

The Making of Bad Gentry: The Abolition of *Keju*, Local Governance and Anti-elite Protests, 1902-1911*

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Abstract

This paper investigates the impact of the abolition of the civil service exam on rural local governance in early 20th century China. Before the abolition, local elites collected surtaxes that financed local public goods, but they were supervised by the state and could lose their candidacy for higher status if they engaged in corrupt behavior. This prospect of upward mobility (POUM) gave them incentives to behave well, which the abolition of the exam removed. Using a difference-in-differences strategy, we find that prefectures with a higher POUM before the abolition experienced more incidents of anti-elite protests after the abolition.

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China's modernization endeavors from the 19th to the early 20th century were handicapped by the rapid deterioration of local governance (Moore, 1966; Esherick, 1981; Huang, 1995). One important cause was the emergence of "bad gentry" – local elites who dominated rural communities, imposed excessive surcharges, embezzled public funds, and preyed upon poor farmers (Duara, 1991). Such misbehavior triggered commoners' protests and revolts in the last decade of the Qing dynasty (1900–1911) and laid the foundation for China's communist revolution in the republican era (1912–1949) (Skocpol, 1979; Fairbanks, 1987; Perry, 1980, 2012). However, the labeling of local elites as "bad gentry" contrasts starkly with the benevolent image of local elites presented in late imperial China, when these elites typically held exam degrees but no governmental positions (Fei, 1946; Kuhn, 2002; Rowe, 2010). They traditionally served as local community leaders, intermediaries between governments and local communities, and providers or managers of local public goods, such as schools, charities, granaries, and water infrastructure (Chang, 1955, 1962; Ch'u, 1962). An interesting question thus arises: how did traditionally benevolent local elites become the target of protests and revolts?

We argue that the abolition of the imperial civil service exam (*Keju*) in 1905 was an important contributing factor to the decay of local elites in rural areas. Figure 1 shows the hierarchy of the *Keju* system. Before the abolition, most local elites were "lower gentry" who had passed the county exams and held the title of *Shengyuan*.¹ They anticipated the prospect of upward mobility (henceforth POUM) if they could pass the provincial exam and obtain the title of *Juren* or even pass the national exam to be awarded the higher title of *Jinshi*. As "upper gentries", *Juren* and *Jinshi* were eligible to hold official positions and obtain much greater wealth and prestige (Chang, 1962). Before moving to higher levels, local elites were subject to the supervision and evaluation of local governments in their jurisdictions; they could be stripped of their titles for misconduct or corruption (Hsiao, 1967). County magistrates were incentivized to enforce such supervision because they were held accountable for social stability in rural areas.

The end of the exam system disrupted local elites' traditional career paths and incentive structures. Educated individuals could not obtain higher status unless they pursued modern education in urban areas (Bai, 2019; Yuchtman, 2017). However, for those still engaged in local affairs in rural areas, local officials no longer enforced a performance evaluation (Wang, 2008). The breakdown of this oversight system encouraged local elites to engage in corruption, and the impact was greater in areas that previously experienced a higher POUM. The exam abolition also had a selection effect:

¹ While not all local elites in imperial China were lower gentry, and some upper gentry might have significant power in local governance, it was the lower gentry who played a major role in managing local affairs, especially in rural areas. See Online Appendix A.1 for detailed discussion of the composition of local elites.

those who had lower private returns from local public service and greater returns on investing in modern human capital would leave from their rural homes to obtain modern education in urban areas (Esherick, 1976). As they moved out, the local elites who were left behind tended to be those with low career prospects and a high inclination to make money from local service provision. To the extent that lower gentry still dominated in local affairs in the last years of the Qing dynasty, both the worsening of their incentives and adverse selection led to more excessive surcharges and corruption, which ultimately triggered commoners' protests against them.

We use a unique prefecture-level dataset from 1902 to 1911 to empirically test the linkage between the abolition of the civil service exam and the deterioration of local governance in rural areas and explore the potential mechanisms underlying this relationship. We measure the deterioration of local governance in rural areas as the incidence of anti-elite protests. Our empirical strategy exploits the feature that, although lower gentry from different prefectures faced an *ex ante* equal chance of becoming upper gentry at the province level, the *ex post* odds of success had a significant variation at the prefectural level and were highly stable over time.² We define a passers-candidates ratio for each prefecture to measure the POUM for local elites in this prefecture. The passers-candidates ratio is calculated as the number of *Juren*, the successful passers of the provincial exam from 1875 to 1905, divided by the number of candidates (the lower gentry) during the same period. To the extent that the *commonly perceived* probability of passing the provincial exam is closely related to the previous success rate of the candidates in the same prefecture, the *ex post* odds of success, i.e., the passer-candidates ratio, before the abolition of the civil exam would be a good proxy for the POUM for local elites.³

This paper applies a difference-in-differences (DID) method to identify the impact of exam abolition on anti-elite protests. We find that a greater POUM for local elites is associated with a greater increase in the frequency of anti-elite protests following the abolition of the *Keju* exam in 1905. A one-standard deviation increase in the POUM is associated with 0.114 more incidents of anti-elite protests, which is nearly one-half of the sample mean of the dependent variable. Our main results are robust to alternative specifications and robustness checks. Event-study estimation shows that anti-elite protests in prefectures with different POUM evolved in similar trends prior to the exam abolition, satisfying the parallel-trend assumption required by the DID identification strategy. In a placebo test, we find no effects of the exam abolition on other types of violent activities unrelated to local elites, suggesting that our main findings are not simply

² Figures C1 and C2 in Online Appendix C present the evidence for the stable spatial variations in the chance of exam success.

³ We discuss the validity of our POUM measure in more details in Section Data. Additionally, see Bai and Jia (2016) for a similar approach.

capturing the widespread social unrest during this chaotic period, unrelated to the misbehaviors of local elites.

Then, we explore the mechanisms through which the abolition of exams increased anti-elite protests. To guide our further empirical investigation, we establish a simple model with an incomplete information game between local elites and commoners. The gentry is assumed to be responsible for providing local public goods when needed. However, even when public goods are not needed, the gentry can still ask the commoners to pay surcharges. Members of the gentry privately benefit from corruption, but commoners can only tell whether the surcharges are truly needed based on a private signal. If the signal reveals a sufficiently high probability that public goods are not needed, the commoners will protest the surcharges with some chance of success. In this situation, the upward mobility gained from the civil service exam provides a deterrent mechanism for corruption: a more corrupt gentry is more likely to fail the performance evaluation due to successful protests and hence lose the opportunity to obtain a higher status. As a result, the abolition had a greater impact on local elites' incentives in areas where they anticipated a greater POUM before the abolition because the possibility of triggering commoners' protests over surcharges would have had a greater deterrent effect. Our model also shows that the exam abolition would trigger a process of adverse selection in local elites such that those who remained serving the public in rural areas were more likely to pursue private gains from public service provision.

We offer a series of evidence consistent with the model's predications about the mechanisms of worsening incentives and adverse selection after the exam abolition. Although it is difficult to directly observe the changes in incentives, we find evidence consistent with this mechanism. First, we find that areas with a higher POUM before the abolition experienced a significant increase in protests, particularly those induced by surcharges and those targeting local public services explicitly financed by surcharges (e.g., modern primary schools) after the abolition. Second, we explored heterogeneity in the deterrent effects of POUM: we found that POUM had a greater impact in prefectures subject to stricter government monitoring, measured by proximity to Beijing and access to a telegraph network. Our empirical results also show a larger effect of POUM in regions with a stronger presence of clan organizations and more temples, which facilitated collective action by commoners. Regarding the selection mechanism, we find that, for prefectures with a greater POUM, there was a larger outflow of rural talent into modern institutions in urban areas, reflected in the increase in enrollment in modern military colleges and secondary schools. We also find that, in Suzhou prefecture, lower gentries who engaged in rural public service in 1909 were more likely to come from below-average kinships relative to those who did not, implying a lower-quality pool of local elites in rural areas. Considered together, these pieces of evidence suggest that the exam abolition

deprived lower gentries of upward mobility prospects and triggered worsening incentives and adverse selection in local public goods provision.

Finally, we discuss several alternative interpretations that could threaten our proposed argument. First, we present evidence implying that the effects of POUM are unlikely to be driven by the rise of non-scholar landed elites and the loss of authority of scholar gentry who were supposed to constrain the misconduct of landed gentry. Second, we show that our results cannot be explained by the potential influences of human capital endowment or political enlightenment. The estimated effects of POUM also hold after controlling for the impacts of state fiscal extraction, lower gentry authority, and trade openness.

This paper contributes to three strands of research. First, it adds to a large literature on the economic, social and institutional causes of the deterioration of local governance in the late Qing era, which paved the way for the Chinese revolution in the republican era. Moore (1966) and Skocpol (1979) highlighted the role of state extraction. As the Qing government tried to collect more taxes and surcharges to finance huge war reparations and modernization initiatives, the bulk of the tax burden was transferred to tenants and small landowners. Consequently, a “class struggle” ensued between commoners and local elites, many of whom were large landowners and tax farmers (Duara, 1991). Esherick (1981), Fairbank (1987), and Huang (1995) linked the deterioration of local governance in rural areas with the opening of the treaty ports, which encouraged local elites to move to cities and left rural public services to the rent seekers. Several other studies, such as Fei (1946), Duara (1991), and Wang (2008), explored how the exam abolition removed the cultural authority and political connections of local elites and created governance crisis. Our paper complements these studies by showing that the collapse of the exam system disrupted local elites’ traditional career path and triggered the problems of moral hazard and adverse selection in local governance.

Second, our paper contributes to the recent literature on the political economy of the Chinese imperial civil exam (*Keju*). Some scholars view *Keju* as a “ladder of upward mobility” for commoners from a humble background, which was crucial to maintaining social stability (Ho, 1962; Elman, 1992; Hao and Clark, 2014; Chen, Kung, and Ma, 2020). For example, Bai and Jia (2016) find that right after the abolition of the exam in 1905, commoners at the bottom of ladder participated in the revolution against the Qing state partly because they lacked an alternative path of mobility. Our paper focuses on the effect of the exam abolition on local elites who were located on the middle of the ladder and critical for local governance and social stability and demonstrates how the loss of their career prospects of advancing to the upper gentry reshaped their incentives and selection in local public goods provision.

Lastly, our findings are related to the literature on the role of incentive and selection of political agents in governance (Besley, 2005; Dal Bo et al., 2013; Gagliarducci and Nannicini, 2013; Khan et al., 2015; Deserranno, 2019).⁴ In a historical context, our study provides evidence that a loss of career prospects (and hence future payoffs) negatively affects the incentives of non-government local elites and leads to a deterioration in local governance. To the best of our knowledge, our study is the first to analyse the career incentive of non-government elites.⁵ In this sense, we also speak to a growing literature that studies the role of traditional leaders in local development (Acemoglu, Reed and Robinson, 2014; Michalopoulos and Papaioannou, 2015; Casey et al., 2018; de Kadt and Larreguy, 2018; Henn, 2020). Our paper suggests that the state's control (monopoly) over social status was the key: even though it did not assign traditional local elites to government positions with formal salaries, it exerted political control by awarding or withholding exam titles. Our study thus also helps to understand how a small bureaucracy could govern a large and populous empire in the pre-modern era.

HISTORICAL BACKGROUND

Career prospects of and constraints on local elites under the exam system

In late imperial China, the majority of formal taxes were submitted to the central government to finance national defense, government salaries, imperial roads and major river works (Wang, 1973). Thus, the county magistrates had to cede the provision of local public goods to the hands of local elites (Brandt et al. 2014). These public goods included roads, water infrastructure, local granaries, small-scale famine relief, charities, private academies, community schools, and hosting rituals or sacrifices (Ch'u, 1962). During the devastating Taiping Rebellion (1851–1865), local elites stepped up and took the responsibility of organizing local self-defense against domestic rebels (Kuhn, 1970). These activities were financed by private donations and quasi-taxes collected by the local elites from commoners, yet the local elites retained a portion of these funds as personal income (Rankin, 1986).⁶ The lower gentry, who passed the county exam and held the title of *Shengyuan* and who comprised the absolute majority of local elites in rural communities, played a major role in managing local affairs, which we discuss in more details in Online

⁴ See Finan, Olken and Pande (2017) for a survey of field experiments studying the selection, incentives and monitoring of civil servants.

⁵ A few papers related to ours study the career incentive in modern government context: Niehaus and Sukhtankar (2013) find that prospective future rents deter politicians from engaging in corruption today; Bertrand et al. (2020) show that the career incentive to reach the top is a powerful determinant of bureaucrats' performance.

⁶ Contemporary policy-makers held the view that outsourcing public services to local elites was crucial for improving local governance and maintaining social stability (Feng, 1883).

Appendix A.1. Based on 2194 bibliographies of lower gentry members during 1796-1911, Chang (1955) estimated that the proportion of lower gentry who did not participate in any public service was only 18%, and the income from providing gentry public service accounted for 42% of the total income for the lower gentry (Chang, 1962).

The POUM for local elites (the lower gentry, or *Shengyuan*) to become upper gentry (*Juren and Jinshi*) is critical for constraining behavior in rural areas. First, there was a large increase in social and economic status for *Shengyuan* to be promoted to *Juren*. While *Shengyuan* consisted of 3% of the male population, fewer than 5% of *Shenyuan* could pass the very competitive provincial exam and be promoted to upper gentries (*Juren*) within their lifetime. While *Shengyuan* had a set of legal privileges, including exemption from corvée service, *Juren* were eligible to hold official positions, with the ability to speak about public affairs directly to county magistrates or even provincial governors (Ho, 1962). While *Shengyuan* made their living on providing public services and teaching as private tutors, *Juren* obtained lucrative economic returns from holding governmental positions and taking shares in business, notwithstanding earning great social prestige. It is estimated that the average income of *Juren* was 30 times that of *Shengyuan*, and the average income of *Shengyuan* was 6 times that of a commoner (Chang, 1962). Table 1 summarizes the social and economic status of commoners, lower gentry and upper gentry.⁷

Second, *Shengyuan*'s behavior in local public service was crucial to maintaining their candidacy for higher degrees. *Shengyuan* had to pass a performance evaluation by county magistrates (*Zhouxianguan*) and education supervisors (*Jiaoyu*) to keep their current status and candidacy to take higher exams. If *Shengyuan* failed this evaluation through an accusation of corruption, the supervisors could strip them of their titles so that they would lose all of the privileges and candidacy for higher exams (Hsiao, 1967). Moreover, it is also widely recognized that a substantial share of lower gentry prepared for the exam while participating in public services. Participation in public services could not conflict with preparing for provincial exams.⁸

Finally, the central and provincial governments imposed bureaucratic control to ensure that state agents at the county level were not "captured" by local elites. On the one hand, frequent rotation of county magistrates and the rule of avoidance ensured that these state bureaucrats could not build up long-term cooperation and collusion with local gentries (Brandt et al., 2014). On the other hand, the state imposed local stability as a key performance indicator for magistrates (Ma and Rubin, 2019). If the lower gentry engaged in overcollection of quasi-tax, dissatisfied commoners might organize a protest that

⁷ Candidates within a county competed for a fixed *Shengyuan* quota. For the provincial exam, 2000 to 10,000 *Shengyuan* who passed the preliminary qualification exam in a province gathered at the provincial capital to compete for 30-150 higher degrees (*Juren*) every two or three years.

⁸ See Online Appendix A.2 for more background about the activities of lower gentry.

incurred real costs, not only to the *Shengyuan*, who were responsible for them but also to the county magistrate, who needed to exert efforts to dampen the protests to avoid punishment from the upper government (Ch'u, 1962). More importantly, local magistrates were given the actual power to supervise lower gentry and strip their titles for misbehaviors.⁹

In summary, *Shengyuan*'s behavior in providing public goods was tied to their career prospects.¹⁰ A greater chance of moving up was associated with a greater potential loss from misbehavior in public service, so the less likely that it was that they would choose to be corrupt.

[Table 1 here]

The abolition of exams and worsening of local governance in rural areas

After China's defeat by the West in the Boxer Rebellion, the Qing state was determined to reform the elite recruiting system. Along with the abolition in 1905, the dynasty attempted to switch to a Western-style education system and recruit government officials holding modern degrees. Although the abolition directed talent toward modern knowledge and skills and facilitated the spread of modern industry (Bai, 2019), it shackled social mobility in many other aspects. For most commoners from humble backgrounds, modern education was much more expensive than under the traditional system. Hence, their upward mobility was largely blocked.¹¹

The effect of abolition on existing elites was more complicated. The upper gentry continued to hold government positions or were elected as provincial congress members until the demise of the Qing dynasty in 1911. *Jinshi* and *Juren*, who obtained college degrees, particularly from overseas colleges, were exceptionally popular as new governmental recruits (Wang, 1960). In contrast, most lower gentries did not have financial resources or social networks to obtain modern tertiary education.¹² Instead, modern secondary schools were a major outlet for those attempting to move up the social ladder. More than 300,000 people graduated from such schools from 1900 to 1910. Such a

⁹ In a widely read guideline book on how to perform as county magistrates (*Zhenguanshiyi*), edited by Tian, Wenjing, the editor highlighted the importance of treating gentry differently: "Gentry served as the leaders and speakers of local communities...but they were of different quality, so they needed to be treated with rules of etiquette or rules of law accordingly. If they are confirmed to have been engaged in illegal and predatory activities, they must be stripped of titles and punished severely so that bad gentry will be deterred. If they were known for decency, scholarship, and wisdom, they should be treated with respect and be consulted for advice" (Tian, 1729).

¹⁰ As remarked by a Western observer in the 19th century, "they are all expectants" (Scarath, 1860).

¹¹ Bai and Jia (2016) found that a greater upward prospect of commoners to become *Shengyuan* was associated with greater revolutionary participation.

¹² Throughout the 1910s, fewer than 20,000 individuals graduated from domestic and overseas colleges.

degree was much less expensive than a college degree to obtain and equipped a graduate with necessary skills to work in banking, law, social media, and other modern industries. Military schools that trained military officers acted as another alternative in an era when China was building its modern army and demanding military talent. These graduates of modern schools remained in urban areas and never returned to their rural homes (Luo, 2006).

In contrast, lower gentry remained dominant in local affairs in the last years of the Qing dynasty, when local bodies of self-governance took root in different layers of administration. As shown in Online Appendix [Table A1](#), at the county level, almost 90% of assembly members had exam degrees, and lower gentry accounted for three-quarters of the total assembly. Only 10% of assembly members were clerks (who were mostly state tax agents), and very few were modern degree holders and merchants. Hence, lower gentry could still engage in local public service and make lucrative returns.

