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ORIGINAL PAPER

Confucianism and war mobilization: evidence from Chinese revolutions

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Abstract
The Communist Party of China (CPC) achieved a series of military successes in revolutionary wars. Based on new county-level panel datasets from China, this study uses the shocks brought about by a civil and foreign war to test the impact of Confucianism on the war mobilization capacity of the CPC. We find that, during the civil war, Confucianism did not significantly affect CPC's war mobilization; however, during the foreign war, it significantly improved CPC's capacity to mobilize people. This demonstrates the differentiated effects of Confucianism by war type through three different mechanisms: "loyalty," "just war," and "patriotism." Our findings shed light on the role of native cultural norms in collective action.

Keywords Cultural norms · Confucianism · War mobilization · Collective actions · Soldier deaths

JEL Classification D70 · H56 · N95 · Z13

1 Introduction

Collective action always faces dilemmas, and mobilization is key to solving them (Olson 1965; Tilly 1978). This study focuses on the collective actions led by the Communist Party of China (CPC) over the first half of the twentieth century, during which the CPC achieved a series of military successes. Specifically, the CPC mobilized people to fight against its opponents, including the Chinese Nationalist Party (Kuomintang, KMT), Japan, and the USA in the Korean War (Huang 2019). These

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opponents were stronger from an economic and military perspective, but failed to defeat the CPC. A potential explanation for CPC's success was its capacity to mobilize forces from all walks of life to fight these opponents (Huang 2019).

Culture can lead to an ideology that overcomes the dilemmas related to collective action and solves the free-rider problem (Gavrilets and Richerson 2017). As such, this study focuses on the role of Confucianism in war mobilization. Confucianism, created and developed in China, has been become the orthodox ideology there since the second century B.C. and was deeply integrated into the practices of state governance in both imperial and modern China (Yao 2000; Kuhn 2002; Zhao 2015). Therefore, it is likely that Confucianism may have influenced CPC's war mobilization efforts.

As a result of data limitations, especially a proxy for mobilization, the literature does not empirically test the effect of Confucianism on war mobilization. This study proxies mobilization by the number of soldier deaths in the wars led by the CPC. We empirically analyze Sichuan[1] for the following two reasons. First, the central Sichuan Basin had already long been under the direct rule of imperial China and was deeply influenced by Confucianism. The area around the basin had long implemented the *tusi* (native chieftain) system[2] and had been less affected by Confucianism (Feng et al. 2020). This difference provides an ideal setting to identify the impact of Confucianism. Second, the CPC established the Sichuan–Shaanxi Revolutionary Base in Sichuan in the 1930s and fought large-scale wars with local warlords. This context provides an ideal opportunity for investigating the war mobilization capabilities of the CPC.

Based on the actors involved, CPC-led revolutionary wars can be divided into two categories: civil and foreign wars. This study uses two empirical strategies to analyze the different impacts of Confucianism on the mobilization in civil and foreign wars. First, the CPC successively established several base areas in Sichuan from 1933 to 1935. As such, this study constructs a Sichuan county-level panel dataset from 1930 to 1935 and employs the difference-in-difference-in-differences (DDD) method to test the role of Confucianism on mobilization. This empirical investigation shows that the number of soldier deaths in the base areas was significantly higher than that in other regions and that Confucianism did not affect the soldier deaths in the base areas. Second, we construct a county-level panel dataset on Sichuan from 1946 to 1953 and use a difference-in-differences (DID) model to test the impact of Confucianism during the Korean War (1950–1953). The empirical findings show that Confucianism significantly increased the number of soldier deaths during this period. These two results indicate that Confucianism had no significant impact on the CPC's mobilization in civil wars, but improved it in foreign wars.

We argue that the underlying reasons for the above-mentioned changes are the three types of Confucian values on war: "loyalty," that is, the belief that people should be loyal and obedient to those in power (Yao 2000; Kung and Ma 2014);

[1] Sichuan Province covers present-day Sichuan Province and Chongqing City over the study period.

[2] The *tusi* system was mainly employed in indigenous frontier societies in imperial China. Under this system, the chieftain enjoyed an autonomous rule over his people (Took 2005; Feng et al. 2020).

"just war," which shows that Confucianism supports wars with just and righteous objectives (Yao 2000); and "patriotism," that is, Confucianism inspires the spirit of patriotism (Li 1998; Hu 1998). During the civil war in the 1930s, the values of "loyalty" and "just war" were at play, but had opposite impacts. As the KMT was the legitimate authority and ruler of China in the 1930s and the CPC were seen as rebels at the time, we assume that "loyalty" would lead Confucianism to weaken CPC's ability to mobilize people to fight those in power. Meanwhile, the wars associated with base areas could be regarded as just, because they provided opportunities to end the long-lasting chaos and achieve peace in Sichuan, which might have enhanced CPC's mobilization efforts. The interplay between these two values led to the insignificant negative impact of Confucianism on civil war mobilization in the 1930s. To test this hypothesis, we use the number of recorded "loyal" figures in history to measure the "loyalty" associated with Confucianism, and the number of temples of Liu Bei (161–223) to measure the "just war" belief.[3] Liu Bei was a famous emperor in Chinese history who waged several wars to unify the nation.

During the Korean War, the "just war" and "patriotism" values were at play simultaneously. China was forced to participate in the Korean War and given righteous motivation for doing so. Through the "just war" value, the CPC strengthened its war mobilization capabilities significantly. Additionally, the United Nations forces had already seriously threatened the national security of China before the country intervened in the war, which is why the "patriotism" value eased the mobilization process to a great extent. Therefore, the impact of Confucianism on war mobilization during the Korean War was positive. In this study, the number of temples of Du Fu (712–770) is used to measure the "patriotism" associated with Confucianism. Du Fu was a great patriotic poet in Chinese history, whose poems reflected concerns about the future of his motherland.

This study also finds that CPC's war mobilization in the 1930s mainly relied on the construction of base areas, while there was no significant difference in the number of deaths between base and non-base areas during the Korean War. This result implies that, after the establishment of the People's Republic of China (PRC) in 1949, CPC's mobilization was no longer constrained to base areas. The above results are robust to dynamic effect tests, estimates accounting for heterogeneous treatment effects, alternative measures for Confucianism, controlling for other events, and placebo tests.

To solve the potential endogeneity problems in these tests, we use the cumulative number of Confucian educators in each county before 1644 as an instrument for Confucianism. The distance from each county to Chenggu County in Shaanxi is used as the instrumental variable for base areas. The Fourth Front Army (FFA) of the CPC planned on establishing the Sichuan–Shaanxi Revolutionary Base in Chenggu. Counties closer to Chenggu were more likely to become base areas. The two-stage least squares (2SLS) regression results support the previous argument.

[3] "Loyal" figures are typically soldiers who achieved military success by suppressing rebellions over history.

The contributions of this study focus on the following research streams. First, our findings add to the extensive studies on mobilization and collective action by showcasing a unique example from the Chinese context. Mobilization, as a key result of collective action, has been carefully examined in the literature (Tilly 1978; Ostrom 2000; Ferguson 2020). However, military mobilization in different contexts, such as interstate conflicts and civil wars, would require different strategies. Harrison (2000) and Broadberry and Harrison (2005) analyze the resource mobilization of the Western economies for the two world wars; as expected, a high level of economic development, as represented by the population, territory, and GDP of a country, was essential to mobilization and the final result. However, successful mobilization for civil wars involves more factors, such as group identification (Gould 1995), social framing of threat (Parkinson 2013), and emotional incentives (Petersen 2002). This study contributes to this in the following two aspects. First, by studying both the civil war and interstate conflict in China, it includes China into the lively discussion about mobilization. Second, we proxy mobilization by the deaths of individual soldiers, which can be regarded as the costliest form of mobilization (Bai et al. 2023).

Second, this paper contributes to the literature on the role of culture in development by broadening the knowledge on the association between cultural norms and mobilization. Culture, as broadly defined as "the knowledge, technology, values, beliefs, and norms that can be transmitted across generations and between individuals" (Boyd and Richerson 1985; Nunn 2021), can profoundly shape individuals' ideology and behaviors (Greif 2006; Alesina and Giuliano 2015). Empirical evidence also suggests that cultural norms can significantly affect collective action. For instance, Voigtländer and Voth (2012) find that anti-Semitism norms persisted since the Middle Ages, and these deep-rooted norms significantly affected the anti-Semitic violence in interwar Germany. Kung and Ma (2014) identify the role that Confucian culture played in attenuating peasant rebellions in late imperial China. More recently, Bazzi et al. (2021) and Durante et al. (2021) find that individualism and a low social capital are unfavorable in the collective fight against COVID-19. We complement these studies by focusing on the CPC, which achieved a series of military successes but attracted little attention from empirical studies.

Third, this paper relates to the growing body of research on state capacity. Specifically, a large literature stream examines the formation of effective states and links state capacity to economic development through its two core components, fiscal and legal capacity (North and Weingast 1989; Tilly 1992; Epstein 2000; Besley and Persson 2009, 2014; Acemoglu and Robinson 2012; Dincecco 2015, 2017; Hoffman 2015). Additionally, another important dimension of state capacity is military capacity, defines as the ability of a government to use violence to defeat its competitors (Hendrix 2010). Considering that the state is "a monopoly of violence" (Weber 1965), violence is also a crucial factor in strengthening state power (Tilly 1992; Besley and Persson 2008, 2010; Slater 2010; Gennaioli and Voth 2015). As Hoffman (2011, 2012) shows, Europe's comparative advantage in violence was key to its continuous economic growth before the Industrial Revolution. Although China's economic miracle since the 1980s was also found to be facilitated by the strong state capacity (Qian and Xu 1993; Shih et al. 2012; Brandt et al. 2014; Zhou 2022), the military success during the revolutionary period that establishes the foundation of

CPC's governance is under-studied. Therefore, our study emphasizes the military capacity and sheds light on China's current state capacity.

The remainder of this paper is structured as follows. Section 2 reviews the literature on mobilization, while Sect. 3 briefly introduces Confucianism, the Sichuan–Shaanxi Revolutionary Base Area, and the Korean War. Section 4 describes the variables and data. Sections 5 and 6 report the empirical results concerning the different impacts of Confucianism on the number of deaths during these two wars. Section 7 interprets the results through the three Confucian mechanisms of "loyalty," "just war," and "patriotism." Sect. 8 concludes the study.

