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The Capacity of Commerce: How the Merchants Shaped Political Resource Distribution during the Taiping Rebellion

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This paper investigates whether merchant organizations shaped the wartime redistribution of political resources in late imperial China. During the Taiping Rebellion (1851–1864), the Qing government turned to merchant networks for war finance and, in exchange, expanded examination quotas for the *shengyuan* degree. Using cross-sectional data on 262 prefectures, I show that pre-war merchant guild presence strongly predicts wartime quota increases, concentrated in battle-affected areas. Instrumenting guild presence with Ming-dynasty trade routes supports a causal interpretation. The *lijin* commercial tax is a plausible channel: prefectures collecting more *lijin* revenue received larger quota allocations. A difference-in-differences analysis confirms that quota expansions translated into higher *jinshi* production after 1864. The findings provide quantified evidence that fiscal contributions can purchase political selection in a premodern autocracy.

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Abstract

This paper investigates whether merchant organizations shaped the wartime redistribution of political resources in late imperial China. During the Taiping Rebellion (1851–1864), the Qing government turned to merchant networks for war finance and, in exchange, expanded examination quotas for the *shengyuan* degree. Using cross-sectional data on 262 prefectures, I show that pre-war merchant guild presence strongly predicts wartime quota increases, concentrated in battle-affected areas. Instrumenting guild presence with Ming-dynasty trade routes supports a causal interpretation. The *lijin* commercial tax is a plausible channel: prefectures collecting more *lijin* revenue received larger quota allocations. A difference-in-differences analysis confirms that quota expansions translated into higher *jinshi* production after 1864. The findings provide quantified evidence that fiscal contributions can purchase political selection in a premodern autocracy.

Keywords: Commerce, Civil Service Exam, Indirect Taxation, Taiping Rebellion

JEL codes: D72, H20, N45, P16

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1 Introduction

Can private economic actors purchase access to state institutions? Theory suggests they can. Models of interest-group politics predict that organized groups will invest in political influence when the expected returns exceed the costs (Becker, 1983; Krueger, 1974; Olson, 1965; Peltzman, 1976; Stigler, 1971; Tullock, 1967), and Grossman and Helpman (1994, 2001) show formally how firms offer financial contributions to politicians in exchange for favorable trade policy. Empirical work confirms that such purchases of political influence are widespread in democracies: political connections raise firm value (Fisman, 2001; Khwaja and Mian, 2005), lobbying shapes legislative outcomes (Ansolabehere et al., 2003; Bombardini and Trebbi, 2020; de Figueiredo and Richter, 2014), and campaign contributions buy trade protection (Goldberg and Maggi, 1999). Nearly all of this evidence, however, comes from modern democracies with formal lobbying channels and disclosure requirements. Whether private actors can similarly buy political access in autocracies, where formal channels are absent and transactions between wealth and power are largely hidden, remains an open question.

Fiscal crises make this question especially pressing. When wars drain the treasury, states must develop new fiscal instruments and bargain with wealthy domestic actors for revenue (Besley and Persson, 2009, 2011; Dincecco, 2017; Gennaioli and Voth, 2015; Karaman and Pamuk, 2013; Tilly, 1990). The bargains struck under wartime pressure can reshape who gains access to political institutions long after the crisis ends, but because they are forged under emergency conditions and outside formal institutions, they leave few traces in the historical record. The empirical literature has therefore struggled to observe what exactly the state offered in return for private fiscal support.

Late imperial China offers a rare exception. For centuries, the Qing state regulated entry into the political elite through a civil service examination system. Each prefecture was assigned a fixed number of quotas for the *shengyuan* degree, the entry-level examination title. More quotas meant more local candidates could pass, opening the path to higher degrees (*juren*, *jinshi*) and ultimately government appointment. For merchants, who had long occupied the lowest formal social rank but were permitted to sit for examinations,

additional quotas represented a concrete increase in the probability of upward mobility. For most of the Qing dynasty, quotas were fixed and rarely adjusted, so the system was stable.

The Taiping Rebellion (1851–1864) disrupted this stability. The war devastated government finances, and the government responded by expanding examination quotas for prefectures that contributed financially to the war effort. The resulting quota increases were unprecedented in both scale and geographic scope, concentrated in the commercially developed regions that bore the heaviest fighting. What makes this setting unusually observable is that three elements of the resulting bargain are all recorded in historical sources: the level of merchant organization in each prefecture, how many additional quotas it received, and how many degrees were subsequently conferred. I ask three questions. Did the Qing government systematically allocate more examination quotas to prefectures with stronger merchant presence? Through what channel did merchant wealth translate into political reward? And did these rewards produce lasting consequences for elite formation?

To answer above questions, I collect data on commercial guilds, *lijin* tax stations, examination quotas, and *jinshi* outcomes across 262 prefectures to document and quantify the exchange between merchant fiscal contributions and examination quotas. The analysis proceeds in three steps.

First, I establish the cross-sectional relationship between pre-war merchant guild presence and wartime quota increases. The preferred OLS estimate with full controls is 9.259, significant at the 1% level. In a median-sized prefecture, moving from zero IHS guild density to the 95th percentile of the sample predicts about six additional quota slots. This relationship is concentrated in the 98 prefectures affected by Taiping battles; no significant association appears in the 164 unaffected prefectures, suggesting that the guild–quota relationship reflects wartime fiscal contributions rather than a general correlation between commerce and political institutions.

To address endogeneity concerns, I instrument guild presence with the number of Ming-dynasty trade routes listed in Huang Bian’s *Yitong Lucheng Tuji* (Huang, 1507). The Ming commercial route network changed little by the Qing, so it justifies the usage of Ming trade routes as IV (Zhang, 2019). The instrument is strong, with a first-stage F -statistic of 26.9 and balance tests confirm it is uncorrelated with observable confounders. The 2SLS estimate

with full controls is 19.630, positive and significant at the 1% level, exceeding the OLS in a manner consistent with attenuation bias from measurement error in historical guild counts.

Second, I identify the *lijin* tax as the channel linking merchant presence to quota increases. I construct three prefecture-level proxies for *lijin* taxation: estimated annual revenue, the density of main stations, and the density of all stations. All three predict quota increases in both the full sample and the Taiping-affected subsample. Fujian Province offers a further check because it is the only province with provincial-level actual *lijin* revenue records for every year from 1853 to 1864. County-level regressions for Fujian’s 61 counties confirm the pattern using five *lijin* measures, including two employee-share proxies built from those provincial wartime totals. I also rule out the alternative that the government increased quotas to compensate for population losses: population loss is insignificant in all specifications, while guild density remains robust.

Third, I examine whether wartime quota increases produced lasting consequences for elite formation. I construct a balanced prefecture-year panel of *jinshi* counts from 1800 to 1904, where *jinshi* was the highest tier of the examination system and the gateway to central government appointment. Using a difference-in-differences design with prefecture and year fixed effects, I find that prefectures receiving larger quota increases produced significantly more *jinshi* per unit area after 1864. The result holds across five specifications with progressively stricter controls, including baseline characteristics interacted with the post-treatment dummy and province-by-post fixed effects. An event-study plot shows coefficients near zero before 1864 and a clear positive jump afterward, supporting the parallel-trends assumption.