When the exam was abolished, the local elites would choose between two career paths: they could pursue modern education in the cities to improve their career prospects, or they could stay in their hometowns and continue to provide public services.¹³ The benefits and costs of the two paths varied among individuals who had heterogeneous returns on modern education vis-à-vis the private ability to extract rents from rural public services. For the latter path, the exam abolition removed the previously imposed constraint on local elites, rendering the link between upward mobility and performance in public goods provision inactive. Therefore, any given agent who remained to engage in rural public services would levy more surtaxes to extract rents. In addition, rural public services would attract those who had better chances of rent extraction.¹⁴ As a commentator observed (Liu, 1920):

“When the county magistrate entrusted local elites to handle ‘local autonomy’, the man of virtue stayed away, whereas despicable elites, such as former clerks, stole the position by bribing the magistrate or voters ... As agents or councilmen, they colluded to divert and embezzle public funds in favor of their own interests.”

¹³ In addition, a large portion of lower gentries, who were disadvantaged in age and knowledge, chose to stay in rural areas for private tutoring. In 1908, there were only 300,000 modern primary schools in China, more than two-thirds of which were in rural areas. There were many private tutors in rural areas -- at least five times the number of primary school teachers -- who taught traditional content, such as basic writing and calculation.

¹⁴ For the entire sample period, the lower gentries were empowered with the ability to tax and thus were provided with more opportunities to embezzle and prey on others. In 1902, the Qing court launched a “New Deal” campaign, instigating general elections to form representative bodies all over China. Although the upper gentry presented at provincial congresses in provincial capitals, the lower gentry staffed county-level and subcounty-level councils. In addition, local elites could confiscate public properties and levy surtaxes to establish modern primary schools (Hao and Xue, 2017).

Consequently, after 1905, furious actions emerged on the part of commoners, such as protests over quasi-taxes, burning down the gentry's houses, demolishing the buildings of government bureaus, destroying modern schools or police stations, and robbing local granaries or food stores. Before the exam abolition, protests against the gentry were relatively rare; what were much more common to observe were tax protests led by the gentry against predatory state officers and their voracious agents (Wu, 2011). In summary, the more predatory local elites stirred the commoners' protests against gentries in rural areas after 1905.

Based on the above historical observations, we propose our major hypothesis about the effects of the exam abolition as follows. The disruption of a traditional career path worsened the incentives of local elites, who remained in the countryside to serve their communities. An empirical implication of this hypothesis is that, in the areas more greatly affected by the exam abolition, as measured by the POUM, we should observe a larger increase in the frequency of anti-elite protests after 1905.

DATA

In this section, we introduce the data collected from a variety of sources and outline the construction of the key variables for our empirical analysis. Online Appendix Table C1 reports the summary statistics for main variables. Before conducting formal empirical analysis, we offer some descriptive evidence demonstrating the correlation between the exam abolition and anti-elite protests.

Anti-elite protests

Our main data source on civil protests is *Qingmo minbian nianbiao* (The Chronology of Civil Protests in the Late Qing Dynasty), compiled by two historians Zhang and Ding (1982). The original data is drawn from several major nationwide newspapers, supplemented with the government archives, which records 1,511 incidents of grassroot protests in the last ten years of the Qing empire (1902–1911), including information on the time, location, causes and participants of each protest. Anti-elite protests are defined as incidents that was either triggered by misbehaviours of local elites (such as over-extraction of surcharges and encroachment on local public assets by local elites), or targeted at establishments managed by local elites (such as local granaries, modern primary schools, etc.). In total, we manually code 619 incidents as anti-elite protests.¹⁵ We also code 91 incidents of anti-Christian protests and 131 incidents of anti-government

¹⁵ Focusing on the effect of the exam abolition on local governance in rural area, we drop any anti-elite riots in cities. We also record whether there were attacks on tax-collection agencies and whether there was killing violence in a riot.

protests. In addition, we use data on gang activities in placebo test from Liu (1992). The yearly frequency of protests at the prefecture level is 0.236 incidents per year per prefecture. Figure 2 maps the spatial distribution of anti-elite protests, showing a significant spatial variation before and after the exam abolition.

[Figure 2 here]

During China's first decade of twentieth century, vandalizing modern schools was a special action to express dissatisfaction against the local gentries, who frequently taxed the commoners to finance the construction of these schools. We draw the data on vandalizing modern schools from Tian and Chen (2009) as alternative outcome variables.¹⁶

The prospect of upward mobility (POUM) for local elites

In China's imperial civil exam system, the numbers of eligible candidates and successful passers at each exam level were controlled by a quota system. When the quota of the lower gentry (upper gentry or *Juren*) was binding at the prefecture (provincial) level, candidates from different prefectures faced an *ex ante* equal chance of success at the province level, but the *ex post* odds of success had a significant spatial variation and it was stable over time. We exploit this feature to construct an *ex post* measure of the POUM for local elites. Specifically, using the number of *Juren*, the successful passers of the provincial exam from 1875 to 1905, divided by the total number of candidates (the lower gentry) during the same period, we calculate the passers-candidates ratio for each prefecture as the measure of POUM.¹⁷

The *ex post* POUM measure must satisfy at least two conditions to serve as a good measure of upward mobility *commonly perceived* by exam candidates. First, it must have a significant amount of variations across prefectures; second, it must be stable enough to facilitate the formation of prior beliefs among potential candidates about their future upward mobility.

We first demonstrate the regional variations of *ex post* odds of success. As shown in Online Appendix Figure C1, the prefecture's success in provincial exam exhibits a large difference even within the province. Taking Fujian province as an example, the *ex post* success rate of the most successful prefecture, Fuzhou, is 0.289, while that of its nearby prefecture, Jianning, is only 0.014—a 20-fold difference! The spatial variation in relative

¹⁶ Although our sample period ranges from 1902 to 1911, the data on the occurrence of school destruction covers the period of 1904-1911.

¹⁷ We calculate the total number of candidates by the *Shengyuan* quota multiplied by the frequency of exams. From 1875 to 1905, the province-level exams were held 13 times across the country. The quota of *Shengyuan* candidates varied before and after the 1870s due to the Taiping Rebellion. For consistency, we use the number after the 1870s to construct the passers-candidates ratio.

exam success turned out to be fairly stable over time. In Online Appendix Figure C2, we examine the persistence of the relative exam success in achieving *Juren* degree. Panel A shows a quite strong correlation between prefecture's exam passers (*Juren*) as the proportion of total exam passers in a province in 1851–1905 and that in 1801–1850 (with a correlation of 0.9447). We also find a similar correlation using prefecture's rank within the province in exam passers in Panel B.¹⁸

The above results on regional variations of POUM and their stability over time provide an important support for the validity of our measure of POUM. Take the example of Fuzhou versus Jianning again. Observing such a large and *stable* gap in the previous exam success rate, on average, the lower gentry in Fuzhou would expect a much higher probability of passing the exam than their competitors in Jianning. To the extent that the lower gentry's *perceived* probability of passing the provincial exam and obtaining the upper gentry title is closely related to the previous success rate of his fellow candidates in the same prefecture, the *ex post* success rate (the passer-candidates ratio) before the abolition of the civil exam would be a good proxy for the prospect of upward mobility (POUM) for local elites.

The *Juren* data is collected from provincial and county gazetteers. The data on candidate quotas is collected from *Da Qing Huidian Shili* (Statutes and Precedents of the Qing Dynasty) (Kun et al., 1899). The mean and standard deviation of the passers-candidates ratio are 0.042 and 0.038, respectively. We use the logged passers-candidates ratio in our empirical analysis. In addition, using information on the upper gentry who succeeded in the highest-level exams (i.e., *Jingshi*), we construct analogous measures of POUM for the upper gentry, i.e., *Jinshi/Juren* and government officials/*Jinshi*.¹⁹

Prefecture characteristics

From a variety of sources, we collect a rich dataset on regional characteristics for robustness checks and heterogeneity analysis. In our baseline estimation, we include four sets of control variables (see Online Appendix Table C1 for the data sources and summary statistics). First, we compiled a weather shock dummy which is set to 1 if the rainfall is ranked as exceptionally high or low, based on historical meteorological data (State Meteorological Society, 1981). Second, we include two dummy variables for whether a prefecture is situated on the coast or covers one or more major rivers to control for the

¹⁸ Moreover, we regress a prefecture's proportion of exam passers in a province on those of the different periods and control for province fixed effects. The results show that prefectures with the advantage in competing for upper gentry title in the late 17th century would continue to excel two hundred years later (See Online Appendix Table C2).

¹⁹ The data is drawn from Zhu and Xie (1980) and Qian (2005), who listed the name and county of origin of all presented scholars and all key officials.

potential influence of geographical features. Third, since the incidence of protests might also be correlated with economic conditions, we control for the urbanisation rate at the prefecture level, using Rozman's (1973) three-type classification of Chinese cities. Fourth, we use the agricultural suitability for rice and sweet potato from Food and Agriculture Organization (FAO).

We also collect other information to address several alternative explanations. As proxies for human capital endowment, we collect data on Confucian academies (*Shuyuan*) from Ji (1996), the key educational infrastructure in imperial China, and the number of notable book authors from Jiang (2005). The prefectural level number of students studying in Japan before 1905 and the density of newspapers capture the extent of political enlightenment.²⁰ Land inequality captures the potential power of non-scholar landed elites. To measure exposure to trade openness, we use the distance to treaty ports. In order to capture the political connections of local elites with incumbent officials, we use the data on the hometown of officials from the *China Government Employee Database-Qing* constructed by Campbell et al. (2019). We create two proxy variables for the extent of state extraction, including province-level fiscal income and expenditure data in 1908 (Zhou, 2000), and the number of commercial tax (*lijin*) bureaus and commercial tax stations (Luo, 1936).

Data on career choices after the exam abolition

After the exam abolition, there was a variety of modern career paths typically for those local elites with strong motivation for public service, including modern secondary school and military college. We collect data on these career choices from a variety of data sources: the list of Baoding Military College students from Chen (2006). We also draw the data on modern secondary school enrolment in the period 1907–1909 from the first, second, and third reports on modern education by the *Ministry of Education of the Republic of China*.

Descriptive correlation between upward prospect and anti-gentry protests

Before conducting the formal empirical analysis, we now present some suggestive evidence linking the prospect of upward mobility (POUM) for local elites with anti-elite protests before and after 1905. As illustrated in Panel A of [Figure 2](#), the anti-elite protests were not popular before the exam abolition. A comparison of the protest incidents in the pre-abolition period (Panel A) and post-abolition period (Panel B) reveals that the pattern of spatial distribution changed significantly after the year of the abolition in 1905. In [Figure 3](#), we map the increase in anti-elite protests before and after the exam abolition and

²⁰ The data on Japan students come from Shen (1978) and the number of newspapers is from Shi et al. (1991).

the distribution of POUM for local elites. Both Figures 2 and 3 demonstrate an interesting result: the prefectures with a higher frequency of anti-elite protests in the post-abolition period coincide with those that offered better career prospects for local elites before 1905.

[Figure 3 here]

Furthermore, Figure 4 presents the plot of aggregate trends in incidences of anti-elite protests over time. To show the effect of POUM more clearly, we divide the full sample into two groups of prefectures: high-prospect group (prefectures with POUM above the median) and low-prospect group (prefectures with POUM below the median). We can see that there was no obvious gap between the two groups before the exam abolition, but after the abolition, a significant divergence emerged. Despite a temporary decrease in 1908, the number of anti-elite protests in the high-prospect group started to climb remarkably after 1905, the year of the exam abolition. Moreover, Figure 4 suggests that there was a parallel trend between the two groups of prefectures before the abolition of the exam.

[Figure 4 here]

EMPIRICAL STRATEGY AND BASELINE RESULTS

Empirical strategy

We use a standard differences-in-differences (DID) strategy to examine the effect of POUM for local elites before and after the exam abolition. Our baseline specification is the following:

$$y_{it} = \beta \ln POUM_i \times Post_t + \gamma X_{it} + \delta_i + \theta_t + \lambda_{prov} \times \theta_t + \epsilon_{it} \quad (1)$$

where y_{it} is the number of anti-elite protests in prefecture i in year t . $Post_t$ is a dummy variable indicating the year after the exam abolition, which equals one after 1905, and $\ln POUM_i$ is the logged POUM as a proxy for the career incentive of local elites. δ_i are prefecture fixed effects, controlling for all time-invariant differences between prefectures. θ_t are year fixed effects capturing the common shocks in a particular year that affect all prefectures. In addition, we control for flexible provincial-specific time fixed effects by using the interactions of province dummies and year dummies ($\lambda_{prov} \times \theta_t$), which helps us address potential time-varying confounding factors at the provincial level. X_{it} includes the series of prefecture-level control variables including weather shock, the interactions between post and geographical features, urbanization indicators, and agricultural suitability. β is the coefficient of interest, capturing the effect of a disruption in career paths on anti-elite protests. To address the potential serial correlation of the error term, we cluster the standard errors at the prefecture level for all regressions.

Baseline results

The baseline results are presented in Table 2. Column (1) reports the simple DID estimation including year and prefecture fixed effects. Column (2) adds the weather shock. The results show that those prefectures with a higher POUM for local elites did experience a higher increase in anti-elite protests after the exam abolition. We find that negative weather shocks have little effect on anti-elite protests. In columns (3) and (4), we include the province-specific time trend and province-year fixed effects, respectively. Column (5) presents our preferred specification which includes a full set of control variables and provincial-year fixed effects. The estimated β is 0.126 and statistically significant. In terms of magnitude, this estimate suggests that an increase of one standard deviation in logged POUM (0.838) is associated with 0.106 more incidents of anti-elite protests. This effect accounts for nearly half (45%) of the yearly anti-elite protests during the period 1902–1911.²¹

[Table 2 here]

To ensure that our results are not driven by some confounding factors, we further expand our analysis in Online Appendix Table C4 to include a series of additional control variables. Our results are robust to the inclusion of the total number of revolutionary party members, which is also a consequence of the abolition (Bai and Jia, 2016), the linguistic diversity and polarization, the dummies of political importance, and the grain price as a proxy for the agricultural production shock. From column (1) to column (4), the effect of the POUM for local elites varies little from the baseline results in Table 2.

Dynamic effects

The central requirement for our DID identification strategy is the parallel-trend assumption: in the absence of the abolition of the imperial civil exam, the incidence of protests in prefectures with different POUM would have evolved in a similar trend. In other words, the trends in protests should not be related to the intensity of treatment (here, the POUM) before the exam abolition. The overall temporal pattern of anti-elite protests from Figure 4 exhibits a parallel trend before the treatment. To formally test the parallel trend assumption of the DID approach, we examine whether there are any different trends in prefectures with different POUMs prior to 1905. We separately estimate the effects of POUM by each year using the following event-study specifications:

²¹ We find similar results using the odds of success in achieving the *Jinshi* title as an alternative measure of POUM. See Online Appendix Table C3 for more details.

$$y_{it} = \sum_{\tau=1903}^{1912} \beta_{\tau} \ln POUM_i \times Year_{\tau} + \sum_{\tau=1903}^{1912} \gamma_{\tau} X_i \times Year_{\tau} + \delta_i + \theta_t + \lambda_{prov} \times \theta_t + \epsilon_{it} \quad (2)$$

where the year 1902 is omitted as the reference year. The coefficient β_{τ} identifies the effect of the POUM in year τ , compared with t. We also include interaction terms between the controls and a set of time dummies, $Year_{\tau}$.

The results on β_{τ} are displayed in [Figure 5](#). It is clear that prior to 1905, all estimated coefficients fluctuate around zero and are statistically insignificant, suggesting that there were no heterogeneous trends in protests with regard to the POUM for local elites prior to the abolition. Furthermore, right after the abolition, the coefficients become significantly positive and show a slightly increasing trend in magnitude. The effect in 1908 is insignificant, but it remains positive. The average magnitude of the effects from 1906–1911 is 0.139, similar to our baseline results in [Table 2](#).

[Figure 5 here]

Placebo tests

There are also concerns that the effects on anti-elite protests might simply reflect the general environment of political instability rather than the outcome of local elites' bad behaviour. To mitigate this concern, we employ different types of social unrest to conduct a set of placebo tests. If our results on anti-elite protests are driven by the general political instability, we might find similar effects on other types of protests and riots, such as anti-Christianity protests, anti-government protests or rebellion organized by gangs.

[Table 3](#) reports the results of placebo tests. We find that none of these activities are correlated to the POUM for local elites. The effects of POUM on these placebo outcomes are not only statistically insignificant, but also very small in magnitude (columns (1) to (3)). To mitigate the issue of small number of placebo outcomes, we add up the total incidents of the three placebo outcomes (anti-Christian protests, anti-government protests, and gang activities) and conduct an additional placebo test.²² This exercise results in a total of 371 incidents. As displayed in column (4), we again find no effect on non-anti-gentry social unrests.

[Table 3 here]

Lastly, we explore whether the link between the abolition of imperial civil exam and anti-elite protests was affected by other segments in the exam hierarchy whose upward prospect was also affected by the exam abolition. If the increase in anti-elite protest is

²² The number of anti-Christian protests and anti-government protests are relatively small (91 and 131, respectively) and the small sample size might lead to the insignificant results of the placebo test.

mainly driven by the worsening behaviours of lower gentry, they should have no impact on anti-elite protests.²³ Similar to the POUM of lower gentry, we can measure the POUM for commoners by $\frac{Shengyuan\ Quota}{Pop}$ and that for upper gentry by $\frac{Jinshi}{Juren}$ and $\frac{Official}{Jinshi}$. Online Appendix Table C5 shows that neither the upward prospect for commoners nor that for the upper gentry has significant impact on protests, suggesting that the effects are specific to the POUM for local elites.

THEORETICAL MODEL

In this section, we develop a simple model to incorporate our baseline empirical findings and guide our further empirical investigation on the mechanisms. Consider a model with two players: a local elite who has already passed the lowest level exams (she) and a representative commoner (he). An allocation $a \in \{0,1\}$ must be made. The utility of the commoner u depends on the state of the world, $\omega \in \{0,1\}$, and the allocation a . The prior is that both states occur with equal probability $\frac{1}{2}$. We assume that $u = 1$ if $a = \omega$ and $=0$ otherwise. The utility of the gentry v is the same as u except $v = x > 0$ when $a = 1$ and $\omega = 0$.

