The Web of Power: How Elite Networks Shaped War and China*

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Abstract

Scholars have argued that powerful individuals can influence the path of a nation's development. Yet, the process through which individuals affect macro-level political economy outcomes remains unclear. This study uses the deadliest civil war in history, the Taiping Rebellion (1850–1864), to elucidate how one individual—Zeng Guofan—employed his personal elite networks to organize an army that suppressed the rebellion, and how these networks affected the nation's power distribution. Two findings stand out: (i) counties with more elites in Zeng's pre-war networks experienced more soldier deaths after he took power; and (ii) post-war political power shifted significantly toward the home counties of these very elites, which created a less balanced national-level power distribution. Our findings highlight the role of elite networks that propagate individual-level influences to shape national politics and the distribution of power in a society.

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1 Introduction

History has repeatedly shown that certain individuals stood out in turbulent times and exerted enormous influence on their nation. Countless volumes have been written on how figures such as Napoleon, George Washington, Robespierre, and Lenin changed the course of history through their involvement in wars and revolutions. Social scientists in multiple disciplines have explored the importance of individual leaders and leadership. For example, influential economics research has investigated whether leaders can affect a country's economic growth (e.g., Jones and Olken 2005, Easterly and Pennings 2020). Yet, it is unclear *how* individuals shape macro-level political economy outcomes. A burgeoning literature has focused on leaders' identity (e.g., Besley Montalvo, and Marta Reynal-Querol 2011, Dube and Harish 2020) and pointed out that individuals can influence policy-making (Olken and Jones 2005), serve as role models, and change social norms (e.g., Acemoglu and Jackson 2015, Dippel and Heblich 2021, Cagé et al. 2021).

In this paper, we introduce a new argument—that individuals can influence important political economy outcomes via personal networks, especially those among elites. This perspective applies to a variety of settings. For instance, in the French Revolution, both the Robespierrist friendship network and the Girondin network centered around Brissot played central roles in determining power distribution in revolutionary politics (e.g., Linton 2015). Likewise, in the 20th-century Chinese Civil War, Chiang Kai-shek relied on his personal networks formed at the Whampoa military academy to organize military forces (Taylor 2009). During South Korea's rapid industrialization, a small group of business elites influenced the state and society via their extensive personal networks with state officials and politicians (Kim 2007). However, because it is difficult to systematically measure personal networks and pinpoint their specific influences, few empirical studies have assessed the process that links individual-level networks to macro-level political economy consequences.

We leverage a context where we can characterize individual-level networks and study their influences on important outcomes: war and power. Our context is one of the deadliest civil wars in world history and a war that profoundly altered the political development path of China: the Taiping Rebellion, a civil war waged in China from 1850 to 1864 between the peasant rebels of the Taiping Heavenly Kingdom and the Qing dynasty (1644–1911). To put it into perspective, the Taiping Rebellion coincided with the U.S. Civil War (1861–1865) in its final years, and its death

toll—at least 20 million deaths—was more than 30 times higher than that of the U.S. Civil War (Platt 2012).[1] Our focus is on the organization of the state side. One of the most striking aspects of this war is that the Taipings were defeated by a relatively small army,[2] known as the Hunan Army. This Hunan Army was commanded by one scholar-official from Hunan Province, Zeng Guofan, and was organized from existing militias that had fought against the Taipings from 1850 to 1852. After Zeng took power in 1853, he turned to his personal networks to recruit soldiers from commoners in Hunan province. This organization and recruitment process, which we discuss in more detail in Section 2, has attracted considerable attention from historians.[3]

This setting has at least three strengths that enable us to elucidate how elite networks shaped both the war contribution and the post-war power distribution. First, this case features a well-defined elite network created by the Civil Service Exam system. As the primary elite recruitment channel that produced the country's bureaucrats, the system gave elites the opportunity to forge political alliances based on the exam (involving both links between the examiners and examinees as well as links between examinees). We demonstrate the links in this network quantitatively for the first time. In addition, kinship ties, including by marriage, has always provided an important link among elites. We therefore digitize a large number of historical archival sources and construct a database that covers Zeng and 2,460 other elites in his networks (including 164 from Hunan Province), which provides variation in pre-war connections with Zeng across 1,646 counties. The second strength of our setting is that it allows us to measure the deaths of individual soldiers, the costliest form of war contribution. We digitize the records related to 34,328 soldier deaths from the Hunan Gazetteers, including their names, origin counties, and the year and battle in which they died. Finally, we measure elite power based on rich information on the Chinese bureaucracy. Since we are interested in the distribution of power that has the potential to influence a nation, we build a database on national-level offices (including those in the central government and top offices in each province) during the period 1820–1910, which we use to study the distribution of power in both the short and long runs.

Our study constitutes three sets of analyses. First, we demonstrate that Zeng's personal networks

[1] In terms of population share, the Taiping Rebellion deaths accounted for at least 5% of the Chinese population and the U.S. Civil War deaths accounted for roughly 2% of the U.S. population at that time.

[2] At its prime time, the Hunan Army had approximately 130,000 soldiers. This size appears small relative to the number of civilian deaths because most of the civilian deaths were not caused by fighting between the Taipings and the government forces. Instead, many unarmed civilians were killed by both parties of the war. Famine- and plague-triggered deaths were among the major causes of civilian deaths.

[3] These works include Luo (1939), Kuhn (1970) and Platt (2012).

shaped regional soldier deaths. Using a difference-in-differences strategy, we find that after Zeng took power, Hunan counties with more elites in his personal networks experienced more soldier deaths. We focus on the variation in elite connections across 75 Hunan counties and compare counties with more elite connections to those with fewer or no connections before and after Zeng took power. Our baseline networks include exam connections and blood relationships, neither of which is subject to individual choices. We measure a county's elite connections as the sum of direct and indirect connections inversely weighted by the distance to Zeng and employ alternative measures for robustness. We find that after he came to power in 1853, counties with one more elite directly connected to Zeng experienced 20.8% more soldier deaths.

The main concern associated with establishing a relationship between elite networks and soldier deaths is determining whether the estimate is driven by other omitted county characteristics. For instance, counties with more elite connections could be more politically important and thus might contribute more to the war. We find that the effect of elite connections occurred only after Zeng took power to organize the Hunan Army, which implies there were no systematic differences across counties before the Hunan Army was mustered. Moreover, we construct placebo networks by assuming that Zeng succeeded in the previous or the next exam. While both placebo and actual networks are correlated with a county's general political importance, our findings are specific to actual networks. We present additional findings by examining each type of link, using unweighted and per capita measures of links, and examining soldier deaths outside Hunan. We also show that possible measurement error in soldier deaths is unlikely to affect our findings. In addition, we discuss whether soldier deaths capture mobilization or different death rates and find evidence that is more consistent with the former interpretation.

In our second set of analyses, we examine how these pre-war elite networks that facilitated the war contribution affected the post-war distribution of political power. To determine whether elite networks would have led to more power even without their war contribution, we use information on all 1,646 counties across the country during 1820–1910. Non-Hunan counties enjoyed different degrees of connections in Zeng's networks but did not provide soldiers to the Hunan Army, which provides us with a comparison group to examine the impact of connections (without contribution to the Hunan Army) over time. Using a difference-in-differences specification, we find that Hunan counties with more connections to Zeng obtained more national-level offices during and after the war: One additional direct elite connection with Zeng in a county is associated with 47% more national-level offices after he took power in 1853, whereas no notable change occurred during 1820–1853. By contrast, the office advantages of non-Hunan counties connected to Zeng remained

stable before and after the war, which suggests the Hunan Army was extremely relevant to the post-war power distribution. The comparison between Hunan and non-Hunan counties constitutes a triple-difference design, from which we obtain the impact of elite connections in Hunan on the change in elite power before and after the war. The tripe-difference estimate (52%) is close to the difference-in-differences estimate (47%) within Hunan province.

Further evidence demonstrates that county-level power gains can be explained by county-level war contribution proxied by soldier deaths. First, including soldier deaths of the Hunan Army in our triple-difference design absorbs the impact of elite connections in Hunan. Second, we leverage multiple sources of elite connections and conduct over-identification analyses. These analyses show that, when using national-level exam links to predict soldier deaths, the other links are not correlated with national-level offices and vice versa. To be clear, the fact that the power effect can be explained by soldier deaths does not imply that those who benefited necessarily participated directly in the war. In fact, we find that the power effect persisted for several decades after the war, revealing a spillover effect of power to later cohorts that were not present during the war.[4]

In our final section, we provide evidence to shed light on the implications of our findings at the national level. We show that national-level power distribution became more unbalanced after the war. Specifically, we use the Ellison-Glaeser index to measure the "localization" of power (Ellison and Glaeser 1997). We use the share of *Jinshi* (successful candidates from the national-level Civil Service Exam) across provinces to proxy for the political power distribution controlled by the formal institutions. We measure power localization as the difference between these benchmark shares and the actual shares of national-level offices. We examine how this index changed from 1820 to 1910 and find that power localization increased after the war. Importantly, Hunan alone accounts for 50% of this increase in power localization. Additionally, we provide a case study to illustrate that the power distribution affected elite behavior in a critical historical moment after the war.

Our study contributes to four main strands of research. First, our findings contribute to the growing literature on leaders and leadership mentioned above by opening the black box that links individuals to macro-level outcomes. The influence of personal networks is likely to be relevant in many other contexts; however, it is usually difficult to depict such networks and their influences. The Civil Service Exam institution in our setting provides a unique laboratory to characterize these links, and the structure of our data permits a deep analysis of important political economy outcomes.

[4]This finding is consistent with historical narratives on the role of patronage in the rise of Hunan elites. See Section 2 for qualitative evidence.

Second, our study adds to a large literature on conflicts.[5] Most previous studies focus on the organization of anti-state parties to conflicts, perhaps assuming that states can easily coerce people to fight. However, we show that when the state is weak, social forces such as personal networks can play an important role in the organization of the state's army and have long-run consequences after the conflict. This observation is closely related to the political economy of state–society relationships (Migdal 1988, Acemoglu and Robinson 2019), which thus far has largely overlooked state military organization.

Third, our findings advance our understanding of the extent to which "war made the state" (e.g., Tilly 1985, Besley and Persson 2010, Dincecco and Prado 2012). While the theoretical literature differentiates between inter-state and intra-state wars and argues that the latter weaken the state (Besley and Persson 2010), empirical studies examining the most tangible form of state capacity—taxation capacity—have often found that civil war also increases states' ability to collect taxes (e.g., Slater (2010) in Southeast Asia, Rodriguez-Franco (2016) in Colombia). Similarly, in our setting, the state introduced a new trade tax known as *likin* to finance the Hunan Army, which persisted after the war and increased the country's tax revenues.[6] However, tax revenues do not tell the whole story of state capacity. Our findings suggest that knowing *how power distribution changes* can further enrich our understanding of the relationship between war and the state. We of course do not claim that every civil war has the same effect on power distribution. The Taiping Rebellion is a large-scale civil war that forced the state to rely on elites to organize the army, which is critical to our findings related to the post-war shift in power distribution.

Finally, as one of the most important wars in Chinese history, the Taiping Rebellion—and the state's response to it—have attracted considerable attention from historians. Our study is related to several lines of historical research, which we discuss in Section 2. Our analyses seek to not only provide quantitative evidence to support these narratives, but also to bring them together to elucidate the processes binding individual-level networks to macro-level political economy consequences.

2 Context and Historical Narratives

In Section 2.1, we describe the historical context of the Taiping Rebellion and the Hunan Army. In Section 2.2, we summarize three lines of historical narratives that motivate our analyses: (i) the

[5] See Blattman and Miguel (2010) and Ray and Esteban (2017) for reviews.

[6] Deng (2020) finds that regions with more Taiping battles experienced a larger increase in taxation.

importance of elite networks in organizing the Hunan Army, (ii) the rise of Hunan elites after the war, and (iii) the political legacy of network-based military organization.

2.1 The Taiping Rebellion and the Hunan Army

The Taiping Rebellion began in the southwestern province of Guangxi in 1850. Its causes share similarities with those of several major rebellions in Eurasia in early modern times, as described in Goldstone (1991): Overpopulation, misgovernment, and ethnic competition all contributed to the tensions in mid-19th century China. Under the famine conditions of 1849–1850, tensions exploded frequently into open warfare. The leader of the Taipings was Hong Xiuquan, a man who failed the Civil Service Exam four times. Transformed by illness and inspired by Christian missionary tracts, he started the God Worship Society in 1844, which was renamed the Taiping Heavenly Kingdom and became a regime that claimed dominion over the entire Qing empire.

The Taipings launched a crusade northward toward the rich provinces. At the start, the rebels were much more effective than the poorly organized and corrupt Qing armies. During the period from 1850 to 1852, the Taipings fought battles in Hunan (neighboring Guangxi) and Hubei and conquered several prefectures. In March 1853, they conquered Nanjing (an important city in the lower Yangtze River and previous imperial capital during the early Ming) and declared the city its Heavenly Capital.

Realizing that the official military could not contain the Taipings, the Qing government asked Zeng Guofan, a Hunanese scholar who had served in the central government, to organize an army to fight the Taipings. The choice of Zeng was partly accidental, driven by the circumstance of his return to Hunan. His mother died in 1852, and, following the filial mourning rule in the Chinese bureaucracy, he was obliged to resign his official posts and return to Hunan, where his stay at his home province was supposed to last three years. There were also other factors underlying the choice of Zeng, notably local militarization in the mid-19th century. Local militias emerged in several southern provinces during this era and represented the initially spontaneous militarization of the local elites who sought to protect their communities and their property, given that the state was too weak to provide such public goods. The militias in Hunan already were well known and were employed to fight against the Taipings in Guangxi and Hunan from 1850 to 1852. The Hunan Army was organized upon the foundation of these existing militias.

Commanded by Zeng, a scholar without any military experience, the Hunan Army was often

defeated by the Taipings in the beginning. From 1853 to 1864, the Hunan Army and the Taipings fought more than 600 battles across 11 provinces. In the summer of 1864, the Hunan Army finally conquered the Heavenly Capital, Nanjing, which ended the war.

We focus on the Hunan Army because it was the main force that helped the state to suppress the rebellion. However, the Hunan Army was not the only force.[7] In particular, in 1861, Zeng Guofan ordered his protégé Li Hongzhang to bring some of the Hunan Army back to Anhui, Li's home province, for military service and to organize an independent force from Anhui and nearby regions, later known as the Huai Army. In our analyses, we examine whether soldier deaths from the Huai region can be explained by Zeng's personal networks.

2.2 Historical Narratives

The Importance of Elite Networks in Organizing the Hunan Army. Personal networks played a critical role in organizing the Hunan Army, and represent its most salient feature (Luo 1939). Because the state was weak, the Hunan Army's recruitment and command structure reflected the governing principles of the general social structure (Kuhn 1970). These social links involved connections created by the Civil Service Exam and kinship among elites as well as clan ties at the bottom for elites to reach commoners.

Why did personal networks matter? Although elites in Zeng's networks actively recruited soldiers, few of these elites fought in battles. Historical discussion suggests that information and trust facilitated the recruitment process. On the demand side, the network provided information to screen the soldiers. As explained in Kuhn (1978): "[The fact that] [t]he Hunan Army ultimately swelled to a strength of some 132,000 men...not large by the standards of the day, exemplifies Zeng's emphasis of quality over numbers...Hunan Army units were distinguished for strict attention to details of recruitment, training, discipline and indoctrination in Confucian principles." In 1855, Zeng described the principle for screening soldiers as follows: "Young, strong, simple-minded men are the most preferred...Carefree wanderers should be avoided." On the supply side, social networks facilitated trust. Soldiers were promised a monthly salary of four taels, twice that of the official troops, and their families were promised 50 taels, about twice the yearly income of an unskilled worker, if they died in battle. Sometimes, the elite also emphasized that fighting the war provided a good career path for commoners (Luo 1939). Trust is vital for such promises to be believable.

[7] Various village militias across the country fought against the Taipings. The Ever Victorious Army, an army of 5,000 soldiers, led by Charles Gordon and trained in European techniques fought some of the final battles.

We leverage detailed records on the Civil Service Exam and rich information on Zeng Guofan's life to construct a comprehensive dataset on his personal networks and study how they shaped regional outcomes during and after the war.

The Rise of Hunan Elites. The Hunan Army's success launched the careers of its leaders and secured political power for Hunanese throughout the country. Some of these elites, including Zeng Guofan and Zuo Zongtang, became the leaders of the post-war Self-Strengthening Movement (c. 1861–1895); they established modern arsenals and shipyards in central and southern provinces and founded the first college that taught foreign subjects in Beijing. Their influence even went beyond central and southern China. Schluessel (2020) documents how the Hunanese elites dominated the Muslim-majority region of Xinjiang during the 1870s–1900s and undertook a program to "recreate Xinjiang not as a territory but as a province like its own Hunan or any other in China proper."[8]

Platt (2007) describes the county of Xinning in Hunan (bordering Guangxi, the origin of the Taiping Rebellion): "For more than two centuries before 1850, even the district's most illustrious sons had attained no office higher than district magistrate, the lowest rank in the imperial bureaucracy. But in the decades following the Taiping Rebellion, Xinning generated no less than 174 civil officials—including three governor-generals (exercising full command of two or three provinces), one governor, and seventy-three prefectural magistrates."

These historical discussions also suggest that the rise of the Hunan elites operated through two broad channels. First, although most national-level officials still needed to obtain a *Jinshi* degree (i.e., pass the national-level exam), it became possible for them to obtain these offices by claiming a contribution to the war (Platt 2007). In a second channel, given the same exam background, some Hunan elites "were constantly being promoted for their actual or alleged participation in military actions" (Schluessel 2020). These forces are not limited to the generation that participated in the war. Schluessel notes that members of the second and third generations also benefited from "the blanket promotions given to their fellows," even though "they were often not present during the war."

While such qualitative discussion is revealing, it remains to be studied how systematic this power effect was and how long it lasted, which we investigate in our analyses.