Taken together, these results trace a chain from merchant organization through fiscal contributions to political access and ultimately elite formation. This paper makes four contributions. First, I provide quantified evidence of a transaction between private fiscal contributions and political selection in a premodern autocracy. The literature on money in politics has focused almost exclusively on democratic settings, where influence operates through elections, lobbying, and regulatory capture ([Ansolabehere et al., 2003](#); [Bombardini and Trebbi, 2020](#); [de Figueiredo and Richter, 2014](#)). A growing body of work measures the value of political connections in modern economies ([Fisman, 2001](#); [Khwaja and Mian, 2005](#)), but comparable evidence from premodern autocracies is scarce. In autocracies, the

mechanisms differ: merchants cannot donate to campaigns or hire lobbyists. Instead, the Qing government created a system in which fiscal contributions bought examination quotas, a measurable, institution-level reward with clear implications for political selection. [Acemoglu and Robinson \(2008\)](#) model how economic elites use wealth to shape political institutions and persist in power; the quota-for-revenue exchange I document in Qing China provides a concrete historical example of this process.

Second, I identify a distinctly Chinese path of merchant political influence: state-brokered entry into the bureaucracy. In Europe, merchant coalitions bargained with rulers for representative constraints and property-rights protections ([Acemoglu et al., 2005](#); [Greif et al., 1994](#); [Greif, 2006](#); [North, 1990](#); [North and Weingast, 1989](#); [Ogilvie, 2011, 2014](#)), and [Greif and Tabellini \(2017\)](#) show that China and Europe developed fundamentally different modes of sustaining cooperation, clan-based in China and corporation-based in Europe. Chinese merchants did not lobby for parliamentary seats or municipal charters in premodern context. Instead, they financed the state during wartime and received examination quotas in return, gaining access to the bureaucracy through the orthodox channel. This “revenue-for-selection” exchange represents a mode of merchant political influence with no close European parallel.

Third, I add to the literature on social mobility, human capital, and political selection. [Ho \(1962\)](#) and [Chang \(1955\)](#) documented the social role of the examination system, and more recent work uses quotas as a proxy for upward mobility prospects ([Bai and Jia, 2016](#); [Hao et al., 2022](#)). [Chen et al. \(2020b\)](#) show that the civil examination had persistent effects on human capital accumulation across Chinese prefectures, while a broader literature examines how educational institutions shape economic outcomes ([Cantoni and Yuchtman, 2014](#)) and how meritocratic selection interacts with patronage in bureaucratic appointment ([Xu, 2018](#)). I complement this work by showing that wartime quota expansions, driven by merchant fiscal contributions, generated measurable increases in *jinshi* production, confirming that the examination channel remained a functional vehicle for social mobility even as the purchase of official positions expanded in the late Qing.

Fourth, I contribute to the political economy of war, taxation, and state capacity. The comparative literature links armed conflict to fiscal innovation ([Besley and Persson, 2009](#),

2011; Dincecco, 2017; Gennaioli and Voth, 2015; Tilly, 1990), but the specific mechanisms through which autocratic states bargain with private actors during wartime are less well understood. In the Chinese context, Sng (2014) and Sng and Moriguchi (2014) show that the Qing state faced severe principal-agent constraints on fiscal extraction due to its vast territory, and Ma and Rubin (2019) argue that absolutist rulers rationally settled for low-tax equilibria to avoid agent overexploitation. I show that the Qing government found a way around these constraints during the Taiping Rebellion: rather than building direct extractive capacity, it delegated tax collection to merchant networks through the *lijin* and rewarded them with political access. This revenue-for-selection equilibrium illustrates a distinct mode of fiscal-military state-building in which the state expanded its capacity by co-opting economic elites through selective incorporation into the bureaucracy.

The paper proceeds as follows. Section 2 provides historical background. Section 3 presents the empirical specification and data. Section 4 reports baseline OLS results, robustness checks, and IV estimates. Section 5 identifies the *lijin* channel and rules out population loss as an alternative. Section 6 examines consequences for *jinshi* production. Section 7 concludes.

2 Historical Background

2.1 The Structure of the Civil Service Exam

China was governed by a succession of imperial dynasties for over two thousand years. The civil service examination was established during the Song Dynasty (960–1276) but not fully institutionalized until the Ming Dynasty (1368–1643), after the interruption of the Yuan Dynasty (1271–1368). It remained in place through the Ming and Qing dynasties until its abolition in 1905. The primary objective was to select individuals for government appointment based on merit rather than family background (Elman, 2000; Ho, 1962).

The examination had three tiers. The county-level exam was held locally in each of the empire’s roughly 1,500 counties. Passing it earned the title of *shengyuan*. The provincial-level exam conferred the *juren* title. The national-level exam conferred the *jinshi* title.

Only those who passed a given level could enter the next. *Jinshi* holders were eligible for substantive government posts. The examination was highly competitive, yet it was the sole orthodox route to government appointment.

The civil service examination was not merely an educational test. It was the mechanism through which the state regulated entry into the political elite. Before the system existed, access to officialdom depended on kinship and social connections, favoring those with privileged backgrounds. The examination opened the door to men from all social classes and the only requirement was demonstrated ability in the tests. The central government assigned each prefecture a fixed quota of *shengyuan* slots, the usage of quota is to cap the number of candidates who could pass at the county-level exam. A larger quota therefore increased every candidate's probability of success. More quotas meant more local men could obtain the *shengyuan* title, with its associated privileges: tax exemptions, legal protections, and the right to participate in local governance (Chang, 1955; Elman, 2000; Ho, 1962).

2.2 The Quota System under the Civil Service Exam

The number of quotas assigned to each prefecture was not arbitrary. As Chang (1955) describes, each prefecture's quota was based on four criteria: (1) land size; (2) population; (3) previous exam success; (4) tax burden. Quotas had remained relatively stable since the Ming dynasty, with only minor adjustments between 1670 and 1850.

The Taiping Rebellion (1851–1864) disrupted this stability. The war destroyed the government's ability to collect regular taxes while military expenditures surged. To raise revenue, the government offered additional examination quotas to prefectures that contributed financially to the war effort. Quotas were an appealing reward because they cost the government nothing to issue yet were highly valued by local society. These contributions took several forms: direct military provisions from individual donors (mainly in the early war years), training funds for local militia, and tax revenue collected through the *lijin* system. All forms of contribution were tied to commercial activity, and the commercially developed prefectures most likely to be targeted by Taiping armies (Spence, 1996) also had the greatest capacity to raise revenue.

The resulting increase in quotas was unprecedented in both scale and geographic scope.

Figure 1 illustrates the change by prefecture. The largest increases, reaching 135 additional slots, occurred in provinces such as Jiangsu, Anhui, and Zhejiang, which show the darkest shading on the map. Figure 2 shows that quota increases overlapped substantially with the geographic footprint of Taiping battles, suggesting that the government directed quota rewards to areas bearing the heaviest fighting.

The link between contributions and quotas is well documented. As Chang (1955) notes (pp. 63–67), earlier quota increases before the 1850s were due mainly to new administrative units or adjustments to land area. The practice of awarding quotas for fiscal contributions began in 1853, when the government encouraged donations of military provisions. This continued until the war ended in 1864. In the early years, most revenue came from individual donations. After 1853, the *lijin* commercial tax became the primary source.

The quota increases awarded during the Rebellion were permanent. They were not reversed after the war ended. This unanticipated expansion provides the variation I exploit. Merchants could donate directly to the government or contribute through the *lijin*; over time, collective taxation through the *lijin* dominated.

