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Abstract

Little is known about the historical origins of political instability, and systematic empirical evidence remains limited. This paper addresses this gap by examining the historical determinants of political instability through the lens of the millennia-long centralized authoritarian monarchy in imperial China. Exploiting proximity to imperial capitals as a proxy for the strength of centralized statehood, we show that counties historically exposed to stronger and more persistent state penetration exhibit significantly lower levels of political instability today, as reflected in a lower incidence of anti-government protests. Our results further suggest that cultural transmission, rather than sustained development, demographic change, or institutional continuity, is the primary channel through which the legacy of long-defunct institutions endures.

JEL classification. N15, D72, P48, O40, R12.

Keywords. Centralization; Historical empires; Political stability; Culture

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1 Introduction

Historical institutions have shaped present-day economic development and cultural norms.[1] Exposure to different historical institutions has led to varying regional developments and cultural differences today (North, 1990; Acemoglu et al., 2001, 2005; Dincecco and Katz, 2016; Bockstette et al., 2002; Chanda and Putterman, 2007; Dell et al., 2018; Michalopoulos and Papaioannou, 2013; Nunn and Wantchekon, 2011; Alesina and Fuchs-Schündeln, 2007). As the rules of the game in a society, one of the important functions of institutions is the maintenance of political order and stability (Mishler and Hildreth, 1984).While existing research largely links protest occurrence in China to economic instability (e.g., Taneja, 1990; Knight, 2013; Yang et al., 2020), far less is known about whether and how historical institutions shape contemporary political stability. This paper examines whether closer historical proximity to a centralized authoritarian monarchy—characterized by absolute rule—reduces political instability today.

The centralized authoritarian monarchy (or autocracy) in ancient China is regarded as a primary form of governance within Chinese political institutions and endured for over 2,000 years. This regime concentrated state power in the hands of the emperor, allowing a single individual to exercise absolute authority and make arbitrary decisions. This stands in contrast to the tribal systems of nomadic groups, which were characterized by participatory self-governance. Their organizational structure was based on tribes, each led by its own leader responsible for managing daily affairs and external relations. The tribes operated relatively independently and typically lacked a unified central authority. These two different modes of governance are expected to affect political stability, but there is ambiguity over the direction of this effect. Centralized authoritarianism may suppress protests through concentrated power and coercion, yet it risks accumulating latent discontent that can trigger severe protests. In contrast, decentralized systems often meet people's demands, reducing protest levels, but increased freedom of expression may lead to higher protest frequency. Understanding this question is particularly significant because of the recent global rise in autocratic regimes and the trend of democratic backsliding (Riaz and Rana, 2024; Carothers and Press, 2022; Carothers and Hartnett, 2024)[2] and historical authoritarian monarchy in China bore similarities to other autocratic

[1] According to North (1990), institutions are defined as "the rules of the game in a society or, more formally, the humanly devised constraints that shape human interaction."

[2] The degree of democracy experienced by the typical global citizen in 2022 has reverted to the levels seen in 1986. This indicates that 72 percent of the world's population, or 5.7 billion individuals, are living under authoritarian regimes.

regimes such as the Tsardom of Russia, ancient France, the Ottoman Empire, and Saudi Arabia, which make the findings from this study of general interest.[3]

Our empirical analysis links present-day political instability across counties to the historical strength of the centralized system. We measure each county's exposure by constructing an index based on its geographic proximity to historical capital cities across different dynasties, weighted by terrain steepness, from the Qin dynasty (秦朝) , the first centralized dynasty, to the Qing dynasty (清朝) , the last imperial dynasty that ruled China until the early 20th century. The underlying intuition is that regions closer to a dynasty's capital experienced stronger administrative control and more frequent interaction with the central government. We also provide two additional measures of exposure to the centralized regime by using geographic data on the establishment of the "prefecture-county system" (郡县制) from the *China Historical Geographic Information System (CHGIS Version6)* and by digitizing annual maps from the *Historical Atlas of China*. Next, we match county-level proximity to the capital with the frequency of events related to political protests in modern China as a measure of political instability. We also perform robustness checks at the prefecture level and using alternative measures of political instability, such as anti-government armed attacks.

Our results show that the timing of exposure to the centralized autocracy system in ancient times continues to shape current day people's behavior, and has left a tangible imprint on today's public beliefs. We first examine the short-term effect by showing that proximity to the capital reduces the incidence of peasant revolts during the Ming dynasty (明朝), and then proceed to analyze the long-term effects. The ordinary least squares (OLS) results indicate that each additional century of exposure to centralized statehood is associated with a 2.4% decrease in the incidence rate of anti-government protests, and this finding remains robust after controlling for various factors, including demographics, culture, economic and agricultural factors, climate, geography, and policy triggers.

Although we control for multiple covariates, endogeneity may still arise if factors that determine historical proximity to the capital are also correlated with present-day political instability. In view of this, we use weather shocks as a plausible instrumental variable (IV), since they can exogenously affect regime boundaries and, consequently, the proximity to the capital. The underlying logic is that

See link at www.gu.se.

[3]The Tsardom of Russia, especially under Ivan IV (Ivan the Terrible) and the Romanov dynasty, exemplifies centralized authoritarian rule. In France, Louis XIV epitomized centralized authoritarianism in early modern Europe. The Ottoman Sultans maintained centralized authority over a vast empire for centuries. A contemporary example is Saudi Arabia, where the monarchy upholds centralized control over political and economic life.

climate shocks, such as droughts, disproportionately impacted herding by causing water shortages and withered pastures, which disrupted normal grazing and led to sharp declines in meat and food production. As a result, nomadic groups were pushed toward invasions for survival, typically moving from the northern regions toward the central plains in the south (Bai and Kung, 2011). These invasions could trigger changes in the location of the dynasty's capital, thereby altering the proximity of counties to the capital. Due to the exogeneity of drought occurrences, we show the validity of the instrumented results, showing that historical climate shocks influence present-day conflicts only through changes in historical centralization experiences. Our instrumented results show that historical proximity to the capital city significantly explains contemporary political instability, with greater proximity leading to a 6.2% reduction in anti-government protests.

Given that all Chinese localities are now governed by the Chinese Communist Party, why do differences in political instability persist? We explore the mechanisms behind this persistence and consider three potential explanations: (i) persistence in economic development, demographic structure, and human capital; (ii) institutional persistence in local governance capacity; and (iii) cultural transmission. Under institutional persistence, regions with stronger historical exposure to centralized governance may exhibit greater contemporary coercive capacity and be better positioned to deter, monitor, or suppress unrest (the "government repression" channel). Alternatively, historically deeper state penetration may have left behind more capable bureaucratic structures that improve public service provision and responsiveness, thereby reducing unrest at its source (the "government responsiveness" channel). We test both institutional channels empirically and find that, while they contribute, their overall explanatory power is limited. Our third, and preferred, explanation is cultural transmission: norms shaped by historical proximity to centralized governance may have been passed down across generations, leading citizens in historically more exposed regions to place greater trust in the state. Higher trust in the central government, in turn, is associated with lower political instability today (Rustagi, 2024; Bisin and Verdier, 2001).

To the best of our knowledge, this paper is the first to empirically show how historical centralized systems have shaped current political outcomes. This perspective contributes to the growing body of literature on the long-term consequences of centralized statehood by linking such systems to macro-level political outcomes. Existing literature has found that centralized statehood can lead to long-term positive economic outcomes, particularly in contexts such as Africa (Michalopoulos and Papaioannou, 2013), Latin America (Angeles and Elizalde, 2017), and Europe (Wahl, 2017; Johnson and Koyama, 2017; Guiso et al., 2016). In addition, institutions can have a lasting impact on contemporary individual behavior. For example, political centralization has been shown to influence societal trust (Becker et al., 2016), rule-following (Lowes et al., 2017), fiscal compliance (Buonanno et al., 2022), and norms of cooperation (Rustagi, 2024). Building on these findings, we demonstrate that historical exposure to centralization also has long-term effects on political attitudes, shifting the focus from economic to political outcomes. This approach addresses the overlooked impacts of historically centralized authoritarian monarchies and broadens the scope to examine their influence on political dynamics, an area less explored in previous research.

Our findings also deepen the understanding of "political stability in China," providing insight into the country's strong authoritarian resilience (Bai and Jia, 2016). Political stability is essential for maintaining government support and fostering economic growth (Uddin et al., 2017). In contrast, political instability manifests through revolutions, terrorist attacks, and public protests. Such instability can threaten regime survival, depress economic activity (Hadzi-Vaskov et al., 2023; Alesina et al., 1996), and destabilize financial markets (Crowley and Loviscek, 2002; Chletsos and Sintos, 2024). A growing body of literature examines the factors contributing to political instability, such as income inequality (Alesina and Perotti, 1996) and abolition of historical elite recruitment systems (Bai and Jia, 2016). Different from previous studies, our findings offer a new historical perspective on contemporary political challenges amid rising social unrest in China (Chen, 2009). Recognizing the historical determinants of political instability can help governments proactively address potential sources of unrest, enabling them to identify patterns, mitigate risks, and allocate public resources more effectively to maintain social stability.

The rest of our paper is structured as follows. In Section 2 we document the historical background in the context of imperial China. Section 3 introduces the data, and Section 4 introduces the empirical strategy. Section 5 describes the results, and Section 6 identifies the main mechanisms underlying the results. Section 7 concludes this paper.