[8]Some historians even argue that the influence of the Hunan Army may have also inspired later Hunanese (e.g., Platt 2007). Although the channels of influence are not clear, it is striking to observe that the leaders in the reform and revolution era (1890s–1920s) originated disproportionately from Hunan, including Tan Sitong, Huang Xing, Song Jiaoren, and Cai E. The top two leaders of the Chinese Communist Party—Mao Zedong and Liu Shaoqi—were both from Hunan.

The Political Legacy of Network-Based Military Organization. The organization of the Hunan Army deviated from the long-standing tradition of military organization in imperial China. In response to previous historical threats by regional elites, the Song Dynasty (960–1279) and its successors relied on a centralized military system to limit personal influences. The crisis of the Taiping Rebellion forced the state to rely on personal networks for large-scale military organization for the first time. Some historians interpret this change as a turning point in China's power structure.[9] For instance, Luo (1937) argues that the regional elites emerging from the war built up sufficient power to resist central orders and thus weakened the state. Michael (1949) similarly conjectures that the rise of the regional elites "marked the beginning of the disintegration of dynastic power that finally led to the collapse of the dynasty and to the system of warlordism that replaced."[10] This view, however, is not completely unchallenged. As discussed in McCord (1993), critics of this view argue that it exaggerates the role of the rise of regional elites in weakening the state; they maintain that after the war, the state still relied on the Civil Service Exam and related bureaucratic institutions to appoint and rotate important offices, which likely limited regional elites' influence. Moreover, many additional factors might have contributed to the weakness of the state in the decades after the war, especially conflicts with foreign nations.

To evaluate the broad power structure, we quantitatively examine how the war changed the national-level power distribution by examining how the post-war power distribution deviated from the exam-based benchmark. We also evaluate the extent to which the rise of Hunan elites contributed to this change.

3 Data

3.1 Elite Networks

The Qing government, following precedent, relied on the Civil Service Exam system (c. 600–1905) to recruit bureaucrats. This system served as the primary avenue for social mobility and elite network formation. Kinship was also an important source of links. Below, we define elite networks, describe our elite network data, and explain how we aggregate individual-level data to the county level.

[9]This discussion is based on McCord (1993), who thoroughly reviews the debate on the political legacy of regional military organization.

[10]The dynasty collapsed in 1911 and China entered the Warlord Era until 1928 due to several factors in addition to the regional elites . Luo (1937) and Michael (1949) do not claim that the rise of regional elites is the only reason.

Sources of Links. Our network data comprise three types of links: (1) those from the Civil Service Exams, (2) kinship, including blood and marriage relationships, and (3) other friends. Appendix A.1 describes the data construction process.

Exams. There are two important relationships specific to the exam system, particularly via the triennial provincial-level and metropolitan (i.e., national-level) exams that produced bureaucrats for the state.[11] The first is the link between the court-commissioned examiners (who were high-level central government officials) and the success examinees, known as the "master-disciple" relationship. The second is the link between successful examinees who would become future colleagues in the bureaucracy, known as the "quasi-classmate" relationship. As Miyazaki (1981) explains:

> The new graduates paid their respects to the examiners, whom they considered their lifelong teachers, and entered a firm master-disciple pledge. The chief and associate examined were called "master teacher" (*tso-shih*), and the assistant examiners "teacher" (*fang-shih*), while the graduates called themselves "disciples" (*men-sheng*) and referred to each other as "classmates" (*tung-nien*)...The result was a pledge between them to assist each other to weather the storms of political life.

Given the importance of these exam links in politics, it is not surprising that Zeng relied heavily on them when he was tasked with organizing the army. Philip Kuhn characterizes the internal connections of Zeng's group as "dependent upon the bureaucratic-academic system" (Kuhn 1978).

Because the exams were carefully recorded, we were able to digitize the exam record archives to capture these relationships. For instance, Zeng become a disciple of Muzhang'a in 1838, who helped further Zeng's career in the 1840s. Zeng Guofan and Li Wen-an (Li Hongzhang's father) were quasi-classmates, which enabled Li Hongzhang to become Zeng's protégé. The data also allow us to observe indirect links with Zeng. For example, his examiner, Muzhang'a, had disciples from other national-level exams who were indirectly linked with Zeng via Muzhang'a. We use information on all of the exams that were administered during the three decades before the war (1820–1849) to construct the exam links.[12]

Kinship. Blood relationships, such as brothers and sons, are certainly important, but marriage

[11] The exam has three levels: prefecture, provincial, and national. Because passing only the prefecture-level exam did not guarantee a political career, the political links in the elite circle we focus on applied only to the provincial- and national-level exams. Thus, we do not include prefecture-level links.

[12] Our data sources are Jiang, Jing and Chen (2010) and Zhu and Xie (1980). Appendix A.1 describes the data construction process.

also provides an opportunity to connect with important families. For instance, Zeng and Guo Songtao were in-laws . Guo was an important local elite before the war, and became a national-level statesman afterwards. Guo Songtao and Zuo Zongtang (who later also became an important national-level politician) also were in-laws. We obtained this information from *Zeng Guofan's Family Tree* (Cheng 1997).

Other friends. Our third source refers to the individuals covered in *The Chronicle of Figures in the Hunan Army* (Mei 1997), who helped Zeng in his war mobilization efforts. We call these individuals "friends of Zeng." The records from these two sources may suffer from selection concerns, which we consider by using different definitions of networks.

Defining Elite Networks and County-level Connections. We account for the fact that some of the links were not subject to personal choices (e.g., exam links) while others (e.g., marriages) were by defining elite networks in two ways, which we term *baseline networks* and *expanded networks*.

Baseline networks include only exam links and blood relationships (Figure 1A). An individual could not choose these relationships, which were thus exogenous to the war. In the figure, each large circle indicates successful individuals from one exam (which was held once every three years). The black dots indicate individuals from Hunan. On average, only around 200 individuals succeeded in a national-level exam cohort, 3–8 of whom were from Hunan. All of these individuals were eligible for official positions, and thus belonged to the elite class. Our baseline network covers 2,419 elites, 131 from Hunan.

Expanded networks add marriage relationships and friends to the baseline networks (Figure 1B). This definition covers 2,460 elites, 164 from Hunan. This alternative measure uses all of the available information, but with the caveat that marriages and friends were subject to personal choices. Thus, we focus on the baseline networks and use the expanded networks as robustness checks.

To measure a county's connections in the elite networks, we need to transform these networks into a county-level variable. Motivated by the historical narrative that elites in Zeng's networks helped mobilize people to join the Hunan Army, our baseline measure of a county's connections is $\sum_{n=1}^{N_c} \frac{1}{d_{c,n}}$, where N refers to the number of elites originally from a county, and d indicates the degrees of separation from Zeng. We assume that more elites in a county would lead to a greater war contribution, and that a direct link matters more than an indirect link. We also control for possible influences of population size in our analyses and employ alternative measures including an unweighted measure by counting the number of connected elites from a county and a per capita

measure, where we divide our baseline measure by population size.

The elite networks vary widely across counties. Figure 2 plots the spatial distribution of county-level (directly and indirectly) connected elites across the country and within Hunan province. It illustrates that there is wide variation even within Hunan: 36 of the province's 75 counties had at least one connection in Zeng's personal networks, and seven counties had five or more.[13] As reported in Table 1, our baseline measure of connections has a mean of 1.23 and a standard deviation of 2.53. Next, we examine what contributes to this variation.

County-level Connections vs. Other Characteristics. A county's elite connections may be correlated with its other characteristics. We are concerned about whether our connection measure reflects a county's economic development, political importance, or its relationship with the Taipings. We collect 12 variables that can be grouped into three broad categories to gauge the importance of such concerns.

- (i) geographic-economic factors: log area, whether the county has a main river, log suitability for major crops (rice and wheat), log distance to the Grand Canal, log population in 1820, and log urban population in 1850. These variables capture a county's productivity and economic advantages.
- (ii) political importance: whether the county is a prefecture capital, log quotas for the entry-level Civil Service Exam (pre-Taiping) and log number of pre-Taiping *Jinshi*.
- (iii) Taiping-related factors: whether the county was on the Taipings' route to Nanjing and log distance to Nanjing.

Appendix A.2 explains how we construct these variables and our data sources. Table 1 presents the summary statistics. We examine the correlations between our baseline measure of connections and these characteristics for both Hunan counties and all counties (Appendix A.3). While the correlations between county-level elite connections and geographic–economic factors are not systematically strong, elite connections are positively associated with the number of *Jinshi*. Intuitively, counties with more *Jinshi* tend to have more elites in general, which correlates with our connections measure even though we focus on a specific network. This pattern begs the question of whether our results capture a county's general eliteness, which we address in our analyses. In our analyses, we also compare our measure of elite networks to other non-network measures of a

[13] In our analyses, we show that our finding holds after dropping counties with more than five connections (including the provincial capital and Zeng's home county).

county's connectedness, including physical distance and dialect distance from Zeng's home county.

3.2 Soldier Deaths

We digitize the records of the deaths of 34,328 soldiers with their names and origin counties from Provincial Gazetteers of Hunan (Zeng 1885). Appendix A.4 describes the data source for this variable and gives an example to illustrate the information in the original archives. For 29,490 of these records, we also know the year and location (battle) of the soldier's death.

Using individual-level information, we construct a county-year panel of soldier deaths during the period 1850–1864 for all 75 counties in Hunan province. The individual-level data provide additional information on clan relationships (reflected by surnames) and social status (i.e., exam degree or not) that we use to address possible measurement errors in our analyses.

3.3 Elite Power

To measure the distribution of political power before and after the war, we construct a database on national-level offices and officials from 1820–1910 based on *The Chronicle of Officials in the Qing Dynasty* (Qian 2005). Like previous dynasties, the Qing used an official rank system. The system had nine numbered ranks, each subdivided into upper and lower levels. We focus on those with a rank of three and above (i.e., vice minister level and above), which include central government officials (such as ministers) and top officials in each province (e.g., governors and vice governors). We refer to these positions as national-level offices for simplicity, as the top officials in each province were also involved in the national-level decision-making process.

Our data cover 28,899 national-level offices held by 2,971 officials on an annual basis. On average, 221 officials held 318 offices in a given year. Of the officials, 67% were of Han ethnicity and held 66% of all positions (whereas the Han accounted for over 99% of the population). We focus on the offices held by Han officials because the Manchu officials had a different career track and all came from Manchuria.

Appendix A.5 presents an example of the records and plots the yearly distribution of national-level offices. It illustrates that there was a fairly stable number of positions and officials over time. Using this position-level information, we construct a county-year panel of national-level offices during the period 1820–1910 for all 1,646 counties.

4 Elite Networks and Soldier Deaths

4.1 Motivational Evidence and Research Design

Did elite networks shape regional variation in soldier deaths? As motivational evidence, we plot the number of soldier deaths by year and by two groups of counties within Hunan: 36 counties with elite connections vs. the other 39 counties without connections (defined by our baseline networks). Figure 3 illustrates that before Zeng took power in 1853, the numbers of soldier deaths in unconnected and connected counties appear to be in parallel. After Zeng came to power, the number rose to a higher level for connected counties, which persisted until the end of the war in 1864. On average, the yearly soldier deaths pre- and post-1853 were 6.6 and 13 for unconnected counties, but 4.7 and 53.1 for connected counties, suggesting the importance of Zeng's personal networks.

Based on this pattern, we use a standard difference-in-differences strategy by exploiting county-level variation across Hunan in elite connections and time variation in Zeng's appointment in 1853. The data cover 75 counties during the period 1850–1864, and our baseline specification is as follows:

$$\text{lnSoldierDeath}_{c,t} = \beta \text{EliteConnections}_c \times \text{Post1853}_t + \alpha_c + \lambda_t + \theta \mathbf{X}_c \times \text{Post1853}_t + \epsilon_{c,t}, \qquad (1)$$

where $\text{SoldierDeath}_{c,t}$ refers to the logged number of soldier deaths in county c and year t. Our baseline measure of $\text{EliteConnections}_c$ is $\sum_{n=1}^{N_c} \frac{1}{d_{c,n}}$ where we discount the importance of links by distance. We also present results for per capita and unweighted measures.

We control for county-level characteristics that vary little over time and factors that affect all counties over time by including county-level fixed effects (α_c) and year fixed effects (λ_t). We gradually control for the 12 county-level characteristics introduced above and their interaction with post dummy ($\mathbf{X}_c \times \text{Post1853}_t$) to allow the impacts of these characteristics to vary before and after Zeng came to power.

To facilitate interpretation of the coefficients, we use ln (Soldier deaths+1) as the dependent variable in our main estimations. We also present the results using the inverse hyperbolic sine as the dependent variable. In addition, we show that our findings are robust to controlling for $\mathbf{X}_c \times \lambda_t$ instead of $\mathbf{X}_c \times \text{Post1853}_t$ and further controlling for prefecture-by-year fixed effects. Finally, we cluster standard errors at the county level in our main analyses and report the spatial standard errors in the appendix.

Our assumption for estimating equation (1) is that counties with more or fewer elite connections

were on a similar trend before Zeng was put in charge. To check whether this assumption is reasonable, we use an event study strategy to estimate the impacts of elite connections year by year.

4.2 The Impact of Elite Networks on Soldier Deaths

Main Results. We find that soldier deaths in counties with more connections to Zeng increased significantly after he took power. In Column (1) of Table 2, we control only for year and county fixed effects, and obtain an estimate of 0.214. In Columns (2)–(4), we gradually add controls—geographic-economic variables, political variables, war variables, and their interactions with the post dummy—and obtain estimates of 0.208, implying that one more elite directly connected to Zeng increases the number of soldier deaths by 20.8% (an additional 5,772 deaths during the period 1854–64 for the 75 counties).

In Columns (5)–(6), we present the estimates for the per capita connection measure. Based on the estimate in Column (6), a one-standard-deviation increase in connections per capita (8.12 per million) increases soldier deaths by 27.6%. Columns (7)–(10) show the estimates for the unweighted sum and per capita measures. The fact that the impact of a direct link (0.208) is larger than that of an unweighted link (0.144) confirms that it is reasonable to consider each link's distance to Zeng.

We relegate several checks to Appendix B.1. As shown, our finding is robust to dropping a group of counties with relatively more connections (including the provincial capital and Zeng's home county), using the inverse hyperbolic sine as the dependent variable, controlling for $\mathbf{X}_c \times \lambda_t$ instead of $\mathbf{X}_c \times \text{Post1853}_t$, and further controlling for prefecture-by-year fixed effects. We also report spatial standard errors following the method proposed by Colella et al. (2019), which are close to those clustered at the county level.

To check the assumption on parallel trends for estimating equation (1), we estimate the impacts of elite connections year by year in Appendix B.2 and visualize these estimates in Figure 4. As shown, elite connections to Zeng were not correlated with soldier deaths before 1853, implying that the counties did not exhibit different trends before he came to power. Afterwards, elite connections exerted a large positive effect that persisted until the end of the war.

Types of Links. Our finding holds if we expand our definition of elite network to include marriages and friends, as reported in Column (1) of Table 3. The estimate based on expanded networks is slightly smaller than that using our baseline definition. Columns (2)–(4) report the results for each

type of links. The results reveal that the impact of national-level exam connections is larger than the rest, which is consistent with the fact that these elites were particularly powerful and more likely to hold important offices.

The historical narratives suggest that clan relationships provided information and helped build trust in recruiting soldiers. We use the surnames of elites and soldiers to proxy for clan relationships: we assume they belonged to the same clan if they came from the same county and shared the same surname. Consistent with the historical narratives, we find that elite connections had a significantly larger impact for soldiers from the same clan as elites. Columns (6)–(7) of Table 3 present the results for 75 counties $\times$ 15 years $\times$ number of surnames (for each county). These results illustrate that the impact of elite connections on the deaths of soldiers from the same clan is four times that for a different clan.

Placebo Networks. To further validate the relevance of the networks that we have identified, we leverage the timing of the exams to construct placebo networks. We assume that Zeng passed the 1836 or 1840 national-level exam, rather than the actual one (1838), which would change his national-level exam network (as shown by the maps in Appendix B.3), even though the placebo networks would be correlated with the actual network and a county's general eliteness. We find that the placebo national-level exam connections did not exhibit similar findings once the actual one was considered. In Columns (1)–(3) of Table 4, we report the horse-race results between the actual national-level exam networks and the placebo national-level exam networks. In Columns (4)–(6), we employ an instrumental variable approach similar to that in Enikolopov, Makarin and Petrova (2020): We use actual national-level exam networks to predict our baseline networks while controlling for placebo national-level exam networks. In both methods, our findings are driven by the specific elite networks that we identified, rather than by a county's general political eliteness proxied by placebo networks.

In addition, the impacts of elite networks are close to our baseline estimates if we further control for other connectedness measures including a county's dialect distance and physical distance from Zeng's home county (Appendix Table B.4), which again confirms the relevance of our network measure.

Measurement Error. Measurement error in elite networks is likely. For example, counties with fewer observed links may invest in unobserved networks to make up for their disadvantages in

the network. This concern implies that our estimate is likely to be underestimated. The placebo networks above partly address this concern by confirming the importance of observed networks.

Measurement error in soldier deaths is also likely, which we examine in two ways. First, 14% of the death records did not report the death year. Thus, it may be possible that elite connections are correlated with more precise information on deaths. As a check, we examine the relationship between elite connections and the probability of missing years across counties. Appendix B.5 illustrates that there is no correlation between elite connections and missing information, which alleviates this concern. Second, 93 of the individuals in the soldier death records held exam degrees. We find a strong correlation between these deaths and commoner deaths (R-squared = 0.44). When examining how connections affect the deaths in both groups, we also find comparable standardized coefficients, as shown in Appendix B.5. Because it is difficult to make mistakes on the degree holders, this result further suggests that our finding is unlikely to be explained by misreporting of soldier deaths.