2 Related literature

Violence matters to economic development and vice versa. The seminal work of North et al. (2009) provides a conceptual framework to interpret violence in human history. Because every society has been and will always be faced with the problem of violence, how to manage violence efficiently and effectively becomes crucial, as different strategies adopted to manage violence lead to different types of social orders and, thus, lead to different economic outcomes (North et al. 2009; Wallis 2011).

One practical way to contain violence is by collective action, but successful collective action requires efficient mobilization (Tilly 1978). Previous studies offer various definitions of mobilization. For example, Tilly (1978) states that mobilization "identifies the process by which a group goes from being a passive collection of individuals to an active participant in public life." Mobilization requires a group not only to control enough resources but also to use these resources to achieve group goals when needed. Rogers et al. (2018) define mobilization as the behavior of organizing a large number of individuals to take a certain action, where the benefits that the individuals could gain from the action are far lower than the cost of taking the action; hence, mobilization means individual "self-sacrifice."

Successful mobilization is not easy to achieve, especially in the face of the "free-rider problem" (Olson 1965), which can be viewed as the failure of market transactions shaped by transaction costs (Coase 1960; Ellingsen and Paltseva 2016). An extensive body of literature has hence carefully examined the ways to manage mobilization from various perspectives, including interpersonal networks (McAdam 1986; Gould 1991; McAdam and Paulsen 1993; Parkinson 2013; Steinert-Threlkeld 2017; Bai et al. 2023), geographical space (Zhao 1998; Sewell et al. 2001), information flows (Dale and Strauss 2009; Bond et al. 2012; Yanagizawa-Drott 2014; Manacorda and Tesei 2020; Ou and Xiong 2021; García-Jimeno et al. 2022), and personal competition (Ager et al. 2022).

From the perspective of institutional economics, cultural norms affect transaction costs and, thus, the outcome of contract enforcement (North 1990). We focus on the effect on a special type of contract between military leaders and ordinary soldiers, that is, war mobilization, whose monitoring, measurement, and enforcement costs are too high to enforce it. Deaths can be regarded as the outcome of contract enforcement, being unaffordable for individual soldiers. We cannot observe transaction costs in our reduced-form estimates. However, if these costs are affected

by cultural norms, we expect that the outcome of contract enforcement changes accordingly. In our study, this speculation implies that soldier deaths are affected by Confucianism.

3 Historical background

This study empirically analyzes the shocks brought about by the Sichuan–Shaanxi Revolutionary Base and the Korean War. This section presents the historical background of Confucianism and the two shocks.

3.1 Confucianism

Confucianism became the orthodox ideology in China in the second century B.C. After over two thousand years, the Confucian ideology had arguably permeated all social strata and established itself as the predominant social norm among the Chinese populace (Ho 1962; Fairbank and Reischauer 1989). An important feature of Confucianism is its emphasis on moral suasion (Shao et al. 2005). Confucius believed that moral suasion could better regulate people's behavior than strict rules and punishments.[4] The erection of Confucian temples, used to worship and honor Confucius and historical figures who adhered to his cardinal principles, represents an important means of promoting Confucianism (Kung and Ma 2014). Confucianism consists of a variety of virtues, and this study focuses on three such virtues associated with wars.

The first is loyalty. The Confucian proposition for social ethical relationships is embodied in the "Three Guiding Principles (*sangang*)," that is, "the retainer depends on his lord to gain merit; the son depends on his father; the wife on her husband" (Kung and Ma 2014). "The retainer depends on his lord to gain merit" means that the ruler should be a role model to his subjects and the subjects should follow the ruler as an example. Zhu Xi, the most influential scholar of neo-Confucianism, believes that everyone is born with loyalty (Yao 2000). Confucianism also considers that subordinates should obey the ruler's orders unquestioningly, even if the ruler is wrong.[5] This view is even further developed by the declaration that "if the prince asks the minister to die, the minister has to die" (Ouyang 2015). The three guiding principles had become the fundamental ethical and moral principles in imperial China (Ouyang 2015). The empirical evidence also suggests that the emphasis on

[4] Confucius stated: "If the people be led by laws, and uniformity sought to be given them by punishments, they will try to avoid the punishment, but have no sense of shame. If they be led by virtue, and uniformity sought to be given them by the rules of propriety, they will have the sense of shame, and moreover will become good" (Chinese Text Project 2016). Visit ctext.org for details.

[5] For instance, Lv Buwei said that: "Even though the father is wrong, the son dares not disagree with his father. Even though the ruler is wrong, the subordinates dare not disagree with his ruler" (Chinese Text Project 2016). Visit ctext.org for details.

loyalty could significantly reduce the number of rebellions in areas dominated by Confucianism (Kung and Ma 2014).

The second virtue is righteousness. Confucianism shows a clear tendency toward Pacifism and considers that launching wars is not the optimal way to solve social problems (Weber 1951). However, Confucianism acknowledges the legitimacy of "just wars," and believes it is necessary to carry out just wars to stop injustice (Yao 2000). Confucianism regards a war that conforms to people's aspirations and improves their welfare as a just war. Otherwise, a war could be regarded as unjust (Shao et al. 2005; Huang 2012). As an old saying goes, "there were no just wars in the Spring and Autumn Period" (770–476 B.C.). Confucius and Mencius both opposed civil wars between princes during the Spring and Autumn Period, because these wars were carried out due to personal ambitions and harmed public interest (Lee 2010). However, Mencius supported wars such as Shang Tang's defeat of Jie and King Wu's defeat of Zhou.[6] Although these wars had many casualties, they were still considered righteous, as they ended the rule of tyrants and, thus, gained mass support (Jiang 2015).

Patriotism is the last virtue. Confucianism maintains that the ultimate goal of one's life should be governing one's own state, and bringing justice and virtue to the world. This requires not only loyalty to those in power, but also loyalty and passion for the nation and people. Confucianism encourages people to be selfless and advocates the idea that national interests outweigh personal ones. Therefore, the intellectuals in Chinese history always showed deep concern about the destiny of the nation (Hu 1998; Li 1998). For example, Jia Yi of the Western Han dynasty advocated that "one should forget family affairs for the sake of state affairs," Cao Zhi in the Three Kingdoms period (221–280 AD) praised the spirit of "sacrificing the life to the country," while Gu Yanwu in the Ming dynasty (1368–1644 AD) pointed out that "everyone should be responsible for the prosperity of the country" (Chinese Text Project 2016). Therefore, Confucian values have improved national cohesion and created strong patriotism (Hu 1998; Li 1998). During history, when facing foreign invasions, not only did the intellectuals who were deeply influenced by Confucianism actively participate in wars against foreign enemies, but ordinary people also rose up to fight invaders and defend their homeland (Hu 1998).

3.2 The Sichuan–Shaanxi revolutionary base

In October 1932, in the face of the military attack led by the KMT, the FFA led by the CPC was forced to abandon the Hubei–Henan–Anhui Revolutionary Base in their retreat. However, the FFA did not have a thorough retreat plan at the time, meaning the retreat route was nearly blind (Li 2012). In December of the same year, the FFA arrived at Chenggu County, Shaanxi Province, where it decided to stop retreating and establish a revolutionary base in Sichuan and Shaanxi (Li 2012). In February 1933, the FFA established the Sichuan–Shaanxi Soviet Government in

[6] Both these wars occurred around 3000 years ago and led to regime changes.

Tongjiang County, Sichuan Province, after which the Sichuan–Shaanxi Revolutionary Base developed rapidly (Zheng 2000). The FFA defeated the local warlord's attack during 1933–1934, killing more than 60,000 enemy troops at the cost of approximately 20,000 casualties. This base area later became the largest Soviet base in China, second only to the Central Revolutionary Base in Jiangxi Province (Lin and Wen 1988).[7] In 1935, to cooperate with the Central Red Army, the main military force of the CPC, the FFA abandoned this base and initiated the Long March. Figure 1 shows the location of the base area in Sichuan and of Chenggu County, while Figure A1 shows the location of Sichuan Province within China.

In response to the threat of local warlords, the FFA mobilized a large number of people in the base area to join the army. At the beginning of its entry into Sichuan in 1933, the FFA had only around 15,000 soldiers. By the time the army was evacuated in 1935, this number exceeded 80,000 (Li 2012). Therefore, the Sichuan–Shaanxi Revolutionary Base provides a unique opportunity to identify the impact of Confucianism on the CPC's mobilization during civil wars.

3.3 The Korean War

After World War II, the Korean peninsula was divided by the 38th parallel, with continuing military frictions between the US-occupied south and the USSR-occupied north. On June 25, 1950, the Korean War broke out. The following September, the American-led United Nations forces joined the war to support South Korea. The UN forces crossed the 38th parallel and planned to occupy the entire Korean peninsula. If North Korea had been occupied by the USA, it would have greatly threatened China's national security. Moreover, before China entered the war, the USA had already sent aircrafts to investigate and bomb Northeast China. This had aroused the vigilance of the Chinese government.

In October 1949, the PRC was founded by the CPC. In early June 1950, Mao Zedong, the leader of the CPC, considered that the priority of the CPC was to achieve a marked improvement in the financial and economic conditions of China in the following three years (Mao 1950). Clearly, Mao and the CPC did not foresee the upcoming Korean Civil War, and the US' participation in this war. The Korea War completely disrupted CPC's original plan. In October 1950, the UN forces occupied Pyongyang, the capital of North Korea, and planned to occupy the entire Korean peninsula by the end of November. Due to the military threat posed by the USA, the Chinese People's Volunteers Army participated in the Korean War during mid-to-late October.

The People's Volunteer Army had more than 2.9 million soldiers that participated in the Korean War, and more than 360,000 were injured or killed (Zhang and Liu 2014). Among them, two highly decorated casualties were from Sichuan, Huang Jiguang and Qiu Shaoyun. In the Battle of Triangle Hill (one of the most tragic

[7] In the latter half of 1933, the Sichuan–Shaanxi Revolutionary Base had an area above 42,000 square kilometers and a population of more than 5 million, including 23 counties and one city (Lin 1982). Only one county in the Base was located in Shaanxi, with most of the area belonging to Sichuan.

battles of the Korean War), Huang was already fatally wounded but still hurled himself against the enemy's gun slit. In the same battle, Qiu was hit by a firebomb while waiting in ambush. To avoid making any noise and thereby reveal the position of his platoon, he held still under extreme pain until he was burned to death.

