100 percent. Above 5800 meters, progressive physiological deterioration occurs because successful acclimatization, or adjustment to the hypoxia of high altitude, cannot be achieved, and permanent human habitation is impossible. Murdoch et al. (2006) argues that while there is considerable interpersonal variation in the ability to acclimatize, there is a strongly direct correlation between altitude and the occurrence of illness.[7][8]

Due to large inter-individual differences in the ability to acclimatize, as well as lack of large-scale studies reporting the effects of exposure to high altitude on the prevalence of altitude

[7] Murdoch et al. (2006) provides a series of examples, in which approximately 25% of visitors who ascend rapidly to altitudes between 2000 and 3000 meters in Colarado experience acute mountain sickness, while in Nepal, about 50% developed AMS at altitudes above 4000 meters, even after 5 or more days of acclimatization. Acclimatization takes longer the higher the altitude, with an ascent rate of 300-400 meters per day above 3000 meters.

[8] On a similar note, the key altitude ranges defined by the Indian Army for its acclimitisation schedules for its foot soldier is set up as follows: Stage I (2700m-3600m), Stage II (3600m-4500m), and Stage III (>4500m) (Tyagi & Malik 2008)

illness, measuring the elevation at which the illness occurs for Han Chinese is difficult. The period between 2001 and 2005 in Tibet however does provide an invaluable quasi-natural experiment on how different groups adapt to high altitudes. During this period, the construction of the highest railroad in the world, the Qinghai-Tibetan Railroad, was completed (West 2006).[9] Each year more than 20000 construction workers ascended to the various construction sites. The 5 year period, during which a total of 78712 lowland workers ascended to high altitudes to work on the railroad, provides a unique study setting on a massive scale relevant to this paper's empirical analysis. The findings indicate that even after a long time period, it was difficult for healthy Han Chinese workers to adapt to the region.[10]

Finally, differences in the physical attributes of Chinese and Tibetans find most support from the genetics literature, which suggest their genetic differences to have stemmed from Tibetans' long-term biological adaptation to high-altitude hypoxia. In a review of accumulating data linking various genes to altitude illness, MacInnis & et al. (2010) reports 58 genes to have been investigated, of which 17 have shown some association with the sickness, and that the accumulating data are consistent with a polygenic condition with a strong environmental component.[11] Simonson & et al. (2010) similarly finds in Tibetans frequent occurrences of

[9] Wu (2009) describes the topography on which the railways were built on; the track connects Golmud (2808m) and Lhasa (3658m), and runs 1142 kilometers; about 85% of the track is situated above 4000 meters, culminating at 5072 meters when crossing the Tanggula Pass (Wu 2009).

[10] A randomized experiment taken during the period included 600 lowlanders, who were all healthy, nonsmoking, male Han Chinese born and lived at sea level, who had no history of prior exposure to high altitude, who were free from any pre-existing disease before ascent or using any medication, and who commuted for 5 years between near sea level and higher altitudes. This group of subjects was compared to 600 other lowland workers, recruited each near upon their first ascent to high altitudes as newcomers. The sample pool was also compared to 200 Tibetan workers native to the average 4500-meter altitude environment. The incidence and severity of AMS in commuters were lower upon each subsequent exposure, whereas they remained similar in newcomers each year. AMS susceptibility was thus lowered by repeated exposure to altitude, but still higher than the Tibetan counterparts who had no AMS; exposures therefore increasingly protected lowlanders against AMS, but did not allow attaining the level of adaptation of altitude natives. Importantly, Qi & et al. (2009) reports in a separate study that after 6 days' acclimatization at the altitude of 2800 meters, the adaptive Han Chinese railroad workers were assigned to different workshop sections ranging from 4000 to 5072 meters above sea level and participated in the railway construction. While most healthy workers were easily adapted to the high altitude of 2500 meters, which is the threshold commonly attributed in medicine as the altitude above which altitude sickness occurs, the onset of HAPE was present within 2–6 days after ascending to higher altitudes.

[11] In addition, Beall & et al. (1998)'s analysis reveals that the proportion of phenotypic variance in hemoglobin concentration attributable to genetic factors (i.e., the heritability of hemoglobin concentration) was 86 percent

genes whose products are likely involved in high-altitude adaptation and associated with the decreased hemoglobin phenotype that is unique to this highland population. Tibetan natives, compared to Han Chinese or South American high-altitude natives, also have a remarkable lack of muscularization of pulmonary arteries and low constriction of blood vessels as a response to deficiency in oxygen reaching the tissues. (Gupta, Rao, Anad, Banerjee & Boparai 1992, Groves & et al. 1993, Beall & et al. 1998).

4 Empirical Strategy

Identifying the causal relationship between Han Chinese presence and political mobilization is potentially fraught with difficulties. Most importantly, one cannot be certain that the decision by Han Chinese to live in certain regions is uncorrelated with the cultural background of the highlanders. It is plausible that the Chinese may have disliked geographically similar places for unobservable reasons correlated with current level of uprisings, such as certain regions having particularly hostile local Tibetan highlanders. This latent animosity likely have influenced the decision process, but is not observed. In such case, the instrumental variables estimation approach can be useful. As discussed in the previous section, Tibet provides a unique case in which elevation is strongly correlated with settlement patterns of different ethnic groups due to their physiological differences and altitude illness. The paper exploits the likelihood that the Han migrants would have become ill due to high altitudes as an important determinant for their decision to settle in the area. The claim is that the initial Han presence in certain Tibetan towns may have been influenced by the group's inability to adapt to new altitudes, and this physiological hindrance to living in certain places has led to different levels of Han presence across Tibet and its surrounding regions. This variation in ethnic concentration in

in the Tibetans and 87 percent in the Andeans.

turn has influenced the level of political mobilization. If a region was located at a high altitude, the region remained predominantly Tibetan as outsiders were more exposed to altitude illness. These regions were not any more likely than otherwise geographically similar ones to have attracted Tibetan population more hostile towards the Han prior to the initial interaction with the outsiders. This paper therefore uses the mean elevation as an instrumental variable for the Han presence in the region, as it identifies variations in "Tibetanness" due to altitude mountain sickness.