The above model setup can be interpreted as follows. The allocation a involves the provision of local public goods through a surcharge, where $a = 1$ implies the surcharge is imposed and $a = 0$ the opposite. The commoner is willing to pay the surcharge if and only if the public goods are really needed. So, we use $\omega = 1$ to represent the state in which the public goods are needed, and $\omega = 0$ to represent the opposite state. The commoner's ideal allocation is to match a with ω as reflected by the specification of u . However, the gentry can obtain an additional utility, $x > 0$ from the surcharge even if the public goods are not needed ($\omega = 0$). We assume that x is privately observed by the gentry, and the commoner believes that x is uniformly distributed on the interval $[0,1]$.

Time proceeds as follows. The gentry first privately observes x and message $m \in \{0,1\}$ about the state ω . We assume that $\Pr(m = \omega|\omega) = \pi > \frac{1}{2}$, so the message m is an informative but imperfect signal about the state ω . Based on x and m , the gentry recommends an allocation \hat{a} to the commoner. The commoner observes \hat{a} and another message s about the state ω . We assume that conditional on the state ω , the message s is normally distributed with mean ω and standard deviation σ . So the density function

²³ Commoners might participate in revolutionary activities because their upward mobility was mostly blocked, since modern education was too costly (Bai and Jia, 2006). On the other hand, the upper gentry lived mostly in cities. If they are dissatisfied with the state, they might mobilise protests and petitions in the cities; but this will not trigger anti-elite protests by commoners in rural areas (Zhang, 2013).

$f^\omega(s) = \frac{e^{-\frac{(s-\omega)^2}{2\sigma^2}}}{\sqrt{2\pi\sigma^2}}$ satisfies the monotone likelihood ratio property because $l(s) = \frac{f^1(s)}{f^0(s)} = e^{\frac{2s-1}{2\sigma^2}}$ is strictly increasing in s . Based on \hat{a} and s , the commoner decides whether to protest or not. Making a protest is costly for the commoner: it is assumed he has to pay cost $c > 0$, and probability of success is $\theta > c$. If the protest is successful, allocation $1 - \hat{a}$ is taken and the gentry suffers a disutility y . Otherwise, allocation \hat{a} is taken. Finally, under the civil exam system, the local elite also has probability β to obtain the upper gentry title via taking provincial exams, which brings value $Z > 0$ to her. But if the protest succeeds, the gentry will lose this opportunity as a punishment. Obviously, β measures POUM in our model.

We focus on characterizing the following perfect Bayesian equilibrium of the above game. The gentry will recommend $\hat{a} = 1$ when observing message $m = 1$, or message $m = 0$, but the additional utility x exceeds a threshold \bar{x} . Intuitively, when observing message $m = 1$, the gentry believes that the state is more likely to equal 1. Since $v(a = 1, \omega = 1) = 1 > v(a = 0, \omega = 1) = 0$, $\hat{a} = 1$ is recommended. In contrast, when observing message $m = 0$, although the gentry believes that the state is more likely to equal 0, she still recommends $\hat{a} = 1$ so long as the additional utility from surcharge is high enough. Fully anticipating the gentry's strategy, the commoner adopts the following strategy: when the gentry recommends $\hat{a} = 1$, the commoner will make a protest if he observes a sufficiently low signal $s < s_1$ and hence believes that state $\omega = 0$ is very likely; when the gentry recommends $\hat{a} = 0$, the commoner will make a protest if he observes a sufficiently high signal $s > s_0$ and hence believes that state $\omega = 1$ is very likely. So, the characterisation of the equilibrium involves solving the three cut-offs: \bar{x} , s_0 , and s_1 .

We follow the standard procedure to solve the equilibrium cut-offs. First of all, given the gentry's strategy, we can calculate the commoner's posterior belief about $\omega = 1$ when observing message s and recommended action \hat{a} using Bayes rule:

$$(1) \quad \rho(s, \hat{a} = 0) \triangleq \Pr(\omega = 1 | s, \hat{a} = 0) = \frac{(1-\pi)l(s)}{(1-\pi)l(s)+\pi};$$

$$(2) \quad \rho(s, \hat{a} = 1) \triangleq \Pr(\omega = 1 | s, \hat{a} = 1) = \frac{[(1-\pi)(1-\bar{x})+\pi]l(s)}{[(1-\pi)(1-\bar{x})+\pi]l(s)+1-\pi+\pi(1-\bar{x})}.$$

Based on the gentry's strategy, the commoner knows $m = 0$ for sure when the gentry recommends $\hat{a} = 0$, and hence the belief about $\omega = 1$ is $1 - \pi$. This belief together with the message s observed by the commoner will induce posterior belief $\rho(s, \hat{a} = 0)$ defined by Equation (1). When the gentry recommends $\hat{a} = 1$, the commoner believes that $\omega = 1$ occurs with probability $\frac{(1-\pi)(1-\bar{x})+\pi}{2-\bar{x}} < \pi$ because the gentry may recommend $\hat{a} = 1$ when $m = 0$ and $x > \bar{x}$. We can immediately derive Equation (2) using this updated belief.

When the gentry recommends $\hat{a} = 0$, the commoner decides to make a protest if and only if:

$$\theta\rho(s, \hat{a} = 0) + (1 - \theta)(1 - \rho(s, \hat{a} = 0)) - c \geq 1 - \rho(s, \hat{a} = 0).$$

Without a protest, $\hat{a} = 0$ is the final action and the commoner's expected utility is the probability of $\omega = 0$, $1 - \rho(s, \hat{a} = 0)$. If the commoner pays a cost c to make a protest and the protest succeeds with probability θ , the expected net utility is $\theta\rho(s, \hat{a} = 0) + (1 - \theta)(1 - \rho(s, \hat{a} = 0)) - c$. Therefore, the commoner will make a protest if and only if $\rho(s, \hat{a} = 0) \geq \frac{\theta - c}{2\theta} > 0$. Using Equation (1), we can derive the cutoff s_0 to satisfy:

$$(3) \quad l(s_0) = \frac{\pi}{1 - \pi} \times \frac{\theta + c}{\theta - c}.$$

Similarly, we can solve s_1 to satisfy:

$$(4) \quad l(s_1) = \frac{1 - \pi + \pi(1 - \bar{x})}{(1 - \pi)(1 - \bar{x}) + \pi} \times \frac{\theta + c}{\theta - c}.$$

Finally, at \bar{x} , the gentry is indifferent between recommending $\hat{a} = 0$ and $\hat{a} = 1$. This implies:

$$(5) \quad \Xi_1(\bar{x}, s_0) = \Xi_2(\bar{x}, s_1),$$

where

$$\Xi_1(\bar{x}, s_0) = \pi F_0(s_0) + \pi(1 - \theta)(1 - F_0(s_0)) + \theta(1 - \pi)(1 - F_1(s_0)) + \theta\pi(1 - F_0(s_0))\bar{x} - \theta[\pi(1 - F_0(s_0)) + (1 - \pi)(1 - F_1(s_0))](y + \beta Z)$$

and

$$\Xi_2(\bar{x}, s_1) = (1 - \pi)F_1(s_1) + (1 - \pi)(1 - \theta)(1 - F_1(s_1)) + \theta\pi F_0(s_1) + [\pi F_0(s_1) + \pi(1 - \theta)(1 - F_0(s_1))]\bar{x} - \theta[\pi F_0(s_1) + (1 - \pi)F_1(s_1)](y + \beta Z).$$

Equations (3)-(5) constitute a system of equations about three unknowns: \bar{x} , s_0 , and s_1 . After plugging Equation (3) and (4) into Equation (5), we obtain an equation about \bar{x} . We can numerically solve this equation and [Figure 6.1](#) plots how POUM β affects \bar{x} . It is not surprising to see that \bar{x} is positively associated with β . This reflects the deterrence effect of future career concerns. A higher β implies a higher loss to the gentry when there is a successful protest. As a result, the gentry will avoid protest by increasing \bar{x} , which implies that the gentry is less likely to recommend $\hat{a} = 1$ when receiving message $m = 0$.

[Figure 6.2](#) plots the changes in the probability of protest after the abolition of the civil service exam as a function of β . The abolition of the civil exam reduces β to zero and hence affects both \bar{x} and the probability of protest. This figure plots the difference of protest probability before and after the civil exam abolition. We differentiate two different protests: the first is the protest when the gentry recommends $\hat{a} = 0$ (i.e., protest over doing nothing); while the second is the protest when the gentry recommends $\hat{a} = 1$ (i.e., protest over surcharge). We use ΔPr_1 (resp. ΔPr_2) to denote the change in the probability

of the first (resp. second) protest. It is interesting to note that changes in POUM β have opposite effects on ΔPr_1 and ΔPr_2 .

[Figure 6 here]

First of all, Figure 6.2 shows that $\Delta Pr_1 < 0$ is decreasing in β while $\Delta Pr_2 > 0$ is increasing in β . Intuitively, as seen from Figure 6.1, the civil exam abolition will lead to a lower \bar{x} : when receiving message $m = 0$, the gentry is less likely to recommend $\hat{a} = 0$ and more likely to recommend $\hat{a} = 1$. As a result, the probability of the first protest decreases after the abolition and is decreasing in β (as a higher β leads to a larger reduction of \bar{x}), while the probability of the second protest increases after the abolition and is increasing in β .

Secondly, the magnitudes of ΔPr_1 and ΔPr_2 are also very different. This is because the commoner's cutoff for the first protest, s_0 , does not change with \bar{x} , as seen from Equation (3). So, the change in ΔPr_1 is purely driven by the fact that the gentry is less likely to recommend $\hat{a} = 0$. In contrast, the commoner's cutoff for the second protest, s_1 , changes with \bar{x} . As \bar{x} decreases, the commoners are also more likely to make a protest when observing $\hat{a} = 1$. This makes ΔPr_2 much more significant in magnitude than ΔPr_1 . This also justifies our empirical investigation of the second protest.

In the following figures, we focus on the second protest and plot how ΔPr_2 changes with β under different parameter values. Figure 6.3 shows that as the probability of having a successful protest θ increases, the effect of the civil exam abolition on the increase of surcharge protest probability becomes larger. Figure 6.4 shows that as the cost of protest c decreases, the effect of the civil exam abolition on the increase of surcharge protest probability becomes larger. We relate the parameter θ to state monetary capacity. With greater state monetary capacity, the state becomes more likely to conceive and punish the local elite's corruption when a protest occurred, which means a protest is more likely to be successful. We relate the parameter c to costs of collective actions. With lower costs of collective actions, the commoner is more likely to protest when the gentry recommends $\hat{a} = 1$.

We have demonstrated that under exam system the expected loss for the local elite to corrupt (i.e., to collect surtax when it was not needed) is a product of the likelihood of protest, the likelihood of protest being successful, the prospect upward mobility for the local elites, and the future rents from being an upper gentry. Three things follow:

Corollary 1: The exam abolition made the local elite more likely to over-collect surcharge when it was not needed (higher \bar{x}) and hence the commoners were more likely to make a protest against surcharges. Since the opportunity cost of over-collecting surcharges was greater with a higher POUM before the exam, the abolition led to a greater increase in such behaviours and a greater increase in protests with a greater POUM.

Corollary 2: The marginal effect of POUM on the expected loss was increasing in the likelihood of protest being successful. If the state monitory capacity is stronger, the state was more likely to conceive and punish the local elite’s corruption once a protest occurred, which means a protest is more likely to be successful. After abolition, this ‘deterrence’ mechanism was deactivated. Therefore, the impact of POUM on anti-elite protest post-1905 should be larger with stronger state monitory capacity.

Corollary 3: The marginal effect of POUM on the expected loss was increasing in the likelihood of protests. With lower costs of collective action, commoners were more likely to protest, all else equal. After the abolition, this ‘deterrence’ mechanism was deactivated. Therefore, the impact of POUM on anti-elite protest post-1905 should be larger when the costs of collective action are lower.

A straightforward extension of our model is to include an outside option yielding utility \bar{V} , which could be interpreted as utility gained from taking other professions other than being a gentry. A gentry will participate in local public goods provision only when the resulting expected utility is higher than \bar{V} , or equivalently when the additional utility x exceeds another threshold \underline{x} . This participation constraint implies that the support of x changes from the interval $[0,1]$ to the interval $[\underline{x}, 1]$. As a result, Equation (4) changes to:

$$(6) \quad l(s_1) = \frac{1-\pi+\pi\frac{1-\bar{x}}{1-\underline{x}}}{(1-\pi)\frac{1-\bar{x}}{1-\underline{x}}+\pi} \times \frac{\theta+c}{\theta-c}.$$

Due to the civil service exam abolition, the expected utility from being a gentry decreases by βZ , and hence the cut-off \underline{x} has to increase to satisfy the participation constraint. Since the right-hand-side of Equation (6) is increasing in \underline{x} , this ultimately implies that s_1 will increase after the civil service exam abolition. Hence, the commoners were more likely to protest against surcharges. The above discussions ultimately imply another selection effect of POUM:

Corollary 4: With the gentry’s participation constraint, a greater POUM led to a higher exit of local elites, which made the impacts on protest against surcharges even stronger.

MECHANISMS

In this section, we examine the empirical predictions of the model and pin down the mechanisms of worsening incentives and adverse selection that drove the linkage between the exam abolition and anti-elite protests.

Evidence on surcharges

According to corollary 1, in areas with a larger POUM, the abolition led to a greater increase in the collection of surcharges by local elites and a higher frequency of anti-elite protests. To test this corollary, we use the number of various surcharge-related protests or conflicts as the dependent variables. In column (1) of [Table 4](#), we identify those protests that are explicitly documented as “excess collection of surcharges” as the direct trigger of the protests. In column (2), we use incidents of vandalizing surcharge agencies as the dependent variable. In column (3), we use an alternative dependent variable, which is the incidences of vandalizing modern schools that were financed by the surcharges on commoners.²⁴ In all of these specifications, we find positive and sizable effects of POUM after the abolition, suggesting that the abolition triggered the moral hazard of local elites regarding surcharge collection, which in turn led to protests against them.

[Table 4 here]

The role of state’s monitoring

As shown in corollary 2, the impact of POUM for local elites on anti-elite protest was greater where the state had stronger capacity to monitor a gentry’s misbehaviour. We use two proxies of state monitoring capacity. First, we use distance from a prefecture (km) to Beijing. The costs of travel, transportation, and information transmission were large, especially in the premodern world (Sng, 2014). Hence, it was difficult for the central ruler to monitor a far-away county official who might collude with local elites in collecting excessive taxes. Second, we use a dummy variable indicating a prefecture’s access to the telegraph network. In 1876, telegraphs were introduced to China, and by 1906, 60% of all prefectures had been connected to telegraph networks (Hao, et al. 2019).²⁵ The telegraph network was widely used to transmit information on grain price, domestic conflicts, and military actions. As a result, the cost of information transmission was greatly reduced. We argue that it becomes easier for the central ruler to monitor a prefecture after accessing telegraph networks.

[Table 5](#) presents the empirical results testing corollary 2. In column (1), we add a triple-interaction term: distance from Beijing \times POUM \times Post, which captures the heterogeneous effect of state monitoring capacity on our treatment effect. We find that the estimate of this triple-interaction term is negative and significant at the one percent level, which is consistent with our prediction. In column (2), we add the triple-interaction term: the dummy for telegraph \times POUM \times Post. The estimated coefficient on this triple interaction is positive and significant, which is similarly consistent with our prediction.

²⁴ The data on destroying modern schools during 1904-1911 are from Tian and Chen (2009).

²⁵ The data on telegraph construction are provided by Hao, Li, and Nye (2019), who collect the original data from *Traffic History: Telecommunications*, edited by the Ministry of Communications in 1936.

With the inclusion of a triple-interaction term, the own effect of POUM on anti-elite protests remains significant in both specifications. These results lend support for corollary 2 which highlights the role of state monitoring capacity.

[Table 5 here]

The role of commoners' collective action

Corollary 3 of our theoretical model predicts that the impact of POUM for local elites on anti-elite protest was greater where commoners had lower costs of collective action. We use two proxies to measure costs of collective action. First, we propose that the strength of clans in an area, measured by the number of clan genealogies during Qing dynasty, should be negatively associated with the costs of collective action. In premodern China, clans were the basic units of cooperation and trust in pursuing collective action (Greif and Tabellini, 2017; Wong and Rosenthal, 2011). The presence of strong clans implies a lower cost of coordinating protests among commoners with kinship ties. Second, religion could also play an important role in coordination and mobilization of collection action (Iyer, 2016). Affiliation to the same religious identity promotes mutual trust (Chuah et al., 2016), helps screen out free riders and stabilizes within-group cooperation (Akerlof and Kranton, 2010; Carvalho, 2013). These effects work to reduce the costs of collective action. We use the number of Buddhism temples to proxy for religion influence.²⁶ A greater number of temples within a prefecture indicates a greater proportion of villagers sharing the same religious attitude, which fosters greater mutual trust and more cooperation for collection actions.

In [Table 5](#), we add the interaction term with the number of genealogies and temples in columns (3) and (4), respectively. We find that both estimates of these two triple interactions are positive and significant, indicating that the impact of POUM is stronger in areas with the presence of clans or shared Buddhism religion. These results provide supportive evidence for corollary 3.

Taken together, the above results from Tables 4 and 5 offer empirical tests of the model's predications and find consistent evidence. These pieces of evidence indirectly suggest that the worsened incentive of local elites after the exam abolition was an important driver of the anti-gentry protests.

Evidence on selection

As previously described, the local elites' career profiles diverged greatly after the exam abolition. Some moved to cities and attended modern schools to move up the social

²⁶ Wang and Zhang (2018) collect the information on temple from the Imperial Encyclopedia of the Qing Empire (*Daqing Yitong Zhi*). We thank Shaoda Wang and Boxiao Zhang for sharing the temple data.

ladder. A small group of the lower and upper gentries obtained college degrees from domestic and overseas universities. Modern secondary schools and military schools were major outlets for local elites who had good social and economic status and desired better career prospects. The process of moving out of rural areas for upward mobility triggered by the abolition of exams might have created an adverse selection problem: the lower gentry remaining in rural areas to serve for local public services tended to be those with lower career prospects or those who desired private gains from local public services.

In what follows, we aim to provide some evidence for the selection process triggered by the exam abolition. First, we explore how exam abolition affected military school enrollment in urban areas. We collect information (prefecture hometowns and year of enrollment) on newly enrolled students of Baoding Military College, the largest national military college in the late Qing period, from 1903 to 1907. In [Table 6](#), we apply a similar DID setting as Equation (1) and use the number of military college students as the dependent variable. We find that a one-standard deviation increase in the logged POUM (0.838) is associated with 0.5 more military school enrollments per million citizens from a prefecture after 1905. The estimate is statistically significant at the 1 percent level. This effect accounts for 54% of the sample mean of military school enrollment. [Figure 7](#) presents the dynamic effects on military school enrollment. We find no significant difference in military school enrollment among prefectures with different POUM before the abolition but a dramatic increase after the exam abolition for those prefectures with higher POUM.