It could be argued that the US' military strength—an external factor—forced China's participation in the Korean War, rather than the Chinese domestic socioeconomic conditions at the time. Therefore, this context is a unique opportunity to identify the impact of Confucianism on mobilization during foreign wars.

4 Data

This study constructs two sets of panel data for 154 counties in Sichuan, from 1930 to 1935 and from 1946 to 1953. Sichuan is a province with a moderate intensity of Confucianism. The number of Confucian temples per capita in Sichuan during the 1820s was equivalent to 82.1% of the average one in China Proper (core regions of China) and ranked 10th out of 18 provinces.[8]

4.1 Description of variables

4.1.1 Mobilization

We use the number of CPC soldier deaths (martyrs) to measure war mobilization. Soldier deaths refer to those sacrificed during the CPC-led military operations. The CPC needed a group of participants in collective operations to sacrifice for its political and military goals. Similar to this paper, many studies use mortality or casualties to measure mobilization (see, e.g., Gould 1991; Kalyvas and Kocher 2007; Yanagizawa-Drott 2014; Bai et al. 2023).

The data on soldier deaths are collected from the official website of Chinese martyrs (The Ministry of Veterans Affairs 2021).[9] This website is developed by the Ministry of Veterans Affairs and provides basic information on over 1.8 million martyrs, including the time and place the martyr was sacrificed, birthplace, ante-mortem position, and a short biography. To the best of our knowledge, this website is the largest and most reliable data source related to soldier deaths in China, as it was created at the behest of President Xi Jinping to publicize the contributions made by the CPC. Based on martyrs' birthplaces and time of sacrifice, we construct the county-year panel dataset.

[8] China Proper refers to the Chinese territory east of the Qinghai–Tibet Plateau, including 18 provinces during the 1820s. The data on Confucian temples and population in 1820s are obtained from Mu and Pan (1842) and Cao (2001).

[9] Please visit the Official Website of China Martyrs for details at chinamartyrs.gov.cn.

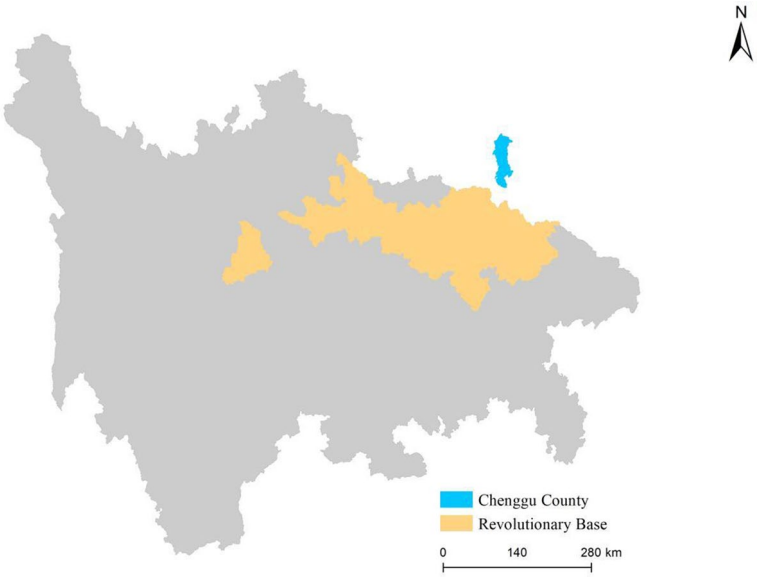


Fig. 1 Spatial distribution of base areas in Sichuan Province. *Note* The data are obtained from Zheng (2000)

4.1.2 Confucianism

We measure Confucianism by the number of Confucian temples, which is a widely-accepted method in the empirical literature (see, e.g., Kung and Ma 2014; Chen et al. 2022). Confucian temples are the places for worshiping Confucian saints. We hand-collect these data from the 1816 edition of *Sichuan Tongzhi*, the official gazetteer of Sichuan (Chang et al. 1816). Local gazetteers were a reliable and widely-used source for historical data in China (Kung and Ma 2014; Chen and Kung 2016).[10]

Moreover, we use the number of genealogical books, and those of Confucian academies in the Qing Dynasty (1644–1911 A.D.) as alternative measures of Confucianism. Counties with a greater impact from Confucianism would have higher lineage density, where the number of lineages could be measured by the quantity of genealogical books (Chen et al. 2022). Additionally, the number of Confucian academies can measure the intensity of Confucianism, because these academies are places where people learned about Confucian classics (i.e., *The Analects of Confucius*). We obtain genealogy data from Shanghai Library (2009) and the data on Confucian academies in the Qing dynasty from Hu (2006).

[10] Local governments in China, regardless of their level—province, prefecture, or county—had a long tradition of publishing gazettes, in which detailed affairs of their economies, societies, and culture were meticulously compiled; this may explain why local gazetteers are often regarded as local encyclopedias (Chen and Kung 2016).

4.1.3 Base area

Our empirical strategy relies on the establishment of the Sichuan–Shaanxi Revolutionary Base. Hence, another key variable is Base. In the empirical analysis over 1930–1935, Base is a time-variant dummy denoting whether the soviet administrations were established in a county-year. For 1946–1953, Base is a cross-sectional indicator denoting whether a county had established soviet administrations during 1933–1935. The data are from Zheng (2000). The number of Confucian temples per capita in base areas was equivalent to 105.1% of the sample mean, suggesting that the Confucianism strength between the base and non-base areas was comparable.

4.1.4 Instrumental variables

To mitigate omitted variable bias, we employ an instrumental variable strategy. In particular, we use the number of educators before 1644 to instrument the number of Confucian temples. These were the disseminators of Confucianism and the contents taught by them were the Confucian classics. We expect that counties with more educators would have stronger Confucian norms. The data on educators are obtained from Wang (1987).

Additionally, we use the straight-line distance to Chenggu County in Shaanxi Province to instrument Base. The underlying intuition is that the FFA first settled in Chenggu, and formulated the policy of establishing the Sichuan–Shaanxi Revolutionary Base (Lin and Wen 1988). Therefore, we expect that the counties closer to Chenggu are more likely to be revolutionary bases. The data are obtained from the National Catalogue for Geographic Information (The Ministry of Natural Resources 2021).[11]

4.1.5 Control variables

A set of control variables concerning population, other cultures, geographical features, and historical and political conditions is included in the model.

Population. This study uses two sets of population data, the population sizes in 1937 and in 1953. The former is obtained from records kept by the Sichuan Provincial Government (1939) and Li (1946). The latter comes from the first national census of the PRC. In the empirical test concerning the Sichuan–Shaanxi Revolutionary Base in the 1930s, we condition the population size in the 1930s, while in the empirical test of the Korean War, we control for the population size in 1953. One may express concern that the population data and the studied period are not perfectly matched. However, given the tiny ratio of soldier deaths to total population in Sichuan, this concern is unlikely to affect our estimations.[12]

[11] Please see National Catalogue for Geographic Information for details at www.webmap.cn.

[12] The numbers of deaths during 1933–1935 and 1950–1953 are 23,171 and 25,213, respectively, accounting for 0.052% and 0.057% of the total population of Sichuan in 1953 (44.34 million, reported in the 1953 census). More importantly, if there were any migration during wars, we expect that people would migrate from areas more deaths to other areas. This implies that above two ratios may be upward-biased, which cannot affect estimates. Moreover, the low ratio of deaths does not mean that our sample lacks representativeness, because the proportion in Sichuan is above the national average. Specifically,

Other cultures. In addition to Confucianism, Buddhism and Christianity could also have affected soldier deaths. This study thus also uses the number of Buddhist temples and Christian churches to measure these two cultures' influence in each county. The data are obtained from the "Religion records" in the *Sichuan Gazetteer* (Local Gazetteer Compilation Committee of Sichuan Province 1998).

Geographical features. This group of control variables includes longitude, latitude, altitude, and slope. The latitude and longitude reflect the agricultural structure and characteristics of the residents in a certain region (Diamond 2006). To preserve its military strength, the FFA might establish revolutionary base in areas with high altitudes and steep slopes. These data are from CHGIS (2007). We use ArcGIS to calculate the average elevation and slope of each county.

Political and historical conditions. We control for two dummies indicating whether the county was on the route of the Long March and whether it had a party committee before 1932. The Long March might have affected the construction of the base area because the FFA would probably have considered the Long March when constructing base areas.[13] The county-level party committee before 1932 meant that the local CPC underground organization was relatively strong, and the FFA might have been inclined to establish base areas in regions with county-level party committees. The two variables are taken from the local gazetteers in each county. During the study period, Sichuan belongs to two provincial-level administrative regions: Sichuan and Xikang and the administrative division might have had an impact on the base area. Therefore, this study controls whether a county belongs to the Xikang Special Zone. The data are from Zheng (2000). Historically, the spread of Confucianism was closely related to the direct ruling of the imperial court. During the Qing Dynasty, the *tusi* system was implemented in some regions of Sichuan, which could have affected the spread of Confucianism (Feng et al. 2020). Therefore, we include a dummy indicating whether the *tusi* system was implemented during the Qing Dynasty at the county level. The data come from Gong (2012). We also control for the number of *jinshi* in each county during the Qing Dynasty. *Jinshi* is the highest academic degree that can be earned from *keju* (imperial civil examinations), and earning a *jinshi* degree "almost automatically placed a person in the middle stratum of the officialdom" (Ho 1962). The data come from the "Education Records" in the *Sichuan Gazetteer* (Local Gazetteer Compilation Committee of Sichuan Province 2000).

Table A1 reports the descriptive statistics of the above variables.

4.2 Descriptive evidence

The numbers of deaths during 1933–1935 and 1950–1953 are 23,171 and 25,213, respectively. Figure 2 shows the average number of deaths in each county per year

Footnote 12 (continued)
152,000 Chinese soldiers were killed during the Korean War (Yang 1993), which accounts for 0.025% China's population in 1953 (0.6 billion, reported in the 1953 census).