2 Centralized Authoritarian Monarchy in China

Centralized authoritarian monarchy was the foundational political system of China's imperial era. Centralized authoritarian monarchy refers to the relationship between the central government and local authorities, where the central government holds supreme command and the local authorities obey the central government. Appendix Table A.1 presents the historical timeline of the evolution of China's centralized authoritarian monarchy. In brief, the centralized system originated with the Qin dynasty (221–206 BCE, 秦朝) and endured until the early twentieth century, concluding with the Qing dynasty's collapse in 1911 AD (清朝) following the emperor's abdication.[4]

2.1 Establishment of centralized authoritarian monarchy

Before the establishment of a centralized authoritarian monarchy, power was decentralized and held by aristocratic families (for example, see detailed description of Zhou dynasty at Nong (2022)). The emperor granted land and authority to relatives, meritorious officials, or nobles with significant contributions. These aristocrats exercised full administrative, military, and judicial authority within their territories. The status and power of the nobility were hereditary, passed down from generation to generation, with noble status determined by bloodline.[5]

Although this system maintained stability for centuries, the growing power of the lords led to its collapse. Stronger feudal states conquered weaker ones, forming large city-states that competed for dominance, resulting in the Warring States Period (475–221 BC). Philosophers, seeing the instability caused by decentralization, thus began influencing rulers to adopt a unified, centralized authoritarian empire.

In 221 BC, the Qin dynasty (221 BC–207 BC, 秦朝) established the first centralized and unified empire in China's history. The Central Plains, inhabited by the Han majority, were transformed from a loose confederation of six feudal states into an authoritarian empire. Under this regime, the emperor was worshipped as a god, ruling with the Mandate of Heaven. Power was concentrated in

[4] In 221 BCE, Emperor Qin Shihuang founded China's first centralized state, transforming the Han-inhabited Central Plains from a loose confederation of feudal states into an authoritarian empire. See link at asia-archive.si.edu. Following the Opium Wars, capitalist economies and Western democratic ideas challenged the monarchy, culminating in the Xinhai Revolution, which advocated a democratic republic. In February 1912, the Qing Emperor's abdication marked the monarchy's end.

[5] There were many similarities between the decentralized system of the Zhou kingdom and medieval rule in Europe, such that when a dynasty was established, the conquered land was divided into hereditary fiefs.

his central government, operating through hierarchical administrations, and this system is referred to as an autocratic centralization (or centralized authoritarian monarchy/monarchical centralism)

The centralization of bureaucracy under the emperor was achieved through a unique organizational structure known as the "prefecture-county system" (郡县制) (See detailed description at Tong (2021)),[6] which replaced the Zhou dynasty's organization based on kinship and land grants. Specifically, the system divided the country into several prefectures and counties. Prefectures were larger administrative regions, while counties were smaller local units. Each prefecture was governed by a centrally appointed governor, with counties under their jurisdiction administered by county chiefs. Both levels of administration were directly overseen by officials appointed by the central government. This system created a hierarchical chain of command from the central government to local authorities, who had no political, economic, or military autonomy. Local officials, directly appointed by the emperor, were compelled to align with the central authority and follow the emperor's directives in matters of governance.

2.2 Evolution of centralized authoritarian monarchy

After the Qin dynasty (221 BC–207 BC, 秦朝), the regime evolved. In the Han dynasty (206 BC–220 AD, 汉朝), Confucianism became the ruling ideology, promoting loyalty, filial piety, and respect for authority, with the emperor seen as the "father" of the nation (Shih and Chou, 2013). This strengthened attachment to the state, trust in the emperor, and obedience to central authority. Over generations, this culture helped maintain loyalty to the state and a sense of nationalism.

History repeats itself, and the development of centralization has similarly fluctuated between periods of strengthening and weakening. Thus, after the Han dynasty, the Three Kingdoms, Two Jin Dynasties, and Northern and Southern Dynasties (220AD-581AD, 三国两晋南北朝) saw rapid dynastic changes and conflict, weakening central authority. Then, the Sui and Tang Dynasties (581AD-907AD, 隋唐) restored central power by curbing the chancellors, but the conflict during the Five Dynasties and Ten Kingdoms (907AD-960AD, 五代十国) once again weakened the centralized system. Eventually, the Song dynasty (960AD-1279AD, 宋), learning from past conflict, and decided to strengthen central authority by limiting local military power (Qiang, 2020).

Due to the Song dynasty's military weakness, the Yuan dynasty (1271AD-1368AD, 元朝), the

[6] Another name of the county system in ancient China is the commandery-county system.

first established by northern nomads, rose to power (Endicott-West, 2020). These nomads, living in northern and western China, relied on pastures and frequent invasions into Central Plains for sustenance.[7] These nomads, whose power was originally decentralized among several tribal leaders, also sought to build central administrative structures, though with difficulty. The regime gained further strength during the Ming dynasty (1368–1644 AD, 明朝) and peaked in the early Qing dynasty (1636–1911 AD, 清朝). In 1911, the fall of China's last empire ended two millennia of imperial rule and the centralized autocratic bureaucracies (Phillips, 1996).[8]

Throughout history, proximity to a dynasty's capital signaled stronger centralization, as administrative authority, fiscal extraction, and bureaucratic oversight were far more effectively exercised near the political center.[9] Counties closer to the capital housed denser bureaucratic staffing, received more frequent inspections from central officials, and attracted greater administrative attention. Lower communication and transportation costs further enabled the central government to enforce policies, monitor local elites, and respond to disturbances more quickly. Consequently, regions nearer to the capital were more deeply integrated into the centralized governance system and more directly subject to imperial control.

3 Data

While it is undeniable that the centralized regime can ensure political stability *in ancient times* through strict nationwide control via a centralized bureaucracy, it remains unclear whether this deeply-rooted institution can sustain a long-term persistence in *modern China's* political responses. Thus, to examine the long-term political implications of centralized authoritarian monarchy, we utilize detailed data on county-level statehood status, present-day political instability, and various covariates.

[7] The best-known examples of nomadic groups in ancient China were the Huns, the Siberians, the Tungguts, the Turks, and the Khitans.

[8] Then, The Republic of China (ROC) was officially established on January 1, 1912, following the Xinhai Revolution, which successfully overthrew the last imperial dynasty. Some may question whether the entire contemporary Chinese territory belonged to the ROC after 1912. The Provisional Constitutional Law of the ROC, formulated and promulgated in 1912 under Sun Yat-sen, states: 'The territory of the Republic of China contains 22 provinces, Inner Mongolia, Tibet, and Qinghai.'

[9] This is consistent with an old Chinese saying, 'the further from the emperor, the weaker the rule', highlighting how administrative control weakened with distance from the capital.

3.1 Measures of historical centralized bureaucracy

Proximity to capital——. To measure the intensity of exposure to centralized authority, we construct an index based on each county's geographic proximity to historical capital cities, weighted by terrain steepness. The underlying intuition is that regions located closer to a dynasty's capital were subject to stronger administrative penetration and more frequent interactions with the central government.

We first manually compiled the historical locations and ruling durations of all capital cities from the Qin dynasty to the Qing dynasty, covering fifteen distinct capitals, including auxiliary and temporary capitals. For each capital, we computed the shortest path from every county to the capital, along with the corresponding shortest geographic distance and the total slope accumulated along that path. Since longer routes mechanically entail larger total slopes, we calculate the average terrain steepness as

$$\text{MeanSlope}_{ic} = \frac{\text{SlopeSum}_{ic}}{\text{Distance}_{ic}}.$$

where i indexes counties and c indexes historical capitals (capital cities). Distance_{ic} is the shortest geographic distance from county i to capital c (in kilometers), and SlopeSum_{ic} is the total sum of slopes along this shortest path. The resulting MeanSlope_{ic} measures the average steepness of the terrain between county i and capital c, with larger values indicating more difficult terrain and smaller values indicating easier access.[10]

Next, we define a distance-based exposure ranking for each capital, assigning higher values to counties that are geographically closer. To construct the distance-based exposure ranking, counties are first ordered by their distance to each capital. Let r_{ic} denote the rank of county i with respect to capital c, where $r_{ic} = 1$ represents the closest county and $r_{ic} = N_c$ represents the farthest county among the N_c counties with non-missing distance measures. The exposure rank is then defined as:

$$\text{ExposureRank}_{ic} = 1 - \frac{r_{ic} - 1}{N_c - 1}.$$

[10] We use average slope rather than total slope to capture route difficulty net of path length. Total slope would mechanically increase with distance and thus partly duplicate the information already contained in the distance component. In practice, using total slope yields very similar results but makes it harder to separate terrain frictions from sheer distance.

Here, r_{ic} denotes the rank of county i by its distance to capital c, where $r_{ic} = 1$ is the closest and $r_{ic} = N_c$ is the farthest among counties with non-missing distance measures. The resulting ExposureRank_{ic} ranges from 0 to 1, with higher values indicating closer proximity to the capital. Intuitively, a county with a larger ExposureRank_{ic} is considered to have been more strongly exposed to the political and administrative influence of capital c.

Using a rank-based exposure index instead of raw distance offers several methodological advantages. First, the distribution of distance to historical capitals is highly skewed, and using raw distance would impose strong functional-form assumptions (e.g., linear or log-linear decay) that may not reflect how political influence actually diminished with distance. A rank transformation maps distance into a uniform $[0, 1]$ scale and avoids these assumptions.

Second, political influence likely exhibits diminishing marginal effects of distance: being 50 km versus 150 km from the capital mattered more than being 1,500 km versus 1,600 km. Relative proximity, captured by the rank, therefore provides a more realistic measure of exposure.

Third, rank-based measures are more robust to measurement error in historical geography. Small errors in reconstructed routes or ancient boundaries may change absolute distance but rarely alter the relative ordering of counties. Finally, ranking distances within each capital ensures comparability across different dynasties with varying territorial sizes and administrative capacities. Thus, the rank-based exposure index provides a more stable and historically consistent measure than raw distance.

Finally, the county-level exposure index is defined as:

$$\text{Proximity}_i = \sum_{c=1}^{15} \left(\text{Duration}_c \times \text{ExposureRank}_{ic} \times \frac{1}{\text{MeanSlope}_{ic}} \right),$$

where i indexes counties and c indexes the fifteen historical capital cities. Duration_c denotes the length of time (measured in centuries) that city c served as a capital, ExposureRank_{ic} captures the relative proximity of county i to capital c, and MeanSlope_{ic} measures the average terrain steepness along the shortest path between them, so that flatter terrain implies lower transport frictions and receives a larger weight.