[Table 6 and Figure 7 here]

Second, we examine the effect of exam abolition on modern school enrollment and merchant group membership. Since we do not have data prior to 1905, we only use a cross-sectional dataset for empirical analysis. In [Table 7](#), we find that there were more modern secondary students per capita in 1907–1909 in areas with a higher POUM. While these results must be interpreted with caution due to data limitations, the cross-sectional regression result implies that, after the abolition, those prefectures with a higher POUM were associated with higher modern school enrollment. This evidence suggests an outflow of talented youth from rural areas after the abolition.

[Table 7 here]

Furthermore, to examine the quality of the lower gentry after the abolition, we exploit a hand-collected dataset of electors (who were eligible to vote for local assembly) in rural areas around Suzhou in 1909 to examine their family background. Online Appendix B describes how we construct the key independent variables, and it reports the regression results in [Table B1](#). A cross-sectional analysis shows that those lower gentries who

remained in rural areas were more likely to come from below-average families and more likely endowed with a relatively low level of human capital.²⁷ This preliminary evidence indicates that, after the abolition, those who remained in rural areas and participated in local affairs as public agents had relatively low social and economic status.

Overall, we find consistent evidence for the selection effect of the exam abolition on military school enrollment and some suggestive evidence about the outflow of young talent from rural areas to modern schools and merchant groups in urban areas. Additionally, we show preliminary evidence that the gentries left behind and serving in local public services were more likely to be of lower social and economic status. These empirical findings appear to be consistent with the story that the exam abolition triggered an adverse selection process whereby higher-quality gentries gradually moved out of the villages, whereas the left-overs were likely those with poor career prospects.

ALTERNATIVE EXPLANATIONS

In this section, we discuss a number of alternative explanations for the positive effects of the exam abolition on anti-elite protests. While we cannot claim the POUM-based hypothesis is the only explanation, we show strong evidence that our key results are unlikely to be overturned by these alternative interpretations.

The rise of non-scholar landed elites

One could argue that the scholar gentry's power might decline, and other local elites could rise with the exam abolition. In addition to the lower gentry, who held the civil exam title, there could be some other local elites, such as landed gentry, who could not pass the civil service exam but were very wealthy. Under the exam system, the lower gentry had the likelihood of holding political power in the future and hence could constrain the power of landed gentry, which was like a system of checks and balances between scholar gentry and landed gentry. However, after the abolition, the gentry that was economically powerful started to dominate rural affairs and behaved unresponsively, which caused a deterioration in local governance.

To evaluate the validity of this potential explanation, we first discuss the extent to which there was a polarization between scholar gentry and landed gentry before the abolition. First, most of the lower gentry came from wealthy families.²⁸ Since land holding was the most important form of wealth holding, it is safe to argue that these

²⁷ See Online Appendix Table B1 for the regression results.

²⁸ According to Chang's (1955) study of family backgrounds of gentry in 1796-1911, 58% of lower gentry members came from wealthy families. Similarly, Ho (1962) found that more than 60% of exam passers came from families that produced at least one lower gentry member within three generations.

members primarily came from landlord families. Second, since exam titles were the only source of social privilege, once a family became wealthy, it would invest heavily in education to produce an exam passer (Ho, 1962; Chen, et al., 2020). Third, in places where local communities were dominated by large kinships, kinship produced an increasing number of exam passers who dominated local communities (and held more land), and exam passers typically served as kinship leaders (Ho, 1962). Considered together, these stylized facts suggest that landed elites and scholar gentries largely overlapped with each other and that there was no salient polarization of these two elite groups in rural China.

It is still possible that, in some regions, there was a distinctive separation between scholar gentry and landed gentry. To examine whether this separation drove our main results, we introduce a proxy for the power of landed gentry, which is land inequality. We hypothesize that the power of landed gentry is stronger in places with greater land inequality. If land inequality measures the power of landed gentry, the alternative hypothesis about the checks and balances between landed and scholar gentry would predict that the abolition of the exam should have a stronger effect on anti-gentry protests in places with greater land inequality and such an effect should be even stronger in places with greater POUM (indicating a greater loss of checks and balance on landed gentry).

To test this hypothesis, we include the interaction between land inequality and the post-1905 dummy and its triple interaction term with POUM and the post-1905 dummy. However, there are no systematic data available on land inequality at the prefecture level from the late Qing period or Republic era, and we instead measure land inequality using the prefecture-level land Gini coefficient using data on land distribution from approximately 1950, before the land reforms were launched by the Chinese Communist Party.²⁹ This measure is arguably justifiable because the structure of rural land ownership in China changed little between the early 20th century and the land reforms in approximately 1950.³⁰

Table 8 presents the results. As shown in column (1), we do not find a significant effect of land inequality after the exam abolition, and the effect of POUM remains unchanged. Column (2) shows that the estimate of the triple interaction is also insignificant, suggesting the absence of heterogeneous effects between POUM and land inequality. We find similar results in columns (3) and (4) using the tenant farmer rate from the provincial-level survey in 1912. These results imply that our results are unlikely to be explained by the checks-and-balances mechanism between scholar gentry and landed gentry.

²⁹ The data source is Pang, Xu and Guan (2021), constructed based on information from local gazetteers.

³⁰ Using the provincial-level land survey data (Statistics Bureau of Republic China, 1942), Figure C3 in Online Appendix C shows that the tenant farmer rate (a proxy for land inequality) barely changed between 1912 and 1936 (Panel A), and it also strongly correlated with the land Gini coefficient before the land revolution (Panel B).

[Table 8 here]

Human capital

One potential concern is that human capital endowment might correlate with the passer-candidate ratio and have a greater effect on protest occurrences after the exam abolition, which could confound the effect of POUM.³¹ To ensure that our results do not capture this potential influence, we use two proxies to control for the local human capital stock. We collected data on Confucian academies (*Shuyuan*), the key educational infrastructure in imperial China (Ho, 1962), from Ji (1996). We control for this confounding effect by adding to our baseline specification the interaction between Confucian academies per capita and the post-abolition dummy. Alternatively, we also use the number of book authors as another proxy for human capital. Columns (1) and (2) of [Table 9](#) report the results after controlling for the potential effect of human capital stock. The estimated effect of POUM remains highly significant, although its magnitude becomes somewhat smaller, suggesting that our results are unlikely to be explained by the effect of human capital endowment.

[Table 9 here]

Political enlightenment

Another alternative interpretation of our results is that commoners in prefectures with higher POUM were more politically enlightened, and they might have viewed the abolition of the civil exam as a signal of empire collapse, increasing anti-establishment sentiment and leading to anti-elite protests. We employ two relevant proxies for local political enlightenment: the number of students studying in Japan before 1905 and the density of newspapers. Columns (3) and (4) of [Table 9](#) show the results, including the interactions of these proxies and the post-abolition dummy. We find that the effect of political enlightenment did not change before and after the abolition and that the impacts of POUM remain similar to our baseline estimate, implying that our results are not driven by the impacts of political enlightenment.

Other competing stories

State extraction. Our result could be driven by the increasing state extraction from commoners instead of the deterioration of local governance. As the Qing government tried to collect more taxes and surcharges to finance huge war reparations and modernization initiatives, the bulk of tax burden was undertaken by the tenants and small landowners. Consequently “class struggle” assumed between commoners and local elites,

³¹ Conceptually, POUM reflects the success rate of the provincial exam for the *Juren* title. Regions with better overall performance were likely to have higher levels of traditional human capital.

many of whom were large landowners and tax farmers (Skocpol, 1979). Commoners might protest against the gentry to simply express their dissatisfaction over excessive tax rates and rent rates, even though the incentive and selection of local public agents remained intact. To check whether our results are driven by state extraction, we use two proxies of state extraction: provincial level fiscal revenue in 1908 and the number of commercial tax (*lijin*) bureaus. We add the interaction between the proxies and post dummy to our baseline specification. As shown in columns (1) and (2) of Online Appendix Table C6, the effects of the POUM remain similar.

Lower gentry's authority. One might also argue that the POUM of local elites might also positively correlate with their authority, affecting the extent to which commoners respect gentries and treat them with obedience. With a decline in the lower's gentry authority after the exam, abolition commoners were more likely to protest against quasi-taxes. We use two proxies for this confounder. First, we directly measure lower gentries' authority using the number of provincial assembly members with a lower gentry background from a prefecture. In 1909, all provincial assembly members were elected by qualified electorates at the local level (Chang, 1969). Upper gentry accounted for 36% of provincial assembly members, while lower gentry accounted for 54%. Hence, the number of lower gentry members who were elected as provincial assembly members should positively correlate with their authority at the local level. Second, we measure lower gentry authority using the number of incumbent governmental officials from a prefecture (with place of origin) in 1905. Before the abolition of the civil exam, local elites had the authority to impose quasi-taxes because they had the ability to bargain with the state over local interests (Fei, 1946). One source of this ability consisted of their political connections with incumbent officials sharing the same hometowns. Losing the exam titles and the possibility of entering the upper gentry, they no longer benefited from such connections. Columns (3) and (4) of Online Appendix Table C6 report the results after controlling for both measures of lower gentry authority. Our key results remain similar.

Trade openness. Our result could also be driven by the "absentee landlord" fueled by the forced open of the treaty ports. These institutional enclaves attracted local elites in the neighborhood to explore the new opportunities in international trade and modern industry (Brandt et al. 2014, Esherick, 1981). At the same time, they left rural public services to the rent seekers, leading to the deterioration of local governance (Philip Huang, 1995). The endogeneity problem arises if such phenomenon was more salient in the area with a larger POUM after 1905. We explore this alternative explanation by adding the dummy of treaty ports and the distance to the nearest treaty ports interacted with the post-dummy. The results are shown in columns (5) and (6) of Online Appendix Table C6. The main effect of the POUM remains positive and significant, implying that trade openness does not drive our key result.

CONCLUSION

The *Keju* system was so deeply imbedded into China's traditional political system that its sudden abolition generated career disruption and social instability via many channels. This paper focuses on one important aspect—local governance in rural areas. The abolition of the exam system disrupted the traditional career path of local elites, which previously provided a modern career path for them. As a result, it triggered both a moral hazard and adverse selection problem on the part of local elites. On one hand, the abolition removed the traditional constraint on local elites in local public goods provision, which prompted them to predate commoners who in turn, induced protests. On the other hand, the disappearance of civil exams incentivized some lower gentries, typically those of higher talent and/or from advantaged families, to pursue new careers in urban areas. Resultantly, those who had no good outside options remained in rural areas and delivered public services for private gain. Both the moral hazard and adverse selection triggered by the abolition of exams lead to the increase of protests against local elites in rural areas.

We apply a DID approach to empirically test the linkage between the abolition of civil exam and anti-elite protests. Using a prefecture-level dataset from 1902-1911, we find that those prefectures with a higher POUM before the abolition witness a higher incidence of anti-elite protests after the abolition. This key finding survives a series of validity checks, including a parallel trend test, robustness checks controlling for a multitude of confounding covariates, falsification tests and placebo tests.

We then build a simple model to pin down the mechanisms linking the abolition of the exam and anti-elite protests. The model highlights the role of worsening incentive and adverse selection in triggering anti-elite protests. To show the relevance of this theoretical model in explaining our empirical findings, we test the implications of the model which are summarized in four corollaries. The evidence provided is consistent with the predictions of the model. These findings highlight the role of POUM in shaping the selection effects and moral hazard of lower gentry as public agents.

Our study sheds new light on the roots of the Chinese communist revolution since the rise of “bad gentry” in rural areas set the stage for the Chinese Communist Party to fuel a social revolution. Rural local elites either switched to modern education in the cities or stayed in rural areas and decayed into “bad gentry”. The “grabbing hand” of local elites stirred up widespread complaints and protests, which enabled the Chinese Communist Party (CCP) to mobilize furious peasants from village to village to fight against local elites and finally overthrow the old regime ruled by the Chinese Nationalist Party (Perry, 1980, 2012). By presenting empirical evidence, our study helps to lend support to the notion

that the decay of the gentry, triggered by the abolition of the exam, planted the seeds of radical revolution in modern China.

REFERENCES

- Acemoglu, Daron, Tristan Reed, and James A. Robinson. "Chiefs: Economic Development and Elite Control of Civil Society in Sierra Leone." *Journal of Political Economy* 122, no. 2 (2014): 319-368.
- Akerlof, George A., and Rachel E. Kranton. *Identity Economics: How Our Identities Shape Our Work, Wages, and Well-Being*. Princeton: Princeton University Press, 2010.
- Bai, Ying. "Farewell to Confucianism: The modernizing effect of dismantling China's imperial examination system." *Journal of Development Economics* 141 (2019): 102382.
- Bai, Ying, and Ruixue Jia. "Elite Recruitment and Political Stability: The Impact of the Abolition of China's Civil Service Exam." *Econometrica* 84 (2016): 677-733.
- Bertrand, Marianne, Robin Burgess, Arunish Chawla, and Guo Xu. "The Glittering Prizes: Career Incentives and Bureaucrat Performance." *Review of Economic Studies* 87, no. 2 (2020): 626-655.
- Besley, Timothy. "Political Selection." *Journal of Economic Perspectives* 19, no. 3 (2005): 43-60.
- Brandt, Loren, Debin Ma, and Thomas G. Rawski. "From Divergence to Convergence: Reevaluating the History Behind China's Economic Boom." *Journal of Economic Literature* 52, no. 1 (2014): 45-123.
- Carvalho, Jean-Paul. "Veiling." *The Quarterly Journal of Economics* 128, no. 1 (2013): 337-370.
- Casey, Katherine, Rachel Glennerster, Edward Miguel, and Maarten Voors. "Skill versus voice in local development." NBER Working Paper No. w25022, 2018.
- Cantoni, Davide, and Noam Yuchtman. "The Political Economy of Educational Content and Development: Lessons from History." *Journal of Development Economics* 104 (2013): 233-244.
- Chang, Chung-li. *The Chinese Gentry; Studies on Their Role in Nineteenth-Century Chinese Society*. Seattle, WA: University of Washington Press, 1955.
- Chang, Chung-li. *The Income of the Chinese Gentry*. Seattle, WA: University of Washington Press, 1962.
- Chang, Peng-yuan. *Lixianpai yu xinhaigeming* (Constitutionalists and the Revolution of 1911 in China). Taipei: Institute of Modern, Academia Sinica, 1969.
- Chen, Bijia, Cameron Campbell, Yuxue Ren, and James Lee. China Government Employee Database-Qing (CGED-Q) Jinshenlu 1900-1912 Public Release, DataSpace@HKUST, V1, 2019.
- Chen, Ting, James Kai-sing Kung, and Chicheng Ma. "Long Live Keju! The Persistent Effects of China's Civil Examination System." *The Economic Journal* 130, (2020): 2030-

64.

- Chen, Yuhuan. *Baoding junxiao jiangshuailu* (General Record of Baoding Military College). Guangzhou: Guangzhou Press, 2006
- Ch'ü, T'ung-tsu. *Local Government in China under the Ch'ing*. Cambridge, MA: Harvard University Press, 1962.
- Chuah, Swee Hoon, Simon Gächter, Robert Hoffmann, and Jonathan HW Tan. "Religion, Discrimination and Trust across Three Cultures." *European Economic Review* 90 (2016): 280-301.
- de Kadt, Daniel, and Horacio A. Larreguy. "Agents of the Regime? Traditional Leaders and Electoral Politics in South Africa." *The Journal of Politics* 80, no. 2 (2018): 382-399.
- Deserranno, Erika. "Financial Incentives as Signals: Experimental Evidence from the Recruitment of Village Promoters in Uganda." *American Economic Journal: Applied Economics* 11, no. 1 (2019): 277-317.
- Duara, Prasenjit. *Culture, Power, and the State: Rural North China, 1900-1942*. Stanford, CA: Stanford University Press, 1991.
- Esherick, Joseph W. *Reform and Revolution in China: The 1911 Revolution in Hunan and Hubei*. Berkeley: University of California Press, 1976
- Esherick, Joseph W. "A Note on Land Distribution in Prerevolutionary China." *Modern China* 7, no. 4 (1981): 387-411.
- Fairbank, John King. *The Great Chinese Revolution, 1800-1985*. New York: Harper & Row, 1987.
- Fei, Hsiao-Tung. "Peasantry and gentry: an interpretation of Chinese social structure and its changes." *American Journal of Sociology* 52, no. 1 (1946): 1-17.
- Feng, Guifen. *Jiaobinlu kangyi* (Essays of protest from the cottage where one studies the ancient system of the Zhou). Shanghai: Shanghai book store press, 1897 (Reprinted in 2002).
- Finan, Frederico, Benjamin A. Olken, and Rohini Pande. "The personnel economics of the developing state." In *Handbook of economic field experiments* vol 2 (2017): 467-514.
- Gagliarducci, Stefano, and Tommaso Nannicini. "Do Better Paid Politicians Perform Better? Disentangling Incentives from Selection." *Journal of the European Economic Association* 11, no. 2 (2013): 369-398.
- Greif, Avner, and Guido Tabellini. "The clan and the corporation: Sustaining cooperation in China and Europe." *Journal of Comparative Economics* 45, no. 1 (2017): 1-35.
- Hao, Yu, and Melanie Meng Xue. "Friends from Afar: The Taiping Rebellion, Cultural Proximity and Primary Schooling in the Lower Yangzi, 1850-1949." *Explorations in Economic History* 63 (2017): 44-69.
- Hao, Yu, Yuanzhe Li, and John V. Nye. Information Transmission and Market integration:

- The Impact of Telegraph Construction on Grain Markets in the Late Imperial China. Peking University working paper, 2020.
- Henn, Soeren J. "Complements or Substitutes? How Institutional Arrangements Bind Chiefs and the State in Africa." Working paper, 2020.
- Hsiao Kung-Chuan. *Rural China: Imperial Control in the nineteenth century*. Seattle: University of Washington Press, 1967.
- Huang, Philip CC. "Rural Class Struggle in the Chinese Revolution: Representational and Objective Realities from the Land Reform to the Cultural Revolution." *Modern China* 21, no. 1 (1995): 105-143.
- Ho, Ping-ti. *The Ladder of Success in Imperial China: Aspects of Social Mobility, 1368-1911*. New York: Columbia University Press, 1962.
- Iyer, Sriya. "The new economics of religion." *Journal of Economic Literature* 54, no. 2 (2016): 395-441.
- Ji, Xiaofeng. *Zhongguo shuyuan cidian* (A Compendium on the Chinese Academies). Hangzhou: Zhejiang Education Press, 1996.
- Jiang, Qingbai. *Qingdai renwu shengzu nianbiao* (Chronology of Birth and Death of Notable Figures in Qing Dynasty). Beijing: People's literature press, 2005.
- Jin, G., and Liu, Q. (2011). *The Transformation of Chinese Society (1840-1956): The Fate of Its Ultrastable Structure in Modern Times* (In Chinese). Beijing: China Law Press.
- Kuhn, Philip A. *Rebellion and Its Enemies in Late Imperial China: Militarization and Social Structure, 1796-1864*. Cambridge, MA: Harvard University Press, 1970.
- Kuhn, Philip A. *Origins of the Modern Chinese State*. Stanford, CA: Stanford University Press, 2002.
- Kun, Gang. et al. (Eds.) *Qinding da Qing huidian shili* (Imperially Established Institutes and Laws of the Great Qing Dynasty) Beijing: Zhonghua shuju, 1899 (Reprinted in 1991).
- Liu, Cheng-yun. "Qingdai huidang shikong fenbu chutan" (On the Temporal Distribution of the Secret Societies in Qing Dynasty). In *Zhongguo jinshi shehuiwenhuashi lunwenji* (Essays on social and cultural history in modern China. The Institute of History and Philology, Academia Sinica, 1992).
- Luo, Zhitian. "Kejuzhi feichu zai xiangcunde shehui houguo" (The Social Consequences of Abolishing Imperial Examination System in Rural Area). *Zhongguo shehuikexue* (The China Social Science), no. 1 (2006): 191-204.
- Luo, Yudong. *Zhongguo lijin shi* (A History of China's Lijin Tax). Shanghai: Commercial Press, 1936.
- Michalopoulos, S., and E. Papaioannou. "On the Ethnic Origins of African Development: Chiefs and Precolonial Political Centralization." *The Academy of Management Perspectives* 29, no. 1 (2015): 32-71.