[13] The Long March began as a strategic retreat undertaken by the Central Red Army in October 1934, when the communists abandoned their base in Jiangxi province in an attempt to escape the encirclement of the Nationalist forces led by Chiang Kai-shek (Lu et al. 2020).

between 1930 and 1935. As Fig. 2a illustrates, the numbers of deaths in the regions with strong and weak Confucian norms were almost the same as in 1930–1932. After 1933, the number of deaths in the regions with strong Confucian norms was slightly greater than that in the regions with a weak Confucian culture. In Fig. 2b, the number of deaths in the base and non-base areas was also the same during 1930–1932. From 1933 to 1935, this number became much greater in base areas than that in non-base areas. The difference in Fig. 2b from 1933 to 1935 is also larger than the one in Fig. 2a.

Figure 3 shows the average number of deaths in each county per year between 1946 and 1953. The number of deaths did not differ much between the regions with strong and weak Confucian norms from 1946 to 1949. However, during the Korean War (1950–1953), this number was significantly greater in the regions with strong Confucian norms than in regions with weak Confucian norms. Additionally, there was not much difference in the number of deaths between base and non-base areas during 1946–1949, but during 1950–1953, this number was slightly greater in non-base areas than in base areas.

5 Empirical results: the Sichuan–Shaanxi revolutionary base

5.1 Model setting

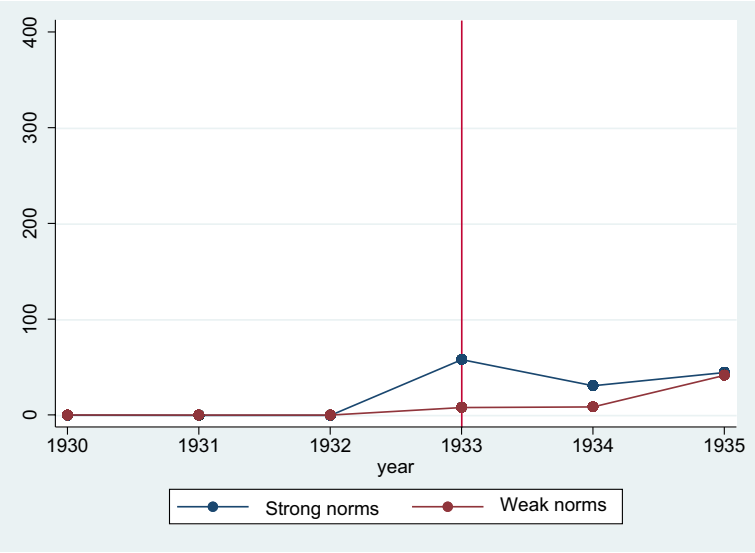
We first use the Sichuan county-level panel data during 1930–1935 and set up the following DDD model to test the impact of Confucianism on civil war mobilization:

$$\ln\left(\text{Death}_{it}\right) = \beta_1 \ln(\text{Temple}_i) \times \text{Base}_{it} + \beta_2 \text{Base}_{it} + (\boldsymbol{X}_i \times \boldsymbol{f}(\boldsymbol{t}))\prime\boldsymbol{\rho} + \eta_i + \varphi_t + \varepsilon_{it}, \tag{1}$$

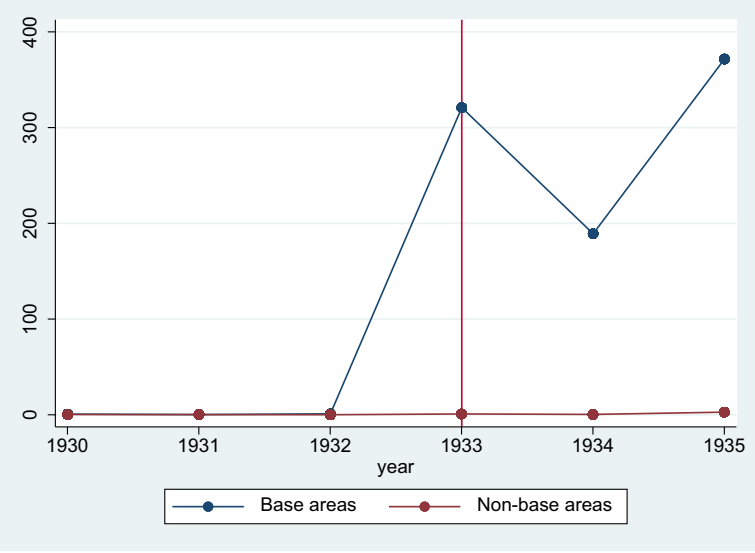
where i indexes counties and t years. The outcome of interest, Death_{it}, refers to the number of soldier deaths in county i and year t and Temple_i is the number of Confucian temples in county i. Base_{it} is an interaction term that equals $\text{Base}_i \times \text{After}_t$. If a county became a base area during 1933–1935, $\text{Base}_i = 1$; otherwise, $\text{Base}_i = 0$. If $t \geq t_{i0}$, where t_{i0} is the year when county i became a base area, then $\text{After}_t = 1$; otherwise, $\text{After}_t = 0$. $\boldsymbol{X_i}$ is the set of control variables discussed in Sect. 4.1 or county fixed effects. $\boldsymbol{f(t)}$ is the quadratic polynomial of the time trend. $\boldsymbol{\rho}$ is the coefficient matrix of interaction term $\boldsymbol{X_i} \times \boldsymbol{f(t)}$. η_i and φ_t denote the county and year fixed effects, respectively. ε_{it} is the error term. β_1 is the coefficient of interest, which captures the impact of Confucianism on war mobilization in base areas.

5.2 Baseline results: the Sichuan–Shaanxi revolutionary base

Table 1 reports the baseline results for the Sichuan-Shaanxi Revolutionary Base under the two-way fixed effects models. The two key variables in columns (1)–(3) are interaction term *Confucian temples* × *Base* and Base, while in columns (4)–(6), *Base* is the only key variable. Columns (2) and (4) control for the interaction between

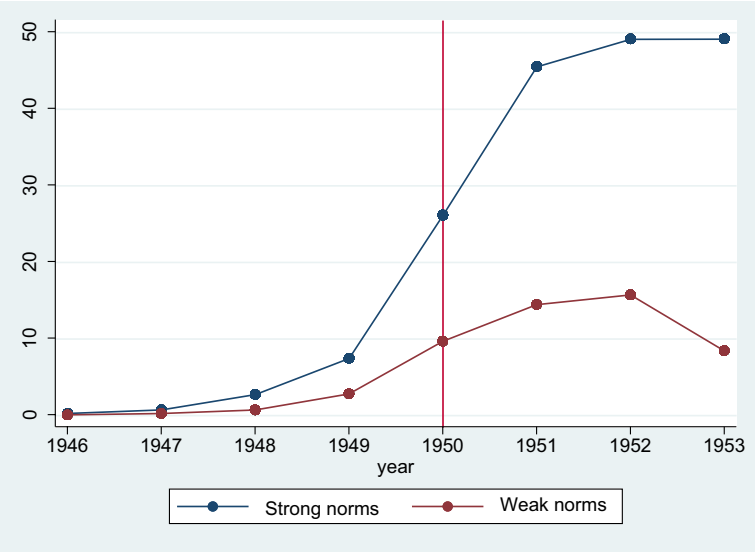


(a) Strong and weak strong Confucian norms

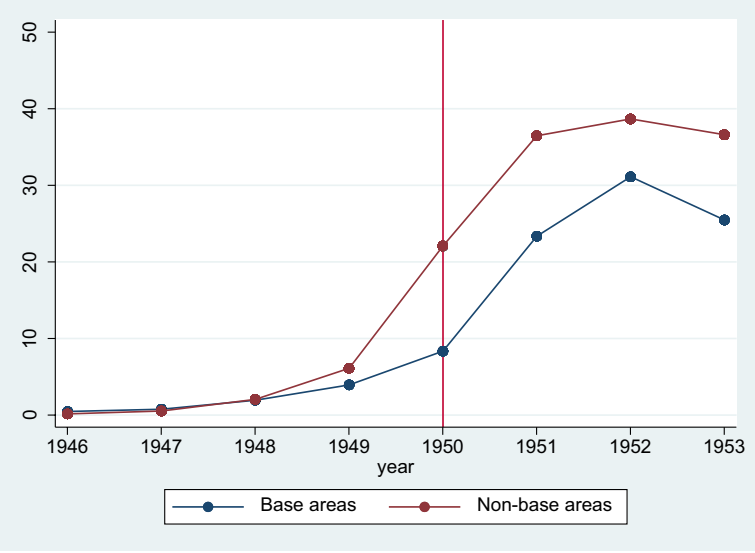


(b) Base and non-base areas

Fig. 2 The number of soldier deaths, 1930–1935. *Note* The figure divides the regions with strong and weak Confucian norms according to whether the number of Confucian temples in a county is larger than the median



(a) Strong and weak strong Confucian norms



(b) Base and non-base areas

Fig. 3 The number of soldier deaths, 1946–1953. *Note* The figure divides the regions with strong and weak Confucian norms according to whether the number of Confucian temples in a county is larger than the median

Table 1 Baseline results: the Sichuan–Shannxi revolutionary base

Dependent variable	Deaths (logged)					
	(1)	(2)	(3)	(4)	(5)	(6)
Confucian temples (logged) × base (0–1)	−0.510	−0.510	−0.560			
	(0.315)	(0.369)	(0.428)			
Base (0–1)	4.461***	3.433***	4.179***	3.770***	2.653***	3.408***
	(0.564)	(1.025)	(1.001)	(0.525)	(0.881)	(0.880)
County FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Controls × t, controls × t^2		Yes			Yes	
County FE × t, county FE × t^2			Yes			Yes
Observations	924	780	924	924	780	924
R-squared	0.694	0.724	0.903	0.688	0.720	0.901

(1) Standard errors in parentheses are clustered at the county level. (2) *Controls* include *Confucian temples* (logged), cross–sectional *Base* (0–1), population in 1937 (logged), Buddhist temples (logged), Christian churches (logged), longitude, latitude, altitude (logged), slope (logged), Long March (0–1), local party committee (0–1), Xikang (0–1), *tusi* (0–1), and *jinshi* (logged). (3) *$p < 0.1$; **$p < 0.5$; ***$p < 0.01$

county characteristics and the quadratic polynomial of the time trends. Columns (3) and (6) further account for county-specific linear and nonlinear time trends.[14]

The coefficients on interaction term *Confucian temples* × *Base* are statistically insignificant, suggesting that Confucianism did not have a significant effect on CPC's war mobilization during 1933–1935. However, the coefficients on *Base* remain statistically positive across columns. In column (6), the number of soldier deaths in the base areas is 29.2 times higher than that in non-base areas,[15] indicating that CPC's mobilization capacity in base areas was significantly higher than in non-base areas. In other words, CPC's mobilization during this period mainly relied on the establishment of base areas.