By summing the exposure values across all fifteen capitals, Proximity_i summarizes the total historical exposure of county i to centralized authority. By construction, Proximity_i is an exposure index rather than a physical distance. The underlying mechanism is that counties that were closer to, more accessible from, and more persistently connected to long-lasting political centers faced stronger and more sustained state penetration. Accordingly, a larger Proximity_i should be interpreted as greater effective proximity to political centers, and hence stronger historical exposure to centralized authority.

Appendix Figure 1 illustrates the spatial distribution of counties' effective proximity to historical capitals, our proxy for exposure to centralized authority. The figure shows that counties in North China exhibit substantially higher exposure, which is unsurprising given that Beijing served as the capital for nearly six hundred years and that nearby cities such as Xi'an also functioned as long-lasting political centers. In contrast, counties in the northwestern region display substantially lower exposure, reflecting both their greater distance from major historical capitals and more rugged terrain that impeded administrative reach.

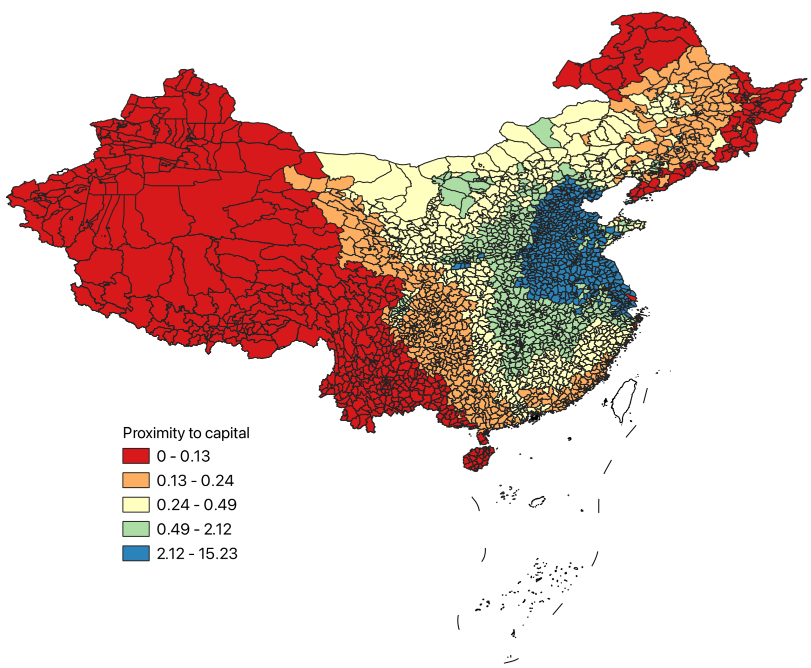


Figure 1: Spatial distribution of effective proximity to centralized authority

Notes: The map plots the county-level Proximity_i index. Darker blue indicates higher values (greater effective proximity to historical political centers, and hence stronger exposure to centralized authority, via longer-lasting capitals and lower terrain frictions), while red indicates lower values. Capital duration is expressed in centuries to facilitate coefficient interpretation.

Alternative measurement——. We construct two additional robustness measures to proxy the exposure to centralized statehood for each county in imperial China from 221 BC to 1911 AD.

First, we analyze the geographic data on regional exposure to the "prefecture-county system" (郡县制), established during the Qin dynasty. As noted in Section 2, this system divided the country into prefectures and counties, placing each locality under centrally appointed officials and directly facilitating the implementation of central policies. In other words, a county designated under the prefecture–county system can be regarded as being under centralized bureaucratic control.[11]

We thus obtain the geographic data for this "prefecture-county system" from the *China Historical Geographic Information System (CHGIS Version 6)*, which provides a time-series geo-referenced dataset of all counties ever established in ancient China, featuring over 6,000 county polygons with details on their spatial coverage, names, establishment years, and end years during the period of interest.[12] Then, we convert these polygons into a series of annual maps and apply the method from Buonanno et al. (2022). In each annual map, regions covered by any county polygon are assigned a value of one, while regions associated with nomadic tribes (i.e., not included in any formal state county in that year) are assigned a value of zero. This binary indicator can be interpreted as one year of exposure to centralization, whereas a value of zero represents one year outside the centralized imperial bureaucracy. We then overlay the maps and sum up the binary values, producing a raster image with continuous values representing the total number of years each region experienced centralization. Subsequently, we overlay the contemporary administrative boundaries (i.e., county boundaries) to calculate the average value of past exposure, scaled to centuries, for each current county.

Second, we construct an additional measure by drawing on official historical maps. In particular, we digitize annual maps from the Historical Atlas of China, which documents various state types, including centralized empires, nomadic or Han feudal states, and vassal states. For each state, we assign a value of one to centralized political systems and zero otherwise. By overlaying these maps and summing the dummy values, we generate an alternative measure of exposure and use it as our robustness measurement. A key advantage of this digitized dataset is that it allows us to incorporate protectorate offices (都护府), which were military-administrative institutions established by central

[11] Although later dynasties introduced other divisions like provinces and circuits, the hierarchical structure of centralized governance remained consistent. This system, which mirrors contemporary China's administrative hierarchy, was also adopted by countries such as Japan, Korea, and Vietnam.

[12] This project, launched in January 2001 by Fudan and Harvard University, aims to establish a database of historically populated places and administrative units throughout imperial China.

dynasties such as the Han and Tang to govern, oversee, and defend frontier regions and non-Han groups. Although protectorates were not part of the conventional prefecture–county system, they nonetheless operated under the jurisdiction of the centralized state.

3.2 Measures for political instability

Number of anti-government protests——. Starting in 2012, *Not the News* systematically documented daily protests across China by collecting information from online sources and publishing the data on platforms such as YouTube, Twitter, and other social media until June 13, 2016 (Tsai, 2021).[13] The documentation includes details such as the dates, locations, online discussion archives, causes of protests, forms of protests, identities of protesters, and whether the protests faced repression. We successfully collected 6,882 incidents and matched each to its corresponding county-level location until 2016.[14]

We use population data from the 2010 census to assign population sizes to each county, construct the incidence rate of protests per 100,000 people, and, following Cao and Chen (2022), apply the inverse hyperbolic sine (IHS) transformation to the measure of political instability, which allows retaining zero-valued observations. Event-based measures are particularly suitable for our county-level analysis, as perception-based indices of political stability are typically available only at the national level and do not capture subnational variation.[15]

Supplementary measures——. In addition to the county-level protest analysis introduced above, another commonly used source on political unrest is the Global Database of Events, Language, and Tone (GDELT) Project, which records events based on reports from a comprehensive global set of news sources.[16] Following Beraja et al. (2023), an advantage of the GDELT dataset is its precise city-level coding of events. We extract 785,154 reported events covering the period from 1949 to 2019, excluding the COVID-19 years, and identify their exact city locations based on

[13]On June 15, 2016, the police arrested the founders on charges of 'picking quarrels and provoking trouble.'

[14]See *newsworthknowingcn.blogspot.tw* for examples.

[15]There is no universally standardized method to measure political stability or instability. It can be assessed through either subjective perception indices or objective data-driven indices. Perception-based indices rely on expert opinions or survey results, offering assessments and insights from specific groups on the political stability of a country. Examples include the World Bank's governance indicators and the ICRG indices, which are typically applied at the national level. In contrast, objective indices track data on specific events, such as demonstrations, protests, and assassinations. A key advantage of objective measures is that when the location of these events is known, it becomes possible to calculate an index (e.g., total counts or frequency) for smaller units like counties, towns, or even smaller regions.

[16]For more on the GDELT Project and its methodology, see *www.gdeltproject.org*.

latitude and longitude information.[17] We use city-level GDELT data primarily to conduct robustness checks of our county-level findings, providing an additional validation that our results are not driven by potential misclassification at the county level or gaps in the original dataset.

Moreover, as a robustness measure of political instability, we count conflict-related events following Easterly and Levine (1997); Annett (2001) and rely on the Global Terrorism Database (GTD), which records violent incidents in China from 1989 to 2016.[18] Each record includes the date, geographic coordinates, and attack type. We focus on incidents that target secession or government destabilization, including attacks on government buildings, officials, civil servants, courts, and the military, yielding a total of 289 events. Using latitude and longitude, we assign each event to the corresponding county and aggregate the total number of anti-government attacks per county from 1989 to 2016. By aggregating protest and conflict events over extended periods, our measures capture persistent patterns of local political instability rather than short-term fluctuations.

3.3 Covariates

Demography and culture——. Political protests, as a form of collective action, can be influenced by local demographics that reflect historical socio-economic conditions. Our study examines the proportion of ethnic minorities, urbanization rate, unemployment rate, and workforce distribution across agriculture, all drawn from the 2010 County Population Census.

We also account for cultural characteristics associated with ethnicity or language. Specifically, using the *Language Atlas of China*, we include indicators for each county's language group, under the assumption that counties sharing a language are likely to share cultural traits. These controls help account for unobservable and time-invariant cultural characteristics shared by counties within the same language group.

Economics and agriculture controls——. To account for the lasting effects of historical economic prosperity on present-day political stability, we include both historical and contemporary economic indicators. Historical proxies include historical urbanization rates, measured by city density in 1800 from CHGIS v6. For contemporary indicators, we use 2010 night-time luminosity data

[17] While GDELT includes latitude and longitude, the finest geographic detail available is city-level, and the accuracy of coordinates may vary.

[18] GTD is the most comprehensive publicly available database on terrorist activities worldwide during 1970–2016. Data can be downloaded from *www.start.umd.edu/gtd/*.

from DMSP/ OLS as a proxy for local economic activity (Chen and Nordhaus, 2011; Henderson et al., 2012), and the agricultural suitability index from Zabel et al. (2014), which estimates land suitability for major crops, given agriculture's enduring role in China.