Beyond wartime finance, the quota system played a fundamental role in the social order (Elman, 2000). Holders of the *shengyuan* title could participate in local governance, establish schools, and assist officials. They were exempt from taxation and corporal punishment. Even the lowest gentry title conferred privileges unavailable to commoners. Men from all backgrounds therefore sought to enter the examination system. Any progress along the examination ladder brought tangible social and material rewards (Bourdieu and Passeron, 1990; Chang, 1955; Ho, 1962).

2.3 Commerce and Social Status in Imperial China

Commerce was never the dominant sector in imperial China. Agriculture was the primary industry, and economic policy traditionally emphasized agriculture while suppressing commerce. Society was ranked in four classes: scholars, farmers, artisans, and merchants. Merchants occupied the lowest formal status and were long excluded from political positions

(Deng, 2003; Ho, 1962).¹

When the civil service examination was first established in the Sui and Tang dynasties, merchants and their descendants were strictly excluded. The Old Tang Book (Liu, 1975) states that “people whose family is involved in industry and commerce are not allowed to be involved in official affairs” (p. 1825). This restriction was partially relaxed during the Song dynasty, when the commercial revolution took place. As commercial taxes became a main source of state funding, the law reopened the examination to merchants. From this point on, merchant groups participated in political activities through the civil service examination.

The Ming and Qing dynasties saw further relaxation as the commercial sector expanded, particularly in long-distance trade. Merchant groups grew in economic and political importance. By the late Qing, they influenced political outcomes through multiple channels (Antunes and Bethencourt, 2022). This paper focuses on this period.

As Ho (1962) documents, openness to merchants was more evident in the Ming and Qing than in any earlier period. No legal barriers prevented merchants from changing their social status through the examination. Historical evidence shows active participation: at least 388 *jinshi* during the Ming dynasty came from salt merchant families (Ho, 1962). During the Qing, *jinshi* from several merchant families in the Pearl River Delta gave up their merchant identities after members were appointed as officials (Chen, 2004). Other merchant families donated to academies to cultivate relationships with authorities (Chen, 2004).

Why were quotas an effective reward for merchants? They had at least three reasons to value examination success. First, a government post offered a path out of the low-status merchant class. Second, even a *shengyuan* or *juren* title brought material benefits and relief from formal social stigma. Third, some merchants hoped to place allies in government who could protect commercial interests. These incentives help explain why quotas could reward fiscal contributions during the study period.

These opportunities facilitated social mobility, particularly for merchant groups (Hsu, 1949; Wang, 1960). The distinction between officials and wealthy merchants in the Qing

¹The policy of prioritizing agriculture over commerce was known as *zhongnong yishang* (重农抑商). The four-class ranking (*shi nong gong shang*, 士农工商) was more ideological than descriptive; in practice the social hierarchy was considerably more complex. Other groups excluded from the civil service examination included descendants of entertainers, official servants, beggars, and the Tanka boat-dwelling people.

was more blurred than in any other era. Affluent merchants were valuable to the government because they contributed almost continuously to central finances (Ho, 1962). The gentry–merchant fusion accelerated under fiscal stress and operated through the orthodox examination channel (Elman, 2000; Fei, 1946; Kracke, 1947).

2.4 Merchant Guilds and Trade Networks

Commercial guilds (*gongsuo* and *huiguan*) were the institutional form through which merchants organized collective action (Chan, 1977; Moll-Murata, 2008; Peng, 1995; Rowe, 1984; Zelin, 2005).² I define guilds as associations formed by merchants with shared interests to facilitate commercial activities, collecting both types in the dataset. Guilds concentrated in the economically advanced areas such as Zhili and Guangdong, making guild counts a reasonable proxy for regional economic development (see Figure 3).

What determined guild locations? As merchants became more mobile and interregional trade expanded after the sixteenth century, they established permanent bases near their target markets (Moll-Murata, 2008). In this process, a primary factor was transportation accessibility, specifically whether a prefecture was reachable enough for merchants to gather and conduct business. During the Ming dynasty, a rich body of commercial literature emerged alongside expanding trade networks. Several books served as practical guides for long-distance merchants, covering trade practices and market regulations. Notable examples include *Shuili Lucheng* (1617), *Shishang Leiyao* (1626), and *Tianxia Lucheng Tuyin* (1644). The most influential was Huang Bian’s *Yitong Lucheng Tuji* (1507). Since guild location was closely linked to transportation, these routes provide a plausible instrument for guild presence. This historical link motivates the IV strategy in Section 4.

3 Empirical Framework and Data

The historical background motivates a testable prediction: prefectures with stronger merchant presence should have received larger quota increases during the Taiping Rebellion. This

²For a detailed discussion of guild terminology, the distinction between *gongsuo* and *huiguan*, and the broader classification of Chinese merchant associations, see Appendix B.

section specifies the empirical framework and describes the data used to test this prediction.

3.1 Specification

I estimate the cross-sectional relationship between pre-war merchant guild presence and wartime quota increases using the following specification:

$$\frac{\Delta \text{Quota}_i}{\text{Area}_i} = \beta_0 + \beta_1 \frac{\text{asinh}(\text{Guilds}_i)}{\text{Area}_i} + \mathbf{X}_i' \boldsymbol{\gamma} + \varepsilon_i \quad (1)$$

where i indexes prefectures. The dependent variable is the change in *shengyuan* quotas during the Taiping Rebellion, normalized by land area in km². The independent variable is the inverse hyperbolic sine of the stock of commercial guilds established up to 1850, also normalized by land area. The IHS transformation preserves zeros ($\text{asinh}(0) = 0$) and approximates the natural logarithm for positive values, which is appropriate given the highly skewed guild distribution (Bellemare and Wichman, 2020).

The vector $\mathbf{X}_i$ includes four groups of controls. *Geographic*: coastal dummy, main river access dummy, latitude, and longitude. These capture trade opportunities and broad spatial patterns in development. *Institutional*: treaty port dummy, provincial capital dummy, and prefecture rank. Treaty ports may have attracted guilds through foreign commercial influence, and provincial capitals had larger administrative establishments that could independently affect quota allocation. *Human capital*: number of academies and log pre-1850 *jinsi* counts. These control for prior educational infrastructure and examination success, both of which may correlate with guild density and also predict quota increases through the historical criteria described in Section 2. *Population*: log population in 1851. Larger prefectures had both more commercial activity and a larger base of examination candidates, so population is an important confound. Standard errors are clustered at the province level throughout, because both quota allocation and *lijin* administration were coordinated at the provincial level.

The independent variable is measured before 1850, so it is predetermined relative to the wartime outcome. This limits the concern that quota changes during the conflict fed back into guild formation. It does not rule out the possibility that pre-1850 guild density reflects

unobserved factors also correlated with quota changes, which I address with the IV strategy in Section 4.3.

3.2 Data Sources and Variable Construction

The dataset covers 262 prefectures across 18 provinces in the Qing dynasty. Table 1 reports summary statistics. Table 2 provides calculation methods for the key variables. Below I describe each variable group, emphasizing data sources and the rationale for inclusion.