5.3 Robustness checks

We test whether the baseline results are robust to: (1) dynamic effects, (2) estimates accounting for heterogeneous treatment effects, (3) alternative measures of Confucianism, (4) controlling for other events, and (5) placebo tests by randomly assigning independent variables. We further employ the instrumental variable strategy to address endogeneity.

[14] We do not control for warlords' attacks on the base area, because this is a "bad control," which would seriously bias the estimation. The development of CPC's base areas caused warlords' attacks, which influenced the number of deaths. If we control for warlords' attacks, the meaning of the base area coefficient would become the impact of the base area on the number of deaths through mechanisms other than warlords' attacks.

[15] 29.2 = [*exp* (3.408)-1].

5.3.1 Dynamic effects

To examine the dynamic effect of Confucianism on mobilization, we run regressions based on the following dynamic effect equation:

$$\ln\left(\text{Death}_{\text{it}}\right) = \beta_{1k} \sum_{-3}^{+2} \ln(\text{temple}_i) \times D_{it+k} + \beta_{2k} \sum_{-3}^{+2} D_{it+k} + (\boldsymbol{X}_i \times \boldsymbol{f}(\boldsymbol{t}))\prime\boldsymbol{\rho} + \eta_i + \varphi_t + \varepsilon_{it}. \tag{2}$$

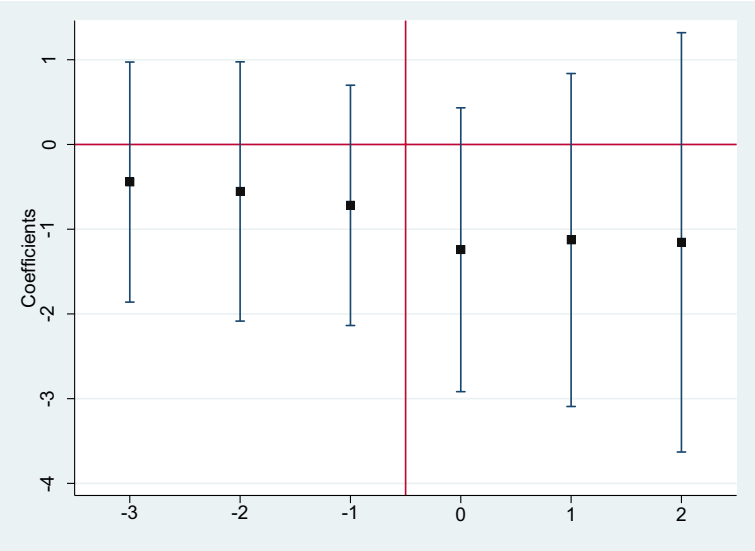
In Eq. (2), D_{it+k} indicates the event year, that is, the time period after the county became a revolutionary base. For example, D_{it} is the year when county i became the base area, then D_{it-1} is the year before county i became the base and D_{it+1} is the year after the county became a base area. In Eq. (2), event yeas $k < -3$ are omitted and the rest of the notations are the same as in Eq. (1). β_{1k} captures the change in the dynamic treatment effects of Confucianism in base areas during event year k compared to the omitted periods. β_{2k} captures the change in the dynamic treatment effects of Confucianism in non-base areas during event year k compared to the omitted periods.

Figure 4 reports the results. Before the establishment of the base area, the coefficients on each event year are not significantly different from 0. This result indicates that different regions experienced similar trends before the shock of the Sichuan–Shaanxi Revolutionary Base, and the parallel trends assumption is likely satisfied.

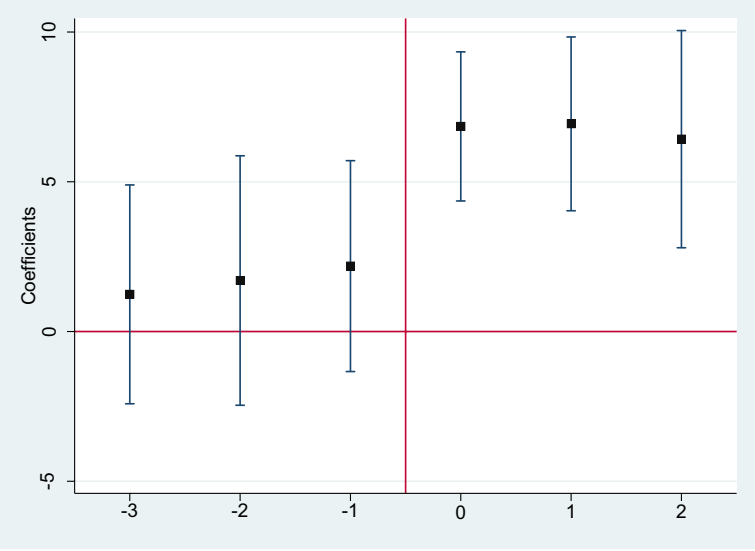
For robustness, we employ another two strategies to support this assumption. First, one may be concerned that the treatment timing can be anticipated by local residents, which threatens our identification. To alleviate this concern, we use the panel vector autoregression (PVAR) model and conduct panel Granger causality tests in Table 2 Panel A. We perform the Levin–Lin–Chu (LLC) and Harris–Tzavalis (HT) tests for *Deaths*, *Confucian temples*×*Base*, and *Base*, and reject the null hypothesis that these three variables have unit roots. Then, according to the Bayesian information criterion (BIC) and Akaike information criterion (AIC), we find that the two-year lag of *Deaths*, *Confucian temples*×*Base* and *Base* is the optimal lag length.[16] Finally, we perform panel Granger causality tests. The estimates in Table 2 Panel A show that the lagged outcome variable cannot predict *Confucian temples*×*Base* and *Base,* implying that the anticipation effect can be ruled out.

Second, another concern is that the treatment timing may be affected by unobserved confounders. To alleviate this concern, we control for the interaction between the logged number of deaths during non-treatment years in each county and year fixed effects. This specification allows the non-treatment differences related to the treatment timing to have a time-variant effect on soldier deaths. Additionally, we control for the interaction between treatment duration (the cumulative years as base areas) in each county and year fixed effects. The underlying intuition is the duration captures the effects of unobserved factors

[16] These results are available upon request.



(a) Coefficients of *Confucian temples*×*Event year*



(b) Coefficients of *Event year*

Fig. 4 Dynamic effects: The Sichuan–Shannxi Revolutionary Base. *Note* The event years $k < -3$ are omitted. The figure represents the effects of *Confucian temples*×*Event year* and *Event year* on soldier deaths, together with the upper and lower bounds for the 95% confidence intervals. Standard errors are clustered at the county level

Table 2 More evidence on the parallel trend assumption: the Sichuan–Shannxi revolutionary base

Panel A: The panel Granger causality tests		
Dependent variable	Confucian temples (logged) × Base (0–1)	Base (0–1)
	(1)	(2)
Deaths (logged) in year $t-1$	−0.214	−0.149
	(0.328)	(0.236)
Deaths (logged) in year $t-2$	0.003	0.002
	(0.040)	(0.029)
Confucian temples (logged) × Post in year $t-1$	Yes	Yes
Confucian temples (logged) × Post in year $t-2$	Yes	Yes
Base (0–1) × Post in year $t-1$	Yes	Yes
Base (0–1) × Post in year $t-2$	Yes	Yes
P-value for Granger tests	0.530	0.583
Observations	462	462

Panel B: Accounting for non-treatment differences and treatment duration						
Dependent variable	Deaths (logged)					
	(1)	(2)	(3)	(4)	(5)	(6)
Confucian temples (logged) × Base (0–1)	−0.449	−0.466	−0.465			
	(0.307)	(0.333)	(0.312)			
Base (0–1)	3.939***	4.146***	4.148***	3.316***	3.158**	3.155**
	(0.537)	(1.577)	(1.545)	(0.509)	(1.404)	(1.371)
Deaths during non-treatment years × Year FE	Yes		Yes	Yes		Yes
Treatment duration × Year FE		Yes	Yes		Yes	Yes
County FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
County FE × t	Yes	Yes	Yes	Yes	Yes	Yes
County FE × t^2	Yes	Yes	Yes	Yes	Yes	Yes
Observations	924	924	924	924	924	924
R-squared	0.715	0.695	0.716	0.710	0.691	0.712

(1) Standard errors in parentheses are clustered at the county level. (2) *$p<0.1$; **$p<0.05$; ***$p<0.01$

related to treatment duration or timing and soldier deaths. The estimates in Table 2 Panel B remain similar to those in Table 1, suggesting that non-treatment differences and the selective bias of treatment timing cannot explain our main results. Overall, these estimates in Table 2 lend strong support for the parallel trend assumption.

5.3.2 Additional robustness checks

The estimates in Table 1 are based on a staggered DID strategy and a two-way fixed effect model, which would be biased if there were any heterogeneous treatment effects (Callaway and Sant'Anna 2021). Hence, following Callaway and Sant'Anna (2021), we use the *csdid* Stata package which allows the heterogeneous treatment effects, to re-estimate the effects of $Base_{it}$. The average treatment effects on the treated (ATT) reported in Table A2 are similar to the coefficients in the last three columns of Table 1, suggesting that our baseline estimates are unlikely to be threatened by heterogeneous treatment effects.

Additionally, we use two alternative measures of Confucianism, the number of genealogical books and the number of Confucian academies in the Qing Dynasty. Table A3 reports the estimates. The coefficients on the two interaction terms, *Genealogies*×*Base* and *Academies*×*Base*, are both insignificantly negative. By contrast, the coefficients on *Base* are significant and positive in all specifications, which is consistent with Table 1.

We also control for other historical events that may influence soldier deaths in regression models. Specifically, we include other social conflicts in which the CPC was not involved, natural disasters (i.e., earthquakes, droughts, and floods), and plagues. The estimates shown in Table A4 suggest that our baseline findings are unlikely to be confounded by these events.

Finally, we conduct a placebo test by randomly assigning *Confucian temples* and *Base* to counties and regressing the number of soldier deaths on the randomly generated *Confucian temples*×*Base*, as shown in column (3) of Table 1.[17] The test is repeated 5,000 times. The estimates presented in Figure A2 remain consistent with Table 1. Overall, the results in this subsection increase our confidence in the baseline results on the Sichuan–Shaanxi Revolutionary Base.