In the following regressions, a number of variables are included to control for other mechanisms through which elevation may have contributed to the protest outcomes. First, when Han Chinese settle in Tibetan regions, they may choose to live in the land close to the provincial border or the capital city. Due to the nature of Tibetan geography, these lands may also be located at lower altitudes. Whether or not to settle in the lowland region can be a decision made from assessing how much one could gain from proximity to other Han people and also benefit from economic prosperity in urban areas. This is clearly a different argument from assuming that the choice to settle in the region is based on hypoxia. To address this concern, the paper includes the geographic coordinates, county area, as well as the road distance to the provincial capital as controls.

Second, the assumption of elevation affecting settlement choices only through hypoxia will be violated if regions differed in important ways in their initial conditions. For example, the more attractive for agriculture a region was, the more likely it would have been settled by agricultural migrants, and elevation may simply reflect the kinds of biogeography that exist in each region.[12] The paper therefore also controls for vegetation coverage in Tibet at the

[12] Michalopoulos (2012) for example argues that the origin of different ethnic groups may come from variations in biogeography of the land, which determines different lifestyles and occupations of the people. It is not clear however whether Tibetan agriculturalists associate themselves closer to the Han, who were predomoinantly agricultural, or to their Tibetan neighbors herding animals in higher altitudes.

county level. Finally, there are contemporaneous endogenous factors that may be correlated with altitude, and in turn influence the protest outcomes. These include the urbanization rate, education attainment, central authority presence and industry presence in each county. The paper runs a number of placebo checks to find that the elevation measure does not explain these other variables, and is only correlated with the level of Han concentration.

5 Data

The protest data in 2008 were mainly gathered from TibetInfoNet, an independent information service on contemporary Tibet, with details supplemented by reports from International Campaign for Tibet Organization (ICT 2008).[13] They were then cross-checked with information gathered from the Department of Information and International Relations, Central Tibetan Administration in Dharamsala, India (DIIR 2008). In the few cases where the reports differed in the occurrence of an incident, the observations were dropped.[14] These accounts are recorded at the county-level. The current county boundaries of east and south regions of TAR and TAP are primarily based on previous tribal borders , while those in the west are mainly drawn from historical administrative borders of the central Lhasa government before Qing Dynasty. Historically, each county centered around a Dzong (fort), and had a monk and Dzong-pon (civilian-Lhasa delegate administrator) to collect taxes. For each county, this paper reports whether a protest occurred or not, as well as how many incidents occurred.

According to the classification introduced in ICT (2008), a protest may involve any act of demonstration that involved one or more groups of people including laypeople, monks, nuns, and students. These demonstrations also lead to one or more outcomes including detentions,

[13] For a full list of sources from which the incidents reports are obtained, see tibetinfonet.com. The sources come from Tibetan, Chinese as well as international media.

[14] Out of a total of 160 counties in TAR and surrounding counties, 19 counties had conflicting incident reports. 2 counties in Gansu, 4 counties in Qinghai, 6 in Sichuan and 7 in Xizang were consequently dropped from the analysis. Dropping these counties does not change the main results presented in this paper.

casualties, and fatalities. Violence, if any, could have been perpetrated by security forces, protestors, or by both sides. This broad categorization of protests was intended to capture any evidence of unrest in the Tibetan regions, but at the expense of showing any meaningful relationship between population size and protest intensity. Any event is counted as an incident as long as some casualty, fatality or detention is involved, regardless of the actual number of people involved. Given the intentionally inclusive definition of what constitutes a protest, there is essentially zero correlation (coefficient value of -0.05) between the county population and the likelihood of a protest, or between the county population and the number of incidents recorded (0.05). These protest indicators should therefore be construed broadly as measures of political mobilization en masse, rather than as per capita level of protest intensity. In the following analysis both a binary indicator for whether a protest occurred in a county, and the actual number of protests recorded are used as dependent variables.

The following analysis controls for a number of geographic variables. Each county's ecological surroundings are defined by a set of fractions of the land occupied by different biomes from ESRI 2008 Data. These biomes are identified as climatically and geographically different from each other. Temperate Broadleaf and Mixed Forests, and Temperate Conifer Forests are grouped together as Temperate Forest (Mixed Forests include Coniferous forests). Other types of biomes include Deserts and Xeric Shrublands, Montane Grasslands and Shrublands, Rock and Ice, and Tropical and Subtropical Moist Broadleaf Forests. The set of ecological variables provide information on the type of plant structures, climate and vegetation occupying each county. They describe the different habitat types which likely influenced the initial settlement patterns of people in history. The empirical analysis also includes standard geographic coordinates and area, as well as the road distance to the provincial capital for each county. Finally, the paper uses county level contemporaneous variables from China's National Bureau of Sta-

tistic's *Historical China County Population Census Data with GIS Maps* for the year 2000. These include the ratio of Han population to total county population, urbanization and college graduates per county population, as well as the number of government or party agents, and professional or technical employees per county population.