Soldier Deaths Outside Hunan. We focus on soldier deaths across Hunan counties because the Hunan Army was the main force that fought against the Taipings, and the soldiers in the Hunan Army all originated from Hunan. Is it possible that Zeng's personal networks outside Hunan led to more soldier deaths outside the province? As mentioned above, a notable additional force was the Huai Army established in 1861. We further collect data for counties in the Huai region (Anhui and Jiangsu) to check this possibility. We find that Zeng's personal networks could not predict soldier deaths in the Huai region (see Appendix B.6), likely because Li relied on his own networks when organizing his army.

4.3 Interpretations of Soldier Deaths

Because deaths are the costliest type of contribution to war, it is meaningful to study soldier deaths as the outcome. Nevertheless, one may wonder whether soldier deaths mainly reflect mobilization or different death rates given the same level of mobilization. The fact that networks had a relatively stable impact after Zeng assumed power (Figure 4) suggests the importance of the mobilization effect. Three further analyses reveal that soldier deaths are likely to reflect mobilization. We present the estimates of these analyses in Appendix B.7 and summarize the results here.

First, we hypothesize that elite networks had a smaller effect on mobilization in countries with

a higher opportunity cost of joining the army. To proxy for the opportunity cost, we use variation in the primary mobility channel—the Civil Service Exam, access to which was governed by a quota system. We find that elite networks had a smaller effect on soldier deaths in counties with a higher entry-level quota per capita. This pattern can be interpreted as evidence that a higher opportunity cost deters people from joining the Hunan Army.

Second, we leverage battle-level information. If soldiers were strategically deployed across battles that led to different death rates, we expect the relationship between elite connections and soldier deaths to differ when we conduct within-battle analysis vs. when we pool all battles together. On the contrary, we find similar results without or with battle fixed effects.

Third, we examine the famous Battle of Three Rivers in 1858, in which all Hunan Army troops involved were annihilated. In this case, the death rates were the same across the soldiers' home counties. We find that in this battle, elite connections have a comparable impact on soldier deaths to that of other battles in 1858, which provides further support to the mobilization interpretation.

5 Elite Networks and Post-War Elite Power

5.1 Motivational Evidence and Research Design

Did elite networks that facilitated the war contribution shape regional distribution of post-war elite power? Here, we face a challenge to know whether elite networks would have led to more power even without war contribution. To address this challenge, we bring non-Hunan counties into our analyses as a comparison. These non-Hunan counties also enjoyed different degrees of connections in Zeng's networks but did not experience soldier deaths in the Hunan Army, which tells us the impact of connections on power (without contribution to the Hunan Army) over time.

As motivational evidence, we plot the annual number of national-level offices held by four groups of counties—connected and unconnected counties in Hunan and connected and unconnected counties in other provinces (Figure 5). Two patterns are apparent. First, the number of national-level offices held by individuals from connected counties in Hunan clearly increased in the later stage of the war and after the war. Second, there was no similar increase for connected counties in non-Hunan provinces, even though connected counties generally accounted for more national-level offices. These patterns suggest that elite networks led to the rise of elite power through their involvement in the war.

Based on this evidence, we implement difference-in-differences and triple-difference designs to estimate the impact of elite connections in Hunan on national-level office distribution before and after Zeng took power. Our difference-in-differences specification replaces the dependent variable in equation (1) with the number of national-level offices, and our triple-difference specification is as follows:

$$\begin{aligned}\text{NatlOffice}_{c,t} =& \rho_1 \text{Hunan} \times \text{EliteConnect}_c \times \text{Post1853}_t + \rho_2 \text{Hunan} \times \text{Post1853}_t \\ &+ \rho_3 \text{EliteConnect}_c \times \text{Post1853}_t + \alpha_c + \lambda_t + \theta \mathbf{X}_c \times \text{Post1853}_t + \epsilon_{c,t}, \end{aligned} \tag{2}$$

where $\text{NatlOffice}_{c,t}$ indicates the number of national-level offices in a county c and year t. The rest of the definitions are the same as in equation (1). ρ_1 indicates the power effect of interest. ρ_2 measures the possible advantage of originating from Hunan after the war, and ρ_3 denotes the advantage of general elite connections after the war.

Similar to our analyses above, we complement the triple-difference design with an event study strategy in which we estimate the impacts of $\text{Hunan} \times \text{EliteConnect}_c$ year by year.

5.2 The Impact of Elite Networks on Post-War Elite Power

The Power Effect. We first focus on the difference-in-differences estimates in Columns (1)–(2) of Table 5: Having one direct elite connection in a Hunan county is associated with 0.044 more national-level offices after 1853, or around 47% of the county-year mean (0.093). In contrast, no such association exists for counties in other provinces (Columns (3)–(4)). These results confirm the motivational patterns in Figure 5. Given these results, the triple-difference estimates in Columns (5)–(6) are close to the difference-in-differences estimates in Columns (1)–(2): One direct elite connection in a Hunan county is associated with 52% more national-level offices after 1853, compared with non-Hunan counties.

We study the dynamic pattern and present the year-by-year estimates during the period 1821–1910, using 1820 as the reference year (Figure 6A-C). The dynamic pattern confirms that there were no pre-trends, and that the power effect of elite networks in Hunan was not present before the war; it occurred during the later stage of the war and during the post-war period. Notably, the power effect persisted for several decades after the war. Appendix C.1 further examines the dynamic power effect and finds that it is driven by individuals from different cohorts (rather than by the same group of individuals). This finding implies that the power impact affects multiple cohorts, which explains its long-term relevance.

In addition, we classify individuals who held national-level offices as either inside or outside the networks. As reported in Appendix C.2, those in Zeng's personal networks benefited: One direct link increased the number of national-level offices held by those inside the networks by 85%. Some not in the elite networks also benefited: One direct link increased the number of national-level offices held by those outside the networks (but from the home counties of the insiders) by 45%.

These findings clearly demonstrate that these pre-war elite networks affected post-war elite power. They also suggest the self-perpetuation of power, which is consistent with the historical narratives discussed in Section 2.2.

Can Soldier Deaths Explain the Power Effect? We find that elite networks led to both more soldier deaths and more elite power. Is there a link between soldier deaths and elite power? Our answer is yes. First, in Column (1)–(3) of Table 6, we find that the impact of elite networks on elite power disappears once after we control for soldier deaths of the Hunan Army during 1854–1864, which suggests the importance of the war contribution in explaining the power effect.

To check this relationship more directly, we employ an instrumental variable approach with an over-identification strategy. We leverage the multiple sources of links in the elite networks and divide them into two components: the national-level exam connections and the rest. We can use each component to instrument for soldier deaths of the Hunan Army during 1854–1864. If one component has an additional impact on power beyond the channel of soldier deaths, we would expect to see a significant coefficient of this component when using the other as an instrument. Column (4) of Table 6 reports the estimates when using both components to predict soldier deaths and the over-id test has a p-value of 0.82. Columns (5)–(6) report the results using one component of links to predict soldier deaths and shows that the other component is not predictive of national-level offices. Because the power effect we document can be explained by soldier deaths, our findings can be interpreted as evidence that war contribution provides the opportunity for elite networks to beget elite power.

Additional Checks. Corresponding to the analyses on placebo networks above, we find that the placebo networks, constructed by assuming that Zeng passed the previous or next national-level exam, cannot explain the power effect (Appendix C.3).

Our findings are robust to varying the comparison provinces, as reported in Appendix C.4. We first restrict the comparison provinces to the five provinces along the Taiping route. Then, we use

Hunan's three neighboring provinces of the five provinces along the Taiping route as the comparison. Finally, we use Anhui and Jiangsu (the Huai region) as the comparison provinces. Note that it is possible that elites from the Huai region also benefited similarly to those from Hunan. Such a provincial-level influence, however, should not affect our county-level research design. Indeed, we obtain a similar pattern when using these two provinces as the comparison provinces.

5.3 National-level Implications

Power Distribution. The rise of regional elites has important implications for power distribution at the national level. We use the Edward–Glaeser index from the urban literature to measure national-level power distribution. We consider the shares of *Jinshi* across provinces as the benchmark shares, which proxy for the political power distribution controlled by state institutions. The deviation of actual shares of national-level offices from these benchmark shares thus serves as a proxy for power localization. We examine how this index changed from 1820 to 1910 with and without Hunan. Figure 7 illustrates that power localization increased after the war. Without Hunan, the Edward–Glaeser index rose from 0.02 before the war to 0.038 in the 1880s; with Hunan, the index rose from 0.02 before the war to 0.055 in the 1880s. Thus, Hunan alone could account for 50% of the increase in power localization.

To be clear, the state still relied on the Civil Service Exam and related bureaucratic institutions to appoint and promote officers after the war. However, the realized power distribution became more likely to deviate from these institutionalized rules. We demonstrate that the rise of Hunan elites is quantitatively important in explaining this deviation.

As additional evidence, we examine the origins of the top four officials (one governor and three vice-governors) by province before, during and after the war.[14] Due to the rule of home-province avoidness in the bureaucracy, officials who were born in Hunan could not govern Hunan. Thus, we consider 17 out of 18 provinces by excluding Hunan in our following analyses. A useful benchmark number is simple randomization, which implies that the probability that Hunanese will hold such offices should be 5.8% (1/17). Figure 8A shows that before the war, around 5% of top officials came from Hunan; thus Hunanese were not a particularly powerful group. These shares increased dramatically during the war, especially in the central and southern provinces (Appendix C.5 depicts

[14]The governor is an official charged with the general control of all affairs. The other three are the Superintendent of Provincial Finances, the Provincial Criminal Judge and the Provincial Educational Examiner. The fact that the Educational Examiner is one of the top officials confirms the importance of the Civil Service Exam in the bureaucracy.

the spatial distributions over time). For instance, in Guangxi, Zhejiang and Hubei, the shares were over 25%, i.e., at least one of the top four officials was from Hunan.

We also find suggestive evidence that the Qing court attempted to limit the power of Hunan elites. As shown in Figure 8B, after the war, the state relocated some Hunanese governors to more peripheral provinces (Guizhou and Gansu). Nevertheless, the shares of Hunanese among the governors and vice governors remained high (10–15%) in provinces where they became powerful during the war, suggesting it was difficult to remove these regional elites from their newly established power bases.[15]

Elite Behavior. Power distribution affects elite behavior. As mentioned in Section 2.2, historians have argued that after the war, regional elites became more autonomous and able to resist orders from the state. The most frequently used example to illustrate this point is a major historical event known as "Southeast Mutual Protection" or the "Southeast Autonomous Plan" (e.g., Fairbank and Liu 1980, Chong 2012). In June 1900, during the Boxer Rebellion, the Qing state declared war against 11 foreign nations. To the state's surprise, a majority of the provinces refused to follow the state order and decided to remain neutral in the war to preserve peace in their own provinces. Historians have noted that key regional leaders in this event, such as Liu Kunyi and Li Hongzhang, rose to prominence due to the suppression of the Taiping Rebellion. However, they have not systematically examined the relationship between the composition of provincial leaders and this decision to defy the state.

We use our data on the origins of the top four officials in each province to shed light on this relationship. Figure 8C illustrates that the share of Hunanese governors and vice governors during the war era —a proxy for regional elite power—is positively associated with the probability of joining this autonomous plan.[16] This important event thus provides a case to illustrate the historical narratives on the autonomy of the regional elites.

[15] Although we cannot observe the decision-making process of these rotations and appointments, the office distribution may have been the result of a bargaining process between the elites and the central government. Winning the war gave the elites more bargaining power. While the state had incentives to re-centralize power after the war, the presence of powerful regional elites made it impossible to do so (Luo (1937) and Michael (1949)).

[16] An increase in the share of Hunanese officials from 5% to 15% raises the probability of disobeying the state by 35 percentage points. Admittedly, with only 17 provincial-level observations, this estimate should be viewed cautiously.

6 Conclusion

As one of the most important wars in Chinese history, there are many historical narratives related to the Taiping Rebellion. By constructing a database that combines over a dozen historical sources and employing multiple empirical strategies, we bring these perspectives together to study central political economy issues. We demonstrate a striking pattern: The personal networks of one individual influenced important macro-level outcomes including regional soldier deaths during the war and regional power after the war, which created a less balanced power distribution for the nation.

Our findings provide a novel perceptive on the process through which individuals influence macro-level outcomes: Individual influences are propagated by personal networks across regions, which can have important implications for the entire nation. While this insight is relevant in varied contexts, our setting provides a rare opportunity to delineate this process.

Our study also reveals that war can shift a country's distribution of power, which has received little attention in the literature on war and the state. Examining how the power distribution changes before and after war enriches our understanding of how it ultimately shapes the state. We thus hope our research opens new avenues to study the relationships among war, elites, and the state.

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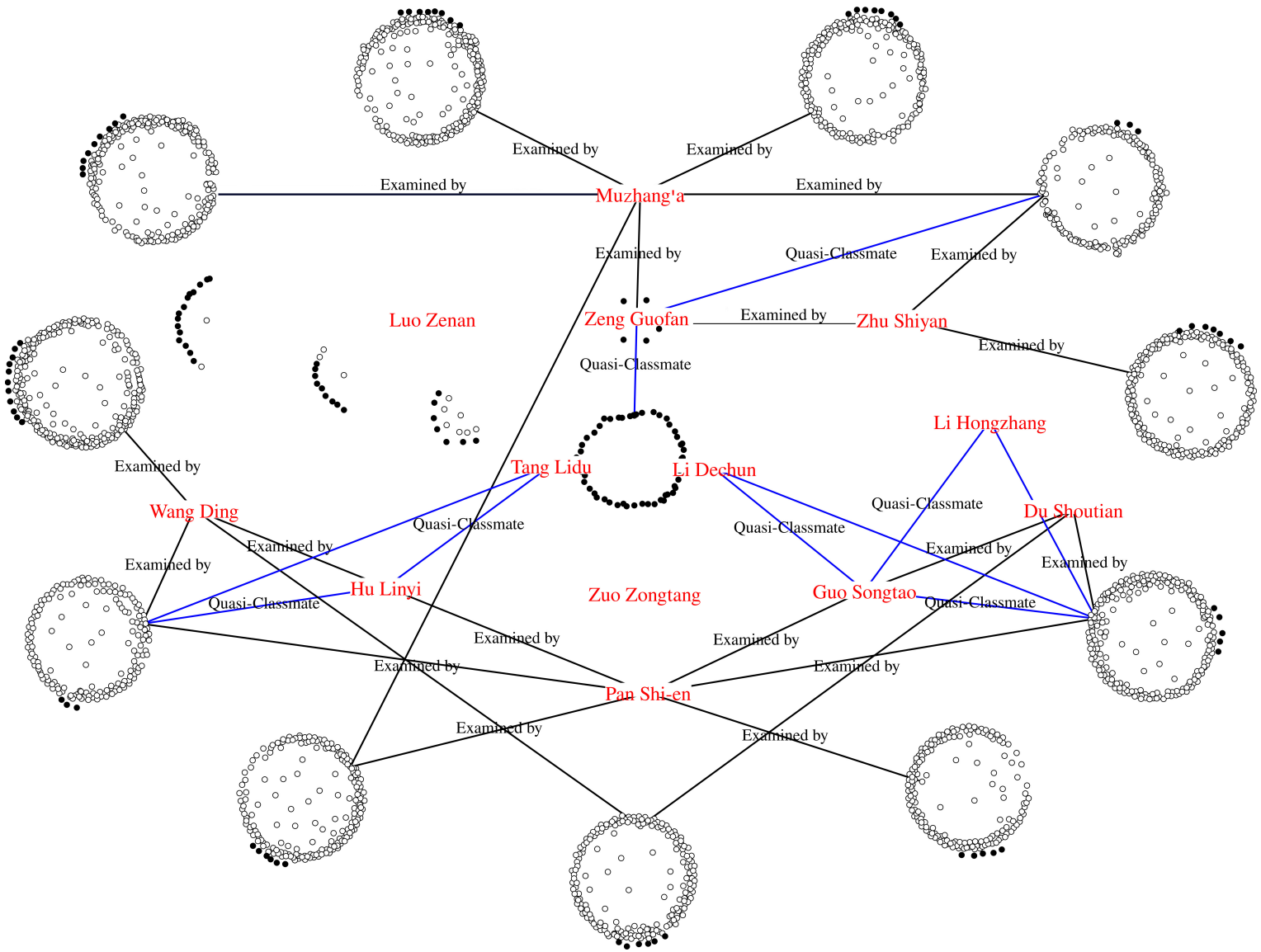
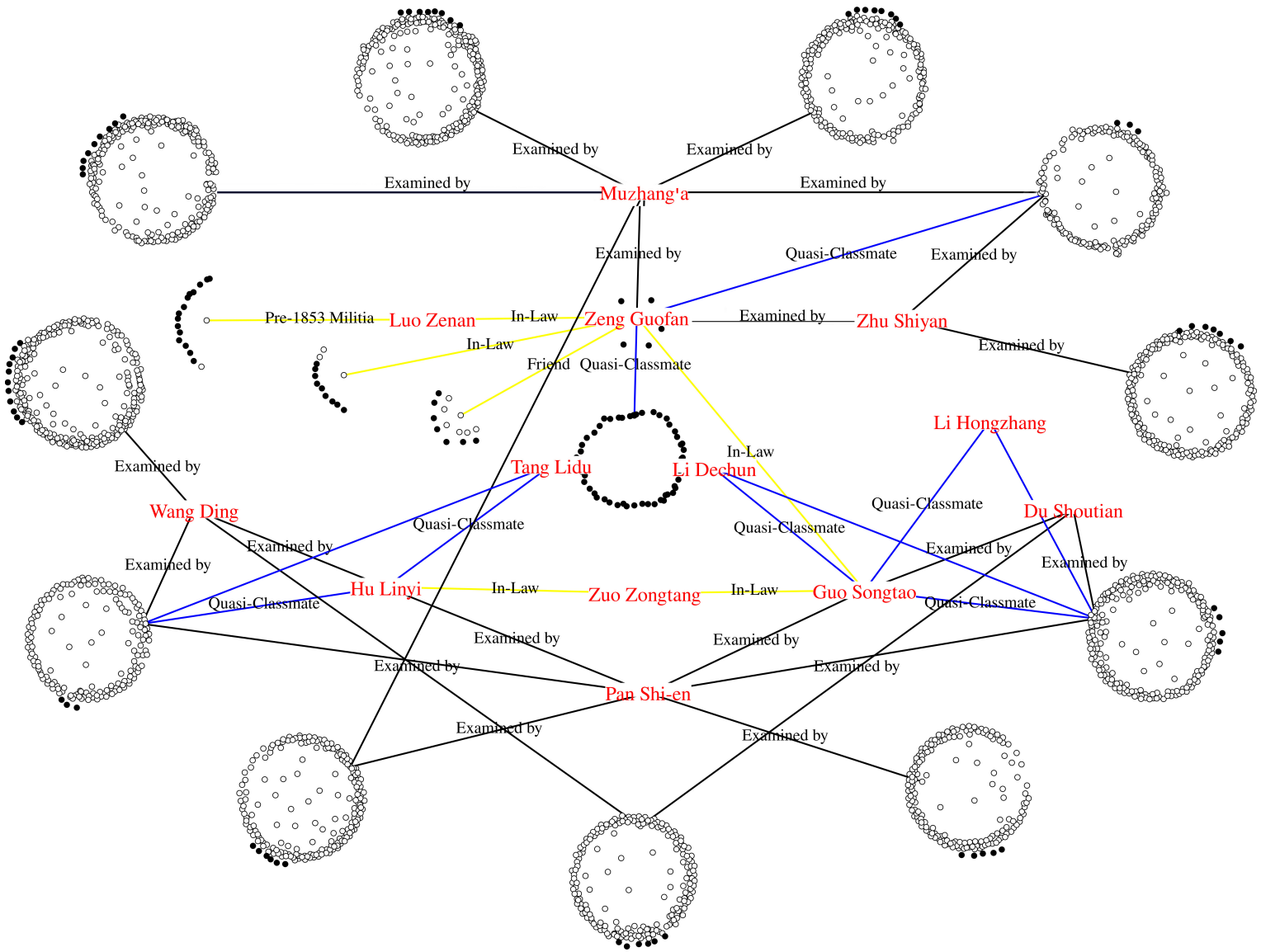
Figure 1A. Elite Network Definition: Baseline Networks