- Moore, Barrington. *Social Origins of Dictatorship and Democracy: Lord and Peasant in the Making of the Modern World*. Boston: Beacon Press, 1993.
- Niehaus, Paul, and Sandip Sukhtankar. "Corruption Dynamics: The Golden Goose Effect." *American Economic Journal: Economic Policy* 5, no. 4 (2013): 230-69.
- Pang, Hao, Zhiyin Xu, Hanhui Guan. "Comparison of Land Distribution between pre Land Reform and post Land Reform in China: A Study Based on Gazetters." *Zhongguo jingjishi yanjiu* (Research in Chinese Economic History), no. 1 (2021): 85-100.
- Perry, Elizabeth J. *Rebels and Revolutionaries in North China, 1845-1945*. Stanford: Stanford University Press, 1980.
- Perry, Elizabeth J. *Anyuan: Mining China's Revolutionary Tradition*. Berkeley: University of California Press, 2012.
- Qian, Shifu. *Qingdai zhiguan nianbiao* (A Chronological Table of Qing Officials). Beijing: Zhonghua Shuju, 2005.
- Rozman, Gilbert. *Urban Networks in Ch'ing China and Tokugawa Japan*. Princeton: Princeton University Press, 2015.
- Rosenthal, Jean-Laurent, and Roy Bin Wong. *Before and Beyond Divergence: The Politics of Economic Change in China and Europe*. Cambridge, MA: Harvard University Press, 2011.
- Rowe, William T. *China's Last Empire: The Great Qing*. Vol. 6. Cambridge, MA: Harvard University Press, 2010.
- Scarth, John. *Twelve Years in China: The People, the Rebels, and the Mandarins*. Edinburgh: T. Constable and Company, 1860.
- Shen, Yunlong. *Qingmo gesheng guanfei zifei liuri xuesheng xingmingbiao* (The Lists of Oversea Students in Japan in the Late Qing Period). Taipei: Wenhai Press, 1978.
- Skocpol, Theda. *States and Social Revolutions: A Comparative Analysis of France, Russia and China*. New York: Cambridge University Press.
- Sng, Tuan-Hwee. "Size and dynastic decline: The principal-agent problem in late imperial China, 1700-1850." *Explorations in Economic History* 54 (2014): 107-127.
- State Meteorological Society. *Zhongguo jinwubainian hanlao fenbu tuji* (Yearly Charts of Dryness and Wetness in China for the Last 500-Year Period). Beijing: Ditu Press, 1981.
- Statistics Bureau of Republic China. *Zhongguo zudianzhidu zhi tongjifenxi* (A Statistics Analysis of Chinese Land Tenure System). Chongqing: Zhengzhong Shuju, 1942.
- Tian, Wenjing. (Edited) *Qingban zhouxian shiyi* (Imperial issued guideline on how to perform as county magistrates). In *Guanzhenshu jicheng* (Collection of guideline books on how to perform as government officials), Vol 2 (1997): 676-677. Hefei: Huangshan press, 1729 (reprinted in 1997).
- Tian, Zhengping, and Sheng Chen. *Zhongguo jiaoyu zaoqi xiandaihua wenti yanjiu*. (Study on the early modernization of Chinese education). Hangzhou: Zhejiang Education

- Press, 2009.
- Wang, Shaoda, and Boxiao Zhang. "Buddha's Grace Illuminates All: Temple Destruction, School Construction, and Economic Growth in the 20th Century China." Working paper, 2018
- Wang, Xianmin. "Shishenjiaceng yu wangqing minbian" (Gentry Class and Protests in the Late Qing Dynasty). *Jindaishi yanjiu* (Journal of Modern History Study), no. 1 (2008): 21-33.
- Wang, Yi Chu. "Western Impact and Social Mobility in China." *American Sociological Review* (1960): 843-855.
- Wang, Yeh-chien. *Land Taxation in Imperial China, 1750-1911*. Cambridge, MA: Harvard University Press, 1973
- Wu, Jen-shu. *Jibian liangmin: Chuantong zhongguo chengshi qunzhong jiti xingdong zhifenxi* (Analysis of collective behaviors in traditional Chinese society). Beijing: Peking University Press, 2011.
- Yuchtman, Noam. "Teaching to the tests: An economic analysis of traditional and modern education in late imperial and republican China." *Explorations in Economic History* 63 (2017): 70-90.
- Zhang, Zhenghe, and Yuanying Ding. "Qingmo minbian nianbiao" (The Chronology of Civil Protests in Late Qing Dynasty). *Jindaishi ziliao* (Materials on Modern History), volume 49, 50 (1982).
- Chang, Yu-fa. *Qingji de geming tuanti* (Revolutionary Organizations of the Qing Period). Taipei: Academia Sinica, Institute of Modern History, 1982
- Zhu, Baojiong, and Peilin Xie. *Ming Qing jinshi timing beilu suoyin* (Index of Names of Jinshi Graduates in the Ming and Qing Periods). Shanghai: Shanghai Guji Press, 198.
- Zhou, Yuming. *Wanqing caizheng yu shehui bianqian* (Public Finance and Social Change in Late Qing Period). Shanghai: Shanghai Renmin Press, 2000.

Figures and tables

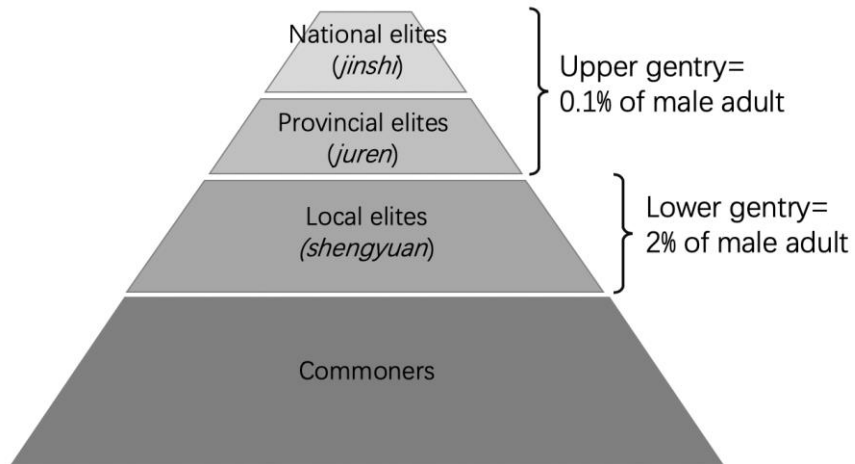
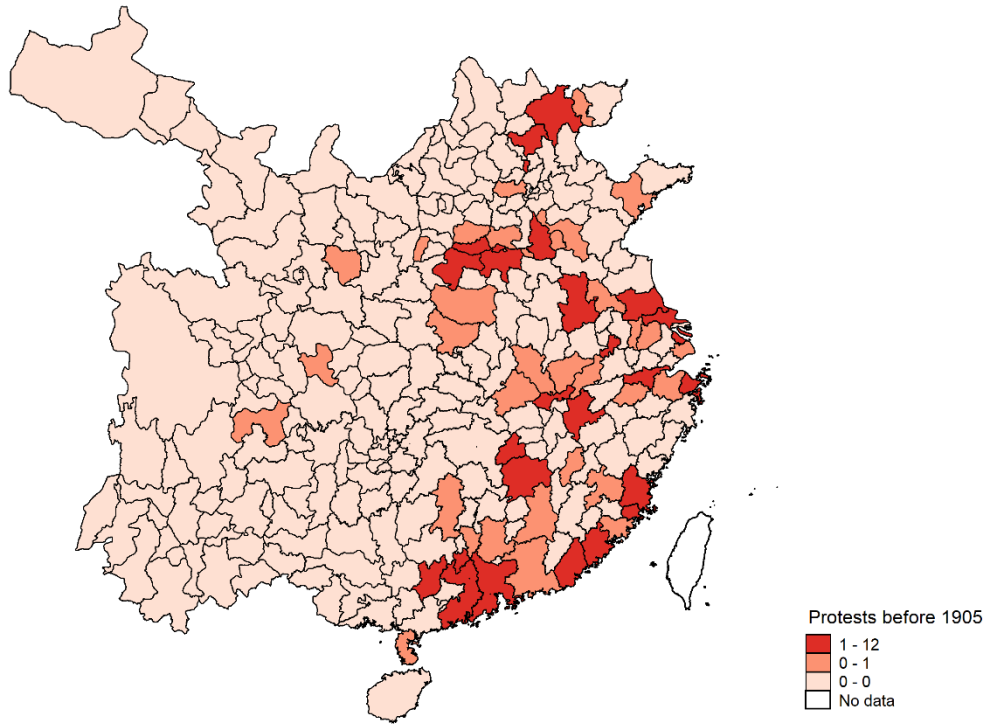


Figure 1. The Hierarchy (Degrees) of the *Keju* System

Source: Calculated by the authors.

(A) Anti-elite protests before the abolition (1902–1905)



(B) Anti-elite protests after the abolition (1906–1911)

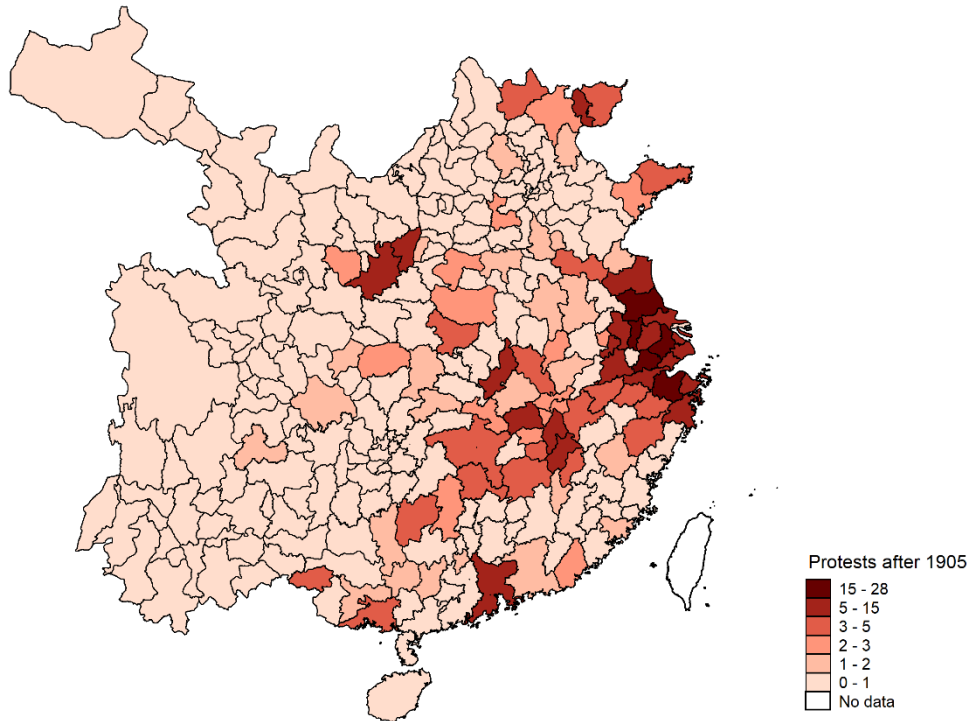
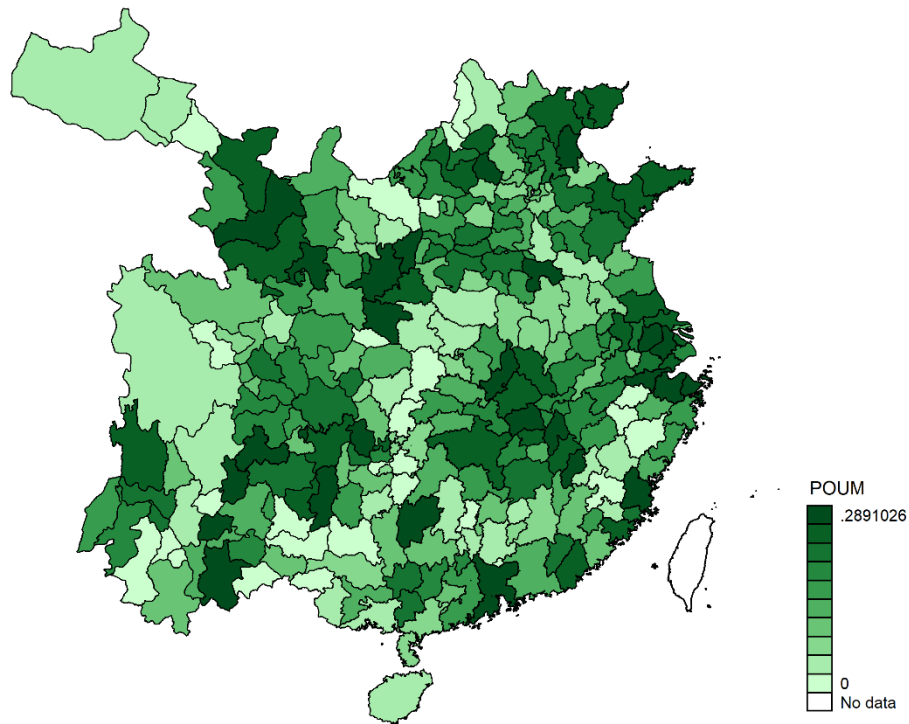


Figure 2. Spatial distribution of anti-elite protests

Source: See the Data section for details.

(A) Prospect of upward mobility for local elites



(B) Difference in anti-elite protests before and after the 1905

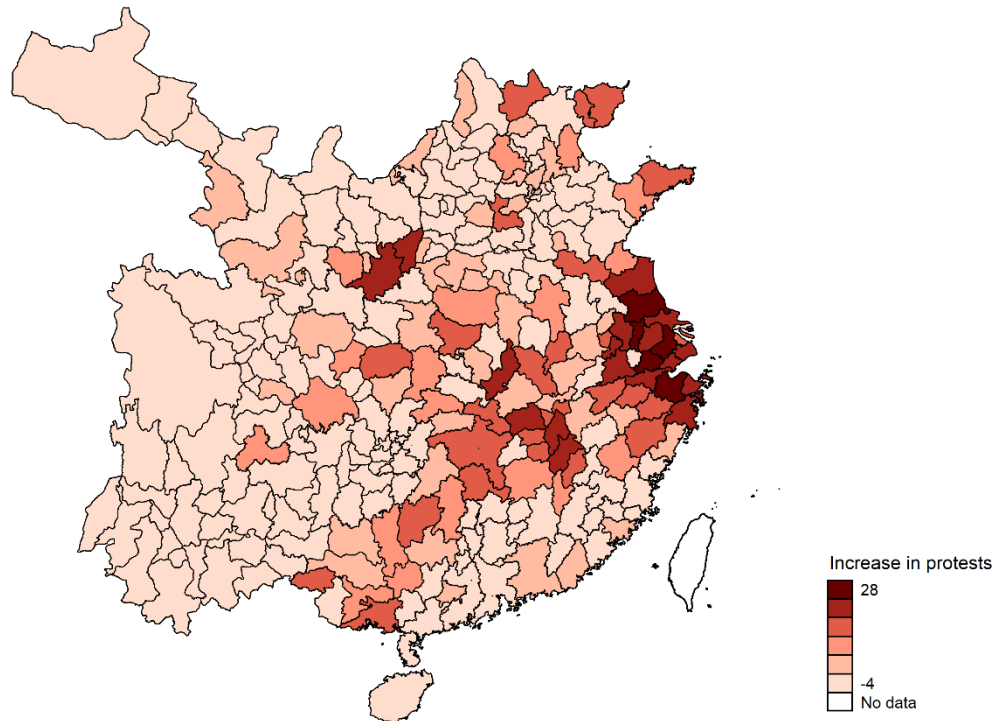


Figure 3. Spatial distribution of POUM and difference in anti-elite protests before and after the abolition

Source: See the Data section for details.