6 Findings

Map 1 first shows the spread of Han Chinese in Tibetan regions. The counties north of TAR, which have been integrated as part of China since the Qing dynasty, continue to show strong concentration of Han population. Most counties in TAR on the other hand appear to have had relatively little Han immigration. Table 1 shows that on average about 17 percent of county population are identified as Han, and 75 as Tibetan. Together these two groups make up for more than 90 percent of total population, with the rest of population split among the other 54 ethnic groups in China. For comparison, Map 2 shows that counties east of TAR predominantly experienced protests, as well as those in TAR. About one third of all counties included in the analysis experienced one or more protests in 2008, with an average of 0.76 incident per county.[15] The highest number of incidents is reported in the provinces of Xizang (TAR) and Sichuan with 14 incidents each, and is closely followed by Qinghai Province that saw 13 incidents of protests. On the other hand, 6 out of 7 counties in TAP Gansu province witnessed uprisings, in contrast to those in Yunnan which experienced zero reported protest. 94 out of 141 counties experienced zero incident, and these counties are spread throughout all five provinces. The wide spread of protests is evident in the statistics and there are significant

[15] About 30 percent of all incidents were reported as having direct involvement of monks, and a smaller percentage of the total number of incidents (5%) were reported as having nuns involved. About 7 percent of the incidents resulted in one or more fatalities, and about 5 percent of the reported incidents had accounts of violence from the protestors. Overall the number of incidents resulting in one or more casualties is low, with 13 percent of the total number reporting such outcomes. A higher number of incidents had reports of detentions and protestors being taken away; the data do not provide details on the aftermath of detentions, and thus the actual number of casualties is likely underrepresented.

within-province variations in incident occurrences.

The average county elevation is 4120 meters, and 38 percent of the counties are located at altitudes higher than 4500 meters. According to Paik & Shawa (2013), 4500 meters is the benchmark elevation at which most townships with Tibetan heritage are found; no townships with Han heritage is located above 4600 meters, and most Han-integrated townships are found at around 2700 meters above the sea level. The mean Han concentration at the county in 2000 is the highest at around 2500 meters above the sea level, which then drops sharply as the county mean altitude increases. The Han concentration is close to zero above 4250 meters in altitude. On the other hand, the likelihood of experiencing one or more protests increases in altitude and peaks around 4500 meters. While most counties with Han presence are located in the lowlands below 3500 meters in altitude, counties experiencing protests are generally located above 3500 meters and the likelihood of protest decreases only past 4500 meters. These trends suggest a negative, potentially nonlinear relationship between Han presence and political mobilization.

Out of 88 counties which have mean elevations below 4500 meters, 24 of them are completely covered by shrubs. Furthermore, 77 percent of these counties (68 out of 88) have more than half of the land covered with shrubs. Shrubs continue to be the dominant vegetation type above 4500 meters; 21 out of 53 counties are completely covered by it, and all except one have more than 50 percent of the land covered with shrubs. Most counties above 4500 meters (52 out of 53) have less than half the land covered by temperate forest. However, the majority of counties below the peak elevation (69 out of 88) also have less than half the land covered by temperate forest as well. 37 counties above and 29 counties below 4500 meters all have zero temperate forest coverage, suggesting that the vegetation spread along the elevation benchmark have no sharp discontinuity. In summary the fraction of shrubs and temperate forests together occupy 98% of the regions.

Tibetan counties with more Han presence may simply be closer to the borders along China and to the provincial centers, sharing similar biogeographical endowments. In such cases, these areas would have naturally had more Han population regardless of altitude illness. The first stage regression results of Table 2a show that when the dependent variable is the fraction of population identified as Han Chinese, the mean elevation remains statistically significant when including geography, vegetation, and road distance. The result in Column 3 for example suggests that an increase of 100 meters in the mean county elevation leads to roughly a 6 percent decrease in the county Han concentration level. The altitude illness effect on Han migration is statistically significant, and the instrumental approach to using the elevation measure for Han concentration seems plausible.

However, the altitude factor may also have direct impact on other variables. A plausible argument is that elevation changes the likelihood of protest through contemporaneous endogenous variables, such as urbanization and the level of education. The presence of government agents and high-paying jobs in professional or technical sectors may be also influenced by altitude climate, since one can imagine the difficulty of establishing businesses or schools in remote highlands with little infrastructure. Consequently higher authority presence, lack of human capital as well as employment opportunities may all lead to grievances against the administration. Table 2b runs a series of placebo checks and finds that the elevation measure does not explain these other socioeconomic factors, but does explain the variation in Han concentration with strong statistical significance.

In Table 2c, the dependent variable is a binary indicator for whether a county witnessed a protest or not. Columns 1 to 6 measure the average effect of the Han Chinese presence measure on the probability that a county reported at least one protest incident in 2008.[16]

[16] Under the probit specification, two of the biogeography control variables, fraction of county occupied by Desert and Tropical Forest were dropped because a subsample of the data predicted failure perfectly. The two variables were consequently dropped from the regression results (Davidson & MacKinnon 1993, Pg. 73).