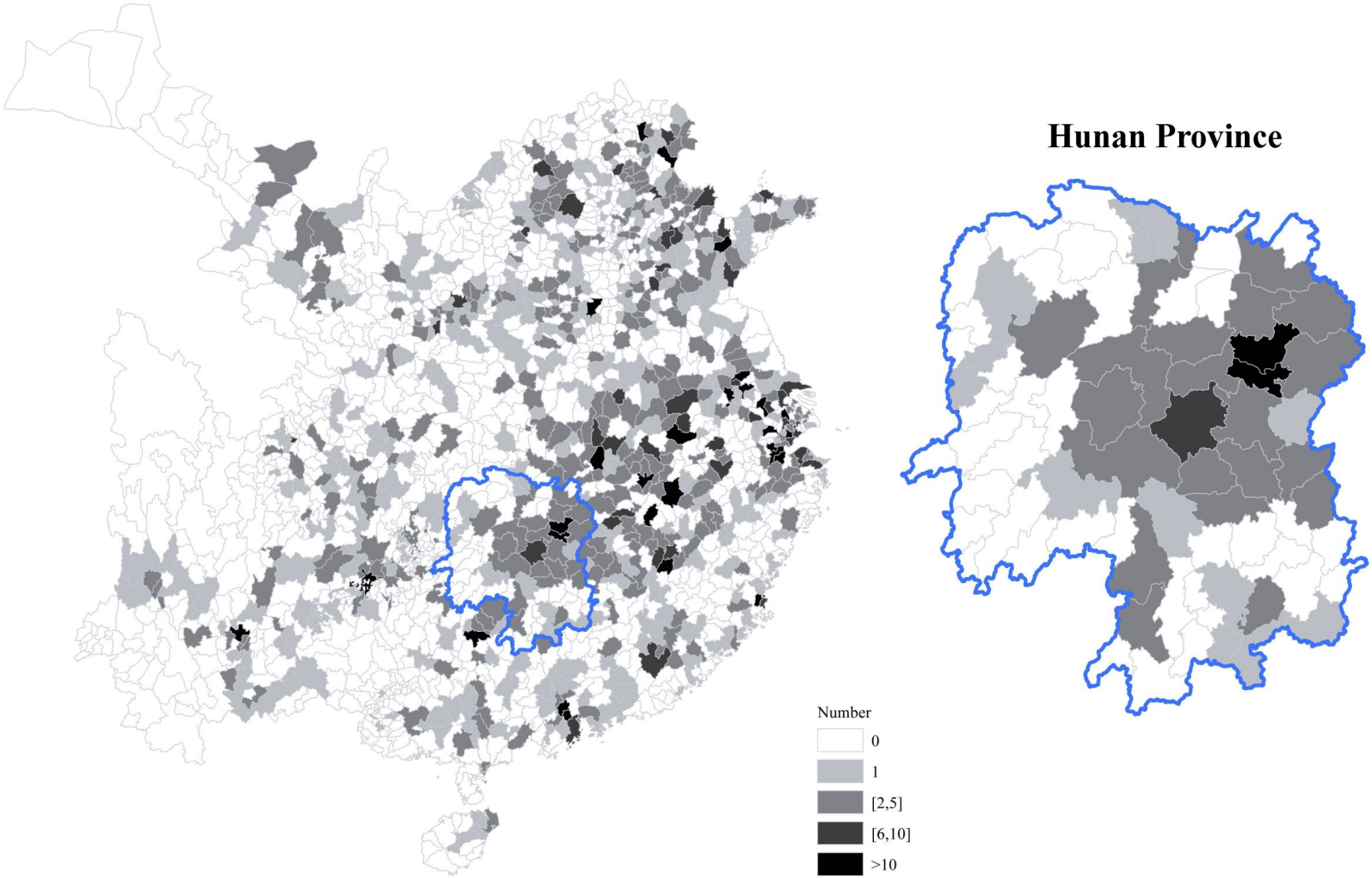
Note. This figure plots the elites in our baseline networks, defined by exam relationships and blood relationships. Each big circle consists of the graduates from one exam. The black dots indicate the individuals from Hunan. The individuals not linked in these networks appear in the expanded networks (see next page).

Figure 1B. Elite Network Definition: Expanded Networks



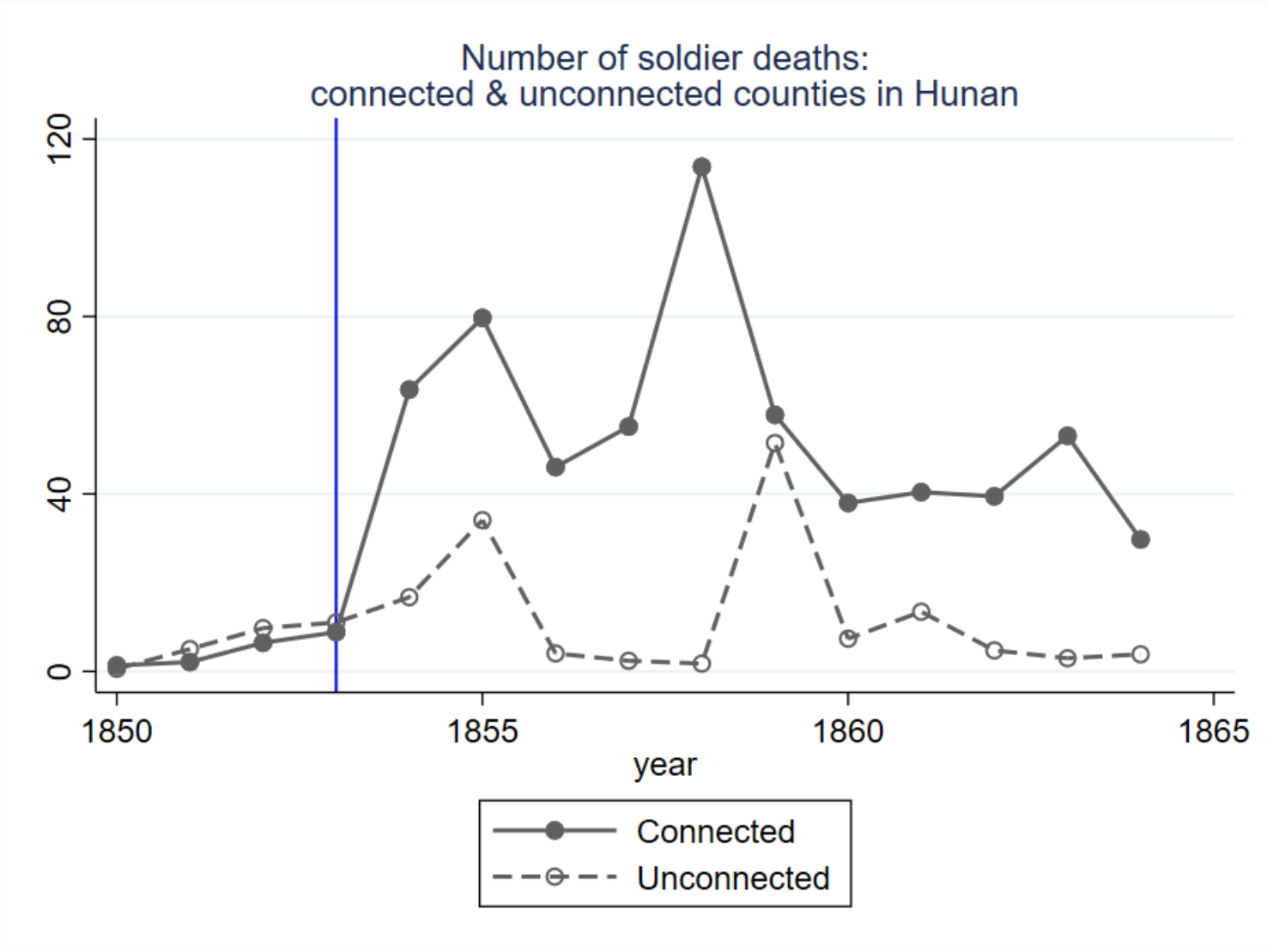
Note. This figure plots the elites in our expanded networks, i.e., adding marriages and friends to the baseline networks.

Figure 2. Spatial Distribution of County-level Elite Connections



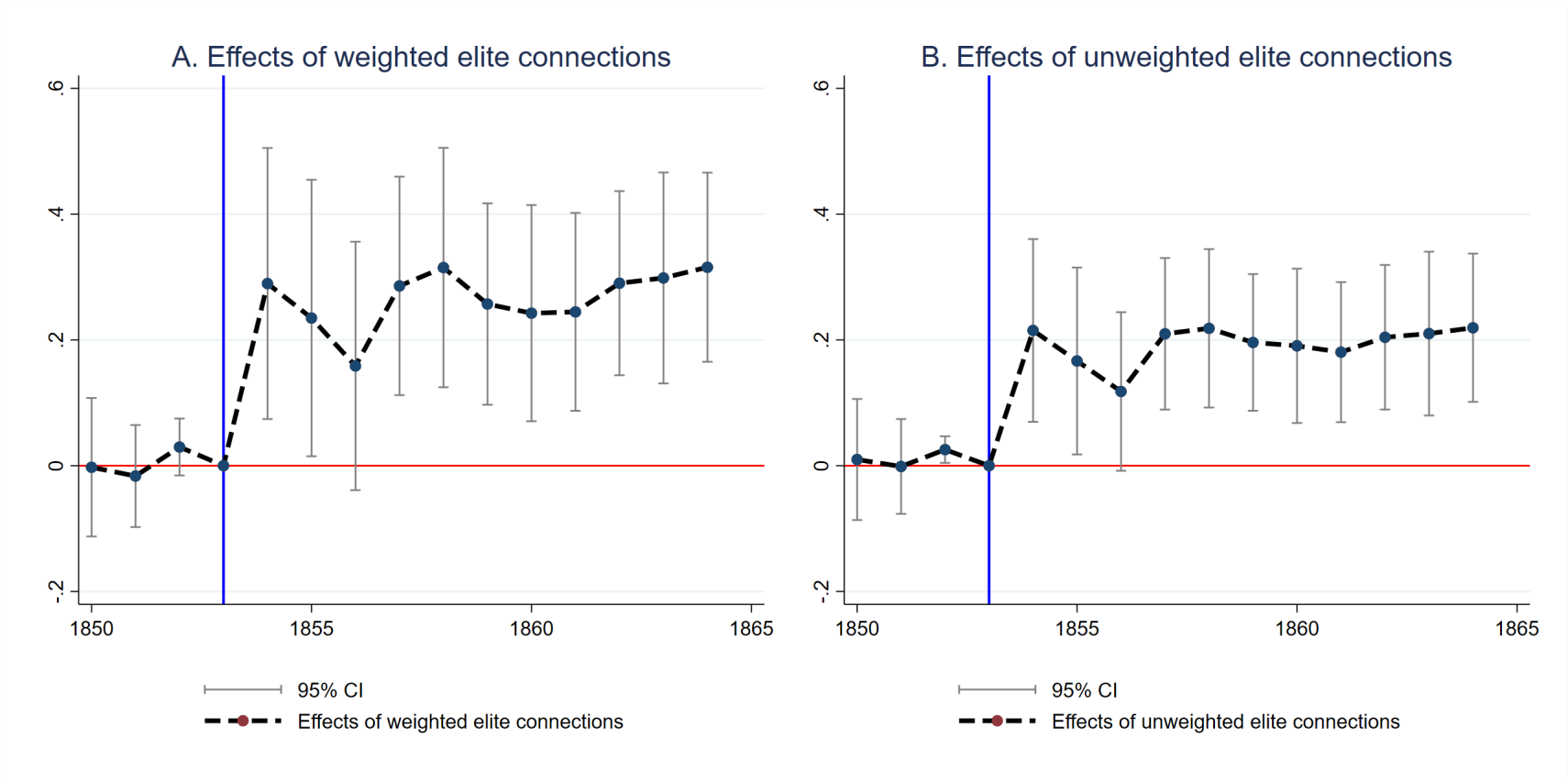
Note. The two maps illustrate a wide variation in the number of elites connected with Zeng Guofan across counties in Hunan and the whole country. For simplicity, the number of connections is unweighted.

Figure 3. Motivational Evidence on Elite Networks and Soldier Deaths: Raw Data



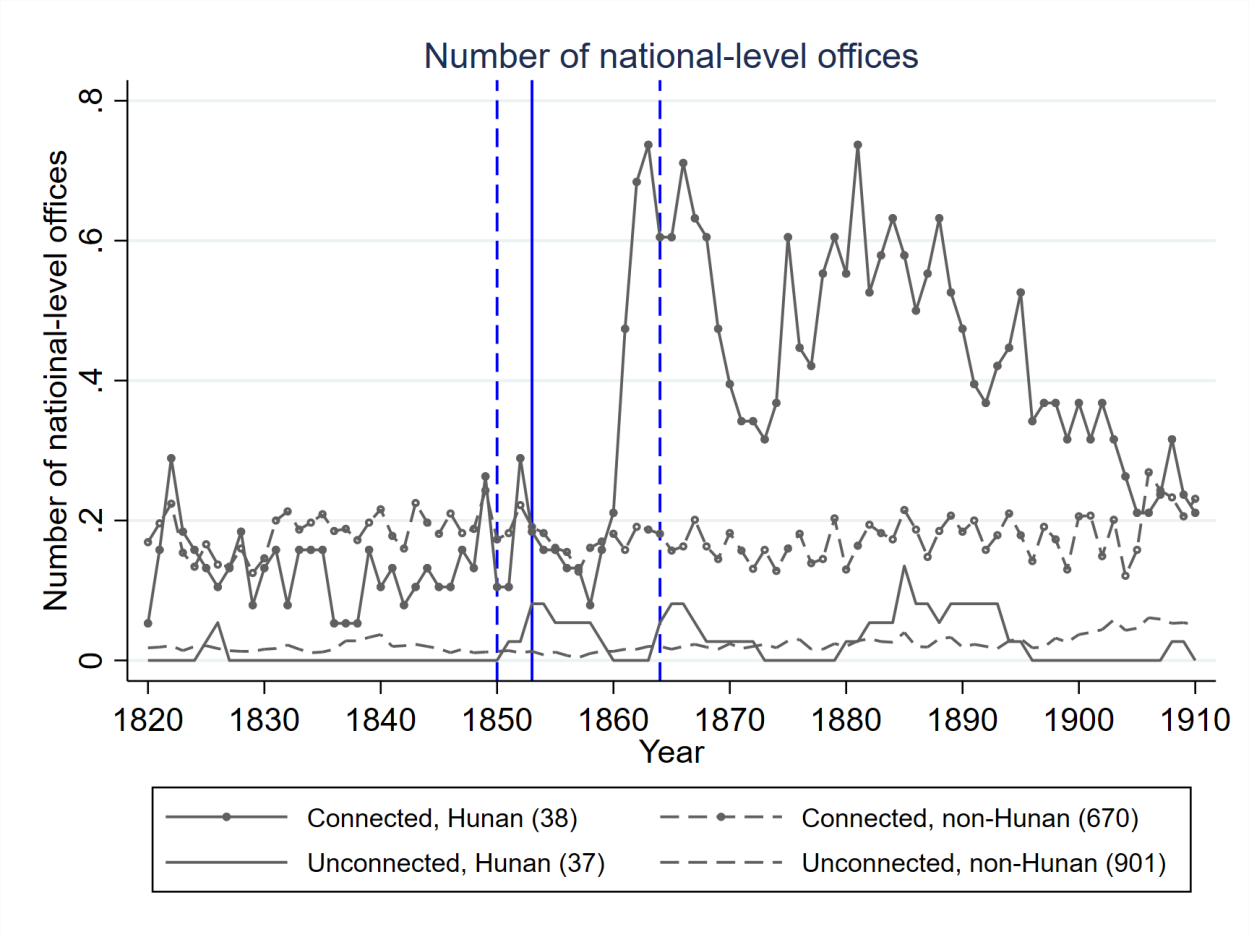
Note. This figure plots the number of soldier deaths by year in unconnected and connected counties (i.e., those with at least one elite in our baseline elite network.) The blue line indicates the year Zeng was assigned to organize an army from existing militias.