Dependent variable: quota change. The *shengyuan* quota data come from Kun (1899), which records the officially mandated quota for each prefecture before and after the Taiping Rebellion. The dependent variable is the post-Taiping minus pre-Taiping quota, normalized by land area in km². The mean quota before the Taiping was 96.1 slots per prefecture. After the war it rose to 113.8, yielding a mean increase of 17.6. The maximum increase of 135 occurred in prefectures heavily affected by the Taiping Rebellion, such as those in Jiangsu and Anhui provinces. The government continued issuing quota increases throughout the Rebellion; quotas stabilized only after it ended. This change captures the redistribution of educational institutions’ capital and the central government’s refinement of lower-elite power (Chang, 1955; Elman, 1991, 2000; Ho, 1962). I use quota change as a proxy for the government’s reward for local fiscal contributions.³

Independent variable: guild density. The guild data come from Peng (1995), a comprehensive catalogue of commercial guilds (*gongsuo* and *huiguan*) across China. The stock of guilds established up to 1850 measures pre-war merchant organization. I use guilds as the proxy for commercial development because guild emergence in a prefecture reflects the scale of local commercial activity. The distribution is highly skewed: the mean is 0.79 guilds per prefecture, while commercial centers such as Suzhou had over 50. I normalize guild stock by land area and apply the IHS transformation.⁴

³Appendix Figure A1 illustrates the data collection process.

⁴Appendix Figure A2 illustrates the data collection process.

***Lijin* taxation proxies.** To measure *lijin* taxes at the prefecture level, I use financial reports from [Chen \(2015\)](#) and [Luo \(1936\)](#). Detailed revenue data from 1851 to 1864 are scarce. The only available national data is the number of *lijin* stations recorded by the time statistics were compiled. I construct three prefecture-level measures: (1) estimated annual revenue (main stations times the provincial tax rate); (2) main station density normalized by land area; (3) all-station density (main plus subordinate) normalized by land area. Several substations typically operated under each main station to facilitate collection. Figure 4 illustrates the positive spatial relationship between *lijin* stations and quota increases.⁵

Population data. Population figures for 1851 and 1880 come from [Cao \(2001\)](#), who reconstructed prefecture-level estimates for the Qing dynasty. Mean population in 1851 was approximately 1,622 thousand. Population is the primary control because larger prefectures had both more commercial activity and greater need for examination slots. Population loss density, defined as the percentage change from 1851 to 1880, captures the demographic impact of the Taiping Rebellion (mean = 0.126).

Geographic and institutional controls. I include dummies for coastal location, main river access ([Tan, 1982](#)), treaty port status ([Yan, 1955](#)), and provincial capital status, plus latitude and longitude from the China Historical GIS dataset ([Harvard Yenching Institution, 2016](#)). Coastal and river access capture trade opportunities. Treaty port status reflects foreign commercial influence that may independently affect both guild formation and quota allocation. Latitude and longitude capture broad geographic patterns in development. Prefecture rank follows [Liu \(1993\)](#), distinguishing prefectures directly administered by the central government from lower-ranked ones.

Education and fiscal controls. Academy counts come from [Ji \(1996\)](#), reflecting educational infrastructure and local demand for examination slots (mean = 14.6). Pre-1850 *jinshi* counts come from [Gong \(2019\)](#), capturing prior exam success and the stock of human capital (mean = 49.0). These variables correspond to three of the four criteria [Chang \(1955\)](#) identified for quota determination: land size, population, and previous examination success.

⁵Appendix Figure A3 illustrates the data collection process.

Conflict exposure. Taiping battle locations come from [Chinese Military History Editorial Team \(2003\)](#), documenting 98 affected prefectures out of 262. The Taiping dummy (mean = 0.374) allows separate estimation for conflict-affected and unaffected prefectures. Geographic boundaries follow the historical atlas of [Tan \(1982\)](#).

Instrumental variable. The instrument exploits the historical origins of guild locations in the Ming-dynasty trade network. I use *Yitong Lucheng Tuji* (1507) ([Huang, 1507](#)), a guidebook that later commercial manuals repeatedly drew on. The instrument is the number of Ming-dynasty trade routes for which a prefecture was a recorded start or end point. Prefectures with more such routes were better connected and thus more likely to attract guild formation. The rationale and identification assumptions are discussed in Section [4.3](#).

4 Main Results

4.1 Baseline OLS Results

I begin with OLS regressions of quota-change density on IHS guild density. Table [3](#) reports the baseline estimates. In the full sample of 262 prefectures, column (1) shows the bivariate relationship: the coefficient on IHS guild density is 12.271, significant at the 1% level, and Appendix Figure [A4](#) visualizes this association. Column (2) adds the full set of controls, and the coefficient attenuates to 9.259 but remains significant at the same level.

Both the dependent and independent variables are area-normalized, so the coefficient has a natural interpretation via the IHS transformation. Establishing one guild in a prefecture starting from zero corresponds to $\text{asinh}(1) = 0.881$ units of the IHS-transformed variable. Multiplied by the coefficient, this implies an increase of approximately $9.259 \times 0.881/\text{area} \approx 8.2/\text{area}$ in quota-change density. The marginal effect diminishes for prefectures with more guilds, reflecting the concavity of the IHS function.

To appreciate the economic magnitude, consider a move from zero IHS guild density to the 95th percentile of the sample. Using the preferred coefficient in column (2), that difference predicts about six additional quota slots in a median-sized prefecture. Relative to the sample mean increase of 17.6 slots, this is a large effect. The difference in quota

allocation between a lightly commercialized prefecture and a major trading hub was large enough to meaningfully expand the pool of examination candidates.

Exposure to the Taiping conflict was not uniform across space, so I estimate separately for affected and unaffected prefectures. Columns (3) and (4) restrict to the 98 battle-affected prefectures, where the coefficient remains positive and significant with controls. Columns (5) and (6) focus on the 164 prefectures outside the Taiping region, where the coefficients are small and indistinguishable from zero. This pattern is consistent with a wartime fiscal bargain: the government rewarded commercial prefectures that bore the burden of financing military operations, not commerce in general. The null result outside the conflict zone also mitigates concerns about a mechanical relationship between economic development and quota allocation driven by long-run factors such as population growth or urbanization.

This concentration fits the logic of wartime fiscal bargaining. Prefectures exposed to Taiping battles faced greater military expenditure needs, and guilds in these prefectures could organize collective tax payments, giving the government stronger incentives to reward them with quota increases. By contrast, prefectures outside the conflict zone faced less fiscal pressure and had weaker incentives for the government to reward them.

4.2 Robustness: Un-Normalized Regressions

A potential concern is that dividing both the dependent and independent variables by land area may generate a spurious correlation through the shared denominator ([Kronmal, 1993](#)). Table 4 addresses this by reporting un-normalized regressions of raw quota changes on raw guild counts, with log land area as a separate control. The full-sample coefficient with controls is positive and marginally significant, while the Taiping-subsample coefficient with controls is positive and significant, confirming that the finding reflects a genuine relationship rather than a statistical artifact of the normalization. As a further check, Appendix Table A1 uses guilds measured up to 1864 rather than 1850. Because guild formation continued during the Rebellion, this alternative captures wartime commercial development; the results are qualitatively unchanged.

4.3 Instrumental Variable Strategy

4.3.1 The Instrument

Unobserved factors may drive both guild presence and quota changes. Although the baseline specification includes extensive controls, omitted variable bias remains a concern, so I address this with an IV approach exploiting the historical origins of guild locations in the Ming-dynasty trade network.

The instrument draws on Ming-dynasty trade routes documented in the commercial guidebook *Yitong Lucheng Tuji* (Huang, 1507), compiled by Huang Bian in 1507. The most influential of the Ming commercial guides, it provided detailed information on relay stations, travel distances, route endpoints, geographic features, local products, travel risks, docks, and broker reputations. In a modern study of Ming commercial literature, Zhang (2019) shows that the Ming largely established the interregional trade route network, which changed little by the Qing. Qing merchants took these routes as given when deciding where to establish guilds or trade.