Geography——. Geographic location can influence political instability by shaping accessibility, connectivity, and the capacity of local authorities to monitor and respond to unrest. To account for these factors, we control for terrain ruggedness and the distance from each county's centroid to the nearest coastline, using the *Global Digital Elevation Model (DEM v2)*. Administrative boundaries from the National Geomatics Center of China are used to calculate these distances accurately. In addition, we control for population concentration to capture spatial settlement patterns, as counties with more dispersed populations may exhibit weaker social or administrative cohesion, which could influence the likelihood and spread of unrest.

Policy triggers——. To account for policy-driven sources of unrest that vary across counties, we control for two major policy-related triggers of protests: land acquisition and environmental pollution, which constitute the vast majority (90%) of reported anti-government protests in our data.[19]

We proxy land-acquisition pressure using county governments' land-related fiscal revenue, averaged over 2003–2005 and drawn from the *Financial Statistics of Cities and Counties*. To capture pollution-related grievances, we focus on air pollution and use county-level $PM_{2.5}$ exposure in 2010 from the *Global Annual Average* $PM_{2.5}$ *Grids*.[20]

The mean, standard deviation, minimum, and maximum values of all county-level variables are reported in Appendix Table Table A.2.

4 Empirical Specification

4.1 Baseline model

To examine whether historical centralized rule has had long-term consequences for contemporary political stability, we begin with our baseline estimate of the following specification:

[19] Anti-government armed attacks in China, by contrast, are more closely associated with ideological and religious grievances. These factors are largely shaped by policies that change slowly over time and are not primarily determined by local governments. Moreover, our socio-demographic controls (e.g., ethnicity and related cultural characteristics) capture much of this variation, so we do not further model specific triggers of armed attacks.

[20] $PM_{2.5}$ estimates are derived from satellite aerosol optical depth products (MODIS and MISR) combined with ancillary information.

$$Instability_i = \beta Proximity_i + \psi \mathbf{X}_i + \delta_p + \epsilon_i \tag{1}$$

where i indexes a contemporary county in province p. The dependent variable $Instability_i$ represents present-day county-level political instability, measured as the incidence rate of anti-government protests per 100,000 people. The key explanatory variable of interest is $Proximity_i$, which measures the proximity to historical capitals and serves as a proxy for the strength of exposure to centralized authorities. $\mathbf{X}_i$ stands for a rich series of county-level covariates (demography and culture, economics and agriculture control, geography, and policy triggers), and δ_p is the province fixed effects. As the highest layer of local government in China, provinces encompass large and diverse units. Focusing on within-province comparisons mitigates the most significant challenges posed by unobserved heterogeneity, enabling us to compare counties under the same provincial administration. These counties are subject to the same macroeconomic and socio-economic policies, share similar geographical characteristics, and are at comparable stages of development. The coefficient of interest is β, which captures the effect of historical exposure to the centralized state on political instability. Standard errors are clustered at the province level.

4.2 Instrumental variable approach

Endogeneity may arise because historical proximity to centralized authority is itself the outcome of endogenous political processes. In particular, both the location of imperial capitals and the duration of dynastic rule were not randomly assigned. Capitals were strategically established in regions that were easier to govern, militarily defensible, economically productive, or politically stable, while stronger dynasties with greater state capacity tended to survive longer and exert more persistent influence. These underlying characteristics may also shape contemporary political stability, generating a spurious correlation between historical proximity to centralized authority and present-day unrest.

To address this concern, following Bai and Kung (2011), we employ an instrumental variable approach that exploits exogenous climate shocks to instrument historical proximity to capital cities. The strategy builds on the fact that capital locations and their duration in imperial China systematically responded to climate-induced shifts in political control. Centralized imperial authority was concentrated in the Central Plains, whereas nomadic confederations to the north operated under decentralized governance structures (Di Cosmo, 2002). Climate shocks played a central role in shaping the balance of power between these regimes: droughts severely constrained pastoral production and increased incentives for nomadic incursions into agrarian regions, whereas floods primarily reduced agricultural productivity in the Central Plains and lowered the expected gains from invasion. These asymmetric effects generated repeated shifts in political power over time.

We operationalize this idea by exploiting the interaction between climate shocks and counties' geographic positions relative to a historically predetermined frontier. Specifically, we define the boundary between the Qin Empire, the first centralized dynasty, and the nomadic confederations in 221 BC as the initial frontier. This boundary provides an exogenous reference line for subsequent shifts in political control and territorial contestation, and is used to anchor the construction of our frontier-based climate instruments.

Counties located south of this frontier are classified as being under centralized imperial authority ($C_i = 1$), while counties located north of the frontier are classified as being under nomadic governance ($N_i = 1$). We collect data on climate shocks during the imperial period (221 BC–1911 AD), including the frequency and spatial distribution of droughts and floods, from the *Atlas of Drought and Flood Distribution in China in the Past Five Hundred Years* and the *Hydrological and Climate Dataset of Drought and Flood Disasters in the Yellow River Basin in the Last 2,000 Years*.[21]

To capture the spatial intensity with which boundary-level climate shocks affect each county, we calculate the inverse distance from the centroid of county i to the 221 BC frontier ($InvDis_i$). We define $Drought_i$ and $Flood_i$ as the frequencies of droughts and floods occurring at the nearest point along the frontier to county i. Focusing on climate shocks at the frontier rather than within counties is crucial, as local weather shocks may directly influence political stability through economic channels such as income fluctuations (Burke and Leigh, 2010; Brückner and Ciccone, 2011; Dell et al., 2012), potentially violating the exclusion restriction. By using boundary-level shocks, often several hundred kilometers away, we substantially reduce the likelihood that these events directly affected counties' long-run economic development.

Boundary-level climate shocks influence county-level proximity to capital cities by shaping the

[21]Both datasets are compiled by the National Earth System Science Data Sharing Infrastructure. Acknowledgement for data support from "National Earth System Science Data Sharing Infrastructure, National Science & Technology Infrastructure of China" (*http://www.geodata.cn*).

expansion and contraction of centralized political authority, which in turn affected the establishment, relocation, and duration of capital cities over time. As a result, climate shocks generate persistent variation in counties' effective proximity to capital cities, operating through changes in both the spatial distribution and the longevity of political centers.

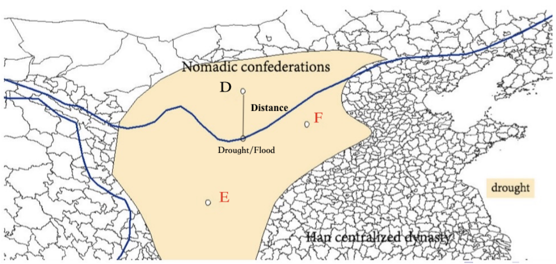
The corresponding first-stage regression is specified as follows:

$$\begin{aligned} Proximity_i = \alpha_1\, Drought_i \times InvDis_i \times C_i + \alpha_2\, Drought_i \times InvDis_i \times N_i \\ + \alpha_3\, Flood_i \times InvDis_i \times C_i + \alpha_4\, Flood_i \times InvDis_i \times N_i \\ + Z_{i,p}\eta + \epsilon_i. \end{aligned} \tag{2}$$

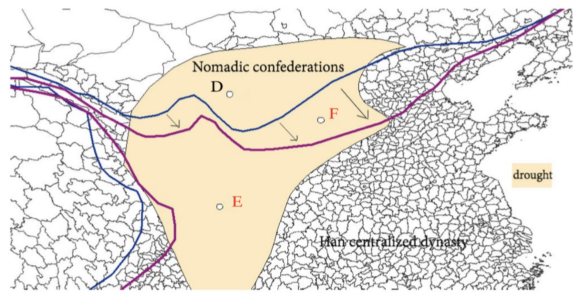
where $Z_{i,p}$ includes all covariates from the baseline specification as well as the main effects of $Drought_i$, $Flood_i$, C_i, N_i, and $InvDis_i$. Each interaction in the first-stage equation corresponds to a case illustrated in Figure 2, which depicts how climate shocks along the historical frontier shift political control and thereby change counties' effective proximity to capital cities.

When a drought occurs along the frontier, nomadic incursions are more likely and may push the boundary southward, shifting it from the blue line to the purple line (Figure 2(a) to Figure 2(b)). For counties initially under centralized control ($C_i = 1$), such as points *E* and *F*, this may cause some frontier counties (e.g., point *F*) to fall under decentralized nomadic governance, while counties farther from the frontier (e.g., point *E*) are less affected. Historically, many capitals were situated relatively close to the frontier for strategic and administrative reasons, so southward frontier shifts often disrupted capital location choices and reduced the persistence of nearby political centers. Because such shifts can lead to the abandonment or relocation of political centers and shorten the effective duration of centralized control, we expect $\alpha_1 < 0$. In contrast, counties initially in the nomadic region ($N_i = 1$), such as point *D*, are less directly affected by the southward shift but may become relatively closer to newly established or relocated capitals as centralized authority retreats, implying $\alpha_2 > 0$.

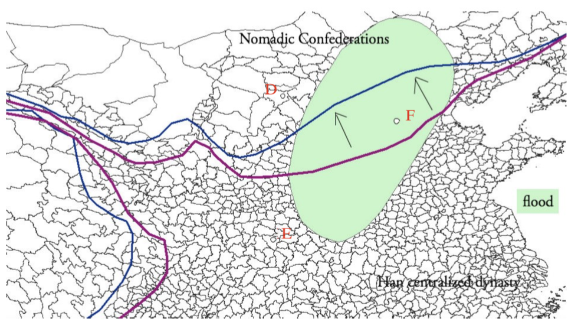
Conversely, if a flood occurs along the frontier, further nomadic incursions are less likely (Bai and Kung, 2011; Chen, 2015), because flooding primarily depresses agricultural output and the extractable surplus in the Central Plains, particularly in contested or nomad-controlled agrarian areas, thereby reducing the expected gains from continued invasion. As invasion pressure weakens, the frontier may retract northward (Figure 2(c)), allowing the imperial state to regain and consolidate control in frontier counties that were initially under centralized authority ($C_i = 1$), such as point F. This reconsolidation is often accompanied by the reestablishment, relocation, or longer persistence of nearby political centers, increasing these counties' effective proximity to capital cities; we therefore expect $\alpha_3 > 0$. For counties initially in the nomadic region ($N_i = 1$), such as point *D*, the retraction is expected to have limited implications for capital location or duration, implying that α_4 is likely to be negative but statistically insignificant.