Figure 4. The Impact of Elite Connections on Soldier Deaths: Year-by-Year Estimates



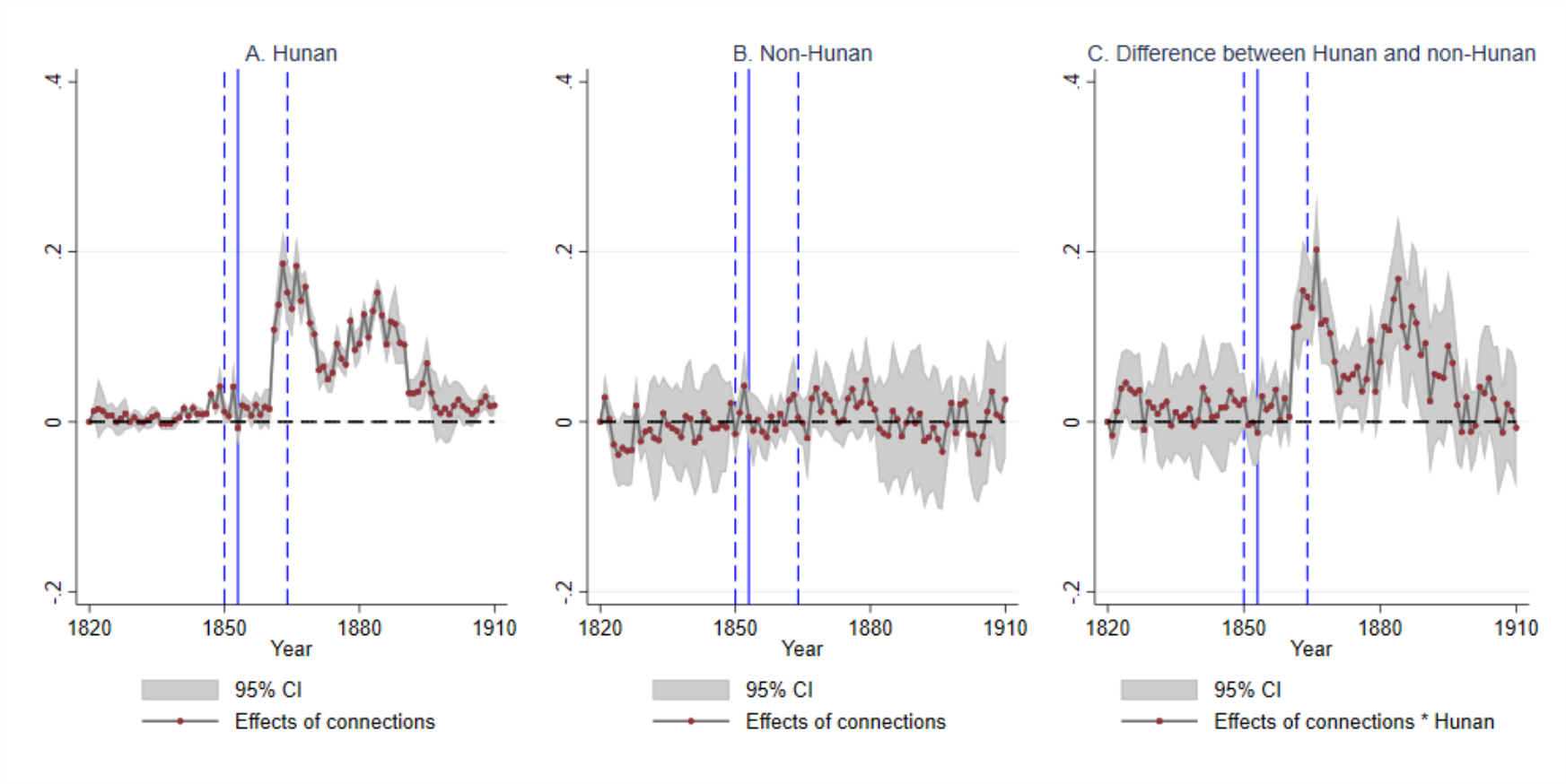
Note. This figure plots year-by-year estimates of the impact of county-level elites connections on county-level soldier deaths, using 1853 as the reference year. The blue line indicates the year Zeng was assigned to organize an army from existing militias. It shows that elite connections increased soldier deaths after Zeng took power in 1853 and persisted until the end of the war.

Figure 5. Motivational Evidence for the Power Effect: National-level Offices by Connection-Province



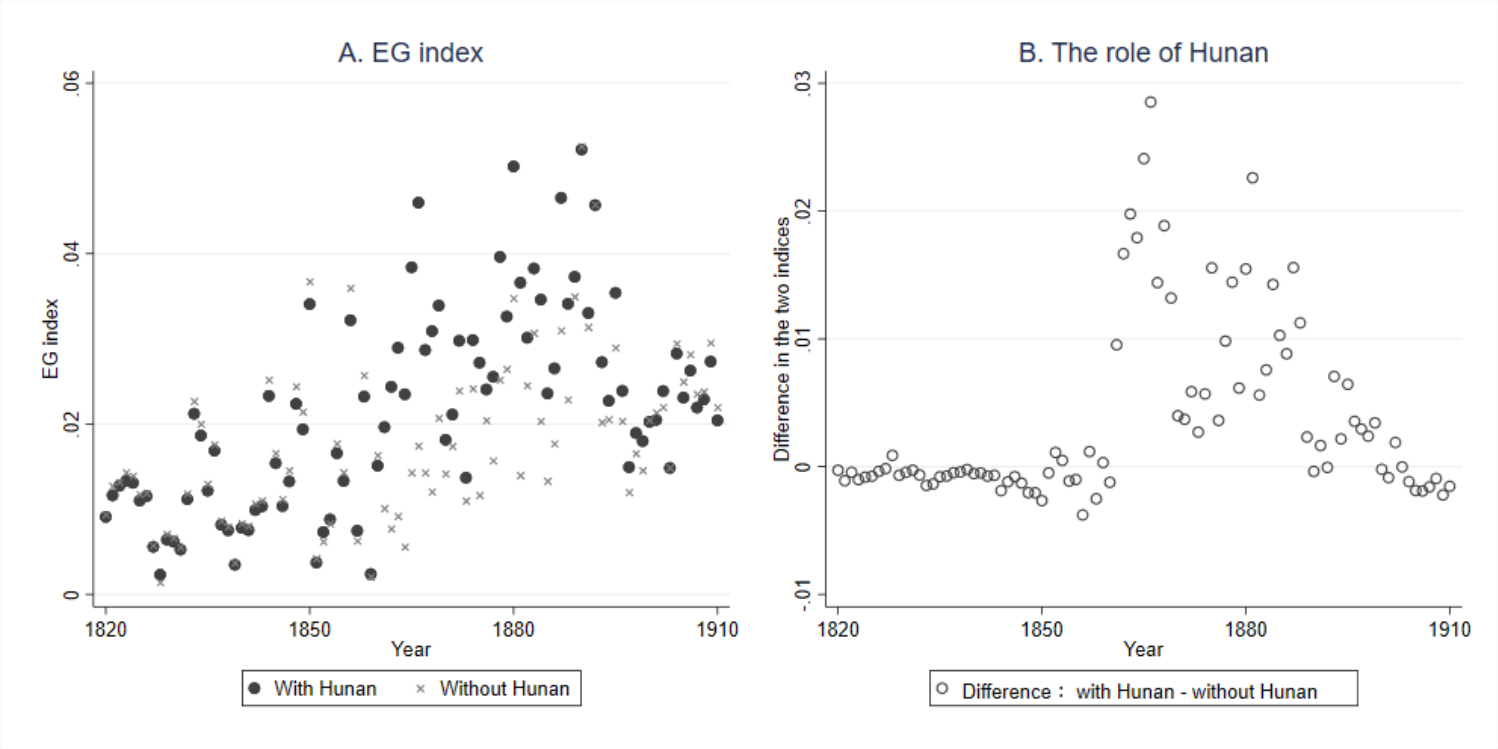
Note. This figure plots the number of national-level offices in four groups of counties. The two dashed lines indicate 1850 (the war started) and 1864 (the war ended). The blue solid line indicates 1853, the year Zeng was assigned to organize an army from existing militias. It shows that (1) connected counties in Hunan obtained more power in the later stage of the war and after the war, and (2) the role of connections in non-Hunan provinces was relatively stable over time.

Figure 6. The Dynamics Impacts of Elites Network on National-level Offices



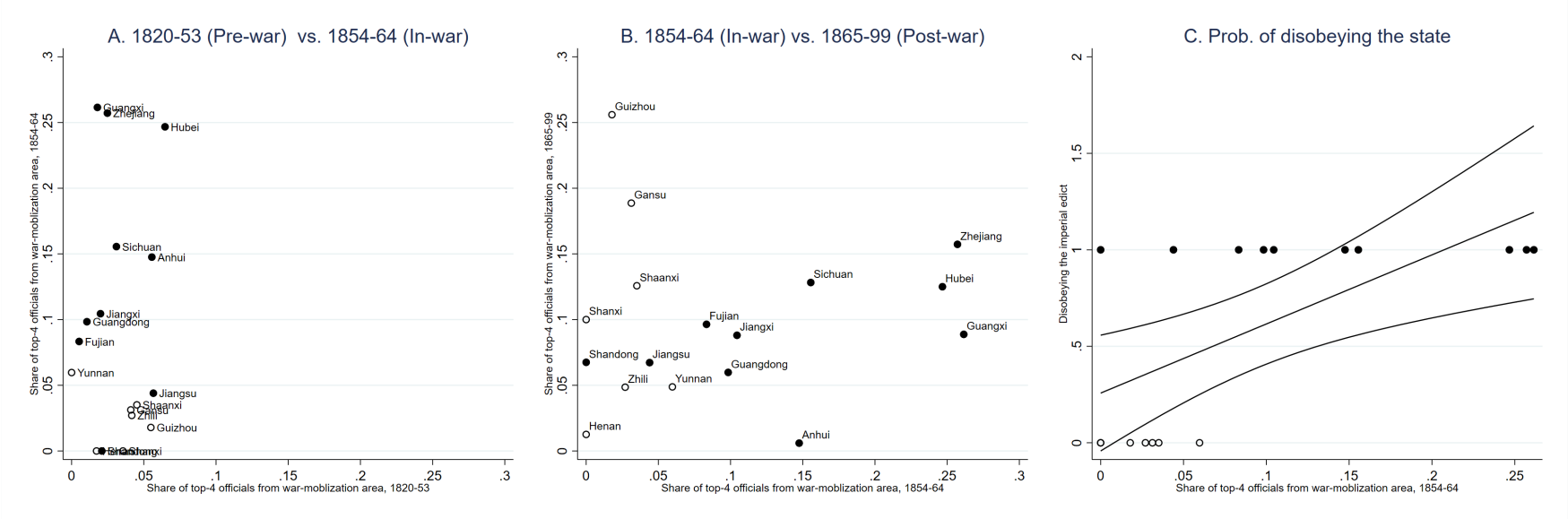
Note. The two dashed lines indicate 1850 (the war started) and 1864 (the war ended). The blue solid line indicates 1853, the year Zeng was assigned to organize an army from existing militias. Panel A reports the difference-in-differences estimates by year for Hunan counties during 1820–1910, using the year 1820 as the reference year. Panel B reports the results for non-Hunan counties. Panel C reports the triple-difference estimates. These results show that counties with more connections in Hunan province obtained more national-level positions during the last few years of the war and after the war.

Figure 7. National-level Power Distribution: The Ellison-Glaeser Index



Note. The EG index measures the deviation of actual national-level offices from the benchmark shares determined by the Civil Service Exam. Panel A plots the EG index over time with and without Hunan. Panel B plots the contribution of Hunan in increasing the EG index.

Figure 8. The Share of Hunanese Provincial Leaders and Their Behavior in 1900



Note. Panels A and B plot the share of Hunanese among the top-4 offices in each province over time. Panel C plots the relationship between the share of Hunanese among the top officials and the probability of disobeying the state. The black dots indicate the 10 provinces that disobeyed the state in 1900 when the state declared war against 11 foreign nations.

Panel A shows that among the top-4 officials (governors and vice-governors) for each province, the Hunanese appeared disproportionately during the war era, but not during the pre-war era. If the distribution were randomly distributed, 1/17 would come from Hunan. Panel B shows that after the war, the state relocated some of the Hunanese officials to periphery provinces. Nevertheless, the Hunanese were still disproportionately present in the provinces where they took power during the war. Panel C presents a positive association between the presence of the Hunanese officials and the probability of disobeying the command from the state to declare war against foreign nations in 1900.

Table 1. Summary Statistics

Sample	A. Hunan counties, 1850–1864				B: All counties, 1820–1910			
	Source	Obs.	Mean	S.D.	Source	Obs.	Mean	S.D.
Number of soldier deaths, by year	A	1,125	26.21	145.75				
Number of soldier deaths during 1854-64 (1K)	A	1,125	0.37	1.20	A	149,786	0.02	0.27
Elite connections, Baseline networks (weighted)	B, C, D, E	1,125	1.23	2.53	B, C, D, E	149,786	0.68	2.02
Number of national-level offices					K	149,786	0.09	0.54
ln Area	F	1,125	7.84	0.48	F	149,786	7.40	0.89
ln Population	A	1,125	12.08	0.66	L	149,786	12.08	1.02
ln Rice suitability	G	1,125	1.63	0.10	G	149,786	1.34	0.32
ln Wheat suitability	G	1,125	1.61	0.06	G	149,786	1.56	0.30
Main river dummy	F	1,125	0.40	0.49	F	149,786	0.42	0.49
Distance to the Grand Canal	F	1,125	8.74	1.22	F	149,786	7.06	5.56
ln Urban population	H	1,125	8.53	1.48	H	149,786	7.70	2.76
Prefecture capital	H	1,125	0.28	0.51	H	149,786	0.14	0.35
ln Number of Jinshi	B, F	1,125	1.11	1.07	B, F	149,786	1.46	1.23
ln Quotas for the entry-level exam	I	1,125	2.63	0.36	I	149,786	2.50	0.84
Distance to Nanjing	F	1,125	8.64	1.26	F	149,786	9.12	4.74
Along the route of Taipings during 1850-53	J	1,125	0.12	0.33	J	149,786	0.04	0.19

Note. A. Zeng (1885); B. Zhu and Xie (1980); C. Jiang, Jing and Chen (2010); D.Cheng (1997); E. Mei (1997); F. CHGIS (2007); G. FAO (2012); H. Skinner, Yue and Henderson (2008); I. Kun (1899); J. Cheng and Hsu (1980); K. Qian (2005); L. Ge (2000). See more on the data construction process in Appendix A.1.

Table 2. The Impact of Elite Connections on Soldier Deaths: DD Estimates
Sample: Hunan counties, 1850–1864

Dependent variable	ln (Soldier deaths+1)									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Connections measured by	$\sum_{n=1}^{N_c} \frac{1}{d_{c,n}}$						N_c			
Baseline connections × Post	0.214***	0.197***	0.208***	0.208***			0.146***	0.144***		
	(0.033)	(0.042)	(0.042)	(0.043)			(0.025)	(0.029)		
Baseline connections per capita × Post					0.051***	0.034**			0.042***	0.031**
					(0.011)	(0.015)			(0.009)	(0.013)
Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Geographic-economic var.×Post		Y	Y	Y		Y		Y		Y
Political var.×Post			Y	Y		Y		Y		Y
Taiping var.×Post				Y		Y		Y		Y
Observations	1,125	1,125	1,125	1,125	1,125	1,125	1,125	1,125	1,125	1,125
R-squared	0.452	0.468	0.478	0.479	0.444	0.474	0.452	0.478	0.448	0.475

Note. The table shows that elite connections increased soldier deaths of a county after Zeng took power in 1853. The sample includes all 75 Hunan counties during 1850–1864.
Control variables include (i) Geographic-economic factors: ln area, ln population, ln rice suitability, ln wheat suitability, distance to the great canal, and whether the county has a main river; (ii) Political importance: whether the county is a prefecture capital, ln quotas for the entry-level Civil Service Exam pre-Taiping, and ln number of pre-Taiping Jinshi (who succeeded in the national-level exam); (iii) Taiping-related factors: whether the county was on the route of the Taipings to Nanjing, and distance to Nanjing. Standard errors presented in the paraphrases are clustered at the county level. ***: significant at 1%, **: significant at 5%, *: significant at 10%.

Table 3. The Impact of Elite Connections on Soldier Deaths: Types of Links
Sample: Hunan counties, 1850–1864

Dependent variable	ln (Soldier deaths+1)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Expanded networks				Clan relations		
Expanded network × Post	0.181***						
	(0.036)						
Blood, marriage and friends × Post		0.184***					
		(0.039)					
Provincial-level exam connections × Post			0.261***				
			(0.083)				
National-level exam connections × Post				0.696**			
				(0.232)			
Same-Surname baseline connections × Post					0.225***	0.251***	0.214***
					(0.067)	(0.072)	(0.061)
Diff.-Surname baseline connections × Post						0.057***	
						(0.015)	
County FE	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y
Controls × Post	Y	Y	Y	Y	Y	Y	
Pref FE × Year FE	Y	Y	Y	Y	Y	Y	
Year FE × Surname FE					Y	Y	Y
County FE × Surname FE					Y	Y	Y
Year FE × County FE							Y
Observations	1,125	1125	1125	1125	48,495	48,495	48,480
R-squared	0.671	0.667	0.665	0.666	0.474	0.479	0.616

Note. This table reports the results when examining expanded networks, specific types of links, or clan relations.
Controls include all the geography-economic variables, political importance proxies, and Taiping-related factors used in Table 2. Standard errors presented in the paraphrases are clustered at the county level. ***: significant at 1%, **: significant at 5%, *: significant at 10%.