Under both probit and province fixed-effect OLS specifications, the Han concentration variable gives statistically significant and negative coefficient values. The result in Column 3 for example suggests that a 10 percent increase in Han population will reduce the likelihood of experiencing any protest in 2008 by 13 percent. As the regression results show, the effect of Han concentration is robust to matching towns by location, size and biogeography. Columns 5 and 6 in Table 2c present IV results; the effect is negative and statistically significant. The magnitude of the effect slightly increases relative to the OLS specifications. The coefficient value suggests that a 10 percent increase in the fraction of county population identified as Han leads to a 11-12 percent decrease in the likelihood of experiencing at least one protest. As a robustness check for using the binary dependent variable, Table 3 shows empirical results with the same specifications as Table 3, but with the number of protests as the dependent variable. The findings confirm the negative impact of Han integration on political mobilization. Columns 1 to 2 show that the Han integration effect remains negative and reduces the number of incidents by 70-80 percent of what it might have been otherwise. The OLS, Tobit and 2SLS estimation give similar negative coefficient values for the Han concentration variable. The result under Column 7 suggests that a 10 percent increase in the fraction of population identified as Han leads to a decrease in the number of protest by 1.16.

7 Discussion

This section discusses several potential mechanisms at work in Han-integrated areas, leading to reduced violence over time. Most importantly, Han presence appears to have diminished the local influence of Tibetan Buddhism, the epicenter of the Tibetan independence movement. The traditional theocratic nature of the Tibetan political system meant that "Buddhist ideology and values dominated the population's world view and the state's raison d'être" (Goldstein 2007,

Pg. 23).[17] Buddhism in Tibet had the distinct feature of mass monasticism that encouraged people, particularly males, to join local monasteries; this meant that Tibetan families had close familial ties to the monasteries. Before 1951, there were about twenty-five hundred monasteries in Tibet. Surveys showed that there were 97528 monks in Central Tibet and Kham in 1694, and 319270 in 1733, about 13 percent of the total population (Goldstein & Rimpoche 1989, Pg.21). An estimate in 1930 reported that between 10 to 20 percent of Tibetan males were monks (Goldstein 2007, Pg. 13). Monasticism in Tibet, therefore, was "not the otherworldly domain of a minute elite but a mass phenomenon" (Goldstein & Rimpoche 1989, Pg.21). Traditionally the overwhelming majority of monks were placed in monasteries by their parents. Becoming a monk was lifelong commitment and the monks helped support their families by sharing the money distribution that monks received throughout the year. In other cases, recruitment was the result of a corvee tax obligation: monastic serfs with three sons often had to make one a monk. Monks faced economic problems in the case that they chose to leave their monasteries; they lost whatever rights they might otherwise have had in their family farm when they entered the monastery, and also reverted to their original serf status and were liable to for service to their lord (Goldstein & Rimpoche 1989, Pg.23). Tibetan monasteries were also the largest landowners with concentrated manorial labors. This political system, from the point of view of the CCP when they first came into Tibet in 1950, was the main obstacle for socialist reforms, and one of the main causes for subsequent conflicts. For those in a Tibetan region, more Buddhist followers with the same faith meant more resources and organization that could be drawn upon. Political mobilization in a region has thus mainly been carried out by local monks, who make up a substantial proportion of the entire population.

The regions with higher Chinese concentration on the other hand would likely have had less

[17] The Dalai Lama, regarded as the reincarnation of the Bodhisattva Avalokiteshvara, has been both Tibet's religious and political leader.

exposure to both the cultural and political influences of the religious institution. In contrast to highlands, lowlands historically saw integration between Chinese and Tibetan through incidents of intermarriages. Neither mixed nor purely Chinese families would have been required to send their sons to become monks in local Tibetan monasteries, which in turn made the continuation of monastery dominance difficult in the region. The Chinese also set up schools and temples which Tibetans were able to join as well.(Yodron 2010) The intermarriage phenomenon may have been due to the region's unique demographic imbalance. According the Tibetan tradition families sent their male children to local monasteries to become monks. Furthermore, male inheritance and residence by sons in the parental home were not strongly tied to the Tibetan culture. For example, when a Tibetan family only had daughters, the eldest daughter would become the head of the household, carry the family name and her husband would take the household's name as well. On the other hand, general preferences for sons likely contributed to a high sex ratio (the number of men to each woman) in China (Edlund 1999). These cultural differences and the subsequent unbalanced sex ratios likely provided a favorable setting for intermarriages, in which the ethnic salience of Tibetans became less pronounced, and the importance of Tibetan identity undermined..

In addition to ethnic integration, the spread of Tibetan Buddhism and establishment of monasteries in Chinese regions would have been difficult for several reasons. First, the loyalty of the people was to the their local monasteries, with little concern for the spread of Tibetan Buddhism to other regions. According to Goldstein & Rimpoche (1989), while prominent monasteries, such as Dera, Drepung and Ganden monasteries in Lhasa (called *densa sum,* or the "three seats") had networks of affiliated monasteries throughout the country, there was no abbot for the whole monastery; the overall entity, the monastery, was in reality a combination of semi-autonomous subunits known as *tratsang*, or colleges. Each monk from abroad had to

enroll in a specific residential subunit known as *khamtsen*, determined by his region of origin; *khamtsen* therefore exhibited considerable "internal linguistic and cultural homogeneity"- the membership was automatic and mutually exclusive. This tendency for highly localized devotion of monks to their regions implied that there was little collaboration across the colleges, and even less across counties for establishment of monasteries in Chinese-dominant areas.