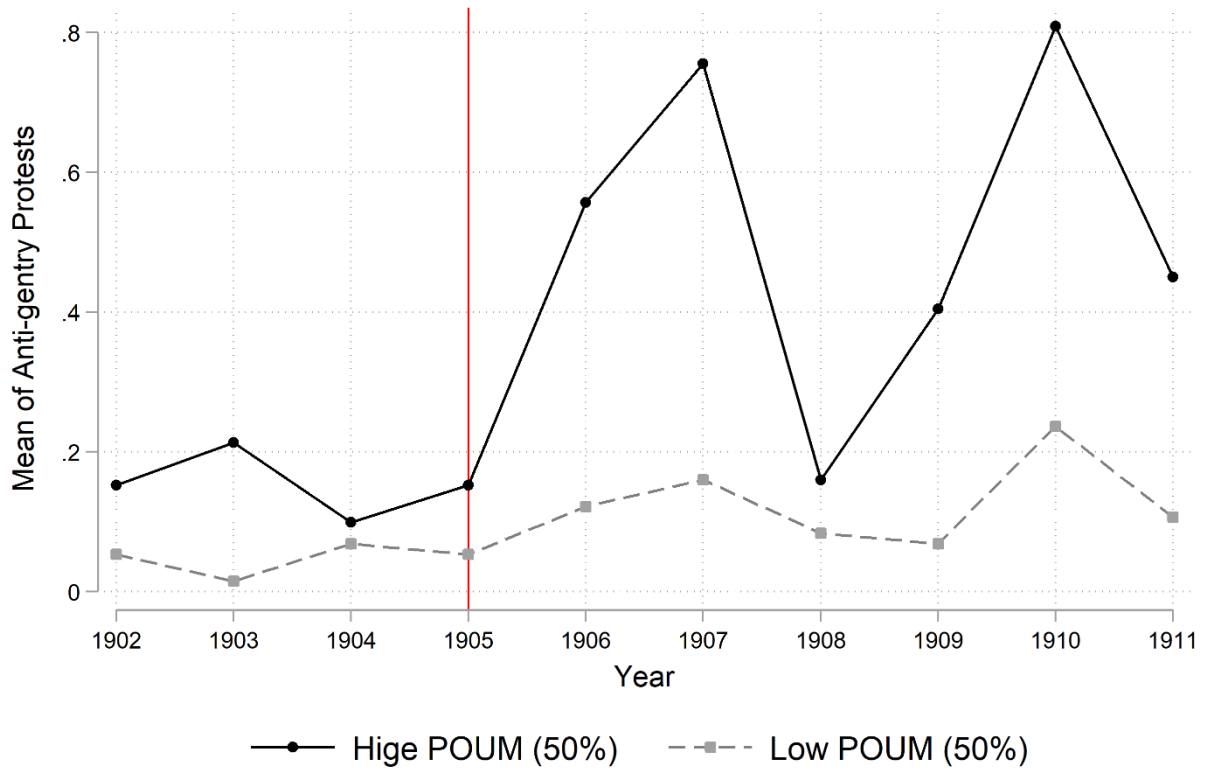


Figure 4. Trends of anti-elite protests per prefecture per year

Notes: This figure shows how the average frequency of anti-elite protests in two groups of prefectures changed during the entire sample period (1902-1911). The two groups of prefectures are divided by the prefectural median of the POUM. The high (low) prospect group is composed of prefectures above (below) the median (0.031). The red vertical line marks the year of the exam abolition.

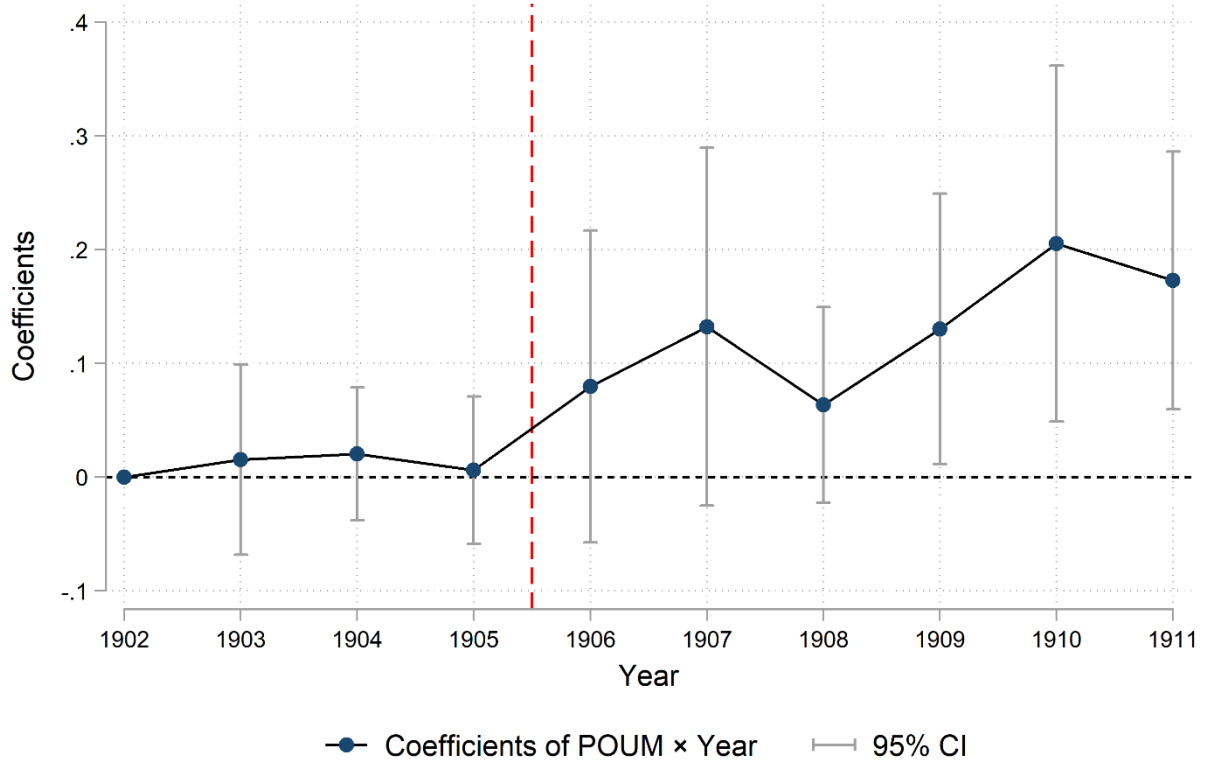


Figure 5. Dynamic effects of the POUM on anti-elite protests before and after the abolition of the exam

Notes: This figure shows the estimated coefficient by year from equation (2). Standard errors are clustered at the prefecture level. The points connected by the solid line indicate the estimated coefficients of the POUM interacted with $Year_t$. Year 1902 is omitted as the reference year. The grey lines with caps indicate the 95% confidence intervals. The red vertical dashed line marks the timing of the exam abolition.

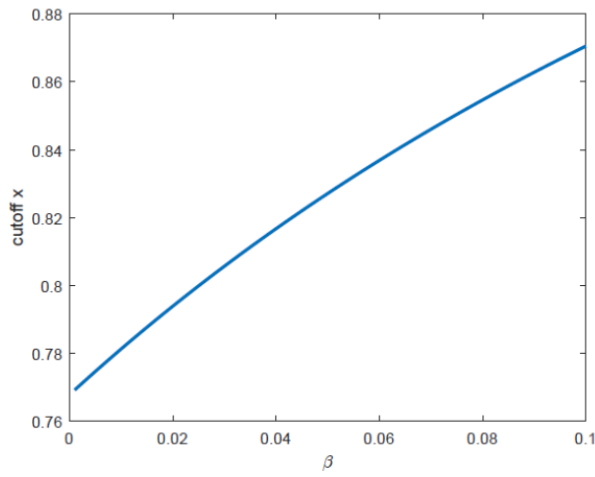


Figure 6.1: Cutoff \bar{x}

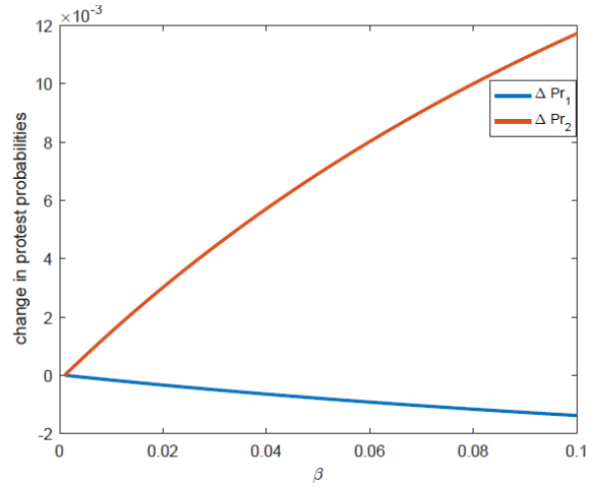


Figure 6.2: Changes in protest probabilities

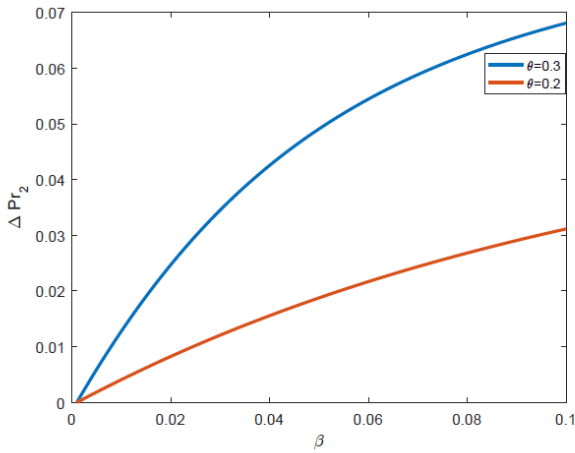


Figure 6.3: Impact of θ

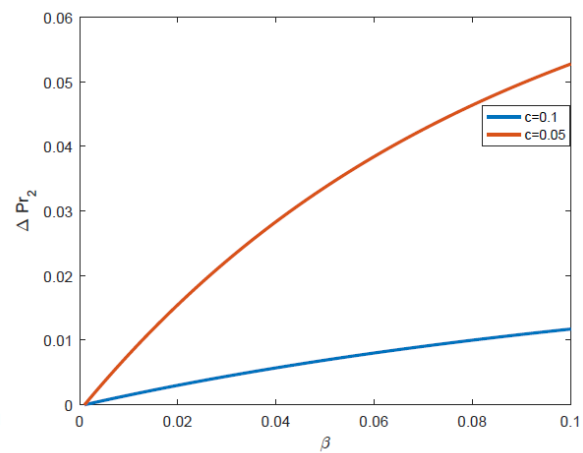


Figure 6.4: Impact of c

Figure 6. Model simulations.

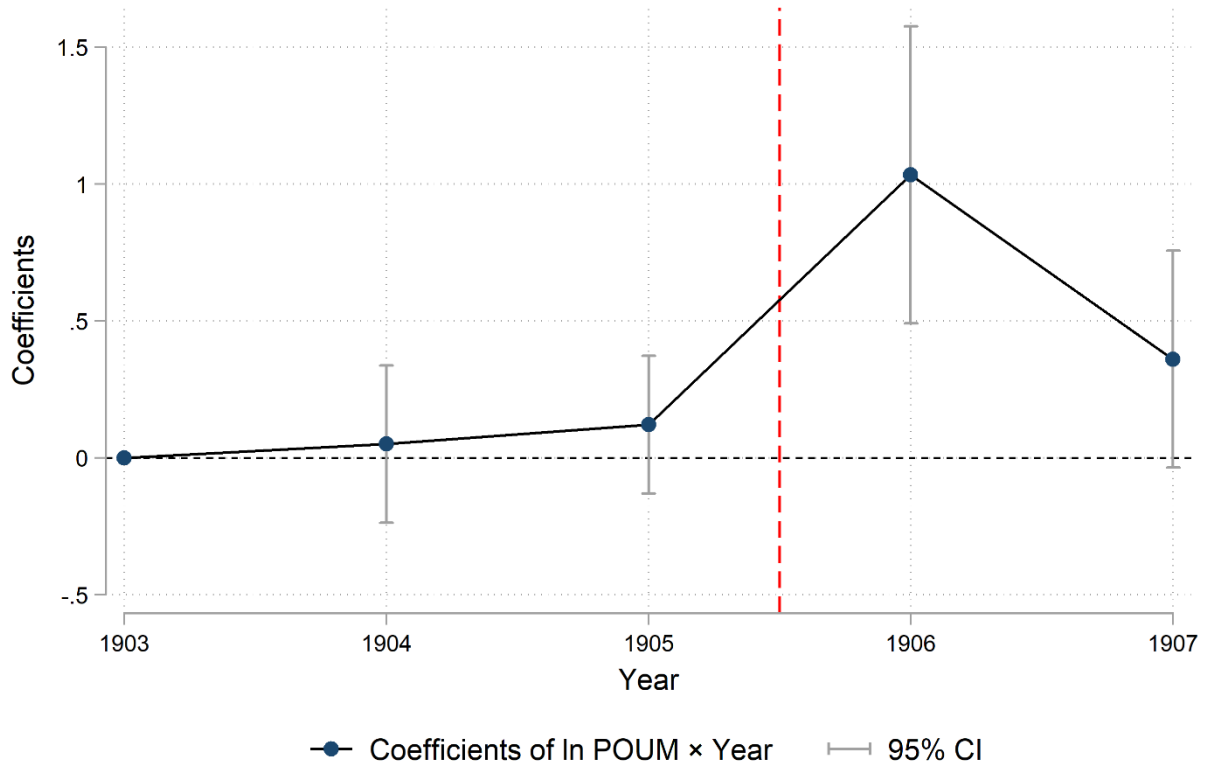


Figure 7. Dynamic effects of the POUM on military college enrolment.

Notes: This figure shows the dynamic effects extended from Table 5. Standard errors are clustered at the prefecture-level. The points connected by the solid line indicate the estimated coefficients of the POUM interacted with $Year_{\tau}$. Year 1903 is omitted as the reference year. The dashed lines with caps indicate the 95% confidence intervals. The red vertical line marks the timing of the abolition of the exam.

Table 1. Income and Status of Gentry and Commoners

	Upper gentry <i>Jinshi and Juren</i>	Lower gentry <i>Shengyuan and Jiansheng</i>	Clerks	Commoners <i>Excluding clerks</i>
Population (10 thousands)	6	125	100	37000
Average household income (taels of silver)	6936	183	200	31
Major residence	Urban	Rural	Rural	Rural
Privileged in tax payment	Yes	Yes	No	No
Privileged in legal status	Yes	Yes	No	No
Periodic evaluation	No	Yes	No	No
The evaluators with the power of removing titles	Central government	Local education supervisors	NA	NA
Eligibility for office holding	Yes	No, unless buying candidacy	No	No

Source: Calculated and summarized from Chang (1962).

Table 2. The Effect of POUM on Anti-elite Protests

	Anti-elite protests (mean: 0.236)				
	(1)	(2)	(3)	(4)	(5)
POUM × Post	0.165*** (0.052)	0.165*** (0.052)	0.135*** (0.036)	0.111*** (0.037)	0.126*** (0.037)
Weather shock		-0.050 (0.034)	-0.043 (0.034)	-0.014 (0.046)	-0.014 (0.046)
Prefecture FE	Y	Y	Y	Y	Y
Year FE	Y	Y	Y		
Province-specific trend			Y		
Province × Year FE				Y	Y
Other controls × Post					Y
Observations	2,620	2,620	2,620	2,620	2,620
R-squared	0.328	0.328	0.376	0.497	0.500

Notes: This table reports the estimation results of equation (1). Robust standard errors in parentheses are clustered at the prefecture-level. ***, **, * represent significance at the 1%, 5%, and 10% levels. Other controls include dummy variables for proximity to coast and main river, urbanization classifications, and rice and sweet potato suitability.

Table 3. Placebo tests

	Anti-church protest	Anti-gov't protest	Gang activities	Placebo social unrest (sum)
	(1)	(2)	(3)	(4)
POUM × Post	-0.001 (0.012)	0.016 (0.018)	-0.017 (0.016)	-0.003 (0.030)
Year FE	Y	Y	Y	Y
Province × Year FE	Y	Y	Y	Y
Other controls × Post	Y	Y	Y	Y
Observations	2,620	2,620	2,620	2,620
R-squared	0.210	0.273	0.256	0.292

Notes: This table reports the results of placebo tests. Robust standard errors in parentheses are clustered at the prefecture-level. ***, **, * represent significance at the 1%, 5%, and 10% levels. Placebo social unrest is the sum of outcomes in columns (1), (2), and (3). Other controls include dummy variables for proximity to coast and main river, urbanization classifications, and rice and sweet potato suitability.

Table 4. Evidence on surcharge

	Protests induced by surcharge	Vandalizing surcharge agencies	Vandalizing school
	(1)	(2)	(3)
Mean of D.V.	0.152	0.035	0.080
POUM × Post	0.058*** (0.022)	0.024** (0.012)	0.045*** (0.017)
Prefecture FE	Y	Y	Y
Province × Year FE	Y	Y	Y
Baseline controls × Post	Y	Y	Y
Observations	2,620	2,620	2,096

Notes: Robust standard errors in parentheses are clustered at the prefecture-level. ***, **, * represent significance at the 1%, 5%, and 10% levels. Other controls include dummy variables for proximity to coast and main river, urbanization classifications, and rice and sweet potato suitability.

Table 5. The role of state's monitoring and commoners' collective action

	Anti-elite Protests			
	(1)	(2)	(3)	(4)
POUM × Post	0.152*** (0.045)	0.072** (0.031)	0.129*** (0.043)	0.128*** (0.036)
POUM × Post × Distance to Beijing	-0.642** (0.271)			
Distance to Beijing × Post	-0.165*** (0.062)			
POUM × Post × Telegraph		0.139* (0.074)		
Telegraph × Post		0.476* (0.268)		
POUM × Post × Clan			0.839** (0.357)	
Clan × Post			2.515** (0.972)	
POUM × Post × Religion				0.019*** (0.006)
Religion × Post				0.075*** (0.020)
Prefecture FE	Y	Y	Y	Y
Province × Year FE	Y	Y	Y	Y
Other controls × Post	Y	Y	Y	Y
Observations	2,620	2,620	2,620	2,620

Notes: Robust standard errors in parentheses are clustered at prefecture level. ***, **, * denote significance at the 1%, 5%, 10% level. In column (1), we use the linear distance in thousand kilometers of a prefecture to Beijing. In column (2), telegraph indicates whether a prefecture was connected to the telegraph network before 1900. The strength of clan is proxied by the number of genealogies in column (3). The strength of religion is measured by the number of Buddhism temples in column (4). To keep the double-interaction terms having a standard interpretation, the distance to Beijing, clan, and religion in the triple-interaction term use the deviation from the sample mean. Other controls include dummy variables for proximity to coast and main river, urbanization classifications, and rice and sweet potato suitability.