The instrument is the number of Ming-dynasty routes for which a prefecture appears as a recorded start or end point. This count captures how important a prefecture was as a terminal market in the Ming network. The instrument exploits continuous variation in connectivity, as prefectures range from zero routes to seventeen. I also include a pass-through dummy as a control variable, not as an instrument. Some prefectures lay along major routes and may have benefited from through traffic even if they were not important terminal markets. Controlling for this dummy helps the IV isolate destination importance rather than generic route exposure.

The exclusion restriction requires that Ming trade-route connectivity affects wartime quota changes only through guild presence. One might worry that prefectures on major trade routes were wealthier or more urbanized by the 1850s through channels other than guild formation, and I address this concern in two ways. First, Table 5 tests whether the instrument predicts observable confounders after controlling for baseline covariates. The number of Ming trade routes is uncorrelated with log land area, population change from 1776 to 1880, Song-dynasty *jinshi*, and the number of academies; none of the four coeffi-

cients approach conventional significance. Second, over three centuries separate Ming route formation (fifteenth–sixteenth century) from Qing quota allocation (1851–1864). The routes shaped the initial geography of commerce, but centuries of institutional change, migration, and economic development substantially weakened any direct effect on nineteenth-century outcomes.

4.3.2 Results

Table 6 reports the IV results in three panels. Columns progressively add controls: column (1) has no controls, column (2) adds the pass-through dummy, and column (3) adds the full control set.

Panel A shows the reduced form: the number of Ming trade routes positively and significantly predicts quota-change density in all three specifications, with a full-controls coefficient (column 3) of 0.00022, significant at the 1% level. Panel B shows the first stage, where the instrument strongly predicts IHS guild density with a coefficient of approximately 0.00001 across all specifications. Panel C shows the 2SLS results. The preferred specification (column 3) yields a coefficient of 19.630, significant at the 1% level, with a first-stage F -statistic of 26.87 that comfortably exceeds the weak IV test threshold. Without controls (column 1), the coefficient is 35.897 with an F -statistic of 39.72. The attenuation from column (1) to column (3) reflects controls absorbing some variation, but the coefficient remains large and significant throughout.

The preferred 2SLS coefficient (19.630) is about twice the OLS estimate (9.259). Two explanations are plausible. First, historical guild catalogues undercount smaller associations, so measurement error pushes the OLS estimate toward zero and the IV corrects part of this attenuation. Second, the IV identifies the effect for prefectures whose guild formation was shaped by route connectivity. These were major commercial nodes, so the quota response may have been stronger there than in the average prefecture. Appendix Table A2 tests sensitivity to functional form by adding quadratic, cubic, and quartic polynomials of continuous controls. The coefficient on IHS guild density ranges from 14.178 to 16.760, significant at the 1% level across all polynomial orders, and first-stage F -statistics range from 23.2 to 24.3. This stability shows that the larger IV estimate is not driven by nonlinearities.

Taken together, the IV results address the main OLS concern that richer or better connected prefectures may have both formed more guilds and received more quotas. By isolating the part of guild presence tied to fifteenth-century transportation geography, the IV links wartime quota increases to inherited commercial connectivity rather than to unobserved nineteenth-century advantages.

5 Mechanisms

5.1 The Reward Mechanism: *Lijin* Taxation

Having established that guild presence predicts quota increases, I now investigate the channel. I hypothesize that the *lijin* commercial tax was the link between merchant wealth and political reward.

5.1.1 Historical context: the fiscal crisis and the emergence of the *lijin*

The fiscal crisis became apparent in 1851, when both expenditures and revenues came under pressure simultaneously. On the expenditure side, the Taiping Rebellion required rapid military mobilization across multiple provinces, and costs far exceeded the peacetime budget. On the revenue side, the war disrupted the three pillars of Qing state finance: the land tax, domestic customs, and salt monopoly revenues (Chen, 1997, 2010; Deng, 2021; Ni, 2013). Agricultural production in the Yangzi Delta collapsed as armies moved through the countryside, customs stations were abandoned or destroyed, and salt distribution networks were severed. The government initially encouraged direct military donations from wealthy individuals, offering examination quotas as rewards, but this approach proved unsustainable because it depended on voluntary contributions from individual donors and could not scale to meet escalating war costs (Chang, 1955).

The *lijin* tax emerged in 1853 as a systematic alternative. It was an indirect tax on commercial transactions at designated collection stations (Luo, 1936), with an initial rate of about 1% of goods' value in transit (First Historical Archives of China, 1996). Stations were placed at strategic locations: market hubs, town gates, river crossings, and major crossroads.

Merchants transporting goods through a station presented their cargo for inspection, paid the tax, and received an invoice permitting further transit (Spence, 1996). Each province set its own rate and administered its own station network.

The *lijin* rapidly became the single most important source of war finance. Unlike the land tax, which depended on agricultural production disrupted by the conflict, the *lijin* tapped commercial activity that continued even during wartime. Merchant networks organized through guilds served as the collection infrastructure: guild leaders often coordinated with local officials to set up stations and ensure compliance among member merchants. The system spread quickly across provinces. By the late 1850s, every province had established its own *lijin* network, and the tax was generating revenues comparable to the land tax in some regions. During the Rebellion, most *lijin* revenues went directly to military expenditures (Chen, 2010; He, 1981; Luo, 1936; Ni, 2013; Zhou, 2000). The government thus had a direct fiscal incentive to reward the prefectures generating the most revenue, and examination quotas provided a credible and institutionally legible currency for doing so. Quotas cost the government nothing to issue, yet they were highly valued by local society because they expanded access to the privileges and opportunities associated with gentry status.

5.1.2 National evidence

I test the reward mechanism by examining whether prefecture-level *lijin* taxation predicts quota increases. Three proxies capture *lijin* activity: (1) estimated annual revenue (main stations times the provincial tax rate); (2) main station density normalized by land area; and (3) all-station density (main plus subordinate) normalized by land area. The station $\times$ rate method follows the basic logic of the tax. Because the *lijin* was mainly a transit tax, revenue rose with the number of stations taxing those flows and with the rate set by the province. The density measures do not depend on provincial tax rates, which varied across provinces and may introduce measurement error.

Table 7 reports OLS regressions of quota-change density on these three measures for all 262 prefectures. All six coefficients are positive and significant, confirming that prefectures with greater *lijin* infrastructure received larger quota increases. In even columns, I control for raw guild counts to isolate variation in fiscal contributions beyond guild presence alone. The

lijin coefficients persist after this control, indicating that the mechanism operates through actual tax collection, not merely through merchant organization.

Table 8 restricts to the 98 Taiping-affected prefectures. Station density measures (columns 3–6) remain consistent with the full-sample results, but the estimated annual revenue coefficient attenuates and loses significance with controls (column 2). Because this proxy is constructed by multiplying station counts with provincial tax rates, it has limited cross-prefecture variation within the Taiping subsample once provincial and geographic controls are included. The station density measures, free of this limitation, remain robust.

The magnitudes in Table 7 help convey the economic content of the *lijin* channel. The coefficient on main station density in column (3) is 2.650. The mean number of main stations per prefecture is 2.5 (Table 1), so adding one main station to a prefecture of median land area raises quota-change density by roughly 2.7 additional quota slots, a nontrivial share given that the median prefecture received about 10 slots. The coefficient on all-station density (column 5) is 0.488, and because substations clustered around each main station, this measure captures the intensity of tax collection, not just its extensive margin. Both measures predict quota increases and survive controlling for raw guild counts, indicating that the mechanism runs through actual fiscal infrastructure rather than simply through merchant presence.