Second, in addition to lack of initiatives for monks to spread their Tibetan values to regions outside their local areas, laypeople had little individual incentives to invest in a relationship with monasteries outside of the familial ties. New monasteries were expensive to build, and people already had relations with the monasteries in which members of their families were monks. Third, until 1960 the majority of the country's land and people were organized into manorial estates, and most Tibetans were serfs bound to the aristocrats' lands. There was essentially no movement of people across different counties, and Tibetans' loyalty remained in the monasteries in their home regions. The consequent repression of Tibetan Buddhism after 1960 by the Chinese government meant that any spread of Buddhist beliefs was restricted even further. When the people's sovereignty came under threat in the 20th century, however, the tightly knit local network of Buddhist communities across Tibet witnessed collective action and collaborative interactions under the same religious teachings. The collective body became in fact the main social capital of the region.[18] People united under the teachings of monks, emphasizing Tibetan culture and identity, which in turn fostered Tibetan nationalism (Kolas 1996). At the same time, spread of Buddhism in the integrated regions faced the historical manorial system restricting migration, Tibetans' familial ties to local monasteries, segregated structure of monks

[18] This concept of social capital closely follows previous works on the virtues of social organizations and collective action based on pre-existing norms and culture. See Drescher (1968), Putnam, Leonardi & Nanetti (1993), Platteau (2000), Boix & Posner (1998). Tsai (2007) and Padro-i Miquel, Qian, Xu & Yao (2012)'s work specifically discuss the importance of village and ancestral templs as the main social capital that enforce accountability and democracy.

based on the geographic origin and continuous pressure from the Chinese government. These factors meant that the Tibetan independence movement did not proliferate in these regions, even as Buddhism continued to define the political discourse of Tibetan nationalism elsewhere.

8 Conclusion

In regards to the central administration's control over the 56 ethnic groups living in China, sinicization of Tibet stands out as a unique case. The region's formidable terrains have essentially blocked much of the Chinese settlement from the east since the ancient times and confined inter-ethnic relations mostly to the region's geographically defined borders. The large plateau environment distinguished the region from other ethnic groups living in high altitudes. Tibetans were not confined to small living areas along steep mountain slopes, nor were they driven by the central authority in history to the highlands, but continued to be separated from the outsiders by natural barriers. The sinicization process however has accelerated beyond any historical precedent since 1949, and the region witnessed rapid industrialization through the construction of paved highways and the completion of the Qinghai-Tibetan railway. The Han-Tibetan integration, led by economic development in urban centers attracting Han migration, reflects the central government's future direction of ethnic policy in Tibetan areas. Certain places in Tibet, such as Bayi, have been specifically designated as new development centers by the Beijing administration, and have seen a rapid growth of Han population. These places tend to be located in the lowlands and are now reachable with little travelling concerns. The outcome from this paper implies that it may indeed be difficult for Tibetans to penetrate these lowlands and push for Tibetan independence, since the diminished presence appears to lead to increasing acceptance of assimilation. It also suggests however that even with the railway completion, the Beijing administration may have much harder time with the Tibetans in the

highlands as few Han Chinese are willing to settle and Tibetan beliefs in independence remain strong.

In response to the changing times, Tibetans' resistance towards the Chinese state has manifested in grievance and fear over Han Chinese in-migration and settlement in ethnic Tibetan areas. In a five-point proposal made in 1987 during his address at the US Congress, the Dalai Lama specifically pointed out the demand that China should abandon its population transfer policy (Shakya 1999, Pg. 415). In 2008, the Dalai Lama once again claimed that Beijing was planning mass settlement of Han Chinese and Hui Muslims in Tibet to dilute Tibetan culture and identity (Borger 2008). This paper provides evidence to warrant such concerns, especially if one considers active political mobilization as a manifestation of the Tibetan identity. For a similar case study, one can look back in history and find that China-based empires had the pattern of settlement of Han Chinese population in peripheral regions to solidify control (Pan 1992). As an example, during the late Qing period the empire faced growing threats from the Russian Empire, and encouraged the settlement of Han Chinese in Mongolia and Manchuria to boost its control of these peripheral regions. The continuing settlement of Han Chinese into Inner Mongolia led to marginalization of Mongols in their ancestral land today, and may explain the much subdued ethnic Mongol activism (Bulag 2004). Manchuria has become three northeastern provinces with overwhelmingly Han Chinese population, such that the Manchus have both lost their native language and been completely assimilated.