(a) Initial Boundary Line



(b) Drought - Nomadic Invasions



(c) Flood - Boundary Line Retraction

Figure 2: Boundary-level climate shocks, frontier shifts, and variation in counties' effective proximity

Exclusion Restriction Assumption——. The validity of the instrumental variable (IV) approach relies critically on the exclusion restriction, which requires that the instrument affects the outcome only through the endogenous explanatory variable and has no direct effect on the outcome. It is important to note that we define $Drought_i$ and $Flood_i$ as the frequencies of droughts and floods measured at the nearest administrative boundary. We do not rely on climate shocks within counties, as local weather shocks may directly affect political stability through contemporaneous economic channels—such as income fluctuations and agricultural productivity (Burke and Leigh, 2010; Brückner and Ciccone, 2011; Dell et al., 2012)—thereby violating the exclusion restriction. Instead, by exploiting boundary-level shocks, which are often located several hundred kilometers away from the county center, we substantially reduce the likelihood that these climate events directly influenced counties' long-run economic development. Nevertheless, some scenarios may still violate this identifying assumption.

First, climate shocks may affect outcomes through channels other than centralization. For example, drought can lead to permanent land degradation, which reduces agricultural productivity and increases poverty, ultimately influencing protest behavior without passing through centralization. To address this, we regress nightlight on historical climate shocks to test whether these shocks directly affect current economic development. The results are insignificant, and we include nightlight as a control variable in all specifications. Results are reported in Columns (1)–(2) of Appendix Table A.3, where the coefficients are not significant.

Second, population and settlement patterns could also violate the exclusion restriction. Drought may induce population migration or changes in population density, which in turn can influence protest culture or mobilization capacity, again bypassing centralization. To address this concern, we account for both historical and modern migration. Further details are provided in Section 5.3 (Robustness Checks).

Third, there is potential selection bias in frontier regions. We focus on climate shocks measured at the boundary level, often several hundred kilometers from other counties, rather than within counties, to reduce the likelihood that these events directly affected long-run economic development, since local weather shocks could influence political stability through economic channels such as income fluctuations, potentially violating the exclusion restriction. However, frontier counties experienced frequent wars and high population mobility, meaning that the remaining population is not random, which could bias our results. We therefore exclude frontier counties, with results reported in Column (3) of Appendix Table A.3.

5 Empirical Results

5.1 Short-term results

As motivating evidence, we first examine the short-term association between historical proximity to the capital and protest activities. Using data manually compiled from *The Chronology of Wars in Chinese History* (Chinese Military History Compilation Group, 2003), we construct county-level records of peasant uprisings during the Ming dynasty (1368–1644), following Jia (2014). To mitigate concerns about reverse causality, we recompute proximity using only capital locations prior to the Ming dynasty and then examine its relationship with unrest during the Ming period. We exclude the Qing dynasty because political unrest in this period was increasingly driven by external military pressure, foreign intervention, and institutional shocks that altered the nature of state capacity and governance in ways unrelated to effective proximity to the capital. We also digitize population information in Ming dynasty from Shi (2013).

Appendix Table A.4 presents the estimation results. Columns (1) and (2) report Poisson regressions with revolt counts as the dependent variable, using the logarithm of population as an exposure (offset) so that coefficients are interpreted in terms of revolt rates. Column (3) reports the extensive-margin results, where regions experiencing unrest are coded as one and zero otherwise. Across specifications, greater proximity to the capital is associated with lower levels of unrest, with coefficients stable at approximately –0.003. These results provide initial evidence that closer proximity to the capital was associated with a reduced incidence of peasant uprisings during the Ming period.

5.2 Main results

OLS estimation——. Panel A of Table 1 reports OLS estimates of the effect of historical proximity to the capital on present-day political instability, using the inverse hyperbolic sine transformation of political unrest as the dependent variable (Cao and Chen, 2022). Column (1) presents the baseline correlation, which is statistically significant at the 1% level. As covariates related to demographics, economics, geography, and policy triggers are added sequentially in columns (2)–(5), the estimated coefficients remain consistently negative and statistically significant. The magnitude is stable across specifications, ranging from –0.014 to –0.024, indicating that regions historically closer to political centers experience substantially lower levels of political unrest today. Moreover, the inclusion of these controls does not materially alter the sign or significance of the estimates, suggesting that the documented relationship is not driven by contemporary socio-economic conditions or geographic characteristics.

Panel B of Table 1 presents alternative specifications that further support the robustness of our baseline findings. First, because protests are nonnegative count outcomes and relatively rare in many counties, we re-estimate the baseline specification using a Poisson model (column 1). We again include logged population as an exposure (offset), so the coefficients are interpreted in terms of protest rates rather than raw counts. The estimated effect of historical proximity remains negative and highly statistically significant. We further examine a more severe manifestation of political instability, anti-government attacks, and again find a negative and statistically significant association (column 2).

Next, we assess the robustness of our main explanatory variable by constructing alternative measures of historical state presence. In column (3), we replace proximity to the capital with an exposure measure derived from the CHGIS V6 dataset, capturing the number of years a location was governed under a centralized "prefecture–county" administrative system. The coefficient on this measure is negative and precisely estimated. In column (4), we employ an additional indicator based on digitized historical maps, and again find estimates that are negative and highly significant.

Finally, to ensure that our findings are not driven by the specific geographical unit of analysis, we conduct a city-level regression using an independent dataset on political unrest (column 5). The results remain consistent: cities historically closer to the capital exhibit lower levels of contemporary political instability. All these measurements presented in Panel B provide strong and consistent evidence that historical political centralization exerts a persistent stabilizing influence on modern political order.

Instrumental variable estimation——. We now present the first-stage results using climate shocks as instruments for effective proximity to centralized authority, $Proximity_i$. Panel A of Table 2 reports standardized first-stage estimates for the four interaction terms specified in Equation 2. All first-stage coefficients are standardized (i.e., they are expressed in standard-deviation units), so they can be interpreted as $\beta \times \text{SD}(X)/\text{SD}(Y)$ and compared directly across instruments. For ref-

Table 1: Historical proximity and political Instability: OLS estimates

Panel A: Baseline OLS Estimates

	Dependent variable: Political Unrest				
	(1)	(2)	(3)	(4)	(5)
Proximity to Capital	-0.023^{***}	-0.019^{***}	-0.014^{**}	-0.019^{***}	-0.024^{***}
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Province FE	✓	✓	✓	✓	✓
Demographic controls		✓	✓	✓	✓
Economic controls			✓	✓	✓
Geography controls				✓	✓
Policy controls					✓
Observations	2,301	2,299	2,278	2,278	2,278

Panel B: Alternative Measures

	Poisson (Protest) (1)	Poisson (Attack) (2)	CHGIS Measure (3)	Map Measure (4)	City-Level (GDELT) (5)
Proximity to Capital	-0.093^{***}	-0.372^{*}			-1.134^{**}
	(0.012)	(0.193)			(0.554)
Exposure (CHGIS)			-0.016^{***}		
			(0.006)		
Exposure (Map)				-0.062^{***}	
				(0.008)	
Province FE	✓	✓	✓	✓	✓
Demographic controls	✓	✓	✓	✓	✓
Economic controls	✓	✓	✓	✓	✓
Geography controls	✓	✓	✓	✓	✓
Policy controls	✓	✓	✓	✓	✓
Observations	2,278	1,926	2,278	2,107	264

Notes: This table reports the relationship between historical exposure to capital proximity and contemporary political instability. Panel A presents OLS estimates with control variables added sequentially. Panel B reports Poisson estimates in columns (1)–(2), and alternative measurement strategies in columns (3)–(5). Standard errors are reported in parentheses and are clustered at the province level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

erence, columns (1) and (2) report the mean and standard deviation of each interaction term in the original units.

Consistent with Bai and Kung (2011), droughts and floods exert asymmetric effects depending on whether counties were historically under centralized or nomadic control. In centrally controlled regions, a one–standard-deviation increase in frontier-level drought exposure, weighted by inverse distance to the frontier, leads to a statistically significant decline in effective proximity to capital cities. The standardized coefficient on InvDis $\times$ Drought $\times$ C (α_1) is negative and highly significant at the 1% level (column 3), and remains robust after including the full set of baseline controls (column 4). Quantitatively, this implies that drought-induced nomadic pressure substantially weakens state penetration by disrupting the persistence and spatial reach of nearby political centers.

In contrast, the corresponding drought interaction for counties initially under nomadic governance, InvDis $\times$ Drought $\times$ N (α_2), is small in magnitude and statistically insignificant, indicating that drought-induced incursions have limited implications for effective proximity in regions already outside centralized control.

Flood shocks exhibit the opposite pattern. The standardized coefficient on InvDis $\times$ Flood $\times$ C (α_3) is positive and statistically significant, indicating that a one–standard-deviation increase in frontier-level flooding is associated with a meaningful increase in effective proximity to capital cities for centrally controlled counties. This pattern is consistent with episodes of imperial reconsolidation: by reducing agricultural surplus in contested frontier areas and lowering the expected gains from invasion, floods weakened nomadic pressure and facilitated the reassertion of centralized authority, often accompanied by the reestablishment, relocation, or longer persistence of nearby political centers.