Table 4. The Impact of Elite Connections on Soldier Deaths: Placebo Networks
Sample: Hunan counties, 1850–1864

Dependent variable	ln (Soldier deaths+1)					
	(1)	(2)	(3)	(4)	(5)	(6)
				IV Estimates		
National-level exam connections × Post	0.536***	0.554***	0.536***			
	(0.166)	(0.175)	(0.161)			
Baseline connections × Post				0.332***	0.322***	0.333***
				(0.089)	(0.091)	(0.086)
Placebo connections I × Post	-0.010		0.082	-0.194		-0.083
(Assuming Zeng passed the previous exam)	(0.140)		(0.311)	(0.132)		(0.305)
Placebo connections I × Post		-0.039	-0.091			-0.110
(Assuming Zeng passed the next exam)		(0.082)	(0.216)			(0.237)
County FE	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
Controls × Post	Y	Y	Y	Y	Y	Y
Pref FE × Year FE	Y	Y	Y	Y	Y	Y
Observations	1,110	1,110	1,110	1,110	1,110	1,110
R-squared	0.637	0.637	0.637	0.101	0.101	0.101

Note. Columns (1)–(3) report the OLS results. Columns (4)–(6) report the results using actual national-level exam networks to predict our baseline placebo networks. This table shows that placebo elite networks assuming Zeng Guofan succeeded in the exam before and after the real one could not explain our finding.
Controls include all the geographic-economic variables, political importance proxies, and Taiping-related factors used in Table 2. Standard errors presented in the paraphrases are clustered at the county level. ***: significant at 1%, **: significant at 5%, *: significant at 10%.

Table 5. The Impact of Elite Connections on Elite Power: DD and DDD Estimates
Sample: All counties, 1820–1910

Dependent variable	National-level offices (mean: 0.093)					
	(1)	(2)	(3)	(4)	(5)	(6)
Sample	Hunan		Non-Hunan		All	
Baseline connections × 1854-1910	0.053***	0.054***	0.009	0.011	0.009	0.011
	(0.005)	(0.005)	(0.012)	(0.011)	(0.012)	(0.011)
Baseline connections × Hunan × 1854-1910					0.044***	0.049***
					(0.012)	(0.013)
Hunan × 1854-1910					0.094	0.082
					(0.058)	(0.063)
County FE	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
Controls × 1854-1910		Y		Y		Y
Observations	6,825	6,825	142,961	142,961	149,786	149,786
R-squared	0.338	0.357	0.388	0.388	0.383	0.384

Note. This table reports the impact of elite networks on the number of national-level offices in a county-year. Columns (1)–(4) are obtained from a difference-in-differences design and Columns (5)–(6) from a triple-difference design.
Controls include all the geographic-economic variables, political importance proxies, and Taiping-related factors used in Table 2. Standard errors presented in the paraphrases are clustered at the county level. ***: significant at 1%, **: significant at 5%, *: significant at 10%.

Table 6. The Power Effect: the Role of Soldier Deaths
Sample: All counties, 1820–1910

Dependent variable	National-level offices (mean: 0.093)					
	(1)	(2)	(3)	(4)	(5)	(6)
Methods	OLS			IV Estimates		
Baseline connections × Hunan × 1854-1910	0.049***		-0.011			
	(0.013)		(0.015)			
Soldier deaths$_{1854-64}$ × 1854-1910		0.421***	0.427***	0.383***	0.387***	0.368***
		(0.091)	(0.097)	(0.077)	(0.093)	(0.044)
Natl-level exam connections × Hunan × 1854-1910					0.018	
					(0.076)	
Other connections × Hunan × 1854-1910						0.008
						(0.035)
Baseline Connections × 1854-1910	0.011	0.010	0.011			
	(0.011)	(0.011)	(0.011)			
Natl-level exam connections × 1854-1910				0.006	0.007	0.007
				(0.020)	(0.022)	(0.022)
Other connections × 1854-1910				0.022	0.019	0.019
				(0.030)	(0.040)	(0.040)
Hunan × 1854-1910	0.082	-0.018	-0.008	-0.020	-0.024	-0.022
	(0.063)	(0.029)	(0.032)	(0.040)	(0.038)	(0.037)
County FE	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
Controls × 1854-1910	Y	Y	Y	Y	Y	Y
Observations	149,786	149,786	149,786	149,786	149,786	149,786
R-squared	0.384	0.392	0.392	0.019	0.019	0.019
First-state F test				5.6×10^4	1.0×10^5	6.3×10^4
Over-identification test (p-value)				0.82		

Note. Columns (1)–(3) show that the impacts of elite connections can be explained by including soldier deaths. In Columns (4)–(6), we separate all connections into two components—those built via the national-level exams and the rest—and obtain two instruments: (i) national-level exam connections×Hunan×1854-1910 and other connections×Hunan×1854–1910. Column (4) presents the results using two instruments to predict soldier deaths. Column (5) presents the result using instrument (ii) as the instrument to check whether instrument (i) has any direct effect, and column (6) does the opposite. Controls include all the geographic-economic variables, political importance proxies, and Taiping-related factors used in Table 2. Standard errors presented in the paraphrases are clustered at the county level. ***: significant at 1%, **: significant at 5%, *: significant at 10%.

Online Appendix

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A Data Construction

A.1 Elite Networks

The Civil Service Exam Links. Using information on all exams during 1820–1849, we define the exam links by four steps described below.

- Zeng Guofan passed the provincial-level exam in 1834 and the metropolitan (national-level) exam in 1838, based on which we identify the quasi-classmate relationships between other successful examinees and Zeng. We collect the list on *Juren*, successful examinees at the provincial exam, from Jiang, Jing and Chen (2010), and *Jinshi*, the successful examinee at the national-level exam, from Zhu and Xie (1980). Specifically, 53 *Juren* in 1834 and 182 *Jinshi* in 1838 were directly connected with Zeng via quasi-classmate links.
- We identify the examiners of Zeng in the national-level exam: Muzhang'a, Zhu Shiyuan, Wu Wenrong and Liao Hongquan, who were Zeng's masters.
- We track all the other exams Zeng's examiners had supervised, and define the examiner-examinee relationship between these examiners and the *Jinshi* from all the other exams. Out of the four examiners of the 1838 national-level exam, two of them had served as the examiners of the other five exams. Specifically, Muzhang'a supervised the national-level exams in 1823, 1832, 1835 and 1845, Zhu Shiyuan in 1829 and 1832. In total, 1,138 *Jinshi* connected with the two examiners via examiner-examinee links and were, hence, indirectly connected with Zeng.
- We track the political path of the quasi-classmates of Zeng Guofan at the 1834 provincial exam. Out of the 53 quasi-classmates, Tang Lidu and Li Dechun passed the national-level exams and became *Jinshi*. We repeat the three steps above to construct the exam links for these two individuals. Tang Lidu passed the national-level exam in 1836, which made him connected with 163 quasi-classmates and four examiners (masters), Pan Shi-en, Wang Ding, Wu Jie, and Wang Zhi. Out of these four examiners, Pan Shi-en also supervised the national-level exams in 1832, 1840, and 1847, and Wang Ding in 1826 and 1841. Li Dechun passed the national-level exam in 1847, which made him connected with 225 quasi-classmates and four examiners (masters), Pan Shi-en, Du Shoutian, Fu Ji and Zhu Fengbiao. Out of the four examiners, Pan Shi-en also supervised the national-level exams in 1832, 1840, and 1847, and Du Shoutian in 1841. Altogether, 1,235 individuals (198 individuals have been counted in step 3) got indirectly connected with Zeng via Tang Lidu and Li Dechun.

Some individuals appeared multiple times in the exam links. In total, 2,414 unique individuals were

directly or indirectly connected with Zeng Guofan via these exam links.

Kinship. We collect information on the blood and marriage relationships from Zeng Guofan's Family Tree (Cheng 1997). Overall, 5 individuals were connected with Zeng via blood ties and 12 via marriages.

Friends. The friend network of Zeng is obtained from the Chronicle of Figures in the Hunan Army (Mei 1997). In total, 29 individuals were mentioned as friends who helped Zeng in organizing the Hunan Army.

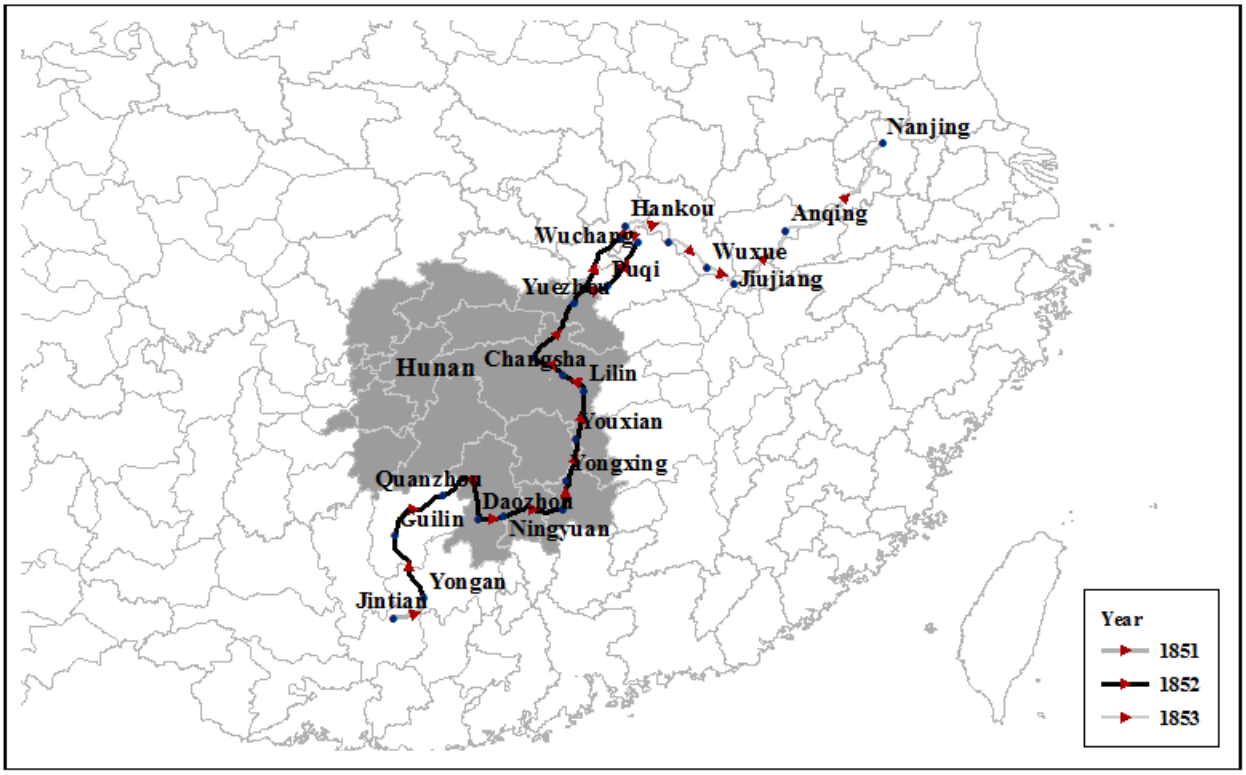
A.2 County-level Characteristics

Geographic-economic Variables. By matching CHGIS V4 (2007) with county boundary in Qing Dynasty, we calculate the area of each county and construct a dummy indicating whether a county contains a major river using the ArcGIS software. Based on the suitability index from the Food and Agriculture Organization's 2012 Global Agro-Ecological Zones database (FAO (2012)), which ranges from 1 ("not suitable") to 8 ("very high") in each 0.5-degree $\times$ 0.5-degree grid cell, we measure county-level crop suitability as the average for all cells located in each county with a primary focus on the suitability for rice and wheat. For Hunan province, we collect the information on county population in 1820 from Zeng (1885). We obtain the county urban population in the mid-19th century from Skinner, Yue and Henderson (2008).

Political Variables. We collect information on the geolocation of prefecture capitals. If a county contains a prefecture capital, we term it a prefectural capital county. We use the county level quotas at the entry-level exam and the number of Jinshi, the successful candidates at the highest level exam, to measure the influence of the civil service exam. The information on quotas is obtained from Kun (1899), and the number of *Jinshi* from Cheng and Hsu (1980).

Taiping-related Variables. The Taipings started in Guangxi province in 1850 and launched a crusade northward towards the rich provinces. Figure A.2 maps the route before 1854, which comes from Cheng and Hsu (1980). We consider whether a county is on this route and calculate a county's great circle distance to Nanjing—the Heavenly Capital.

Figure A.2. The Routes of the Taipings 1850-53



A.3 Elite Connections and Other County Characteristics

We examine the correlations between county-level elite connections and other county characteristics in A.3. While the correlations between county-level elite connections and geographical variables and economic factors are not systematically strong, we note that elite connections are positively associated with the number of pre-war national-level exam graduates (*Jinshi*). This pattern begs a question of whether our results capture a general eliteness of a county, which we address in different ways.

Table A.3. Elite Connections and Other Characteristics cross Counties
Dependent variable: $\sum_{n=1}^{N_c} \frac{1}{d_{c,n}}$

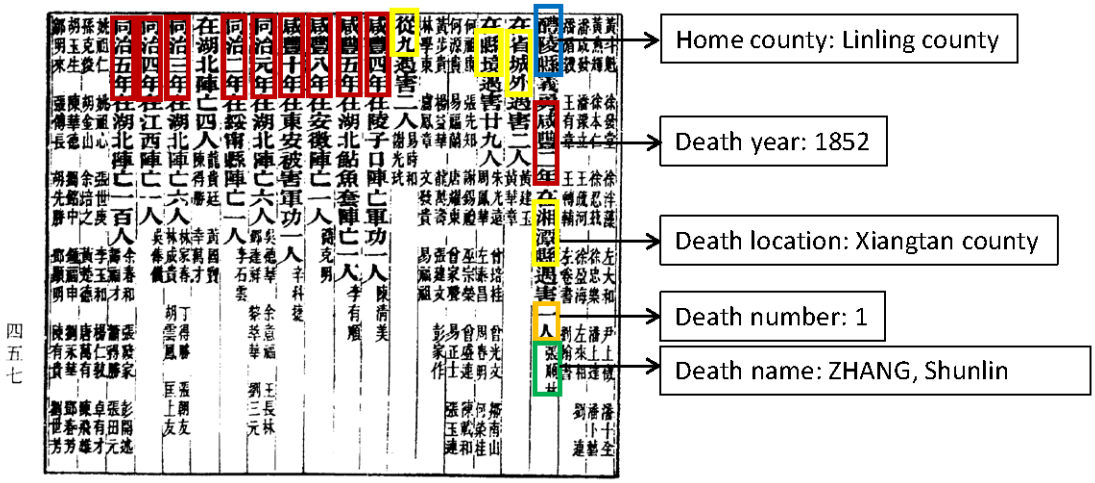
	(1)	(2)
Sample	Hunan	All
ln Area	2.530*	-0.033
	(1.367)	(0.081)
ln Population	0.556	0.344***
	(0.778)	(0.087)
ln Rice suitability	-1.713	0.313
	(1.937)	(0.194)
ln Wheat Suitability	0.059	-0.327
	(2.982)	(0.223)
Main river dummy	0.255	0.121
	(0.637)	(0.118)
Distance to the Great Canal	0.572	-0.004
	(0.870)	(0.041)
ln Urban population	-0.169	-0.083**
	(0.368)	(0.040)
Prefecture capital	0.379	0.448**
	(0.777)	(0.180)
ln Number of Jinshi	1.275**	0.556***
	(0.490)	(0.110)
ln Quotas for the entry-level exam	-3.120**	-0.202**
	(1.477)	(0.097)
Distance to Nanjing	-0.362	0.022
	(0.927)	(0.054)
Along the route of Taiping, 1850-53	1.517*	0.860**
	(0.779)	(0.346)
Observations	75	1,646
R-squared	0.420	0.141

Note. All standard errors are clustered at the county level. ***: significant at 1%, **: significant at 5%, *: significant at 10%.

A.4 Soldier Deaths

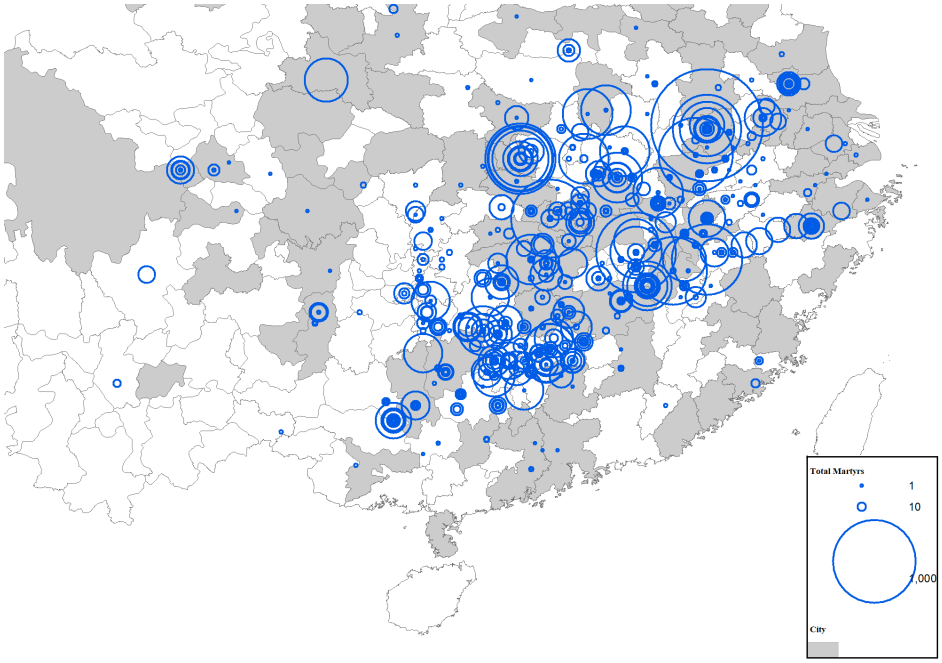
The Hunan Gazetteers (Zeng 1885) list all the soldiers who died during the Taiping rebellion by county and year. Figure A.4(I) below presents an example of the records.