5.3.3 Instrumental variable results

The baseline regression may have a potential endogeneity problem due to omitted variables. On the one hand, county-level characteristics other than Confucianism might also have affected the number of deaths, which cannot be fully conditioned in the baseline estimations. On the other hand, the CPC might have developed base areas in regions that were inclined to be base areas and, thus, we can hardly control for all the factors that might affect the selection of base areas.

We instrument *Confucian temples* with the cumulative number of educators before 1644 and use the straight-line distance to Chenggu as an instrument for *Base*. The underlying intuition is as follows. First, more educators in a county could translate to stronger Confucianism, so the county would have more Confucian temples. However, educators could have promoted Confucian norms through their teaching,

[17] The randomly generated *Confucian temples* has the same mean and standard error as the original *Confucian temples* and is normally distributed. The randomly generated *Base* has the same mean and standard error as the original *Base* and follows a Bernoulli distribution.

but they could also have affected the number of deaths in one county by affecting the county's education level. Hence, we control for the interaction between county fixed effects and the quadratic polynomial of the time trend, which capturing the time-varying effects of other county characteristics.

Second, since the CPC decided to establish a revolutionary base in Sichuan in Chenggu, we expect that counties closer to Chenggu were more likely to become a base area. Importantly, the distance to Chenggu is plausibly exogenous. In October 1932, in the face of the Fourth Encirclement Campaign led by the KMT, the FFA withdrew from the Hubei–Henan–Anhui Revolutionary Base without careful planning and the route choice was nearly blind (Li 2012). The following December, the FFA arrived in Chenggu County, where they decided to stop retreating and established a base area (Li 2012). Therefore, the distance to Chenggu can be viewed as a valid instrument.

We test instrument validity in Table 3. The outcome variables are the number of Confucian temples (columns (1) and (2)) and a cross-sectional dummy indicating whether a county was the base area during 1933–1935 (columns (3) and (4)). As expected, the estimates show that the number of educators in a county still has significantly positive effects on Confucianism, while the distance to Chenggu maintains significantly negative effects on cross-sectional base areas.

However, as *Distance* is time-variant but *Base* in the baseline estimates (Table 1) is time-variant, we cannot use the former as an instrument in the panel dataset. To capture the time-varying effect of *Distance*, we employ *Distance* × *Year FE* as the new instrument for *Base*. Table 4 reports the instrumented results. Columns (1) and (3) show the estimates of the two-stage least squares (2SLS) model. Because the F-statistics of the first stage are less than 10, there may be issues of weak instrumental variable. Hence, columns (2) and (4) use the limited information maximum likelihood (LIML) method, and the results are largely the same. Table 4 shows that, after addressing the endogeneity issue, the coefficients on interaction term *Confucian temples* × *Base* remain insignificant and negative, and the coefficients on *Base* remain significantly positive. The number of deaths in base areas was expected to be 179.9 times higher than that in non-base areas (column (3)).[18]

We then perform several robustness checks to support our instrumented results. First, to mitigate the concern that the exclusion restriction may be violated, we perform a battery of tests by allowing the instrument variables to be imperfect, that is, the two instrument variables are correlated with the error terms. Specifically, we employ the identification strategy of imperfect instrument variables developed by Nevo and Rosen (2012) and report the 95% confidence intervals in Table A5. The confidence intervals of *Base* are consistently greater than 0 and those of the interaction between *Base* and *Confucian temples* include 0, which increases our confidence in the instrumental variable estimates.

Second, we conduct robustness checks accounting for weak instruments, as proposed by Finlay et al. (2016). Specifically, we use the *weakiv* Stata package to perform the Anderson-Rubin (AR) test and Wald test for the two endogenous variables,

[18] 179.9 = [*exp* (5.198)-1].

Table 3 Instrument validity tests: the Sichuan–Shannxi revolutionary base

	Confucian temples (logged)		Base (0–1)	
Dependent variable	(1)	(2)	(3)	(4)
Educators (logged)	1.159***	0.661***		
	(0.125)	(0.147)		
Distance (logged)			−0.423***	−0.900***
			(0.062)	(0.119)
Controls		Yes		Yes
Observations	154	123	154	123
R-squared	0.384	0.515	0.344	0.678

(1) Standard errors in parentheses are clustered at the county level. (2) *Controls* include population in 1937 (logged), Buddhist temples (logged), Christian churches (logged), longitude, latitude, altitude (logged), slope (logged), Long March (0–1), local party committee (0–1), Xikang (0–1), *tusi* (0–1), and *jinshi* (logged). (3) *$p<0.1$; **$p<0.05$; ***$p<0.01$

Table 4 Instrumented evidence: the Sichuan-Shaanxi Revolutionary base

Dependent variable	Deaths (logged)			
	(1) 2SLS	(2) LIML	(3) 2SLS	(4) LIML
Confucian temples (logged) × Base (0–1)	−2.312	−1.181		
	(2.106)	(3.759)		
Base (0–1)	7.033***	6.227**	5.198***	6.131***
	(2.702)	(2.728)	(1.081)	(2.199)
County FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
County FE × t	Yes	Yes	Yes	Yes
County FE × t^2	Yes	Yes	Yes	Yes
Instrumental variables	Educators (logged) × Distance (logged) × Year FE, Distance (logged) × Year FE		Distance (logged) × Year FE	
Cragg-Donald Wald *F*-statistics	6.357	\	30.232	\
Kleibergen-Paap rk Wald *F*-statistics	4.628	\	6.632	\
Observations	924	924	924	924
R-squared	0.887	0.887	0.886	0.886

(1) Standard errors in parentheses are clustered at the county level. (2) *$p<0.1$; **$p<0.05$; ***$p<0.01$

Confucian temples×*Base* and *Base*. These tests are robust to weak instruments, in the sense that the identification of the coefficients is not assumed. This is in contrast to the traditional IV/GMM methods, where the validity of tests on estimated

coefficients requires the assumption that they are identified. The 95% confidence intervals of two endogenous variables are presented in columns (1) and (2) of Table A6 and visualized in Figure A3. Additionally, in column (3), we perform the linear combination (LC) test, which yields more powerful tests in some cases when identification is weak.[19] Consistent with our 2SLS estimates (Table 4), the 95% confidence intervals of *Base* across columns exclude 0; by contrast, those of *Confucian temples*×*Base* include 0. This greatly alleviates the weak instrument concern.

6 Empirical results: the Korean War

6.1 Model setting

This section uses the Sichuan county-level panel data from 1946 to 1953 and sets up the following DID model to test the impacts of Confucianism on soldier deaths during the Korean War:

$$ln\left(\text{Death}_{it}\right) = \theta_1 ln\left(\text{Temple}_i\right) \times \text{Post}_t + \theta_2 \text{Base}_i \times \text{Post}_t + \left(\boldsymbol{X}_i \times \boldsymbol{f}(t)\right)\prime \boldsymbol{\rho} + \eta_i + \varphi_t + \varepsilon_{it}. \tag{3}$$

In Eq. (3), $Base_i$ is a time-invariant dummy indicating whether county i became a base during 1933–1935. *Post* is a dummy indicating the occurrence of the Korean War, and $Post = 1$ if the year is between 1950 and 1953; otherwise, $Post = 0$. The other notations are as in the previous equations.[20] θ_1 and θ_2 are the DID estimates of interest, which capture the impacts of Confucianism and base areas on the number of deaths after the Korean War broke out.

6.2 Baseline results: the Korean War

Table 5 reports the baseline results of the Korean War. The key explanatory variable in columns (1)–(3) is *Confucian temples*×*Post*, that in columns (4) through (6) is *Base*×*Post*, while both of them are included in columns (7)–(9). All specifications control for two-way fixed effects. Columns (2), (4), and (6) also include the interaction terms of county-level characteristics and the quadratic polynomial of the time trend. Columns (3), (6), and (9) control for county-specific linear and nonlinear time trends. The coefficients on *Confucian temples*×*Post* in Table 5 remain significantly positive. Estimates in column (9) show that during the Korean War, every 1% increase in the number of Confucian temples would lead the soldier deaths to increase by 0.239%.

[19] The approach is proposed by Andrews (2018) and we use the *twostepweakiv* package in Stata written by Sun (2018) to estimate the robust confidence intervals.

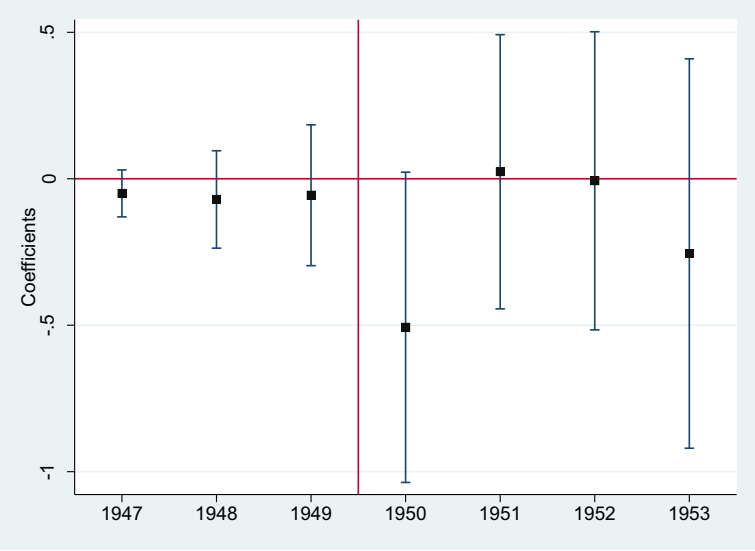
[20] We still include the impact of base areas in the model, mainly because the strong political party culture in the base area might enhance state cohesion and the centripetal force (Chen 2010) and, thus, affect soldiers during the Korean War.