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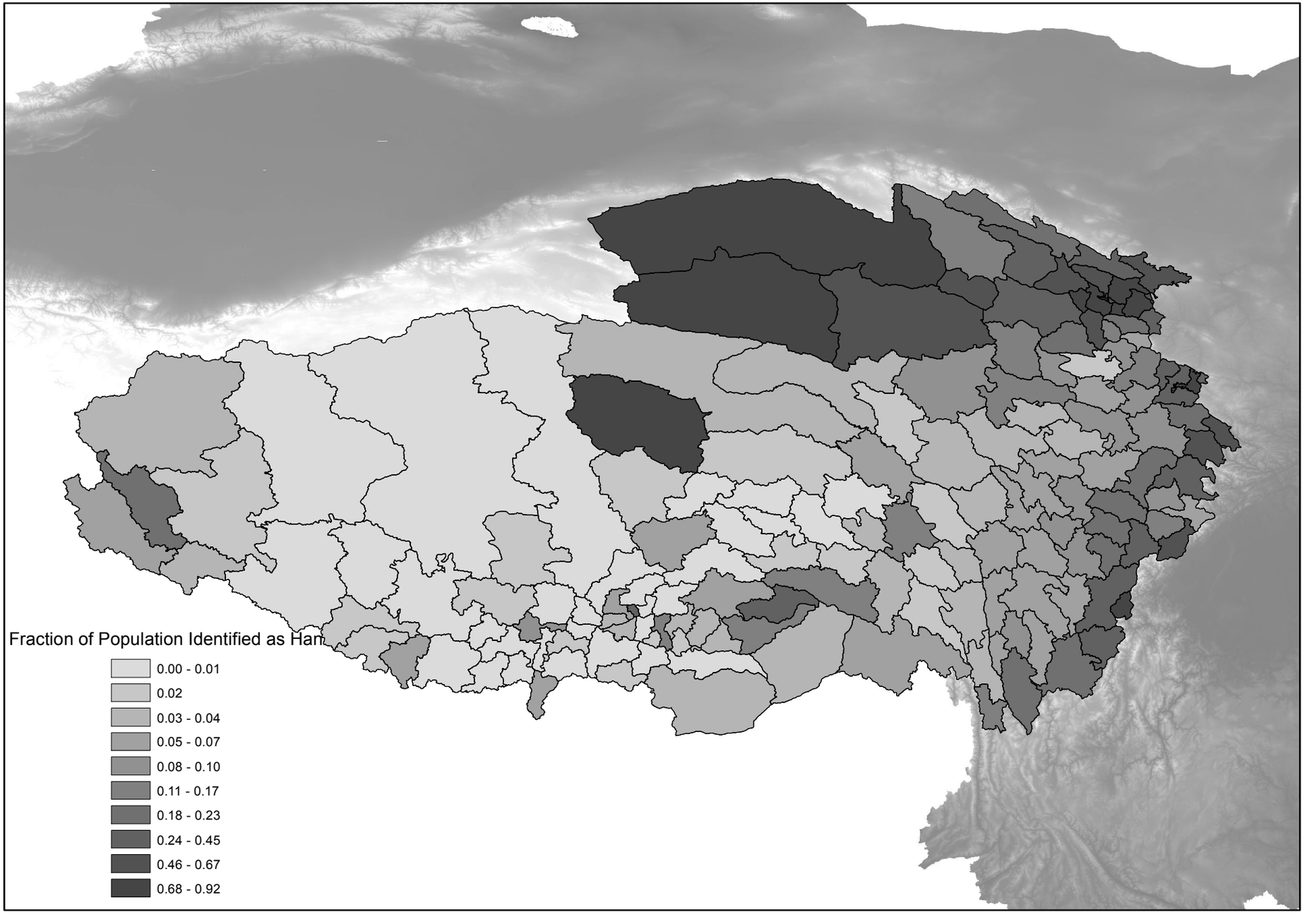
Map 1: Han Population Spread