Figure A.4. I. Records on Soldier Deaths



We use this information in several ways. First, we calculate the total number of soldier deaths at the county-year level. Second, based on the surname information, we calculate the total number of soldier death at the county-surname-year level. Third, using the information on battle location, we know the number of soldier death at the county-battle level. During 1850–64, the Hunan Army and the Taipings fought at least 694 battles across 11 provinces, as mapped in Figure A.4(II) below.

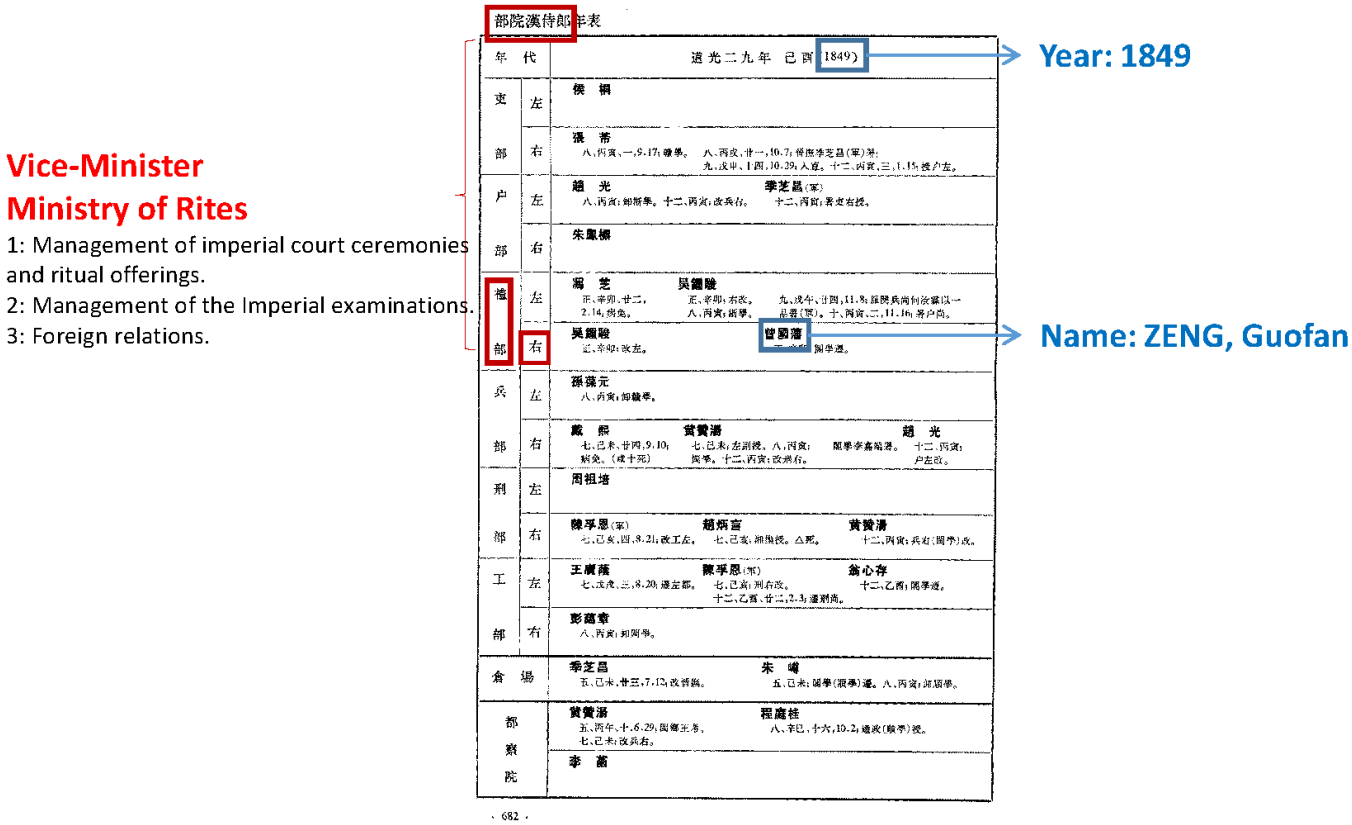
Figure A.4. II. Map of the Battles 1850-1864



A.5 National-level Offices

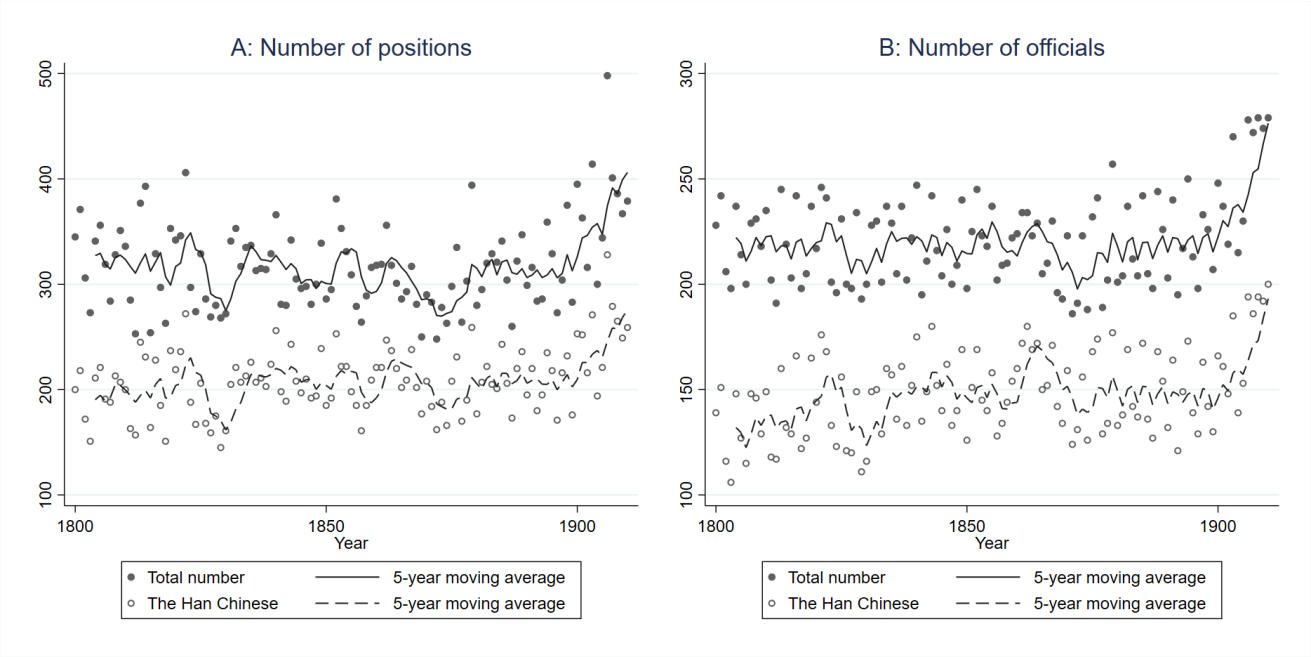
We collect data on national-level offices and officials from *The Chronicle of Officials in the Qing Dynasty* (Qian 2005). Figure A.5(I) presents an example of the records.

Figure A.5. I. Records on National-level Offices



Based on the records, we construct a database for national-level offices during 1820–1910. As shown in A.5(II), the number of national-level offices was relatively stable over time. Based on the hometown county information provided in Qian (2005), we obtain the total number of offices at the county-year level. Our analyses focus on the Han officials for both data and conceptual reasons. On the data side, the Manchu officials originated from the Manchu region, which is not included in our main analyses. On the conceptual level, the civil service exam was the channel to recruit Han officials, whereas the Manchu elites—a small share of the population—could gain power without taking the exam.

Figure A.5. II. Number of National-level Offices and Officials Over Time



B More Results on Elite Networks and Soldier Deaths

B.1 Outlier and Specification Checks

Dropping Certain Counties. Recall that in Figures 2, we observe that two counties (in the provincial capital seat) had more than 10 connections and one county (Zeng's home county) had more than five connections in our baseline networks. Our finding holds after excluding these counties, as reported in Table B.1(I) below.

Inverse Hyperbolic Sine. We use ln (Soldier Deaths+1) as our dependent variable in our main analyses. As shown in Table B.1(II), our results are robust to using the inverse hyperbolic sine as the dependent variable.

Table B.1. I. The Impact of Elite Connections on Soldier Deaths: Checking Outliers
Dependent variable: ln (Deaths+1)

	(1)	(2)	(3)
	Baseline	Connections ≤10	Connections ≤5
Baseline connections × Post	0.208***	0.356***	0.297*
	(0.043)	(0.079)	(0.156)
Year FE	Y	Y	Y
County FE	Y	Y	Y
Geography-economic var. × Post	Y	Y	Y
Political var. × Post	Y	Y	Y
Taiping var. × Post	Y	Y	Y
Observations	1,125	1,095	1,080
R-squared	0.479	0.463	0.399

Note. Controls include all the geographic-economic variables, political importance proxies, and Taiping-related factors used in Table 2. Standard errors presented in the paraphrases are clustered at the county level. ***: significant at 1%, **: significant at 5%, *: significant at 10%.

Table B.1. II. The Impact of Elite Connections on Soldier Deaths

Dependent variable	$\ln(Deaths + (Deaths^2 + 1)^{0.5})$			
	(1)	(2)	(3)	(4)
Connections measured by	$\sum_{n=1}^{N_c} \frac{1}{d_{c,n}}$		N_c	
Baseline connections × Post	0.233***		0.162***	
	(0.051)		(0.034)	
Baseline connections per capita × Post		0.038**		0.035**
		(0.018)		(0.015)
County FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Controls × Post	Y	Y	Y	Y
Observations	1,125	1,125	1,125	1,125
R-squared	0.475	0.470	0.475	0.472

Note. Controls include all the geographic-economic variables, political importance proxies, and Taiping-related factors used in Table 2. Standard errors presented in the paraphrases are clustered at the county level. ***: significant at 1%, **: significant at 5%, *: significant at 10%.

Spatial Standard Errors. We report the standard errors that consider spatial correlations in Table B.1(III), following the method proposed by Colella et al. (2019). As shown, these standard errors are only marginally larger than those clustered at the county level.

Table B.1. III. The Impact of Elite Connections on Soldier Deaths: Spatial Clustering S.E.

Dependent variable	ln (Soldier deaths+1)									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Connections measured by	$\sum_{n=1}^{N_c} \frac{1}{d_{c,n}}$						N_c			
Baseline connections × Post	0.214***	0.197***	0.208***	0.208***			0.146***	0.144***		
	(0.037)	(0.037)	(0.052)	(0.051)			(0.025)	(0.036)		
Baseline connections per capita × Post					0.051***	0.034**			0.042***	0.031***
					(0.014)	(0.014)			(0.010)	(0.012)
Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y		Y		Y		Y
Geography-economic var.×Post		Y	Y	Y		Y		Y		Y
Political var.×Post			Y	Y		Y		Y		Y
Taiping var.×Post				Y		Y		Y		Y
Observations	1,125	1,125	1,125	1,125	1,125	1,125	1,125	1,125	1,125	1,125
R-squared	0.452	0.468	0.478	0.479	0.444	0.474	0.452	0.478	0.448	0.475

Note. Controls include all the geographic-economic variables, political importance proxies, and Taiping-related factors used in Table 2. Standard errors presented in the paraphrases are spatial standard errors. ***: significant at 1%, **: significant at 5%, *: significant at 10%.

Additional Fixed Effects. If we control for Controls × Year FE instead of Controls × Post and add prefecture-by-year fixed effects, we obtain similar estimates, as reported in Table B.1(IV).

Table B.1. IV. The Impact of Elite Connections on Soldier Deaths: Controls × Year FE
Dependent variable: ln(Deaths+1)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Connections measured by	$\sum_{n=1}^{N_c} \frac{c}{d_{c,n}}$				N_c			
Baseline connections × Post	0.264***	0.272***			0.185***	0.185***		
	(0.065)	(0.064)			(0.047)	(0.051)		
Baseline connections per capita × Post			0.061***	0.062***			0.049***	0.049**
			(0.017)	(0.015)			(0.016)	(0.018)
Controls × Post	Y		Y		Y		Y	
Controls × Year FE		Y		Y		Y		Y
Pref FE × Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Observations	1,125	1,125	1,125	1,125	1,125	1,125	1,125	1,125
R-squared	0.669	0.739	0.666	0.737	0.669	0.746	0.667	0.744

Note. Controls include all the geographic-economic variables, political importance proxies, and Taiping-related factors used in Table 2. Standard errors presented in the paraphrases are spatial clustering using XXX. ***: significant at 1%, **: significant at 5%, *: significant at 10%.

B.2 Elite Networks and Soldier Deaths: Year-by-Year Estimates

We report the year-by-year estimates on how elite connections affect soldier deaths in Table B.2, using 1853 as the reference year. These estimates are visualized in Figure 4 in the main text.

Table B.2. Yearly Effects of Elite Connections
Dependent variable: ln (Deaths+1)

	(1)	(2)
Elite connections measured by:	$\sum_{n=1}^{N_c} \frac{1}{d_{c,n}}$	N_c
Elite connections × 1850	-0.005	0.008
	(0.054)	(0.048)
Elite connections × 1851	-0.019	-0.002
	(0.040)	(0.038)
Elite connections × 1852	0.030	0.026**
	(0.023)	(0.011)
Elite connections × 1854	0.255**	0.188**
	(0.108)	(0.069)
Elite connections × 1855	0.199*	0.139*
	(0.110)	(0.071)
Elite connections × 1856	0.123	0.091
	(0.106)	(0.064)
Elite connections × 1857	0.249**	0.182***
	(0.093)	(0.061)
Elite connections × 1858	0.278**	0.191**
	(0.104)	(0.065)
Elite connections × 1859	0.222**	0.169***
	(0.084)	(0.054)
Elite connections × 1860	0.205**	0.163**
	(0.088)	(0.060)
Elite connections × 1861	0.206**	0.152**
	(0.088)	(0.059)
Elite connections × 1862	0.248***	0.174***
	(0.074)	(0.056)
Elite connections × 1863	0.262***	0.183***
	(0.075)	(0.062)
Elite connections × 1864	0.277***	0.191***
	(0.069)	(0.057)
County FE	Y	Y
Year FE	Y	Y
Pref. FE × Year FE	Y	Y
Controls × Post	Y	Y
Observations	1,125	1,125
R-squared	0.667	0.667

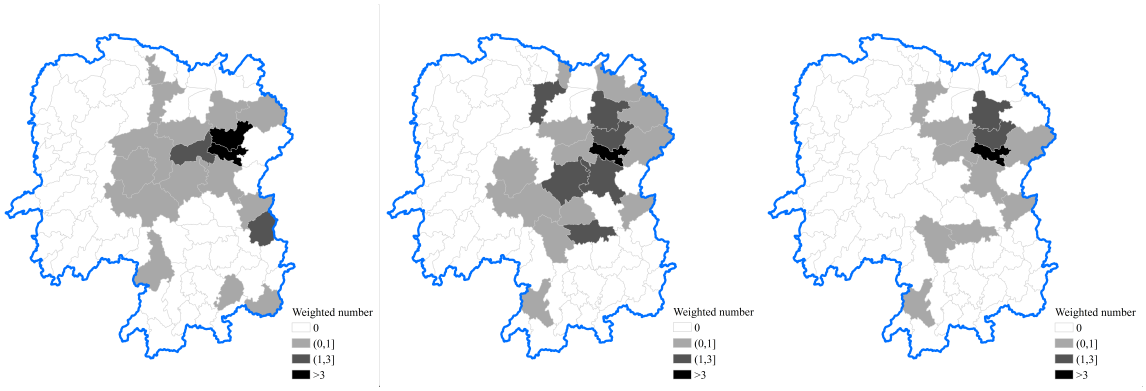
Note. Controls include all the geographic-economic variables, political importance proxies, and Taiping-related factors used in Table 2. Standard errors presented in the paraphrases are clustered at the county level. ***: significant at 1%, **: significant at 5%, *: significant at 10%.

B.3 Placebo Networks

The timing of the exam provides us natural placebo tests. Zeng Guofan passed the national-level exam in 1838. This exam took place twice every three years. We construct two fake networks, by assuming Zeng passed the previous national-level exam (1836) or the following one (1840). As shown in Figure B.3, the county-level connections would be different.

Figure B.3. Maps of Real and Faked National-level Exam Networks

(a) Actual: passed in 1838 **(b)** Placebo I: passed in 1836 **(c)** Placebo II: passed in 1840



B.4 Other Types of Connectedness of a County

We compare elite networks with two alternative ways of measuring a county's connectedness to Zeng. The first is dialect distance to Zeng's home county, and the second the great circle distance to Zeng's home county. As shown in Table B.4, these alternative measures of connectedness cannot explain our finding.