Finally, the interaction InvDis $\times$ Flood $\times$ N (α_4) remains statistically insignificant across specifications, suggesting that flood-induced frontier retraction has limited effects on effective proximity for counties initially under nomadic governance.

Taken together, the standardized first-stage results demonstrate that frontier-level climate shocks generate economically meaningful and systematic variation in counties' effective proximity to capital cities through historically documented shifts in political control and capital dynamics. These patterns provide strong support for the relevance of our instrumental variables.

Appendix Figure A.1 checks the robustness of the first-stage relationship by varying the distance cutoff used to define the inverse-distance weights (i.e., focusing on counties progressively closer to the 221 BC frontier). Across thresholds, the coefficient on α_1 (InvDis $\times$ Drought $\times$ C) remains negative and the coefficient on α_3 (InvDis $\times$ Flood $\times$ C) remains positive, with broadly stable magnitudes. Overall, the figure indicates that the first-stage patterns are not driven by a particular distance choice and are consistent with the relevance of the instruments.

We next present the 2SLS estimates in Panel B of Table 2, which provide strong evidence for the causal effect of historical proximity to political centralization on contemporary political stability. Columns (1)–(2) report the IV estimates without and with baseline controls. The coefficient on $Proximity$ is negative and highly significant in both specifications, with an absolute magnitude of approximately 6.2%, substantially larger than the corresponding OLS estimate of around 2.4%. This suggests that the standard OLS approach underestimates the long-term impact of historical centralization on modern political outcomes.

The original set of instruments included four triple-interaction variables along with their pairwise interactions. When all instruments were included simultaneously, the first-stage covariance matrix became rank-deficient, leading to unstable standard errors and unreliable overidentification tests. To address this issue, we apply a Lasso procedure to select the most predictive instruments for $Proximity$. This approach reduces the dimensionality of the instrument set while retaining exogenous variation, thereby improving the precision and stability of the second-stage IV estimates. Columns (3)–(4) present the IV-Lasso results, which remain negative, statistically significant, and broadly consistent in magnitude with the full IV estimates, confirming the robustness of our findings.

5.3 Robustness checks

Temporal Weighting of Historical Exposure——. A natural consideration is that more recent dynasties, such as the Ming and Qing, are likely to exert a stronger influence on contemporary outcomes than earlier dynasties such as the Qin and Han. To address this concern, we construct a temporally weighted measure of historical proximity that assigns greater weight to exposure arising from more recent dynasties.

Let $\mathcal{D}$ denote the set of dynasties in the sample. For each county i and dynasty $j \in \mathcal{D}$, each dynasty is assigned a temporal weight based on its end year,

$$w_j = \frac{\text{end\_year}_j - \min_{k \in \mathcal{D}} \text{end\_year}_k}{\max_{k \in \mathcal{D}} \text{end\_year}_k - \min_{k \in \mathcal{D}} \text{end\_year}_k},$$

where the minimum and maximum are taken over all dynasties $k \in \mathcal{D}$, so that more recent dynasties

Table 2: Instrumental variable results

Panel A: First-Stage Results				
		Dependent Variable: Proximity to Capital		
	Mean	Std.Dev.	(3)	(4)
InvDis × Drought × C (α_1)	0.892	1.151	-1.548***	-1.151***
			(0.485)	(0.434)
InvDis × Drought × N (α_2)	0.926	2.417	0.188	0.206
			(0.137)	(0.150)
InvDis × Flood × C (α_3)	1.070	1.272	1.602***	1.151**
			(0.545)	(0.515)
InvDis × Flood × N (α_4)	0.837	2.143	-0.014	-0.049
			(0.065)	(0.072)
Province FE			✓	✓
Demographic controls			–	✓
Economic controls			–	✓
Geography controls			–	✓
Policy controls			–	✓
Observations	–	–	2,304	2, 277

Panel B: Second-Stage Results				
	Dependent Variable: Political Unrest			
	IV	IV	IV-Lasso	IV-Lasso
	(1)	(2)	(3)	(4)
Proximity to Capital	-0.108***	-0.062**	-0.107***	-0.076***
	(0.023)	(0.025)	(0.024)	(0.028)
Kleibergen-Paap rk Wald F statistic	9.442	7.846	15.920	11.425
Province FE	✓	✓	✓	✓
Demographic controls	–	✓	–	✓
Economic controls	–	✓	–	✓
Geography controls	–	✓	–	✓
Policy controls	–	✓	–	✓
Observations	2,300	2,277	2,300	2,277

Notes: This table reports instrumental variable estimates of the effect of proximity to capital on political unrest. Panel A reports standardized first-stage coefficients (both the dependent variable and instruments are standardized), while Panel B reports second-stage IV estimates. Robust standard errors clustered at the prefecture level are reported in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. All components of the interaction terms are included as controls in both stages. Additional controls include demographic/cultural, economic/agricultural, climatic/geographic, and policy variables, as well as province fixed effects where indicated.

receive higher weights. The weighted proximity measure is then defined as

$$\text{Proximity}_i^{\text{weighted}} = \sum_{j \in \mathcal{D}} w_j \, \text{Proximity}_{ij}.$$

Column (1) of Appendix Table A.5 reports regression results using this weighted proximity measure. The estimated coefficient remains negative and highly statistically significant, confirming that our baseline findings are robust to allowing more recent dynasties to exert a stronger influence on contemporary political outcomes.

Excluding the Capital City——. Another concern is that individuals may strategically migrate to Beijing to stage protests, given its administrative prominence and greater media visibility. If protest events recorded in Beijing partly reflect inflows of protesters from other regions rather than local grievances, our estimates may be biased. To address this concern, we exclude Beijing from the sample. Column (2) of Appendix Table A.5 shows that the magnitude and statistical significance of the estimates remain virtually unchanged, indicating that our results are not driven by protest concentration in the capital.

Robustness to Xinjiang Exclusion——. A related concern is that the mechanisms underlying political unrest in Xinjiang may differ from those in other regions, owing to its unique historical, geopolitical, and institutional context. If contemporary unrest in Xinjiang is driven by factors unrelated to historical exposure to centralized authority, including external or region-specific influences, this could confound our estimates. To address this issue, we exclude Xinjiang from the sample. As shown in column (3) of Appendix Table A.5, the results remain substantively unchanged.

Robustness to Excluding Peripheral Regions——. Figure 1 shows that regions historically least exposed to centralized authority, such as Tibet and Qinghai, also have high concentrations of ethnic minorities and were incorporated into the Chinese state relatively late. These regions historically maintained loose and intermittent connections with central authorities, resulting in governance structures distinct from those of inland provinces. Excluding Tibet and Qinghai yields results that are quantitatively and qualitatively similar to the baseline estimates, as shown in column (4).

A related consideration is that the central government has long viewed these regions as potentially sensitive, prompting heightened monitoring and strong preventive measures. As a result, many protests or anti-government incidents may be suppressed before they become publicly visible, appearing as fewer recorded events in official data. This pattern likely leads to an underestimate of unrest, but it does not affect our analysis.

Population Mobility as an Identification Concern——. A potential concern is that population migration—both historically and in the modern period—may confound the estimated relationship between long-run political centralization and contemporary political unrest. If individuals' locations do not accurately reflect their long-run institutional exposure, historical measures constructed at the county level may be misaligned with the actual exposure of participants involved in unrest events, potentially biasing the estimates toward zero.

Historically, such bias is likely to be limited. Although population movements did occur in imperial China, migration was predominantly regional: movements typically took place within agrarian regions or within nomadic regions, rather than across these fundamentally different institutional systems. Large-scale migration between agrarian and nomadic areas was relatively uncommon, in part due to natural and institutional barriers such as the Great Wall. As a result, although historical migration may introduce measurement error in individual exposure, it is unlikely to generate systematic bias in our estimates of the relationship between historical centralization and political unrest when using our instrumental-variable strategy, which exploits plausibly exogenous climate shocks that affected nomadic invasions of the Central Plains.

Modern migration raises a related but conceptually similar issue: some anti-government incidents may involve non-local participants (e.g., migrant workers) whose long-run institutional exposure differs from that of the incident location. We provide several robustness checks to alleviate this concern. First, we provide a supplementary analysis focusing on the period 1949–2000, when population mobility in China was strictly regulated, substantially limiting large-scale interregional migration. The results are reported in Column(5) of Appendix Table A.5, and the results remain robust. Second, using detailed information on protest causes, we distinguish political unrest from labor-related disputes—such as protests over wage arrears—that are more likely to involve migrant workers, and show that our results are not driven by labor-unrest episodes. Finally, for politically motivated events, we directly examine participants' exposure to centralization using individual-level place-of-origin information from China Judgement Online (CJO). In the mechanism analysis in Section 6, we exploit these data to show that, conditional on the incident location, individuals whose place of origin is closer to historical capitals are less likely to engage in anti-government actions.

6 Plausible Channels

Since the establishment of the People's Republic of China, all Chinese municipalities have been governed under the same political regime. Yet substantial regional variation in political stability persists. To understand the channels through which historical political centralization continues to shape contemporary unrest, we examine several plausible mechanisms. We first consider persistence in economic and demographic fundamentals, followed by institutional channels related to government repression and responsiveness. Finding limited support for these explanations, we then turn to cultural transmission as a remaining and plausible mechanism.

6.1 Persistence in economic and demographic fundamentals

A natural mechanism is that historical exposure to centralized authority shaped long-run economic development and human capital accumulation. A large literature shows that historical institutions can generate persistent differences in economic trajectories and civic capital across regions (Knack and Keefer, 1997). Under this view, regions historically closer to political centers may have accumulated higher levels of education, income, and development, which could in turn reduce contemporary political instability. In addition, historical proximity may be correlated with socio-demographic characteristics that are themselves associated with political instability. These characteristics may also constitute an independent channel through which historical state penetration operates, rather than reflecting a direct effect of centralized authority per se. For example, demographic imbalances and population concentration can affect collective action capacity and social tensions.