Table 5 Baseline results: the Korean War

Dependent variable	Deaths (logged)								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Confucian temples (logged) × Post	0.466***	0.222**	0.229**				0.482***	0.232**	0.239**
	(0.092)	(0.090)	(0.101)				(0.090)	(0.090)	(0.100)
Base (0–1) × Post				−0.086	−0.095	−0.083	−0.312	−0.198	−0.195
				(0.185)	(0.266)	(0.303)	(0.238)	(0.261)	(0.298)
County FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls × t, Controls × t^2		Yes			Yes			Yes	
County FE × t, County FE × t^2			Yes			Yes			Yes
Observations	1232	1208	1232	1232	1208	1232	1232	1208	1232
R-squared	0.774	0.851	0.909	0.756	0.850	0.908	0.775	0.851	0.909

(1) Standard errors in parentheses are clustered at the county level. (2) *Controls* include Confucian temples (logged), cross-sectional *Base* (0–1), population in 1953 (logged), Buddhist temples (logged), Christian churches (logged), longitude, latitude, altitude (logged), slope (logged), Long March (0–1), local party committee (0–1), Xikang (0–1), *tusi* (0–1), and *jinshi* (logged). (3) *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$

(a) Coefficients of *Confucian temples*×*Calender year*



(b) Coefficients of *Base*×*Calender year*

Fig. 5 Dynamic effects: The Sichuan–Shannxi Revolutionary Base. *Note* The calender year 1946 is omitted. The figure represents the effects of *Confucian temples*×*Calender year* and *Base*×*Calender year* on soldier deaths, together with the upper and lower bounds for the 95% confidence intervals. Standard errors are clustered at the county level

The results in Table 5 demonstrate that Confucianism significantly improved CPC's war mobilization during the Korean War, although this positive effect was absent during 1933–1935. In addition, the coefficients on *Base*×*Post* remain insignificant, which shows that following the founding of the PRC, the CPC's mobilization capacity in base and non-base areas was no longer significantly different. This pattern was different from that in the 1930s, when CPC's mobilization largely depended on establishing base areas.

6.3 Robustness checks

Similar to Sect. 5.3, we test whether the results are robust to: (1) dynamic effects, (2) alternative measures of Confucianism and mobilization, (3) controlling for other events, (4) placebo tests by randomly assigning independent variables, and (5) employing the instrumental variable strategy to address endogeneity.

6.3.1 Dynamic effects

The regression equation of dynamic effects is set as follows:

$$\ln\left(\text{Death}_{\text{it}}\right) = \sum_{t=1947}^{t=1953} \theta_{1t} \ln(\text{Temple}_i) \times \text{Year}_t + \sum_{t=1947}^{t=1953} \theta_{2t} \text{Base}_i \times \text{Year}_t + (\boldsymbol{X}_i \times \boldsymbol{f}(\boldsymbol{t}))\prime \boldsymbol{\rho} + \eta_i + \varphi_t + \varepsilon_{it}. \tag{4}$$

In Eq. (4), $Year_t$ is a series of calender year dummies, where year 1946 is used for comparison, and the other variables are the same as in Eq. (3). θ_{1t} represents the change of the dynamic treatment effects of Confucianism compared to that in 1946. θ_{2t} denotes of the dynamic treatment effects of base areas compared to that in 1946.

Figure 5 shows the results of the dynamic effect regression. Before 1949, θ_{1t} and θ_{2t} are both not significantly different from zero. This suggests that, before the outbreak of the Korean War, there was a parallel trend between counties with strong and weak Confucian norms and between base and non-base areas. However, after the outbreak of the war, only Confucianism affected soldier deaths in different counties, while a similar trend was maintained between base and non-base areas.

Similar to Sect. 5.3.1, we employ another two strategies to support the parallel trend assumption. First, we use the PVAR model and perform panel Granger causality tests in Table 6 Panel A.[21] The estimates show that the lagged *Deaths* cannot predict *Confucian temples*×*Post* and *Base*×*Post,* implying that the anticipation effect can be ruled out.

Second, we control for the interaction between pre-treatment deaths in each county and year fixed effects. In particular, Table 6 Panel B includes the logged

[21] Before conducting the Granger test, we perform LLC and HT tests for *Deaths*, *Confucian temples*×*Post*, and *Base*×*Post*, and reject the null hypothesis that these three variables have unit roots. Then, according to the BIC and AIC, we find that the two-year lag of *Deaths*, *Confucian temples*×*Post*, and *Base*×*Post* is the optimal lag length. These results are available upon request.

cumulative number of deaths before the Korean War (1946–1949) and the logged number in 1949. The estimates remain similar to those in Table 5, suggesting that pre-treatment differences do not affect our baseline results.

6.3.2 Additional robustness checks

Similar to Sect. 5.3.2, we use two alternative measures of Confucianism. Panel A of Table A7 reports the results. Consistently, we find the two interaction terms between Confucianism and *Post* to be significantly positive, while the coefficients on *Base*×*Post* are negative and insignificant in all specifications. Furthermore, we employ the number of new soldiers who joined the army during 1950–1953 as an alternative proxy for mobilization. The cross-sectional estimates shown in Panel B of Table A7 are consistent with previous results.[22]

We also control for other social conflicts aside from the Korean War, natural disasters, and plagues in Table A8, the results of which suggest that our baseline findings are unlikely to be confounded by these events. We conduct a placebo test by randomly assigning *Confucian temples* and *Base* to counties and running the specification in column (9) of Table 5.[23] Results presented in Figure A4 confirm the baseline results.

6.3.3 Instrumental variable results

Similarly, we use *Educators*×*Post* and *Distance*×*Post* as instruments for *Confucian temples*×*Post* and *Base*×*Post*, respectively. To ensure that the instrumental variables are conditionally exogeneous, we include the interaction terms between county fixed effects and the quadratic polynomial of the time trend, which controls for the linear and nonlinear effects of all county-level characteristics over time. We test instrument validity in Table 7. As expected, *Educators*×*Post* has a significantly positive effect on *Confucian temples*×*Post* and *Distance*×*Post* has a significantly negative effect on *Base*×*Post*.

Table 8 reports the instrumented test results. The coefficients on *Confucian temples*×*Post* are significant and positive, while the coefficients on *Base*×*Post* remain insignificant. In column (3), the estimates show that, following the outbreak of the Korean War every 1% increase in the number of Confucian temples in a county would result in an increase of 0.400% in the number of soldier deaths in that county. This is larger than the coefficient of 0.239% in the baseline result (column (9) in Table 5), which implies that the baseline result underestimates the effect of Confucianism due to omitted variable bias. In short, the results in Table 8 largely confirm the baseline results in Table 5.

[22] Due to a lack of data, we do not use the number of new soldiers as an alternative measure for mobilization in Sect. 5.3.

[23] The randomly generated *Confucian temples* have the same mean and standard error as the original *Confucian temples* and are normally distributed. The randomly generated *Base* has the same mean and standard error as the original *Base* and follows a Bernoulli distribution.

Table 6 More evidence on the parallel trend assumption: the Korean War

Panel A: the panel Granger causality tests		
	Confucian temples (logged) × Post	Base (0–1) × Post
	(1)	(2)
Deaths (logged) in year $t-1$	−0.000	−0.001
	(0.000)	(0.001)
Deaths (logged) in year $t-2$	−0.000	−0.000
	(0.001)	(0.000)
Confucian temples (logged) × Post in year $t-1$	Yes	Yes
Confucian temples (logged) × Post in year $t-2$	Yes	Yes
Base (0–1) × Post in year $t-1$	Yes	Yes
Base (0–1) × Post in year $t-2$	Yes	Yes
P-value for Granger tests	0.893	0.922
Observations	770	770

Panel B: Accounting for pre-treatment differences			
	Deaths (logged)		
	(1)	(2)	(3)
Confucian temples (logged) × Post	0.368***	0.342***	0.368***
	(0.078)	(0.074)	(0.078)
Base (0–1) × Post	−0.142	−0.208	−0.141
	(0.202)	(0.215)	(0.206)
Deaths in 1946–1949 (logged)	Yes		Yes
Deaths in 1949 (logged)		Yes	Yes
County FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
County FE × t	Yes	Yes	Yes
County FE × t^2	Yes	Yes	Yes
Observations	1232	1232	1232
R-squared	0.845	0.832	0.851

(1) Standard errors in parentheses are clustered at the county level. (2) *$p<0.1$; **$p<0.05$; ***$p<0.01$

We then perform a battery of robustness checks to support our instrumented results. First, to mitigate the endogenous instrument concern, we perform a placebo test and imperfect instrument test. Specifically, we replace the *Confucian temples* with the *Buddhist temples*, and use the logged number of the eminent monks in the Tang dynasty (618–907), one of the most prosperous periods of Buddhism in historical China, as the instrument. The estimates shown in Table A9 suggest that

Table 7 Instrument validity tests: the Korean War

Dependent variable	Confucian temples (logged) × Post		Base (0–1) × Post	
	(1)	(2)	(3)	(4)
Educators (logged) × Post	1.159***	1.159***		
	(0.134)	(0.158)		
Distance (logged) × Post			−0.423***	−0.423***
			(0.067)	(0.079)
County FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
County FE × t		Yes		Yes
County FE × t^2		Yes		Yes
Observations	1232	1232	1232	1232
R-squared	0.810	0.955	0.691	0.926

(1) Standard errors in parentheses are clustered at the county level. (2) The estimates are all OLS estimates. (3) *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$

Table 8 Instrumented evidence: the Korean War

Dependent variable	(1)	(2)	(3)
Deaths (logged)			
Confucian temples (logged) × Post	0.360***		0.400***
	(0.135)		(0.145)
Base (0–1) × Post		−0.186	−0.748
		(0.401)	(0.471)
Instrumental variables	Educators (logged) × Post	Distance (logged) × Post	Educators (logged) × Post, distance (logged) × Post
Cragg–Donald Wald F-statistics	476.125	400.545	139.440
Kleibergen-Paap rk Wald F-statistics	53.558	28.707	12.100
County FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
County FE × t	Yes	Yes	Yes
County FE × t^2	Yes	Yes	Yes
Observations	1232	1232	1232
R-squared	0.909	0.908	0.908

(1) Standard errors in parentheses are clustered at the county level. (2) The estimates are all 2SLS estimates. (3) *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$

Buddhism does not play a similar role to Confucianism, suggesting our IV estimates are unlikely to be chance results. Additionally, to mitigate the concern that the exclusion restriction may be violated, we employ the identification strategy of imperfect

instrument variables developed by Nevo and Rosen (2012). Table A10 reports the 95% confidence intervals. The confidence intervals of Confucian temples×Post are consistently greater than 0, and some of those of *Base*×*Post* include 0, which confirms the previous instrumental variable estimates.