Map 2: 2008 Protest Movement in Tibet

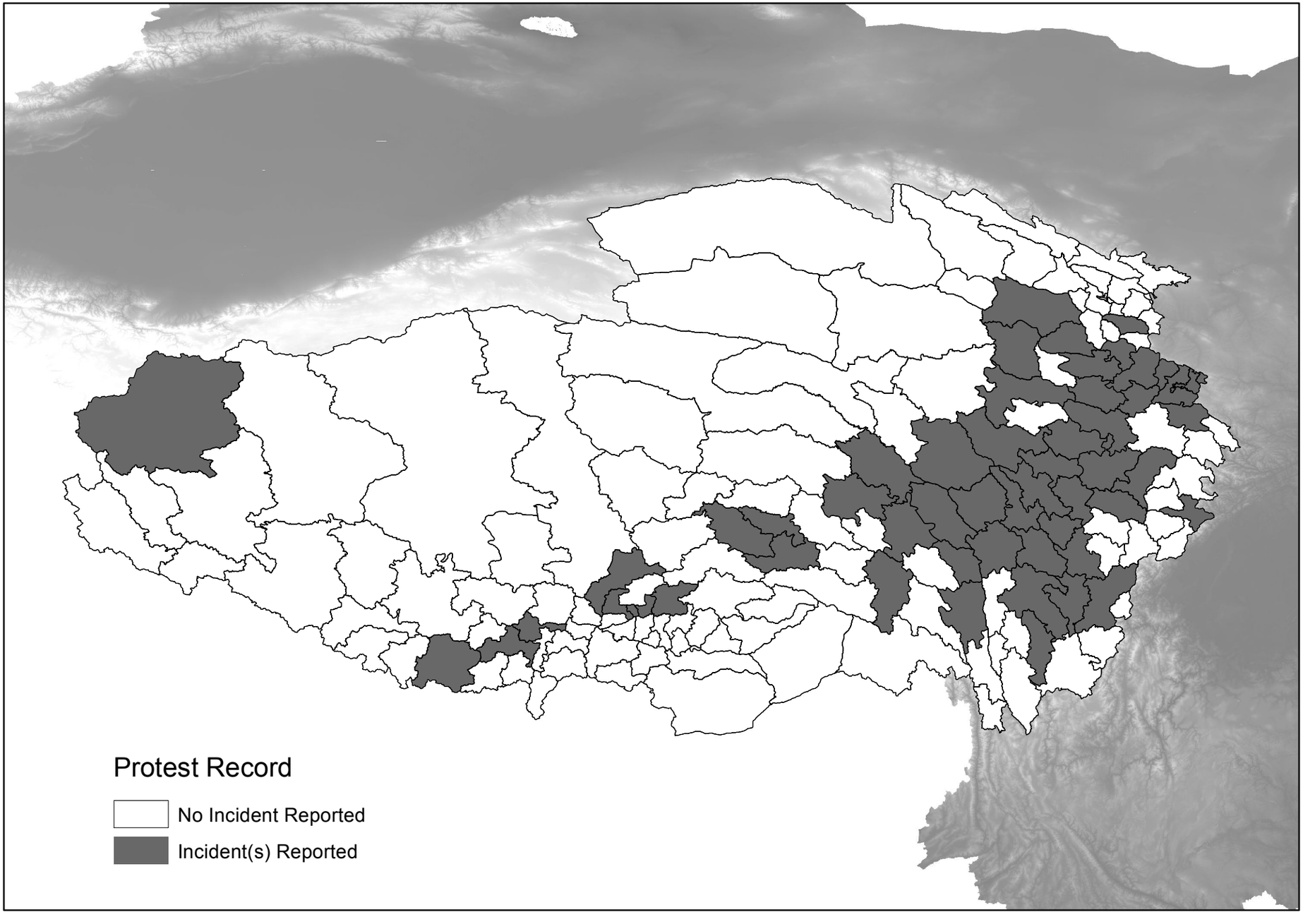


Table 1: Summary Statistics

VARIABLES	(1) N	(2) mean	(3) sd	(4) min	(5) max
Protest Recorded	141	0.333	0.473	0	1
# of Incidents	141	0.759	2.204	0	22
Frac. of Pop. Identified as Han	141	0.167	0.243	0.00219	0.920
Frac. of Pop. Identified as Tibetan	141	0.749	0.332	0.0112	0.997
County Mean Elev. Km	141	4.120	0.750	2.192	5.155
Mean elevation-squared	141	17.53	5.850	4.804	26.58
County Mean Latitude	141	32.00	2.906	27.45	38.33
County Mean Longitude	141	95.84	6.162	79.54	104.3
County Area in Mm-Sq	141	0.0144	0.0240	2.55e-05	0.171
Shrubs as Frac. of County Area	141	0.785	0.277	0	1
Desert as Frac. of County Area	141	0.0138	0.0923	0	0.923
Temperate Forest as Frac. of County Area	141	0.185	0.274	0	1
Tropical Forest as Frac. of County Area	141	0.000649	0.00584	0	0.0653
Distance to provincial capital, in 1000km's	141	0.492	0.361	0	1.572
Frac. of Pop. in Urban Area	141	0.169	0.208	0	1
Frac. of Pop. Illiterate	141	0.340	0.154	0.0419	0.653
Frac. of Pop. w/ College Education	141	0.00363	0.00779	0.000188	0.0631
Fraction Employed in Government/Party Agencies	141	0.0156	0.0141	0.000845	0.125
Fraction Employed in Professional/Technical	141	0.0592	0.0425	0.0141	0.254

Table 2a: First Stage Regression

Dependent Variable: Fraction of Population Identified as Han Chinese	(1)	(2)	(3)
County Mean Elev. Km	-0.645**	-0.748**	-0.559*
	(0.282)	(0.325)	(0.302)
Mean elevation-squared	0.058*	0.068*	0.049
	(0.033)	(0.040)	(0.037)
Shrubs as Frac. of County Area		-0.124	-0.179
		(0.199)	(0.211)
Desert as Frac. of County Area		0.495*	0.395
		(0.284)	(0.282)
Temperate Forest as Frac. of County Area		-0.188	-0.045
		(0.238)	(0.238)
Tropical Forest as Frac. of County Area		-5.924*	-4.682
		(3.392)	(2.984)
County Mean Latitude			0.036***
			(0.011)
County Mean Longitude			-0.012***
			(0.004)
County Area in Mm-Sq			-0.908
			(0.729)
Distance to provincial capital, in 1000km's			-0.143***
			(0.038)
Observations	141	141	141
R-squared	0.369	0.468	0.545
Number of Provinces	5	5	5
F-stat	9.782	11.88	16.79