5.1.3 Fujian province: actual revenue data

Fujian Province provides the clearest provincial check. It is the only province with provincial-level actual *lijin* revenue records for every year from 1853 to 1864 in Luo (1936). Fujian also faced Taiping incursions and wartime fiscal pressure (Luo, 1936), but it was not the core battlefield of the Yangzi Delta. Fuzhou was one of the five original treaty ports, so the province was commercially active without being the most developed region in the sample. This makes Fujian useful for showing whether the reward mechanism also operated outside the main theater of war.

The national measures are still constructed proxies. For Fujian, I can go further by combining Luo (1936)’s annual provincial totals with the employee-share logic in Deng (2021). Deng (2021) allocates provincial *lijin* revenue across lower-level units in proportion to the

number of weighted *lijin* employees, meaning the staff in *lijin* bureaus and stations who handled collection and administration, with provincial bureaus and main stations weighted by their typical staffing levels. Deng (2021) uses provincial revenue data from 1890–1899, which is too late for the wartime period. I keep the same allocation logic but replace those late totals with Fujian’s actual wartime average totals for 1853–1864 from Luo (1936): 553,794 silver taels in average *lijin* revenue and 493,463 silver taels in average military expenditure, distributed across counties by each county’s share of Fujian’s 1,381 weighted *lijin* employees. Other provinces do not have comparable wartime totals, so only Fujian can be treated this way. This produces two additional county-level proxies, which I take in logs after adding one. Together with the three station-based measures, this yields five *lijin* proxies for Fujian’s 61 counties.

Table 9 reports the results. Columns (1)–(3) use the station-based proxies at the county level. Columns (4) and (5) use the employee-share proxies built from Fujian’s actual provincial wartime totals. All five coefficients are positive and significant. The last two columns do not give county actual revenue directly, but they bring the measure much closer to observed fiscal flows than the national station-based proxies.

The Fujian results therefore strengthen, rather than replace, the national evidence. The national sample shows the mechanism across China; Fujian shows that the same relationship appears when wartime provincial revenue data exist. Across both settings, larger commercial-tax contributions are associated with larger quota increases.

5.2 Alternative Mechanism: Population Loss

Another plausible explanation is a compensation mechanism: the Taiping Rebellion caused massive population losses, and the government might have increased quotas in devastated prefectures to offset the decline in the candidate pool, regardless of fiscal contributions.

I test this alternative by including population loss and its interaction with guild density in the regression. The specification is:

$$\frac{\Delta \text{Quota}_i}{\text{Area}_i} = \beta_0 + \beta_1 \frac{\text{asinh}(\text{Guilds}_i)}{\text{Area}_i} + \beta_2 \text{PopLoss}_i + \beta_3 \text{PopLoss}_i \times \frac{\text{asinh}(\text{Guilds}_i)}{\text{Area}_i} + \mathbf{X}'_i \boldsymbol{\gamma} + \varepsilon_i \quad (2)$$

where PopLoss_i is the percentage change in population from 1851 to 1880.

Table 10 reports the results. Columns (1)–(3) use raw population loss, measured as the percentage change in population from 1851 to 1880. This thirty-year window includes the Taiping Rebellion itself and its immediate aftermath, capturing both direct war casualties and subsequent migration and recovery. Columns (4)–(6) refine this measure. Population may have changed during this period for reasons unrelated to the war, such as natural growth or regional migration trends. To isolate the war-specific component, I subtract the population change during the thirty years before 1850, yielding a measure of the additional population loss that occurred after the Rebellion began.

In all six columns, the coefficient on population loss is small and insignificant, and the interaction terms are also insignificant with full controls. The coefficient on IHS guild density, by contrast, remains large, positive, and significant throughout. The compensation mechanism thus finds no support: population loss bears no significant relationship to quota increases, and the results point to fiscal contributions, not population losses, as the driver.

The null result on population loss is informative because the compensation logic had plausible foundations. If the government viewed quotas as maintaining a stable supply of administrators, depopulated prefectures would have seen candidate-to-quota ratios rise, prompting adjustments. Alternatively, the government might have increased quotas in devastated prefectures to rebuild governance capacity. Either channel would produce a significant coefficient on population loss. The fact that no such relationship appears, while guild density remains robust, narrows the interpretation considerably: quota changes were driven by what prefectures contributed to the war effort, not by what they lost during it. The quota-for-revenue exchange was a deliberate fiscal bargain, not a humanitarian or administrative response to wartime destruction.

6 Consequences of Quota Increases

The previous sections established that guild presence predicts quota increases (Section 4) and that the *lijin* commercial tax was the channel linking merchant wealth to political reward (Section 5). This section tests whether the rewards actually mattered: did quota

increases translate into more successful candidates at the highest examination tier? A larger *shengyuan* quota at the first level feeds more candidates into the provincial (*juren*) exam, which in turn enlarges the pool for the national (*jinshi*) exam. I test whether *shengyuan* quota increases predict higher *jinshi* counts, linking the prospect of upward mobility to the likelihood of entering the upper-gentry class (Bai and Jia, 2016; Chang, 1955; Hao et al., 2022; Ho, 1962; Wang, 1960).

6.1 Data and Specification

Using *jinshi* data from Gong (2019), I construct a panel from 1800 to 1904, recording each *jinshi*'s hometown by examination year, with 1864 as the treatment year. The original data records a prefecture–year observation only when at least one *jinshi* was produced, so I fill in the remaining prefecture–year pairs with zero *jinshi* counts, carrying forward quota and control information by prefecture. This yields a balanced panel of 12,838 observations across 262 prefectures and 49 examination years. Balancing matters because excluding zeros would disproportionately affect prefectures with fewer candidates and could bias the DID estimate if the probability of producing zero *jinshi* correlates with treatment intensity.

The difference-in-differences specification is:

$$\frac{\text{Jinshi}_{it}}{\text{Area}_i} = \beta_1 \left(\frac{\Delta \text{Quota}_i}{\text{Area}_i} \times \text{Post}_t \right) + \mathbf{X}'_i \boldsymbol{\delta} \times \text{Post}_t + \alpha_i + \lambda_t + \phi_{\text{prov}} \times \text{Post}_t + \varepsilon_{it} \quad (3)$$

where i indexes prefectures and t indexes examination years. The dependent variable is *jinshi* count normalized by land area. The treatment variable is quota-change density interacted with a post-1864 dummy. α_i is a prefecture fixed effect absorbing all time-invariant characteristics. λ_t is a year fixed effect absorbing common shocks. $\phi_{\text{prov}} \times \text{Post}_t$ allows differential post-treatment trends across provinces. $\mathbf{X}'_i \boldsymbol{\delta} \times \text{Post}_t$ captures differential trends in baseline characteristics (coastal status, river access, population).

6.2 Results

Table 11 reports results across five specifications with progressively stricter controls. Column (1) includes only prefecture fixed effects, and the coefficient on the quota–post interaction is

positive and significant, indicating that prefectures receiving quota increases produced more *jinshi*.

Column (2) adds baseline controls interacted with the post dummy, allowing for differential trajectories after 1864; the coefficient attenuates slightly but remains positive and significant. Column (3) adds year fixed effects to absorb common shocks such as changes in national exam difficulty or *jinshi* slots, and column (4) combines year fixed effects and control interactions. In all cases, the coefficient is positive and significant.