Table 6. Evidence on Selection I: Modern Military College

	Military college enrolment (Mean: 0.98)	
	(1)	(2)
POUM × Post	0.435** (0.200)	0.640*** (0.167)
Prefecture FE	Y	Y
Year FE	Y	Y
Province × Year FE		Y
Observations	1,310	1,310

Notes: Robust standard errors in parentheses are clustered at the prefecture level. ***, **, * represent significance at the 1%, 5%, and 10% levels. Dependent variable is the military college enrolment per capita from a prefecture. The sample period is 1903-1907.

Table 7. Evidence on Selection II: Modern Secondary School

	Secondary school student (Mean: 58.44)		
	(1)	(2)	(3)
POUM	23.75** (9.751)	30.06*** (9.736)	26.52** (10.97)
Province FE		Y	Y
Other controls			Y
Observations	262	262	258

Notes: Robust standard errors in parentheses. ***, **, * represent significance at the 1%, 5%, and 10% levels. Dependent variables are normalized by the prefecture population (in million). The dependent variable in columns (1)-(3) is the total number of secondary school students per million citizens from 1907 to 1909. Other controls include dummy variables for proximity to coast and main river, urbanization classifications, and rice and sweet potato suitability.

Table 8. Alternation explanation: the role of landed gentry

	Anti-elite protests			
	(1)	(2)	(3)	(4)
POUM × Post	0.129*** (0.038)	0.130*** (0.037)	0.110*** (0.042)	0.104** (0.048)
Land Gini coefficient × Post	0.382 (0.393)	-0.014 (1.351)		
POUM × Post × Land Gini coefficient		-0.117 (0.352)		
Tenant farmer rate × Post			-0.004 (0.004)	-0.009 (0.019)
POUM × Post × Tenant farmer rate				-0.002 (0.005)
Prefecture FE	Y	Y	Y	Y
Province × Year FE	Y	Y		
Year FE			Y	Y
Other controls × Post	Y	Y	Y	Y
Observations	2,600	2,600	2,620	2,620
R-squared	0.503	0.503	0.337	0.337

Notes: This table reports the results examining the potential effect of landed gentry. Robust standard errors in parentheses are clustered at prefecture level. ***, **, * denote Significance at 1%, 5%, 10% level. The land Gini coefficient is calculated at the prefecture level, using data on land distribution around 1950 before the communist land revolution. The tenant farmer rate is the proportion of tenant framers at the provincial level in 1912. To keep the double-interaction terms having a standard interpretation, the land Gini coefficient and the tenant farmer rate in the triple-interaction term use the deviation from the sample mean. Other controls include dummy variables for proximity to coast and main river, urbanization classifications, and rice and sweet potato suitability.

Table 9. Alternation explanations: human capital and political enlightenment

	Anti-elite protests			
	(1)	(2)	(3)	(4)
POUM × Post	0.131*** (0.039)	0.092*** (0.030)	0.121*** (0.037)	0.123*** (0.036)
ln (Confucian Academies p.c.) × Post	0.046 (0.042)			
ln (Book author p.c.) × Post		0.076** (0.037)		
ln (Newspapers) × Post			0.026 (0.054)	
ln (Japan students p.c.) × Post				0.036 (0.032)
Prefecture FE	Y	Y	Y	Y
Province × Year FE	Y	Y	Y	Y
Other controls × Post	Y	Y	Y	Y
Observations	2,620	2,620	2,620	2,620
R-squared	0.500	0.501	0.500	0.500

Notes: This table reports the results after controlling for the potential influence of human capital and political enlightenment. Robust standard errors in parentheses are clustered at the prefecture-level. ***, **, * represent significance at the 1%, 5%, and 10% levels. Other controls include dummy variables for proximity to coast and main river, urbanization classifications, and rice and sweet potato suitability.

Online Appendixes

A Further historical background

A.1 The composition of local elites

In this section, we describe the composition of local elites and detail the potential roles of upper and lower gentries in local public affairs. While not all local elites in rural China were gentry, and some upper gentries might have significant power in local governance, the lower gentries played a major role in managing local affairs, especially in rural areas.

First, the upper gentry were most likely away from their hometowns. The most important feature distinguishing upper gentry (*Juren*, or higher as *Jinshi*) from lower gentry (*Shengyuan*) was the eligibility for holding governmental positions. Successful *Shengyuan* candidates who passed the provincial exam and obtained a *Juren's* degree would become candidates for imperial officials and would no longer be nongovernment local elites. Moreover, the personnel regulation of the Qing bureaucracy imposed the “rule of avoidance” and prohibited officials from serving in their home provinces or anywhere within 250 kilometers of their hometowns (Ch’u, 1962). Therefore, in most cases, upper gentries were far from their hometowns and had little influence on local affairs.³² The upper gentry would become a local elite again only after retiring from the governmental office and returning home.

Second, although some upper gentries might serve as local elites and have authority in providing local public goods, the actual influence of the upper gentry was restricted by their small size compared to the huge territory of the empire. According to an estimation by Chung-li Chang (1955), there were fewer than 10,000 living upper gentries who were not holding governmental positions (retired, resigned, or pursuing other careers, such as business) in late 19th century China. Considering that there were 1700 counties in China proper, and each county had 20–40 townships and several hundred villages (Hsiao, 1976), most rural communities could not have a single upper gentry living there and had to leave the void for lower gentry to dominate the community affairs as local elites. Even in cases in which the upper gentry played the leading role in rural public goods, their leadership usually worked as coordinators in intervillage affairs, and the lower gentry would still have a crucial presence in local governance. For example, while the upper gentry coordinated intervillage militia union for self-defense against the rebel army, it was the

³² The upper gentry as to-be-appointed officials would leave their hometowns even when they were still waiting for position vacancies. In the late Qing period, new officials waiting for formal appointments would be assigned temporary work or acting positions before they received formal appointments (Wu, 2011).

lower gentry who raised and managed the defense funding and who recruited, trained, and commanded the militia in their own villages (Kuhn, 1970).

There is some anecdotal evidence that, for places where the upper gentry became active, it was not always the case that the upper gentry led the lower gentry in providing and managing local public goods. Historians have documented a number of cases in which the lower gentry played the leading role. For instance, in response to the invasion of the Taiping rebel army in 1853, the local elites in Huanggang, Hubei province, organized a large multiplex militia association called Liuhe Banner that linked up militia bureaus (*TuanlianJu*) in six communities and mustered more than 10,000 militiamen. The list of division commanders contained only 3 upper gentries but 20 lower gentries (Kuhn, 1970). After the Taiping rebellion, Shaoyi Wang, *Shengyuan*, was one of the directors of the reconstruction bureau (*Shanhouju*) in Changshu, Jiangsu province (Luo, 2019). In 1844, *Shengyuan* from neighboring villages in Luling, Jiangxi province, established an intervillage mutual insurance fund for famine relief (Hsiao, 1967). In some cases, a lower gentry could even directly lead to an upper gentry: the Sangyuanwei Polder Embankment System was the largest irrigation and levee project in the Pearl River Delta. In the early 18th century, Yuling He, a lower gentry, was elected as the chief director of the management bureau, while his deputy director, Chenjiang Pan, was a *Juren's* degree holder (Faure, 2007).

Third, direct historical evidence shows that *Shengyuan* dominated local elites in the last years of the Qing dynasty, when local bodies of self-governance took root in local affairs. Thanks to Chang Peng-yuan's seminar contribution, we were able to trace the social backgrounds of assembly members. As shown in [Table A1](#), at the provincial level, the upper gentry was slightly more important, whereas in the county-level assemblies, the lower gentry accounted for three-quarters of the total, and only 11% of them were upper gentry. Since there were far fewer upper gentries in the rural areas below the county level, we can safely infer that the lower gentries composed the absolute majority of local elites in rural communities.

A.2 The activities of lower gentry

We referred to Chang's (1955, 1962) classic study of Chinese gentry for evidence for what lower entry typically did in rural areas. Chang (1955, Table 33) reported the proportion of gentry members who participated in different activities based on 2194 bibliographies of lower gentry members during 1796-1911. As shown in [Table A2](#), the proportion of gentries who did not participate in public service was only 18%. Despite potential sample selection bias, we have good reason to believe that the bulk of lower gentries participated in local public services in one way or another.

Chang (1962, Table 26) estimated the sources of gentry income in the same period. We further divide these numbers into upper and lower gentry based on his estimates in the last appendix of the book. As shown in Table A3, the income from providing gentry public service accounted for 42% of the total income for the lower gentry, whereas teaching and tutoring accounted for 26%.

It is still possible that lower gentry members specialized in different activities. For example, some of them only prepared for the exam and lived on teaching and tutoring, while others only participated in public services and did not prepare for the exam (so for the latter type, POUM did not give them an incentive to perform well). According to case studies collected by Chang (1955), however, it seemed not to be the case: a substantial share of lower gentry prepared for the exam while participating in public services. Participation in public services could not conflict with preparing for provincial exams. For example, Bao, Shichen (包世臣) and Zhang and Jian (张謇) both served as personal assistants to provincial governors when they were gentry, yet these activities did not prevent their later exam success. One potential reason is that the exam content was Confucian classics that exam takers had memorized since they were children. Since lower gentry already passed county exams, they would have had a great grasp of the exam content and possessed relatively high exam skills (Chen et al., 2020).

Table A1. Social backgrounds of assembly members (1907-1911)

	With exam degrees		With no exam degrees		
	upper gentry (<i>Jinshi</i> and <i>Juren</i>)	lower gentry (<i>Shengyuan</i>)	modern school	clerks	merchants
National congress ^a	112 (65%)	18 (11%)	41 (24%)	0	0
provincial assembly (all provinces) ^b	579 (36%)	482 (54%)	167 (10%)	0	0
county assembly (Hubei province) ^c	151 (11%)	1013 (76%)	35 (3%)	117 (9%)	10 (1%)

Source: a and b: Chang (1969); c: Su (1981).

Table A2. Proportion of lower gentry involving in different activities (1796-1911)

Activities	Number	Share
Organizing Self-defense (<i>tuanlian</i>)	973	44.34%
Financing and managing charity and relief	658	29.99%
Financing and managing public projects	216	9.84%
Holding rituals and ceremonies	246	11.21%
Mediating and judging local disputes	99	4.51%
Mediating the governments and commoners	49	2.68%
Lending and donating to the government	64	2.91%
No participation	402	18.32%
Total	2,194	100%

Source: Table 33 of Chang (1955).

Table A3. Source of income of gentry members (1796-1911)

Income source	Upper gentry		Lower gentry	
	Income	share	Income	Share
Holding official position	12,000	27.75%	100	0.47%
Gentry public service	2,100	4.86%	9,000	42.15%
Gentry private service	450	1.04%	450	2.11%
Teaching and tutoring	700	1.62%	5,500	25.76%
Other service	0	0.00%	900	4.22%
Land income (rent)	18,000	41.62%	4,000	18.74%
Commercial income (trades, usury, etc.)	10,000	23.12%	1,400	6.56%
Total	43,250	100%	21,350	100%

Notes: income in 10,000 silver taels.

Source: Table 26 and Appendix 9 of Chang (1962)

B Who remained in rural areas and engaged in public service?

We have established that there was a greater number of modern school students per capita after 1905 in areas with a higher POUM. In this section, using hand-collected micro-data on elected officials from the Suzhou prefecture in 1909, we establish that those elites who stayed in rural areas and engaged themselves in local public services (including new comers) were more likely to come from families with lower social and economic status.

We constructed a micro dataset on the electorate of a prefecture, combined with surname-level data, to determine whether those who stayed in rural areas providing local public service were on average less likely to come from high family backgrounds. The data came from a first-hand document recording 1600 people who were eligible to vote from the Suzhou prefecture in 1909. The Suzhou prefecture was recognized as the most prosperous area of China and the role model of local autonomy. The list reports individual surname, age, residence, and eligibility to vote. One might be eligible to vote if he obtained an exam degree, had wealth greater than 5000 silver dollars, or had participated in gentry service. The list only reports one item as eligibility. 300 people (20%) among all the electors were rural gentry directors. In addition, we construct four kinship/surname-specific variables indicating kinship backgrounds of the voter:

$$rr_degree_i = \frac{\text{share in exam title holders}_i}{\text{population share}_i}$$

$$rr_rich_i = \frac{\text{share in people with asset}_i}{\text{population share}_i}$$

$$rr_chaste_i = \frac{\text{share in chaste women}_i}{\text{population share}_i}$$

$$rr_college_i = \frac{\text{share in college student}_i}{\text{population share}_i}$$

where the population shares of surnames were derived from a name list of people who died in the Taiping Rebellion in 1851–1865. Records indicate that 8000 people across all social classes died in the Wu county, thereby providing us a good estimate of historical surname distribution. Essentially, these variables measure to what extent a kinship, relative to the average population, was more successfully producing exam degree holders, rich people, chaste women, and college students. This data was calculated from various name lists of notable people of the Wu county in the period 1645–1911.

In [Table B1](#), we conduct a logistic cross-sectional regression exploring what affects the likelihood of local gentry being in public service. The dependent variable is a dummy variable that equals 1 if the elector serves as a gentry director, namely the representative of lowest level councils (a village or town). The repressors include dummies of age,

residence, and four kinship/surname-specific variables indicating kinship background of the elector. In columns (1) and (2), we find that an elector was less likely to serve as a gentry director if he was younger, and if he resided in urban area. More importantly, an elected individual was less likely to serve as a gentry director if he came from a kinship with greater wealth and human capital. In column (3), we only include those elected individuals under the age of 30 and find similar but greater magnitude of results. In column (4), we only include those electors whose surname frequency was less than 100 among the sample of people who died in the Taiping rebellion. Thus, we exclude elected individuals with common surnames, many of whom were immigrants (Hao and Xue, 2017).

Table B1. The determinants of doing public service in Wu County, 1909

	Whether a voter was a gentry service director (Logistic regression)			
	(1) Baseline	(2) Robust error	(3) Age<30	(4) Sample population<100
age	0.0212*** (0.00624)	0.0212*** (0.00605)	0.0789 (-0.144)	0.0269*** (0.00791)
urban	-2.961*** (0.231)	-2.961*** (0.229)	-2.913*** (0.817)	-2.865*** (0.287)
rr_degree	-0.278*** (0.104)	-0.278*** (0.102)	-0.460* (0.277)	-0.282*** (0.107)
rr_rich	-0.185** (0.0938)	-0.185* (0.0999)	-1.472*** (0.556)	-0.188* (0.107)
rr_chaste	-0.0317 (0.0848)	-0.0317 (0.0758)	0.121 (0.164)	-0.0428 (0.0771)
rr_college	0.0523 (0.0978)	0.0523 (0.0966)	0.360* (0.205)	0.0654 (0.0994)
Observations	1,604	1,604	261	1,013

Notes: Robust standard errors in parentheses. ***, **, * represent significance at the 1%, 5%, and 10% levels. we construct four kinship/surname-specific variables indicating kinship backgrounds of the vote: $rr_{degree}_i = \frac{\text{share in exam title holders}_i}{\text{population share}_i}$, $rr_{rich}_i = \frac{\text{share in people with asset}_i}{\text{population share}_i}$, $rr_{chaste}_i = \frac{\text{share in chaste women}_i}{\text{population share}_i}$, $rr_{college}_i = \frac{\text{share in college student}_i}{\text{population share}_i}$, where the population share of surnames was derived from a name list of people who died in the Taiping Rebellion from 1851-1865.

C Supplementary figures and tables

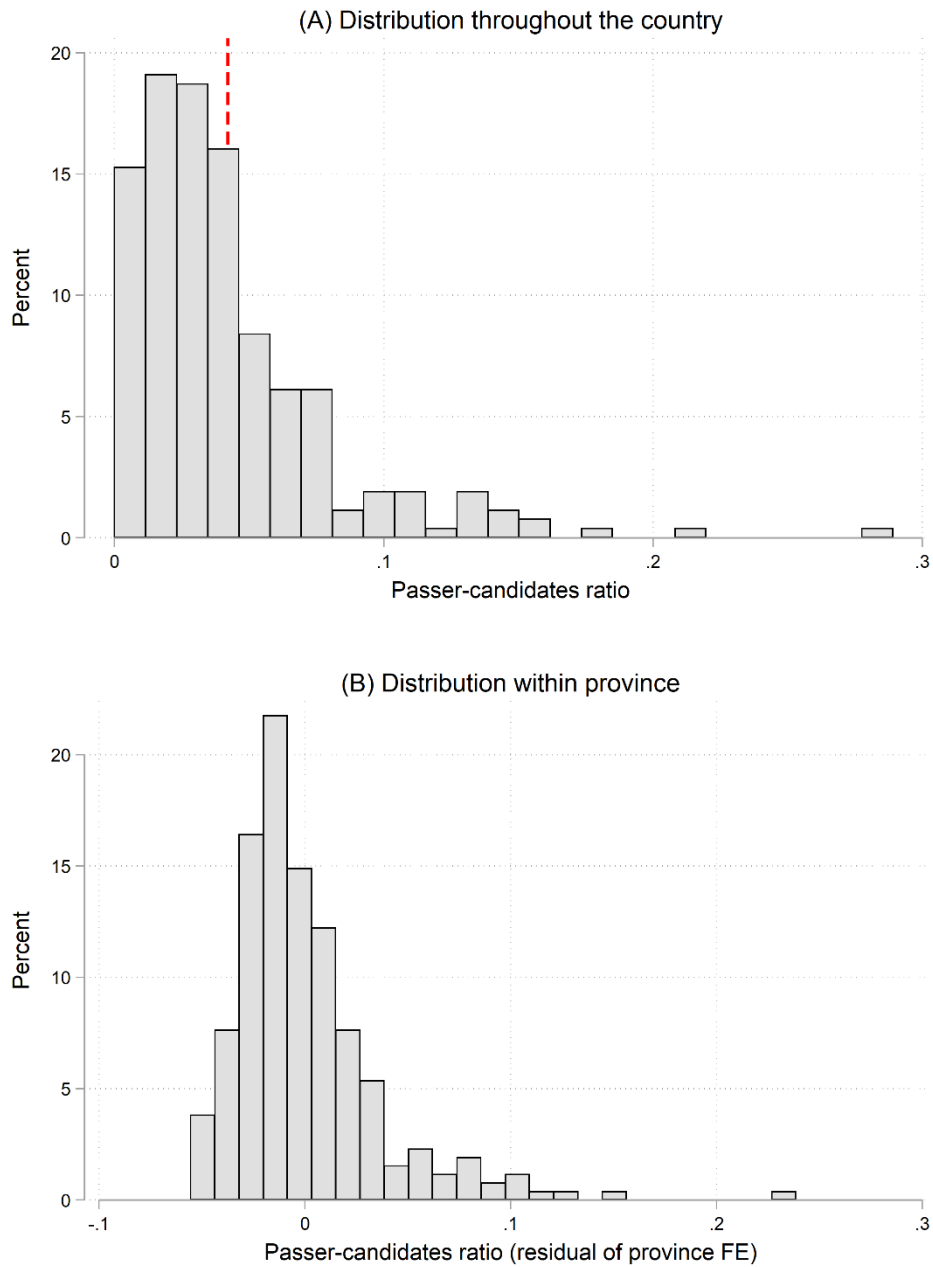


Figure C1. Distribution of the passer-candidates ratio

Notes: This figure presents a histogram showing the distribution of passer-candidates ratio across prefectures in the 13 provincial exams held from 1875–1905. Panel A uses the raw data and Panel B uses the residuals from regressing the passer-candidates ratio on province fixed effects. The vertical dashed line in Panel A corresponds to the mean of the passer-candidates ratio.