To assess this possibility, we augment the baseline specification (which already controls for nighttime light and other development measures) with additional county-level covariates capturing demographic structure and human capital. Specifically, we control for the local sex ratio, average years of schooling, and population density. These variables capture important correlates of collective action and social unrest, including gender imbalances, human capital accumulation, and local population concentration.

Column (1) of Table 3 reports the results. After adding these demographic and human-capital controls, the coefficient on historical proximity becomes slightly smaller in magnitude but remains negative and statistically significant. This attenuation suggests that part of the baseline association operates through persistent differences in demographic structure and human capital, but these factors do not fully account for the relationship.

6.2 Persistence in Institution

Government repression——. One possible explanation is that areas historically exposed to centralized monarchy systems exhibit stronger present-day governmental control (coercive capacity). This may stem from the enduring legacy of centralized authority and bureaucratic structures established under monarchies, where the state exercised substantial control over economic resources, legal frameworks, and social order. Over time, these regions developed hierarchical governance practices and administrative routines consistent with top-down rule, making compliance with central authority more salient and enforcement more effective. Such historical continuity can facilitate modern governmental control by leaving behind institutional foundations, including organizational capacity, monitoring practices, and enforcement norms, that remain embedded in local governance. Consequently, if this legacy holds, current governments in these regions would be better positioned to deter, monitor, and suppress political unrest, independent of other socio-economic factors.

To assess this mechanism, we augment the baseline specification with two proxies for local coercive capacity. First, we control for the number of police officers in each county, constructed from occupational codes in the 2015 China Population Census. Second, we incorporate data from Beraja et al. (2023) on government purchases of surveillance cameras, which capture investments in monitoring and enforcement technologies. As shown in columns (2)–(3) of Table 3, the coefficient on historical proximity remains negative and statistically significant after controlling for local coercive capacity. Within each specification, the inclusion of repression-related controls leads to a modest attenuation of the estimated effect relative to the corresponding baseline without these controls. In column (3), where the analysis is conducted at the city level, the coefficient is larger in absolute magnitude due to aggregation, but remains smaller than its counterpart in the same specification without repression controls.

Government responsiveness——. An alternative institutional channel is local government responsiveness, defined as the capacity of local authorities to address citizens' needs and grievances through public service provision. Although policy priorities are largely determined at higher administrative levels, the implementation of policies and the allocation of public resources vary substantially across counties. Regions with a longer history of centralized administration may have developed more effective bureaucratic routines, enabling local governments to respond more promptly to social demands and thereby reduce incentives for anti-government collective action.

To proxy for local government responsiveness, we use county-level measures of public service provision, including the density of roads, schools, and hospitals. These measures are constructed from 2012 GIS maps provided by the *National Administration of Surveying, Mapping, and Geo-information of China*, capturing the intensity and geographic coverage of key public services. As shown in column (4) of Table 3, controlling for these measures slightly attenuates the estimated effect of historical proximity, but the coefficient remains negative and statistically significant. This suggests that differential government responsiveness is unlikely to be the primary channel.

Table 3: Channels: Demographic structure, government repression, and responsiveness

	Dependent variable: Political Unrest			
	Demographics & Human Capital	Police Presence	AI Surveillance	Gov. Responsiveness
	(1)	(2)	(3)	(4)
Proximity to Capital	-0.021***	-0.024***	-0.374*	-0.021***
	(0.006)	(0.006)	(0.216)	(0.006)
Province FE	✓	✓	✓	✓
Demographic controls	✓	✓	✓	✓
Economic controls	✓	✓	✓	✓
Geography controls	✓	✓	✓	✓
Policy controls	✓	✓	✓	✓
Observations	2,276	1,964	130	2,269
R^2	0.424	0.392	0.447	0.432
Data Source	Census	Census	Beraja et al. (2023)	GIS Map

Notes: This table examines whether institutional factors explain the relationship between historical proximity to the capital and contemporary political unrest. The dependent variable in all columns is political unrest. Column (1) controls for local sex ratio, average years of schooling, and population density, column (2) for police presence, column (3) for AI-based surveillance capacity, and column (3) for government responsiveness measured by public provision density. Standard errors are reported in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

6.3 Cultural transmission

Culture plays a significant role in explaining political unrest (Donni et al., 2021), making cultural transmission a potentially influential channel (Rustagi, 2024). A large literature shows that institutions can shape individual values and behavioral norms that persist over long horizons (Grosjean, 2011; Becker et al., 2016). Historically, political centralization under authoritarian regimes promoted deference toward the state and its core institutions, fostering norms of obedience, trust in authority, and compliance with centralized rule. We hypothesize that such cultural traits were transmitted across generations and continue to suppress political unrest at its roots.

For cultural transmission to operate as a plausible mechanism, historical population mobility must have been sufficiently limited so that local norms were not rapidly diluted. This condition is particularly relevant in the Chinese context. Until the late twentieth century, population movements were tightly regulated through formal and informal household registration systems (Liu et al., 2024). In imperial China, migration restrictions were implemented to preserve fiscal capacity, secure labor supply, maintain social order, and consolidate central control.[22] These institutional constraints imply that locally embedded cultural traits could persist over long periods.

Attitude survey——. To examine whether culture represents a plausible channel, we utilize data from the 2006 and 2010 *China General Social Survey* (CGSS) to study individuals' attitudes toward the government.[23] The survey includes questions on personal attitudes toward state entities, such as: (i) "To what extent do you trust the central government in China?", with responses ranging from 1 ("Do not trust at all") to 5 ("Completely trust"). Respondents were also asked, "To what extent do you trust the local government in China?", using the same 1-to-5 response scale.

To estimate the effect, in addition to the county-level control variables X_c described above, we include a comprehensive set of individual-level controls. These encompass variables that are plausibly exogenous, such as age and gender, as well as factors such as ethnic minority status and *Hukou* registration, which allow us to disentangle their influence from the potential effects of historical exposure to centralized administration. We also include variables that may be endogenous, includ-

[22] Rulers feared that large-scale migration would disrupt local governance, alter demographic composition, and weaken tax and labor extraction. Population controls thus served as a central instrument of state capacity and social stability.

[23] While the CGSS covers additional years, only the 2006 and 2010 surveys include relevant information on trust in government.

ing employment status, education, religious beliefs, and Chinese Communist Party membership, to further account for individual-level heterogeneity in political attitudes.

The results, reported in columns (1)–(2) of Table 4, consistently show that individuals residing in counties historically closer to the capital exhibit significantly higher trust in both the central and local governments. A potential concern is that this pattern might reflect broader social capital effects rather than person–state interactions. In other words, it could be driven by the diffusion of Confucian norms, which primarily influence trust between individuals rather than trust toward the state. If this were the case, we would expect proximity to the historical capital to increase interpersonal trust. To test this hypothesis, we examine measures of interpersonal trust, including trust in friends, co-workers, and classmates. The results show no significant relationship between historical proximity and general trust toward others (columns 3–5), suggesting that the observed effects are specific to person–state interactions rather than interpersonal trust.

Protester analysis——. As more direct evidence for cultural transmission, we examine protest participation among migrants residing in the same city but originating from different birth municipalities with varying historical exposure to centralized regimes. Following the strategy from Rustagi (2024), if individuals carry historically shaped norms after relocating, migrants born in municipalities historically closer to centralized authority should exhibit a lower likelihood of participating in protests than those from less centralized birthplaces, holding the current city of residence fixed.

To illustrate, consider Beijing, where 100 migrants originate from county A and only one of them is involved in a protest. The protest propensity for migrants from A in Beijing is defined as the share of protesters among all migrants from that birthplace. We link each individual's birthplace to its corresponding measure of historical proximity to the capital. This approach allows us to examine the effect of historical exposure to centralized authority on protest behavior while comparing migrants within the same urban environment.

Let $P_{h \to c}$ denote the protest propensity of migrants from birthplace h residing in city c:

$$P_{h \to c} = \frac{\text{Number of protesters from } h \text{ in } c}{\text{Total number of migrants from } h \text{ in } c}, \qquad Y_{h \to c} = \log(P_{h \to c}).$$

Each birthplace h is linked to its historical proximity to the capital, Proximity_h. We estimate

$$Y_{h\to c} = \beta\,\text{Proximity}_h + \gamma_c + X_c + \varepsilon_{h\to c},$$

where γ_c are city fixed effects and X_c includes city-level demographic, economic, geographic, and policy controls. A negative β implies that migrants from historically more centralized regions are less likely to protest in their current city.

We use data on protesters from *China Judgement Online* (CJO), focusing on cases involving firearms smuggling, ammunition trafficking, and threats to public safety. Textual analysis is employed to extract both birthplace h and current residence c for each individual. Column (6) of Table 4 reports the results, showing that migrants from birth municipalities with greater historical proximity to centralized authority exhibit a significantly lower propensity to protest than those from less centralized regions.

Table 4: Cultural channel: trust and individual protest behavior

	Dependent variable					
	Trust in Government		Interpersonal Trust			Individual
	Central	Local	Friend	Co-workers	Classmates	Protest Propensity
	(1)	(2)	(3)	(4)	(5)	(6)
Proximity to Capital	1.956^{**}	2.766^{**}	-0.561	0.280	0.531	-0.001^{***}
	(0.927)	(1.373)	(1.186)	(0.663)	(1.022)	(0.000)
Province FE	✓	✓	✓	✓	✓	✓
Individual controls	✓	✓	✓	✓	✓	–
Demographic controls	✓	✓	✓	✓	✓	✓
Economic controls	✓	✓	✓	✓	✓	✓
Geography controls	✓	✓	✓	✓	✓	✓
Policy controls	✓	✓	✓	✓	✓	✓
Observations	8,241	8,241	15,819	15,327	16,002	1,046
R^2	0.116	0.073	0.104	0.079	0.059	0.248
Data Source	CGSS	CGSS	CGSS	CGSS	CGSS	CJO

Notes: This table examines cultural transmission mechanisms. Columns (1)–(2) analyze trust in central and local governments. Columns (3)–(5) examine interpersonal trust toward friends, co-workers, and classmates. Column (6) analyzes protest behavior among migrants, comparing individuals residing in the same city but originating from different birthplaces. Standard errors are reported in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

7 Conclusion

This paper uses novel county-level measures of political instability to study the long-run legacy of political centralization in China from 221 BC to 1911. By linking historical exposure to imperial political centers to contemporary unrest, we document a robust negative relationship between historical centralization and present-day political instability. The results suggest that the imprint of centralized governance can persist for centuries, shaping regional political dynamics well beyond the collapse of the original institutions.