Column (5) is the most demanding specification, including prefecture fixed effects, year fixed effects, baseline control interactions, and province-by-post fixed effects. The province-by-post effects allow each province its own post-treatment trend, absorbing province-level policy changes or economic shocks after 1864. The coefficient remains positive and significant, and its stability across five increasingly strict specifications is reassuring: the result is not driven by province-level confounders or differential trends in baseline characteristics.

The magnitude of the DID coefficient in column (5) is 0.010. This means that a one-unit increase in quota-change density (quota change per km^2) is associated with an increase of 0.010 in *jinshi* density (per km^2) after 1864. Moving from the median quota-change density to the 75th percentile implies about 0.24 additional *jinshi* per examination year in a median-sized prefecture. Because *jinshi* were extremely rare, with many prefectures producing zero in any given year and the typical prefecture averaging fewer than one per cycle, this is a meaningful gain in the probability of producing a top-tier degree holder. Over the forty years from 1864 to 1904, that difference cumulates into several additional degree holders, large enough to shift the composition of the local elite.

Figure 5 presents the event-study plot, tracing the quota-change coefficient for each examination year relative to 1864. Pre-treatment coefficients hover near zero with no clear trend, but after 1864 they jump sharply upward and remain positive through 1904. This pattern supports the parallel-trends assumption: prefectures receiving larger quota increases were not already on differential *jinshi* trajectories before the Rebellion.

These results show that wartime quota expansions had real consequences for elite formation. Prefectures that contributed more to the war effort through commercial taxation received more slots, and those additional slots translated into more *jinshi* degrees. The or-

thodox examination channel thus remained functional for upward mobility, validating the government’s strategy of using quotas as a credible reward.

6.3 Discussion

The orthodox examination was not the only pathway to upward mobility in the late Qing. Candidates could also purchase government positions outright through the system known as *juanna* (Kaske, 2008; Zhang, 2013). The practice of selling official titles had existed since the Han dynasty, but it became increasingly central to Qing fiscal policy as the regime confronted recurring military and natural disasters in the nineteenth century. The Qing’s ongoing financial crisis turned occasional sales into a routine source of revenue, and Ho (1962) documents that the share of officials who entered through purchase rose from 29.3% in 1840 to 51.2% by 1871. By the late Qing, almost all positions below the rank of provincial governor could be purchased (Kaske, 2008). The examination route was therefore in competition with a parallel market in which wealth could substitute for academic achievement.

Two features made purchase increasingly attractive relative to the examination. First, the pace was different. Earning a *jinshi* required years of preparation and successive rounds of competitive examinations, and even successful candidates often waited five years or more for an actual appointment (Chen et al., 2020a). A purchaser, by contrast, could obtain a title within weeks. Second, the economics favored those with capital. Merchants had greater liquidity than scholarly families and could afford the fees. Zhang (2013) shows that office purchase developed into a structured market with published price lists, intermediaries, and credit arrangements, all of which lowered the barrier for wealthy buyers.

Against this backdrop, the finding that wartime quota expansions still translated into additional *jinshi* is notable. If the purchase market had fully crowded out the examination route, expanded quotas would have generated more *shengyuan* but no more *jinshi*, since the most ambitious or wealthy candidates would have bypassed the higher tiers entirely. The opposite holds in the data: the examination channel retained real value even as the purchase market grew. This aligns with Bai and Jia (2016) and Hao et al. (2022), who treat examination quotas as a proxy for upward mobility prospects. The two channels appear to have served different segments of the population. Wealthy families could afford

to purchase, while families without sufficient capital still depended on the examination, and quota increases gave the latter group a meaningful improvement in their prospects. Post-war quota expansions thus functioned as a mechanism for social advancement, particularly for commoners and merchants aspiring to join the gentry through orthodox achievement rather than payment.

7 Conclusion

This paper documents how merchant groups shaped the redistribution of political resources during the Taiping Rebellion. Prefectures with greater pre-war guild presence received larger wartime quota increases, and the relationship is concentrated in conflict-affected areas. The *lijin* commercial tax was the channel: prefectures collecting more revenue received more quota slots. Population losses do not explain quota changes. Quota expansions translated into more *jinshi* degrees, demonstrating realized upward mobility through the orthodox examination channel. Together, these results trace a complete chain from merchant organization to fiscal contribution to political access and ultimately elite formation.

These findings extend the interest-group literature beyond democratic settings by providing quantified evidence that fiscal contributions can buy political access in a premodern autocracy. The Chinese case illustrates a distinctive form of merchant political influence. Chinese merchants financed the state during wartime and received entry into the orthodox examination system in return. This “revenue-for-selection” exchange reveals a mode of state-elite bargaining with no close European parallel, and it shows that fiscal crises can reshape who accesses political institutions even in settings without formal representative channels.

The results also speak to how autocratic states build fiscal capacity under pressure. Instead of constructing direct extractive machinery, the Qing government delegated tax collection to merchant networks and compensated them with political access. The *lijin* itself continued as a major revenue source until the early twentieth century, and the expanded examination quotas reshaped the composition of the gentry for decades.

References

- D. Acemoglu and J. A. Robinson. Persistence of power, elites, and institutions. *American Economic Review*, 98(1):267–293, 2008.
- D. Acemoglu, S. Johnson, and J. A. Robinson. *Institutions as the Fundamental Cause of Long-Run Growth*, volume 1A, pages 385–472. North-Holland, 2005.
- S. Ansolabehere, J. M. de Figueiredo, and J. M. Snyder. Why is there so little money in U.S. politics? *Journal of Economic Perspectives*, 17(1):105–130, 2003.
- C. A. P. Antunes and F. Bethencourt. *Merchant Cultures*. Brill, 2022.
- Y. Bai and R. Jia. Elite recruitment and political stability. *Econometrica*, 84(2):677–733, 2016.
- G. S. Becker. A theory of competition among pressure groups for political influence. *Quarterly Journal of Economics*, 98(3):371–400, 1983.
- M. F. Bellemare and C. J. Wichman. Elasticities and the inverse hyperbolic sine transformation. *Oxford Bulletin of Economics and Statistics*, 82(1):50–61, 2020.
- T. Besley and T. Persson. The origins of state capacity. *American Economic Review*, 99(4):1218–1244, 2009.
- T. Besley and T. Persson. *Pillars of Prosperity: The Political Economics of Development Clusters*. Princeton University Press, 2011.
- M. Bombardini and F. Trebbi. Empirical models of lobbying. *Annual Review of Economics*, 12:391–413, 2020.
- P. Bourdieu and J.-C. Passeron. *Reproduction in Education, Society and Culture*. Sage, 1990.
- D. Cantoni and N. Yuchtman. Medieval universities, legal institutions, and the commercial revolution. *Quarterly Journal of Economics*, 129(2):823–887, 2014.