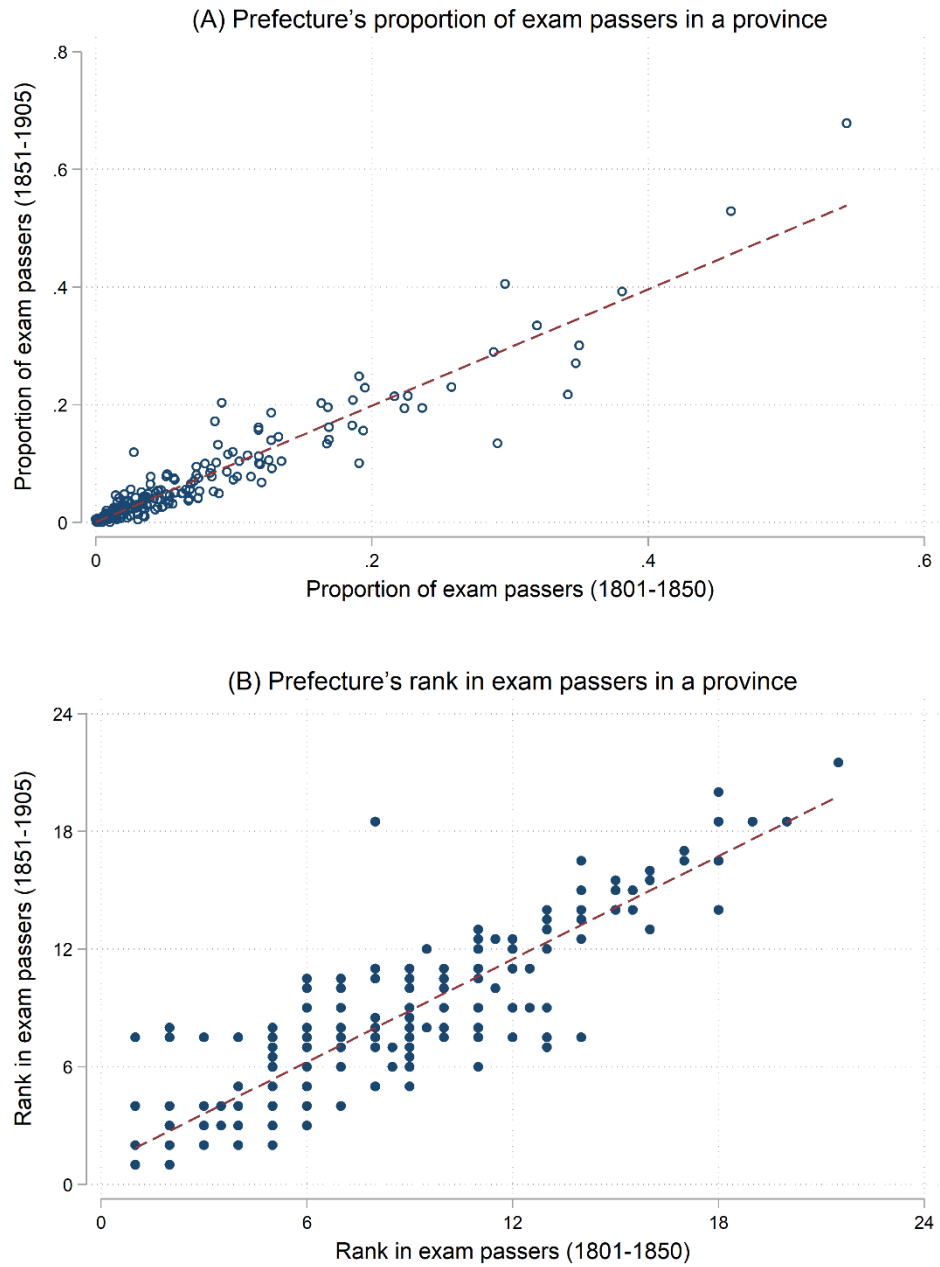


Figure C2. The Persistence of relative exam success within the province

Notes: Panel A plots prefecture's exam passers (*Juren*) as the proportion of total exam passers in a province in 1851-1905 against that in 1801-1850. Panel B plots the prefecture's rank in the number of exam passers in a province in 1851-1905 against that in 1801-1850.

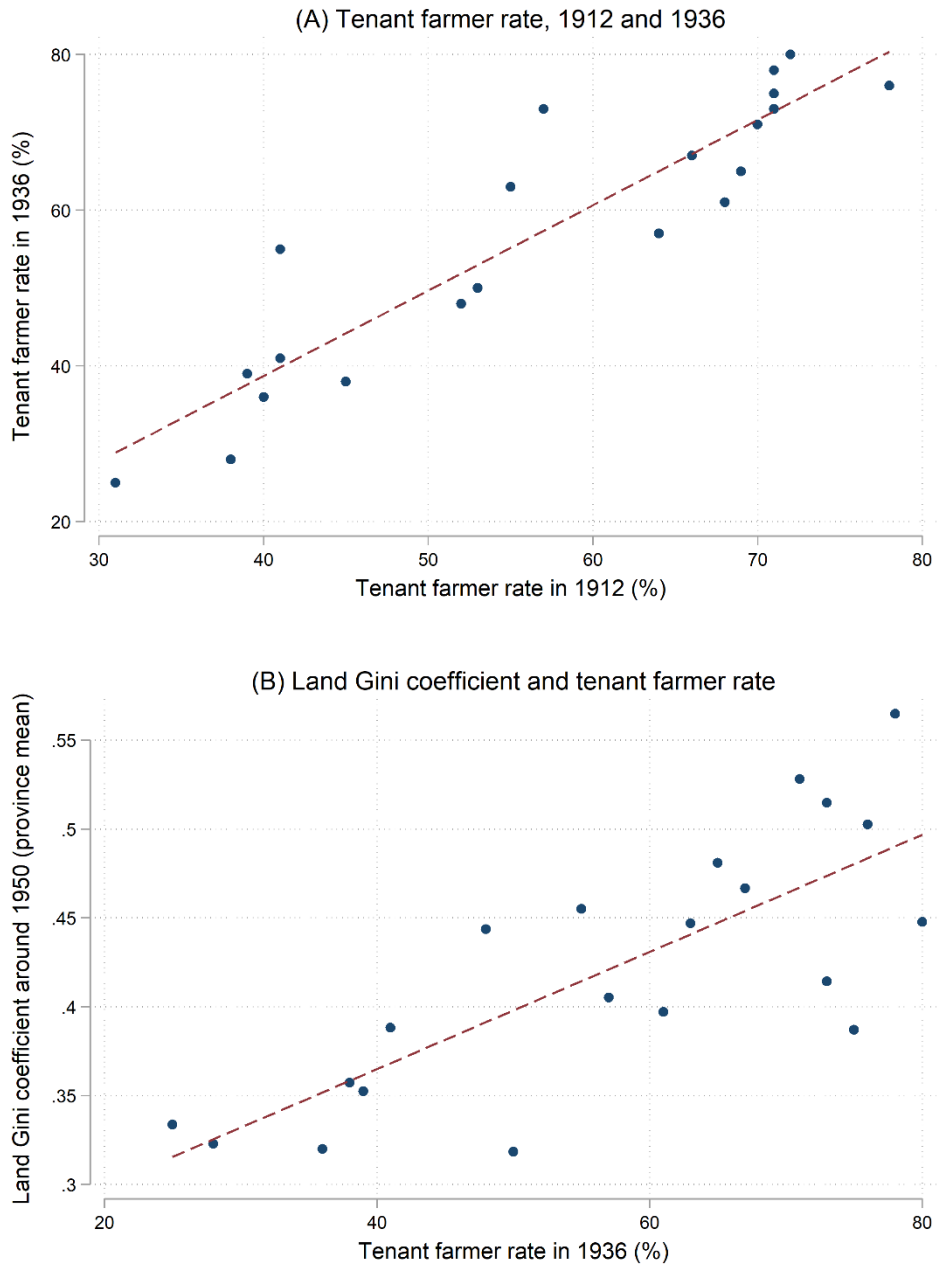


Figure C3. The correlation among land inequality in 1912, 1936, and 1950

Notes: Panel A plots the provincial level tenant farmer rate in 1936 against that in 1912, using data from Statistics Bureau of Republic China (1942). Panel B plots the provincial average land Gini coefficient around 1950 against the tenant farmer rate in 1936. Data on land Gini coefficient are from Pang, Xu and Guan (2021).

Table C1. Summary Statistics and Data Sources

Variable definition	Source	Observation	Mean	S.D.
<i>A. Protest type</i>				
Anti-elite Protest	A	2,620	0.236	0.828
School destroying	B	2,096	0.0802	0.419
Anti-church protest	A	2,620	0.0347	0.210
Anti-government rebellion	A	2,620	0.0523	0.292
Gang rebellion	C	2,620	0.0546	0.317
<i>B. Measures of exam</i>				
# Quotas	D	262	113.8	75.73
# Juren after 1875	E	262	74.71	105.5
Passers-candidates ratio	D, E	262	0.042	0.038
POUM (ln Passers-candidates ratio)	D, E	262	-0.879	0.838
<i>C. Prefecture characteristics</i>				
Treaty port	D	262	0.115	0.319
Coast region	D	262	0.134	0.341
Small city	F	262	0.198	0.400
Middle city	F	262	0.122	0.328
Large city	F	262	0.0382	0.192
Sweet potato suitability	G	262	2.622	0.991
Rice suitability	G	262	1.991	1.075
Weather shocks	H	2,620	0.129	0.335
<i>D. Selection proxies</i>				
Military students per capita	I	1,310	0.976	2.668
Secondary school student (per 10,000)	G	262	0.584	1.335

Source: A: Zhang and Ding (1980); B: Tian and Chen (2009); C: Liu (1992); D: Bai and Jia (2016); E: local gazetteers; F: Rozman (1973); G: Food and Agriculture Organization; H: State Meteorological Society (1981); I: Chen (2006); and J: The Ministry of Education of the Qing.

Table C2. Persistence of relative exam success within the province

	Passers proportion (1851–1905)			
	(1)	(2)	(3)	(4)
Passers proportion (1801–1850)	0.989*** (0.0657)			
Passers proportion (1751–1800)		0.980*** (0.0974)		
Passers proportion (1701–1750)			0.902*** (0.111)	
Passers proportion (1645–1700)				0.906*** (0.107)
Province FE	Y	Y	Y	Y
Observations	197	181	181	181
R-squared	0.892	0.784	0.658	0.608

Notes: This table shows the prefecture's exam passers (*Juren*) as the proportion of all exam passers in a province remained stable over a long period. Robust standard errors in parentheses. ***, **, * represent significance at the 1%, 5%, and 10% levels.

Table C3. The Effect of POUM on anti-elite protests: alternative measure

	Anti-elite protests				
	(1)	(2)	(3)	(4)	(5)
$\ln(\text{Jinshi/Shengyuan}) \times \text{Post}$	0.193*** (0.056)	0.194*** (0.056)	0.165*** (0.044)	0.129*** (0.047)	0.145*** (0.048)
Weather shock		-0.051 (0.034)	-0.037 (0.034)	-0.012 (0.045)	-0.010 (0.045)
Prefecture FE	Y	Y	Y	Y	Y
Year FE	Y	Y	Y		
Province-specific trend			Y		
Province \times Year FE				Y	Y
Other controls \times Post					Y
Observations	2,620	2,620	2,620	2,620	2,620
R-squared	0.334	0.334	0.379	0.499	0.501

Notes: This table reports the results using the alternative measure of POUM. Robust standard errors in parentheses are clustered at the prefecture-level. ***, **, * represent significance at the 1%, 5%, and 10% levels. Other controls include dummy variables for proximity to coast and main river, urbanization classifications, and rice and sweet potato suitability.

Table C4. Robustness: more controls

	Anti-elite protests				
	(1)	(2)	(3)	(4)	(5)
POUM× Post	0.138*** (0.040)	0.127*** (0.037)	0.126*** (0.038)	0.125*** (0.037)	0.146** (0.057)
Revolutionaries× Post	-0.003 (0.004)				
Fragmentation index × Post		0.577 (0.853)			
Polarization index × Post		-0.302 (0.489)			
Land tax per capita × Post			0.059 (0.344)		
Grain price					0.001 (0.001)
Political importance indicators				Y	
Prefecture FE	Y	Y	Y	Y	Y
Province × Year FE	Y	Y	Y	Y	Y
Other controls × Post	Y	Y	Y	Y	Y
Observations	2,620	2,620	2,610	2,620	1,694

Notes: Robust standard errors in parentheses are clustered at the prefecture level. ***, **, and * represent significance at the 1%, 5%, and 10% levels. Political importance indicators are four dummies indicating whether the prefecture is important in transportation, important in business, difficult to tax and has high crime. Other controls include dummy variables for proximity to coast and main river, urbanization classifications, and rice and sweet potato suitability.

Table C5. The upward prospect for other segments in the exam hierarchy

	Anti-elite protests		
	(1)	(2)	(3)
ln (Quota/Population) × Post	0.068 (0.052)		
ln (<i>Jinshi</i> / <i>Juren</i>) × Post		0.050 (0.064)	
ln (Official/ <i>Jinshi</i>) × Post			-0.003 (0.039)
Prefecture FE	Y	Y	Y
Province × Year FE	Y	Y	Y
Other controls × Post	Y	Y	Y
R-squared	0.498	0.497	0.496
Observations	2,620	2,580	2,540

Notes: This table reports the results examining the upward prospect of other segments in the exam hierarchy. Robust standard errors in parentheses are clustered at the prefecture-level. ***, **, * represent significance at the 1%, 5%, and 10% levels. Other controls include dummy variables for proximity to coast and main river, urbanization classifications, and rice and sweet potato suitability.

Table C6. Other competing stories

VARIABLES	Anti-elite protests					
	(1)	(2)	(3)	(4)	(5)	(6)
POUM × Post	0.141*** (0.038)	0.104*** (0.034)	0.097*** (0.034)	0.132*** (0.045)	0.127*** (0.037)	0.123*** (0.037)
ln (Fiscal revenue per capita) × Post	0.322*** (0.091)					
Commercial tax bureaus × Post		0.027* (0.015)				
Governmental officials × Post			0.002 (0.002)			
Lower gentry in provincial assembly × Post				0.007 (0.016)		
Treaty port × Post					0.140 (0.151)	
Distance to the nearest treaty port × Post						-0.035 (0.028)
Prefecture FE	Y	Y	Y	Y	Y	Y
Other controls × Post	Y	Y	Y	Y	Y	Y
Year FE	Y					
Province × Year FE		Y	Y	Y	Y	Y
Observations	2,620	2,620	2,620	2,260	2,620	2,620
R-squared	0.346	0.501	0.501	0.504	0.500	0.501

Notes: This table reports the results examining other competing stories in Alternative Explanations Section. Robust standard errors in parentheses are clustered at the prefecture-level. ***, **, * represent significance at the 1%, 5%, and 10% levels. Other controls include dummy variables for proximity to coast and main river, urbanization classifications, and rice and sweet potato suitability.

Appendix References

- Chang, Chung-li. *The Chinese Gentry: Studies on Their Role in Nineteenth-Century Chinese Society*. Seattle: University of Washington Press, 1955.
- Chang, Chung-li. *The Income of the Chinese Gentry*. Seattle, WA: University of Washington Press, 1962.
- Chang, Peng-yuan. *Lixianpai yu xinhaigeming* (Constitutionalists and the Revolution of 1911 in China). Taipei: Institute of Modern, Academia Sinica, 1969.
- Chen, Ting, James Kai-sing Kung, and Chicheng Ma. "Long Live Keju! The Persistent Effects of China's Civil Examination System." *The Economic Journal* 130, (2020): 2030-64.
- Ch'u, T'ung-tsu. *Local government in China under the Ch'ing*. Cambridge, MA: Harvard University Press, 1962.
- Faure, David. *Emperor and ancestor: State and lineage in South China*. Stanford: Stanford University Press, 2007.
- Ho, Ping-ti. *The Ladder of Success in Imperial China: Aspects of Social Mobility, 1368-1911*. New York: Columbia University Press, 1962.
- Hsiao Kung-Chuan. *Rural China: Imperial Control in the nineteenth century*. Seattle: University of Washington Press, 1967.
- Kuhn, Philip A. *Rebellion and Its Enemies in Late Imperial China: Militarization and Social Structure, 1796-1864*. Cambridge, MA: Harvard University Press, 1970.
- Luo, Xiaoxiang. "Gentry Power and Trust Crisis in Late Qing Jiangnan: A Case Study of Changshu." *Zhongyangyanjiuyuan jindaishi yanjiusuo jikan* (Bulletin of the Institute of Modern History, Academia Sinica), 103 (2019), 47-89.
- Su, Yun-feng. *Zhongguo xiandaihua de quyuyanjiu: hubeisheng, 1860-1916* (Modernization in China, 1860-1916: A Regional Study of Social, Political and Economic Change in Hupeh). Taipei: Institute of Modern History, Academia Sinica, 1981.
- Tian, Wenjing. (Edited) (1729). Imperial issued guideline on how to perform as county magistrates [Qingban zhouxian shiyi], in *Collection of guideline books on how to perform as government officials* [Guanzhenshu jicheng], p676, Vol 2 (1997): 676-677. Hefei: Huangshan press.
- Wu, Yue, *Chūgoku no ennō seido to shakai*. Kyoto: Kyoto daigaku gakushu shuppansha, 2011.