We further examine why this persistence arises and find evidence consistent with a cultural transmission channel. Regions historically exposed to centralized rule exhibit significantly higher trust in both central and local governments, while interpersonal trust does not systematically increase, pointing to person–state attitudes rather than generalized social capital. Together with migrant-based evidence, these patterns suggest that historically formed norms regarding the state and authority continue to influence political behavior today.

Our findings have several implications. First, policies that aim to strengthen political stability may be more effective when they build legitimacy and trust, for example through transparent administration, credible public service delivery, and predictable enforcement, rather than relying primarily on coercion or monitoring. Second, because political culture evolves slowly, institutional reforms may exhibit heterogeneous effects across space. Regions with historically weaker state penetration may require longer horizons and complementary investments in local administrative capacity to achieve similar stability outcomes. More broadly, our analysis highlights how the deep historical roots of state formation can shape contemporary governance and citizen–state relations, offering a framework that may be relevant for other settings with long histories of centralized and frontier governance.

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A Appendix

Table A.1: Historical timeline of the evolution of centralized authoritarian monarchy in China

Dynasty	Time	Ruling class	Introduction
Zhou (周)	1029BC-221BC	Aristocracy	Political power relatively decentralized among the various levels of slave-owning aristocracy
Qin (秦)	221BC - 207BC	Monarchical rule	Established a centralized system, with political authority concentrated in the hands of the emperor
Han (汉)	206BC-220AD	Monarchical rule	Further consolidated the centralized system, establishing Confucianism as the ruling ideology of China's feudal society
The Three Kingdoms, Two Jin Dynasties, and Northern and Southern Dynasties (三国两晋南北朝)	220AD-581AD	N/A	It was a period in Chinese history lasting over 300 years, characterized by rapid dynastic changes and the coexistence of multiple regimes. During this period, centralized system weakened
Sui and Tang (隋唐)	581AD-907AD	Monarchical rule	Refine the centralized system and divide the power of the chancellors to strengthen imperial authority
The Five Dynasties and Ten Kingdoms (五代十国)	907AD-960AD	N/A	Era of major fragmentation and the weakening of central authority
Song (宋)	960AD-1279AD	Monarchical rule	Restrict local military forces and strengthen central authority
Yuan (元)	1271AD-1368AD	Monarchical rule	The first dynasty in the Central Plains founded by northern nomads.Central authority is further consolidated
Ming (明)	1368AD-1644AD	Monarchical rule	Abolish the position of chancellor to reinforce control
Qing (清)	1636AD-1911AD	Monarchical rule	Centralized authority reached its peak, until it ends at 1911AD

Notes: This table presents the historical evolution of central authoritarian monarchy in ancient China. The data source was hand-collected by the authors.

Table A.2: Summary statistics

Variable	Obs.	Mean	SD	Min	Max
Outcome					
Political protests (inverse hyperbolic sine)	2301	0.523	0.673	0.000	3.850
Main explanatory					
Proximity to capital	2301	1.703	3.180	0.000	15.232
Demographics and culture					
Ethnic minority share (%)	2299	19.325	31.536	0.000	99.780
Urbanization rate (%)	2299	20.598	13.789	1.580	93.660
Agricultural employment share	2299	0.451	0.173	0.003	0.904
Unemployment rate	2299	0.281	0.073	0.065	0.722
Language group	2299	7.449	2.250	1	14
Economics and agriculture					
City density (1800)	2285	15.697	39.873	1	788
Nightlight intensity	2285	9.664	8.956	0	63
Agricultural suitability index	2285	183.503	42.968	63.361	255
Geography and climate					
Elevation (m)	2306	876.445	1113.390	0.223	5150.482
Distance to coast (km)	2306	6.385	6.718	0	37.225
County area (log km^2)	2306	7.665	0.974	5.737	12.126
Policy and environment					
Land revenue (log)	2306	4.338	3.004	0	12.258
PM2.5 concentration	2306	3.350	0.719	1.054	4.361

Notes: Summary statistics for the main outcome, explanatory, and control variables used in the analysis. See Section 3 for details.

Table A.3: Exclusion Condition

	(1) Nighttime Light	(2) Nighttime Light	(3) Political Unrest
InvDis × Drought × N (α_2)	0.864	0.965	
	(0.627)	(0.593)	
InvDis × Drought × C (α_1)	0.574	0.151	
	(4.314)	(3.472)	
InvDis × Flood × N (α_4)	-0.485	-0.314	
	(0.394)	(0.338)	
InvDis × Flood × C (α_3)	7.295	4.135	
	(4.840)	(3.511)	
Proximity to Capital			-0.098***
			(0.026)
Demographic Controls	✓	✓	
Observations	2,304	2,300	2,068

Table A.4: Short-term association between historical proximity and unrest in the Ming dynasty

	Dependent Variable		
	Revolt (Poisson) (1)	Revolt (Poisson) (2)	Dummy Variable (3)
Proximity to Capital	-0.003*	-0.004**	-0.003*
	(0.002)	(0.002)	(0.002)
Province FE	✓	✓	✓
Historical controls		✓	✓
Observations	1825	1825	1825

Notes: This table examines the short-term effect of historical proximity to capital on unrest during the Ming dynasty. Standard error is clustered at province level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table A.5: Robustness checks

	Political Unrest				
	(1) Weighted Exposure	(2) Exclude Beijing	(3) Exclude Xinjiang	(4) Exclude Qinghai & Tibet	(5) Year1949- 2000
Proximity to Capital	-0.108***	-0.077***	-0.107***	-0.076***	-0.332**
	(0.023)	(0.027)	(0.024)	(0.028)	(0.014)
Province FE	✓	✓	✓	✓	✓
Demographic controls	✓	✓	✓	✓	✓
Economic controls	✓	✓	✓	✓	✓
Geography controls	✓	✓	✓	✓	✓
Policy controls	✓	✓	✓	✓	✓
Observations	2,300	2,277	2,300	2,277	341

Notes: This table presents robustness checks for the baseline results. Column (1) uses weighted exposure measures. Columns (2)-(4) exclude potentially influential regions: Beijing, Xinjiang, and Qinghai & Tibet, respectively. Column(5) presents the city-level results using the year from 1949 to 2000. Robust standard errors are reported in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

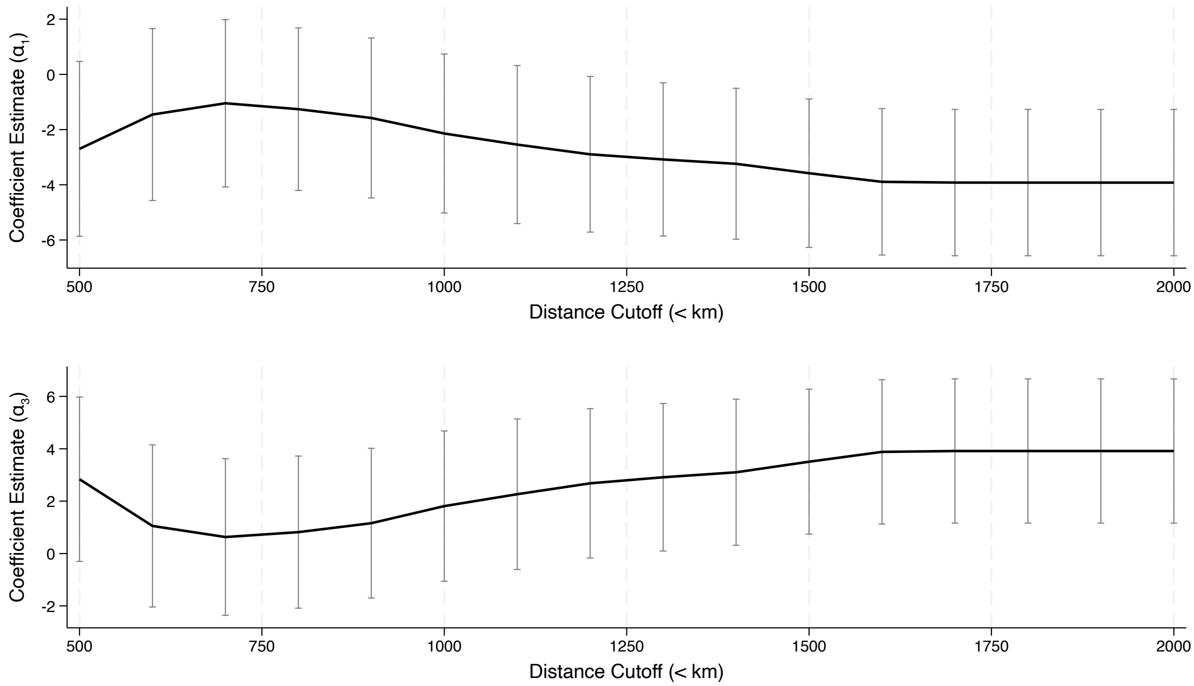

Figure A.1: First-stage estimates by distance to the historical frontier

Notes: The figure plots coefficients from the first-stage regression relating frontier-level climate shocks to counties' effective proximity to capital cities. Estimates are obtained by varying the distance cutoff used to construct inverse-distance weights, restricting the sample to counties within a given distance from the 221 BC frontier.