Second, we perform the weak instrument robust checks to proposed by Finlay et al. (2016). The 95% confidence intervals of AR and Wald tests for the two endogenous variables, Confucian temples×Post and *Base*×*Post*, are presented in columns (1) and (2) of Table A11 and visualized in Figure A5. Additionally, in column (3), we perform the LC test proposed by Andrews (2018). Consistent with our 2SLS estimates (Table 8), the 95% confidence intervals of Confucian temples × Post across tests exclude 0; by contrast, those of *Base*×*Post* include 0. This alleviates the weak instrument concern.

7 Mechanisms

The results in Sects. 5 and 6 show that Confucianism did not significantly affect the CPC's war mobilization during 1933–1935, but significantly improved it during 1950–1953. This section tests the three mechanisms—"loyalty," "just war," and "patriotism"—through which Confucianism affected war mobilization in different settings. Because Confucianism was quite atheistic (Israel 2013; Rogacz 2018), and real historical figures who adhered to Confucius' cardinal principles were worshipped by their followers, we can use the characteristics of these figures to measure the above three virtues.

7.1 The Sichuan–Shaanxi revolutionary base

The war in the 1930s was not only a civil war, but also a "just war." We argue that, during this period, the mechanisms of "loyalty" and "just war" exerted opposite effects on the war mobilization efforts. From the perspective of being loyal to those in power, because in the 1930s, the KMT was the legitimate authority and ruler of China, and the CPC were seen as rebels, Confucianism might have inhibited CPC's mobilization in base areas. From the perspective of a "just war," Sichuan had been thrown into political and social chaos since the fall of the Qing empire (1912), and the construction of base areas was an opportunity for Sichuan to end the chaos. Hence, the mechanism of a "just war" might have enhanced CPC's capacity to mobilize. Therefore, the effects of the two mechanisms were opposite during this period.

To test the two mechanisms, we use the number of loyal figures in each county to measure "loyalty." These data are taken from a particular chapter, titled "Loyalty and Fidelity," in the 1816 edition of the *Sichuan Gazetteer*. It contains a short biography of loyal figures recognized by Confucian scholars over the history of each county. These figures were people who served government authorities, suppressed

domestic rebellions and obtained military merits in the army. Some of them were even killed on the battlefield.

Additionally, some Confucian temples in Sichuan offered sacrifices to figures who launched just wars in history. We use the number of temples of Liu Bei to measure "just war." Liu Bei (161–223) lived in a period full of wars. As a descendant of the royal family, he could not bear a divided motherland and a figurehead emperor controlled by other warlords. To achieve national reunification, he organized his own army and launched wars against other warlords many times. He established his kingdom in present-day Sichuan. Because he led a series of just actions against other warlords, he was worshiped by the people after his death.[24]

The results are shown in Table 9. Interaction term *Loyalty figures*×*Base* has significantly negative coefficients, while interaction term *Liu Bei*×*Base* has significantly positive coefficients. As we would expect, through the "loyalty" mechanism, Confucianism would have reduced CPC's capacity to mobilize, but through the "just war" mechanism, Confucianism would have also increased it. Figure B1 in the appendix presents a promotion song in the revolution base areas in the 1930s, whose lyrics show the role of the "just war" mechanism in the CPC's propaganda.[25]

7.2 The Korean War

We argue that, during the Korean War, Confucianism positively affected the CPC's war mobilization through the mechanisms of "just war" and "patriotism." For China, the Korean War was a forced and righteous war, as participating in the war was conducive to achieving long-term national peace. Hence, the mechanism of "just war" may have enhanced the mobilization led by the CPC. Moreover, the UN forces bombed the territories in Northeast China before China went to war. If North Korea had been occupied, China would have directly faced military pressure from the USA, and its national security would have been seriously threatened. Therefore, "patriotism" may have enhanced the war mobilization.

Here, we use the number of temples of Liu Bei to measure the "just war" mechanism and the number of temples of Du Fu to measure the "patriotism" mechanism. Du Fu (712–770) lived in the period when the Tang Dynasty (618–907) turned from

[24] In Sichuan, most temples dedicated to Liu Bei are called Temple of Han Zhaolie or Temple of Xianzhu. "Zhaolie" is his posthumous name. "Xianzhu" means the "first emperor.".

[25] Anecdotal evidence also proves the effects of the two mechanisms. In terms of the "loyalty" mechanism, in the 1930s, the new Soviet regime was challenged by the local remnants of the KMT, such as the armed forces owned by tyrant landlords. These forces supported the rule of the warlords and KMT and hated the CPC. For example, He Yaojie, a landlord in Bazhong County, led his armed forces to ransack the district committees of the CPC and burn nearby houses and shops. Some anti-revolutionaries who hated the Soviet government in Tongjiang County infiltrated the village- and township-level Soviet governments at the early stages of the establishment of the regime, obstructing or even undermining the implementation of CPC policies and guidelines (Lin and Wen 1988). In terms of the "just war" mechanism, the Soviet government also wrote many dramas and songs to promote government policies. Most dramas and songs aimed at revealing the hardships of the people under the rule of Sichuan warlords and the KMT and emphasized that the CPC could improve people's lives. Some propaganda slogans also pointed out that the CPC was "a party representing the interests of the poor," "The FFA protects the poor," "supporting the Red Army is supporting oneself," etc. These attempts managed to attract a large number of people to support the Soviet regime and join the Red Army (Lin 1982).

Table 9 Evidence on the mechanisms: the Sichuan–Shaanxi revolutionary base

Dependent variables	(1)	(2)	(3)	(4)
Deaths (logged)				
Loyalty figures (logged) × Base (0–1)	− 1.023***	− 1.203**		
	(0.305)	(0.588)		
Liu Bei (logged) × Base (0–1)			2.572***	3.360**
			(0.841)	(1.475)
Base (0–1)	5.191***	5.225***	3.694***	3.328***
	(0.645)	(0.990)	(0.595)	(1.037)
County FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
County FE × t		Yes		Yes
County FE × t^2		Yes		Yes
Observations	924	924	924	924
R-squared	0.716	0.911	0.691	0.902

(1) Standard errors in parentheses are clustered at the county level. (2) *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$

its peak to experiencing political and economic decline. He was a low-ranking government official, but also one of the greatest poets in Chinese history. His poems reflect his concerns about the future of the Tang dynasty.[26] He served as an official in Sichuan and was worshipped by the local people after his death.[27]

Table 10 shows the results. The coefficients on *Liu Bei* × *Post* and *Du Fu* × *Post* are all significantly positive, which suggest that Confucianism positively affected the CPC's war mobilization capacity through both mechanisms. Figures B2 and B3 in the appendix present two promotional songs written during the Korean War, which demonstrate the role of the "just war" and "patriotism" mechanisms in CPC's propaganda.[28]

[26] For example, when the rebels captured the capital of the Tang empire, he wrote: "The nation is in sunder/yet mountains and rivers still their stances hold and courses run/Spring has come to Chang'an overgrown with unruly grass and trees/Current affairs have me deep in sentiments, and tears overcome me at the sight of flowers/ Detesting separation from family so much, even the twitter of birds frightens me." When the national army regained the lost ground, he wrote: "On first hearing it, tears cover my clothes" and "Rolling up my verse books, my joy like madness looks.".

[27] In Sichuan, the temples dedicated to Du Fu are mostly called "Du Shaoling Temple" and "Du Gongbu Temple." "Shaoling" is his pen name and "Gongbu" is his official position.

[28] There is also anecdotal evidence to suggest the effects of the "just war" and the "patriotism" mechanisms. The Chinese government's propaganda and activities emphasized that the resistance to US aggression and aid to Korea meant a righteous and patriotic war. After Chinese People's Volunteer Army entered North Korea, the CPC issued a manifesto stating that China's participation in the Korean War was a forced action for self-defense. When explaining the motives to the people, the prevailing motive at the time was that the US aggression had already seriously threatened national security and the people must defend their motherland, defend themselves, and prevent the expansion of an invading war. The Chinese intervention was thus considered completely correct and just. In terms of the "patriotism" mechanism, the mobilization of grassroots masses focused on stimulating people's patriotism, which was demonstrated by the military slogans at the time, such as "don't suffer twice, don't be slaves of an extinct country" and "resist the US aggression and aid Korea to defend the motherland" (Hou 2012). The patriotic sentiment was also reflected through large-scale demonstrations. By May 1951, more than half of China's population had already participated in patriotic demonstrations (Liao 1951).

Table 10 Evidence on the mechanisms: the Korean War

Dependent variable	(1)	(2)	(3)	(4)
Deaths (*logged*)				
Liu Bei (logged) × Post	1.044*	1.328***		
	(0.572)	(0.480)		
Du Fu (logged) × Post			1.442***	0.782**
			(0.262)	(0.354)
Base (0–1) × Post	−0.119	−0.136	−0.082	−0.092
	(0.202)	(0.251)	(0.207)	(0.274)
County FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
County FE × t		Yes		Yes
County FE × t^2		Yes		Yes
Observations	1232	1232	1232	1232
R-squared	0.757	0.850	0.762	0.909

(1) Standard errors in parentheses are clustered at the county level. (2) *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$

8 Conclusions

Using two county-level panel datasets in Sichuan Province during 1930–1935 and 1946–1953, this study investigates the different roles of Confucianism in civil and foreign wars led by the CPC, respectively. We find that, during the civil war in the 1930s, Confucianism had no significant effect on CPC's war mobilization. However, during the foreign war in the 1950s, Confucianism facilitated CPC's mobilization efforts. We argue that this change reflects the different roles played by the three mechanisms through which Confucianism affected war mobilization: "loyalty," "just war," and "patriotism." During the civil war, because of the two opposite effects of "loyalty" and "just war," Confucianism had no significant effects on CPC's war mobilization. However, in the foreign war, the "just war" and "patriotism" mechanisms collectively made Confucianism increase CPC's war mobilization capacity. These findings are confirmed by a series of robustness checks and instrumented evidence.

This study highlights the pivotal role of local culture norms in war mobilization. Importantly, the CPC claims that Confucianism was the focus point of Chinese culture, and a growing number of states have started to publicize their local culture norms in recent decades (Huntington 2011). Our key insights suggest that these practices may be conducive to governments' mobilization and collective actions. For policymakers, the implications of our findings are clear: States that plan to launch successful collective actions should take their local culture norms into account.

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