Table B.4. The Impact of Elite Connections on Soldier Deaths: Controlling for Physical Distance to Zeng
Dependent variable: ln (Deaths+1)

	(1)	(2)	(3)	(4)	(5)	(6)
$\sum_{n=1}^{N_c} \frac{1}{d_{c,n}} \times$ Post	0.262***	0.278***	0.292***			
	(0.058)	(0.064)	(0.054)			
$N_c \times$ Post				0.183***	0.191***	0.197***
				(0.043)	(0.048)	(0.041)
Dialect similarity with Zeng × Post	Y	Y	Y	Y	Y	Y
Dist. to Zeng's county × Post	Y	Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
Controls × Post	Y	Y	Y	Y	Y	Y
Pref. FE × Year FE	Y	Y	Y	Y	Y	Y
Observations	1,125	1,125	1,125	1,125	1,125	1,125
R-squared	0.671	0.669	0.672	0.670	0.669	0.671

Note. Controls include all the geographic-economic variables, political importance proxies, and Taiping-related factors used in Table 2. Standard errors presented in the paraphrases are clustered at the county level. ***: significant at 1%, **: significant at 5%, *: significant at 10%.

B.5 Measurement of Soldier Deaths

Prob. of Missing Years vs. Elite Connections. In the soldier death records, 14% missed year information. We examine whether the missing probability correlates with elite connections and find it not to be the case. Table B.5 reports the results using the probability of soldier deaths with missing years to the total soldier deaths as the dependent variable.

Table B.5. I. Elite Networks and Data Missing
Dependent variable: Share of missing years

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Elite connections measured by:	$\sum_{n=1}^{N_c} \frac{1}{d_{c,n}}$				N_c			
Connections	0.003	-0.002	0.014	0.011	0.002	-0.002	0.009	0.007
	(0.005)	(0.003)	(0.013)	(0.014)	(0.003)	(0.002)	(0.008)	(0.008)
ln (Soldier deaths during 1850-64)		0.029**		0.023		0.029**		0.023
		(0.011)		(0.015)		(0.011)		(0.015)
Controls			Y	Y			Y	Y
Prefecture FE			Y	Y			Y	Y
Observations	75	75	75	75	75	75	75	75
R-squared	0.191	0.246	0.262	0.289	0.190	0.246	0.261	0.288

Note. Controls include all the geographic-economic variables, political importance proxies, and Taiping-related factors used in Table 2. Standard errors presented in the paraphrases are clustered at the county level. ***: significant at 1%, **: significant at 5%, *: significant at 10%.

Soldier Deaths: Degree-Holders vs. Commoners. We find similar magnitudes on the deaths of individuals with and without exam degrees, as reported in B.5(II). Since those with degrees are unlikely to be missed, the finding suggests that measurement error in soldier deaths is not a critical concern for our findings.

Table B.5. II. The Impact of Elite Connections on Soldier Deaths: Degree-Holders vs. Commoners

Dependent var. (standardized)	ln (Commoner deaths +1)		ln (Gentry deaths +1)	
	(1)	(2)	(3)	(4)
$\sum_{n=1}^{N_c} \frac{1}{d_{c,n}} \times$ Post	0.160***		0.149***	
	(0.039)		(0.041)	
$N_c \times$ Post		0.112***		0.099***
		(0.029)		(0.031)
County FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Controls × Post	Y	Y	Y	Y
Pref. FE × Year FE	Y	Y	Y	Y
Observations	1,125	1,125	1,125	1,125
R-squared	0.669	0.669	0.410	0.409

Note. Controls include all the geographic-economic variables, political importance proxies, and Taiping-related factors used in Table 2. Standard errors presented in the paraphrases are clustered at the county level. ***: significant at 1%, **: significant at 5%, *: significant at 10%.

B.6 Soldier Deaths in the Huai Region

Because of the importance of the Hunan Army, there exists the provincial gazetteer for soldier deaths. For other provinces, the provincial gazetteers do not cover information on soldier deaths. We rely on county gazetteers for this additional information. Specifically, we collect soldier deaths in counties in the Huai region (i.e., Anhui and Jiangsu provinces) and find that Zeng's personal networks cannot predict soldier deaths in these provinces (Table B.6).

Table B.6. The Impact of Elite Connections on Soldier Deaths: Huai Region

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Huai Region				Hunan			
$\sum_{n=1}^{N_c} \frac{1}{d_{c,n}} \times$ Post	0.019	0.029			0.214***	0.264***		
	(0.028)	(0.039)			(0.033)	(0.065)		
$N_c \times$ Post			0.009	0.015			0.146***	0.185***
			(0.014)	(0.019)			(0.025)	(0.047)
Year FE	Y	Y	Y	Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y	Y	Y	Y
Controls × Post		Y		Y		Y		Y
Pref. FE × Year FE		Y		Y		Y		Y
Observations	1,995	1,995	1,995	1,995	1,125	1,125	1,125	1,125
R-squared	0.359	0.561	0.359	0.561	0.452	0.669	0.452	0.669

Note. Controls include all the geographic-economic variables, political importance proxies, and Taiping-related factors used in Table 2. Standard errors presented in the paraphrases are clustered at the county level. ***: significant at 1%, **: significant at 5%, *: significant at 10%.

B.7 Interpretations of Soldier Deaths

Heterogeneous Patterns. Columns (1)–(3) of Table B.7(I) show that the effect of elite connections is smaller for counties with higher exam quotas, suggesting that alternative opportunities mitigate the mobilization effect. Columns (4)–(5) show that the effects of elite connections are similar without and with battle fixed effects, implying that deployment across battles is not critical for our finding.

The Battle of Three Rivers. We examine soldier deaths in the famous Battle of Three Rivers in 1858 where the entire Hunan troops were lost. We also compare the estimate with that for other battles in 1858. As shown in Table B.7(II), the similar estimates suggest that the difference in death rates is not a critical driver of our findings.

Table B.7. I. What Does the Number of Soldier Deaths Measure?
Sample: Hunan counties, 1850–1864; Dependent variable: ln (Deaths+1)

	(1)	(2)	(3)	(4)	(5)
	By opportunity cost			Across vs. Within battles	
$\sum_{n=1}^{N_c} \frac{1}{d_{c,n}} \times$ Post	0.453***	0.479**	0.516***	0.040**	0.040**
	(0.126)	(0.176)	(0.151)	(0.015)	(0.015)
$\sum_{n=1}^{N_c} \frac{1}{d_{c,n}} \times$ Post $\times$ ln Quotas	-0.927***		-0.719**		
	(0.206)		(0.319)		
$\sum_{n=1}^{N_c} \frac{1}{d_{c,n}} \times$ Post $\times$ ln Jinshi		-0.194*	-0.091		
		(0.091)	(0.093)		
$\sum_{n=1}^{N_c} \frac{1}{d_{c,n}} \times$ Post $\times$ ln Population	0.149**	0.246**	0.230***		
	(0.059)	(0.109)	(0.070)		
County FE	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y
Controls $\times$ Post	Y	Y	Y	Y	Y
Pref. FE $\times$ Year FE	Y	Y	Y	Y	Y
Battle FE					Y
Observations	1,125	1,125	1,125	52,050	52,050
R-squared	0.675	0.674	0.676	0.144	0.210

Note. Controls include all the geographic-economic variables, political importance proxies, and Taiping-related factors used in Table 2. Standard errors presented in the paraphrases are clustered at the county level. ***: significant at 1%, **: significant at 5%, *: significant at 10%.

Table B.7. II. The Battle of Three Rivers vs. Other Battles in 1858
Dependent variable: ln (Deaths+1)

	(1)	(2)	(3)
	ln total soldier deaths in 1858	ln soldier deaths in the Battle of Three Rivers	ln soldier deaths in other battles, 1858
$\sum_{n=1}^{N_c} \frac{1}{d_{c,n}}$	0.417**	0.405**	0.389**
	(0.162)	(0.143)	(0.149)
Controls	Y	Y	Y
Prefecture FE	Y	Y	Y
Observations	75	75	75
R-squared	0.597	0.566	0.5872

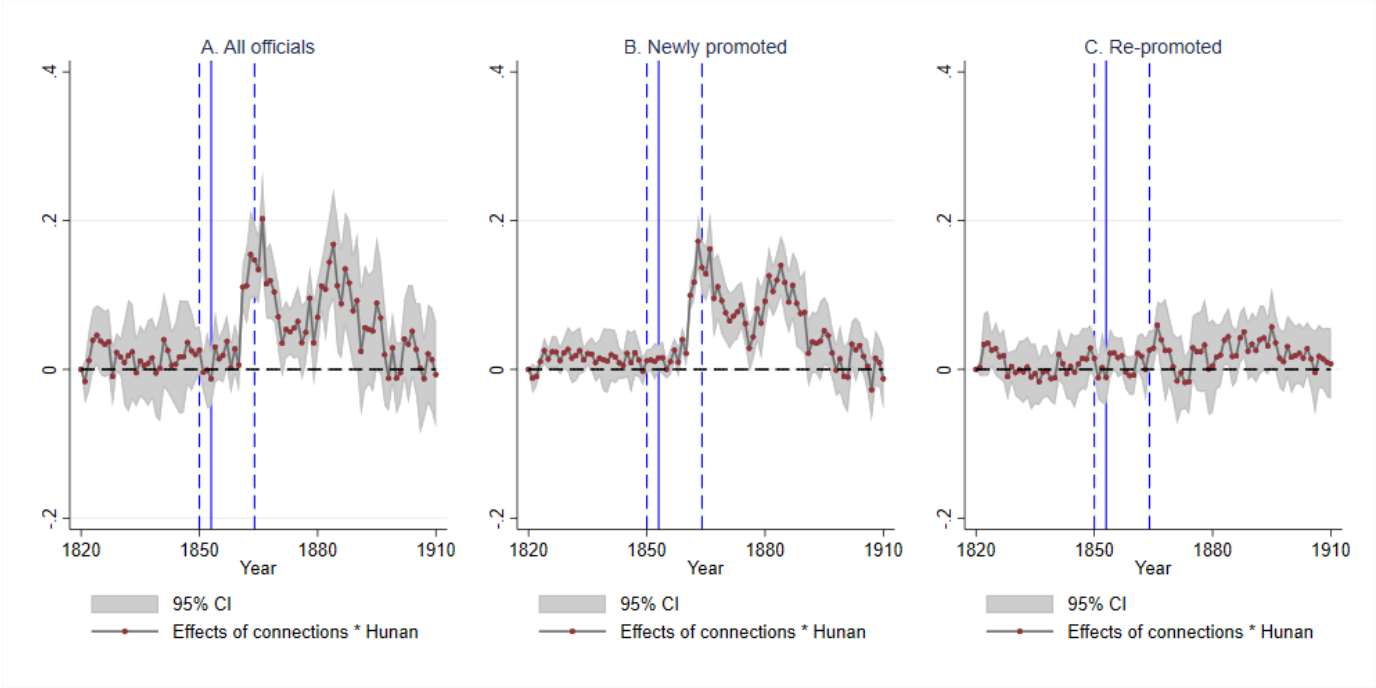
Note. Controls include all the geographic-economic variables, political importance proxies, and Taiping-related factors used in Table 2. Standard errors presented in the paraphrases are clustered at the county level. ***: significant at 1%, **: significant at 5%, *: significant at 10%.

C More Results on Elite Networks and Post-War Elite Power

C.1 Understanding the Fluctuation of the Power Impact

To examine whether the dynamic fluctuation pattern is driven by a fixed group or different cohorts, we differ two groups of individuals: (1) those who obtained national-level office only once, and (2) those with multiple switches. As shown in Figure C.1, our finding is driven by (1), implying that the fluctuating patterns are driven by multiple cohorts.

Figure C.1. Understanding the Fluctuation of the Power Impact



Note. The two dashed lines indicate 1850 (the war started) and 1864 (the war ended). The blue solid line indicates 1853, the year Zeng was assigned to organize an army from existing militias. Panel A reports the triple-difference estimates by year for all officials, using the year 1820 as the reference year. Panels B and C differentiate the newly promoted from the re-promoted.

C.2 Inside and Outside the Network

Column (1) of Table C.1 presents the average impact relative to the mean. Then, we decompose the national-level offices for a county-year into two groups: those held by individuals in and outside the elite network. Columns (2) and (3) show that both groups benefited.

Table C.2. The Impact of Network on Elite Power: Inside and Outside the Network
Sample: All counties, 1820–1910

	(1)	(2)	(3)
Dependent var.	Total national-level offices / sample mean	Held by elites in the network / sample mean	Held by those outside the network /sample mean
Baseline connection × Hunan × 1854-1910	0.527***	0.847***	0.452***
	(0.136)	(0.280)	(0.135)
Baseline connections × 1854-1910	0.117	0.221	0.093
	(0.120)	(0.184)	(0.125)
Hunan × 1854-1910	0.880	0.079	1.067
	(0.679)	(0.746)	(0.705)
County FE	Y	Y	Y
Year FE	Y	Y	Y
Controls × 1854-1910	Y	Y	Y
Observations	149,786	149,786	149,786
R-squared	0.384	0.228	0.327

Note. Controls include all the geographic-economic variables, political importance proxies, and Taiping-related factors used in Table 2. Standard errors presented in the paraphrases are clustered at the county level. ***: significant at 1%, **: significant at 5%, *: significant at 10%.

C.3 Placebo Networks

Similar to the strategy in Enikolopov, Makarin and Petrova (2020), we use actual national-level exam networks to predict soldier deaths while controlling for placebo national-level exam networks. As shown, our findings are driven by the specific elite networks that we identified, rather than by the placebo networks.

Table C.3. The Impact of Elite Networks and Elite Power: Controlling for Placebo Networks
Dependent variable: Number of natl-level offices

	(1)	(2)
Soldier deaths$_{1854-64}$ × 1854-1910	0.622***	0.563***
(instrument: Natl-exam connections × Hunan × 1854-1910)	(0.162)	(0.155)
Placebo exam connect. I × Hunan × 1854-1910		0.004
(assuming Zeng passed the previous exam)		(0.202)
Placebo exam connect. I × 1854-1910		-0.046
		(0.039)
Placebo exam connect. II × Hunan × 1854-1910		-0.034
(assuming Zeng passed the next exam)		(0.061)
Placebo exam connect. II × 1854-1910		0.070
		(0.049)
Natl-level exam connect × 1854-1910	0.017	0.014
	(0.017)	(0.028)
Hunan × 1854-1910	-0.086	-0.060
	(0.061)	(0.039)
County FE	Y	Y
Year FE	Y	Y
Controls × 1854-1910	Y	Y
Observations	149,786	149,786
R-squared	0.015	0.017

Note. Controls include all the geographic-economic variables, political importance proxies, and Taiping-related factors used in Table 2. Standard errors presented in the paraphrases are clustered at the county level. ***: significant at 1%, **: significant at 5%, *: significant at 10%.

C.4 Comparison Provinces: Alternative Groups

In our main analysis, we use all of the 18 provinces in the Qing dynasty. Our finding holds even if we focus on various subgroups of provinces as the comparison, as reported in Table C.4.

Table C.4. The Impact of Elite Networks and Elite Power: Varying Comparison Provinces
Dependent variable: Number of natl-level offices

	(1)	(2)	(3)	(4)	(5)	(6)
Hunan vs.	Along the Taiping Route		Neighbor provinces		Huai Region	
Mean numb. natl offices	0.142		0.085		0.245	
Connections × Hunan × 1854-1910	0.081***	0.022	0.072**	0.012	0.100**	0.042
	(0.024)	(0.025)	(0.031)	(0.029)	(0.038)	(0.041)
Soldier deaths$_{1854-64}$(1K)× 1854-1910		0.414***		0.433***		0.395***
		(0.102)		(0.097)		(0.107)
Connections × 1854-191	-0.019	-0.021	-0.014	-0.019	-0.028	-0.029
	(0.021)	(0.021)	(0.030)	(0.029)	(0.033)	(0.034)
Hunan × 1854-1910	0.011	-0.061	0.040	-0.024	0.093	-0.190
	(0.058)	(0.041)	(0.057)	(0.042)	(0.260)	(0.301)
County FE	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
Controls × 1854-1910	Y	Y	Y	Y	Y	Y
Observations	43,225	43,225	31,122	31,122	18,928	18,928
R-squared	0.379	0.397	0.311	0.365	0.396	0.414

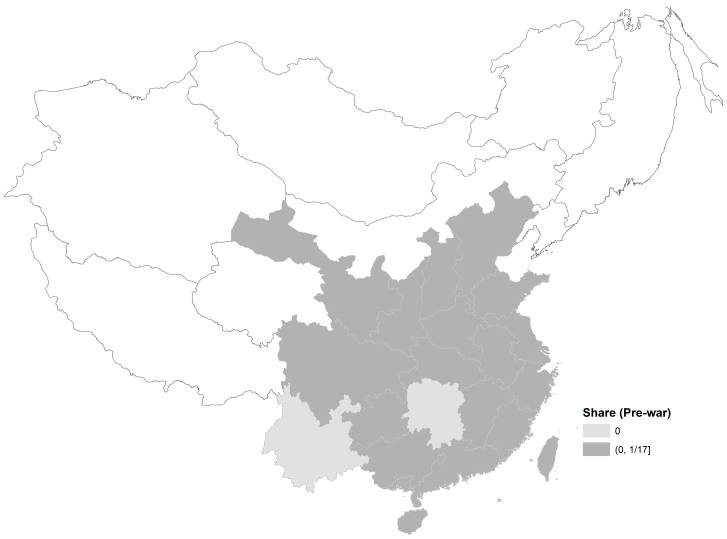
Note. Controls include all the geographic-economic variables, political importance proxies, and Taiping-related factors used in Table 2. Standard errors presented in the paraphrases are clustered at the county level. ***: significant at 1%, **: significant at 5%, *: significant at 10%.

C.5 Provincial Governors and Vice-Governors Originated from Hunan

We plot the share of top-4 officials from Hunan pre-war and during the war era. A simple benchmark is to assume that the power were randomly distributed, where we would expect to see the Hunanese account for 1/17 of the positions. As shown in Figure C.5(a), the shares of Hunanese governors were close to and often slightly below 1/17 before the war. In contrast, during the war, the shares of Hunanese governors were even higher than 2/17 in several provinces in central and southern China, as shown in Figure C.5(b).

Figure C.5. Provincial Governors and Vice-Governors Originated from Hunan

(a) Pre-war



(b) In-war