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2b: Placebo Checks

VARIABLES	(1) Han Concentration	(2) Urbanization Rate	(3) College Attainment Rate	(4) Government or Party Agents	(5) Professional or Technical Employees
County Mean Elev. Km	-0.559*	-0.048	-0.025	0.008	-0.003
	(0.302)	(0.465)	(0.022)	(0.021)	(0.088)
Mean elevation-squared	0.049	-0.018	0.003	-0.002	-0.002
	(0.037)	(0.059)	(0.003)	(0.003)	(0.011)
County Mean Latitude	0.036***	-0.002	0.000	0.002	0.003
	(0.011)	(0.012)	(0.000)	(0.001)	(0.002)
County Mean Longitude	-0.012***	-0.020***	-0.000	-0.002**	-0.002
	(0.004)	(0.007)	(0.000)	(0.001)	(0.002)
County Area in Mm-Sq	-0.908	-0.636	-0.036	-0.095	-0.215
	(0.729)	(0.943)	(0.022)	(0.099)	(0.154)
Shrubs as Frac. of County Area	-0.179	-0.005	0.015	0.030	0.057
	(0.211)	(0.464)	(0.010)	(0.029)	(0.064)
Desert as Frac. of County Area	0.395	0.554	0.027**	0.036	0.131*
	(0.282)	(0.504)	(0.011)	(0.030)	(0.068)
Temperate Forest as Frac. of County Area	-0.045	-0.062	0.013	0.036	0.020
	(0.238)	(0.456)	(0.009)	(0.029)	(0.065)
Tropical Forest as Frac. of County Area	-4.682	-5.268**	-0.150*	-0.106	-0.608**
	(2.984)	(2.107)	(0.084)	(0.068)	(0.257)
Distance to provincial capital, in 1000km's	-0.143***	-0.101**	-0.003	0.007	-0.001
	(0.038)	(0.043)	(0.002)	(0.005)	(0.011)
Observations	141	141	141	141	141
R-squared	0.545	0.280	0.236	0.238	0.121
Number of Provinces	5	5	5	5	5
F-stat	16.79	7.150	4.134	3.171	7.669

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2c: Han Presence & Probability of Protest

VARIABLES	(1) Probit dF/dX	(2) Probit dF/dX	(3) OLS	(4) OLS	(5) IV-2SLS	(6) IV-2SLS
Frac. of Pop. Identified as Han	-0.586**	-1.375***	-0.846***	-0.895***	-0.865***	-1.132***
	(0.235)	(0.360)	(0.161)	(0.205)	(0.259)	(0.363)
Temperate Forest as Frac. of County Area	2.110*	-1.655	0.117	-0.988	0.120	-1.033
	(1.151)	(1.292)	(1.137)	(1.336)	(1.139)	(1.328)
Shrubs as Frac. of County Area	2.125*	-1.382	0.261	-0.642	0.260	-0.772
	(1.169)	(1.271)	(1.144)	(1.327)	(1.144)	(1.330)
Desert as Frac. of County Area			0.159	-0.372	0.168	-0.360
			(1.143)	(1.341)	(1.148)	(1.339)
Tropical Forest as Frac. of County Area			-0.381	-0.393	-0.388	-0.520
			(2.041)	(1.909)	(2.068)	(2.080)
County Mean Latitude		0.026		0.010		0.023
		(0.030)		(0.035)		(0.039)
County Mean Longitude		0.047***		0.028*		0.027*
		(0.015)		(0.016)		(0.016)
County Area in Mm-Sq		-3.197		-1.747		-2.041
		(4.237)		(1.173)		(1.282)
Distance to provincial capital, in 1000km's		0.046		0.099		0.040
		(0.170)		(0.152)		(0.170)
Observations	133	133	141	141	141	141
R-squared			0.169	0.210	0.169	0.203
Pseudo/Adjusted R-Squared	0.0543	0.231	0.105	0.123		
Number of Provinces			5	5	5	5

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3: Han Presence & Protest Incidents

VARIABLES	(1) Neg. Bin. Incidence Ratio	(2) Neg. Bin. Incidence Ratio	(3) OLS	(4) OLS	(5) Tobit	(6) Tobit	(7) IV-2SLS	(8) IV-2SLS
Frac. of Pop. Identified as Han	0.165*	0.236	-1.189	-0.944	-6.018**	-10.340**	-1.161*	-1.144
	(0.174)	(0.297)	(0.879)	(0.904)	(2.851)	(3.960)	(0.664)	(0.770)
Shrubs as Frac. of County Area	1.139	0.001*	4.524	2.701	25.932*	-5.977	4.526	2.591
	(0.298)	(0.003)	(3.139)	(3.521)	(13.899)	(14.747)	(3.125)	(3.311)
Desert as Frac. of County Area	0.000	0.000	4.191	3.272	-742.674	-744.111	4.176	3.283
	(0.000)	(0.000)	(2.901)	(3.427)	(0.000)	(0.000)	(2.982)	(3.450)
Temperate Forest as Frac. of County Area	0.598	0.000**	2.883	0.213	25.067*	-10.201	2.880	0.175
	(0.421)	(0.000)	(2.639)	(3.191)	(13.699)	(14.952)	(2.672)	(3.085)
Tropical Forest as Frac. of County Area	0.000	0.000	8.396	10.485	-10,479.085	-8,894.383	8.406	10.378
	(0.000)	(0.000)	(7.750)	(11.321)	(0.000)	(0.000)	(7.801)	(11.391)
County Mean Latitude		0.880		-0.005		0.019		0.006
		(0.109)		(0.103)		(0.321)		(0.088)
County Mean Longitude		1.124**		0.087*		0.445***		0.086*
		(0.066)		(0.048)		(0.159)		(0.051)
County Area in Mm-Sq		0.000		-5.738		-34.425		-5.987
		(0.000)		(4.230)		(48.455)		(4.155)
Distance to provincial capital, in 1000km's		1.867		0.775		1.390		0.725
		(1.217)		(0.613)		(1.767)		(0.750)
Constant					-26.726*	-37.856***		
					(13.674)	(13.749)		
Observations	141	141	141	141	141	141	141	141
R-squared			0.047	0.065			0.047	0.065
Number of Provinces			5	5			5	5
Pseudo/Adjusted R-Squared			-0.0261	-0.0383				

seEform in parentheses

*** p<0.01, ** p<0.05, * p<0.1