- S. Cao. *Zhongguo Renkou Shi (History of Population in China)*. Fudan University Press, 2001. [In Chinese].
- W. K. K. Chan. *Merchants, Mandarins, and Modern Enterprise in Late Ch'ing China*. Harvard University Press, 1977.
- C.-l. Chang. *The Chinese Gentry*. University of Washington Press, 1955.
- B. Chen, C. Campbell, Y. Ren, and J. Lee. Big data for the study of Qing elites. *Chinese History*, 4(2):431–460, 2020a.
- F. Chen. Qingdai zhongyang caizheng yu difang caizheng de tiaozheng (adjustments between central and local public finance in the qing dynasty). *Lishi Yanjiu*, (5):100–114, 1997. [In Chinese].
- F. Chen. *Qingdai Caizheng Shilungao (Papers on Qing Fiscal History)*. Commercial Press, 2010. [In Chinese].
- F. Chen. *Wanqing Caizheng Shuomingshu (Compilation of Late Qing Financial Reports)*. Hubei People's Press, 2015. [In Chinese].
- S. Chen. Shangren yu keju (merchants and the civil service examination). *Jiangsu Shanglun*, (3):162–163, 2004. [In Chinese].
- T. Chen, J. K.-s. Kung, and C. Ma. Long live keju! the persistent effects of China's civil examination system. *Economic Journal*, 130(631):2030–2064, 2020b.
- Chinese Military History Editorial Team. *Zhongguo Lidai Zhanzheng Nianbiao (Chronological Tables of Wars in Chinese History)*. PLA Press, 2003. [In Chinese].
- J. M. de Figueiredo and B. K. Richter. Advancing the empirical research on lobbying. *Annual Review of Political Science*, 17:163–185, 2014.
- H. Deng. Lishishang de guanshang (officials and merchants in chinese history: An economic analysis). *Jingjixue Jikan*, 2(3):531–554, 2003. [In Chinese].

- H. Deng. The merit of misfortune: Taiping rebellion and the rise of indirect taxation. *Working Paper*, 2021.
- M. Dincecco. *State Capacity and Economic Development*. Cambridge University Press, 2017.
- B. A. Elman. Political, social, and cultural reproduction via civil service examinations. *Journal of Asian Studies*, 50(1):7–28, 1991.
- B. A. Elman. *A Cultural History of Civil Examinations in Late Imperial China*. University of California Press, 2000.
- H.-t. Fei. Peasantry and gentry. *American Journal of Sociology*, 52(1):1–17, 1946.
- First Historical Archives of China. *Archival Materials for the Suppression of the Taiping Rebellion*. Social Sciences Literature Press, 1996. [In Chinese].
- R. Fisman. Estimating the value of political connections. *American Economic Review*, 91(4):1095–1102, 2001.
- N. Gennaioli and H.-J. Voth. State capacity and military conflict. *Review of Economic Studies*, 82(4):1409–1448, 2015.
- P. K. Goldberg and G. Maggi. Protection for sale. *American Economic Review*, 89(5):1135–1155, 1999.
- Y. Gong. Database of successful jinshi, 2019. [In Chinese].
- A. Greif. *Institutions and the Path to the Modern Economy*. Cambridge University Press, 2006.
- A. Greif and G. Tabellini. The clan and the corporation: Sustaining cooperation in China and Europe. *Journal of Comparative Economics*, 45(1):1–35, 2017.
- A. Greif, P. Milgrom, and B. R. Weingast. Coordination, commitment, and enforcement: The case of the merchant guild. *Journal of Political Economy*, 102(4):745–776, 1994.
- G. M. Grossman and E. Helpman. Protection for sale. *American Economic Review*, 84(4):833–850, 1994.

- G. M. Grossman and E. Helpman. *Special Interest Politics*. MIT Press, 2001.
- Y. Hao, Z. Liu, X. Weng, and L.-a. Zhou. The making of bad gentry. *Journal of Economic History*, 82(3):625–661, 2022.
- Harvard Yenching Institution. CHGIS, version: 6, 2016.
- L. He. *Qing Xiantong Shiqi de Caizheng (Public Finance in the Xianfeng and Tongzhi Periods of the Qing)*. Taipei National Institute for Compilation, 1981. [In Chinese].
- P.-t. Ho. *The Ladder of Success in Imperial China*. Columbia University Press, 1962.
- F. L. Hsu. Social mobility in China. *American Sociological Review*, pages 764–771, 1949.
- B. Huang. *Yitong Lucheng Tuji (A Comprehensive Guide to Travel Routes)*. Modern reprint: Nanjing Press, 2019, 1507. [In Chinese].
- X. Ji. *Zhongguo Shuyuan Cidian (A Dictionary of Academies in China)*. Zhejiang Education Press, 1996. [In Chinese].
- K. K. Karaman and S. Pamuk. Different paths to the modern state in Europe: The interaction between warfare, economic structure, and political regime. *American Political Science Review*, 107(3):603–626, 2013.
- E. Kaske. *The Price of an Office*. Harvard University Press, 2008.
- A. I. Khwaja and A. Mian. Do lenders favor politically connected firms? rent provision in an emerging financial market. *Quarterly Journal of Economics*, 120(4):1371–1411, 2005.
- E. A. Kracke. Family vs. merit in Chinese civil service examinations. *Harvard Journal of Asiatic Studies*, 10(2):103–123, 1947.
- R. A. Kronmal. Spurious correlation and the fallacy of the ratio standard revisited. *Journal of the Royal Statistical Society: Series A*, 156(3):379–392, 1993.
- A. O. Krueger. The political economy of the rent-seeking society. *American Economic Review*, 64(3):291–303, 1974.

- G. Kun. *Qinding Da Qing Huidian Shili (Imperially Commissioned Statutes and Precedents of the Great Qing)*. 1899. [In Chinese].
- C. Liu. Chong, fan, pi, and nan: An exploration of the ranking of Qing administrative units. *Bulletin of Institute of History and Philology, Academia Sinica*, 64(1):175–204, 1993. [In Chinese].
- X. Liu. *Jiu Tang Shu (Old Book of Tang)*. Zhonghua Shuju, 1975. [In Chinese].
- Y. Luo. *Zhongguo Lijin Shi (History of Lijin in China)*. Shangwu Yinshuguan, 1936. [In Chinese].
- D. Ma and J. Rubin. The paradox of power: Principal-agent problems and administrative capacity in imperial China. *Journal of Comparative Economics*, 47(2):277–294, 2019.
- C. Moll-Murata. Chinese guilds from the seventeenth to the twentieth centuries. *International Review of Social History*, 53(S16):213–247, 2008.
- Y. Ni. *Qingchao Jiadao Caizheng yu Shehui (Fiscal Affairs and Society in the Jiaqing and Daoguang Reigns of the Qing)*. Commercial Press, 2013. [In Chinese].
- D. C. North. *Institutions, Institutional Change and Economic Performance*. Cambridge University Press, 1990.
- D. C. North and B. R. Weingast. Constitutions and commitment. *Journal of Economic History*, 49(4):803–832, 1989.
- S. Ogilvie. *Institutions and European Trade*. Cambridge University Press, 2011.
- S. Ogilvie. The economics of guilds. *Journal of Economic Perspectives*, 28(4):169–192, 2014.
- M. Olson. *The Logic of Collective Action: Public Goods and the Theory of Groups*. Harvard University Press, 1965.
- S. Peltzman. Toward a more general theory of regulation. *Journal of Law and Economics*, 19(2):211–240, 1976.

- Z. Peng. *Zhongguo Gongshang Hanghui Shiliao Ji (Historical Materials on Chinese Industrial and Commercial Guilds)*. Zhonghua Shuju, 1995. [In Chinese].
- P. Qiu. *Shiba Shijiu Shiji Suzhou Cheng de Xinxing Gongshangye Tuanti (New Merchant and Artisan Associations in Suzhou, 1700–1900)*. National Taiwan University Press, 1990. [In Chinese].
- H. Quan. *Zhongguo Hanghui Zhidu Shi (The History of the Chinese Guild System)*. Baihua Wenyi Chubanshe, 2007. [In Chinese].
- W. T. Rowe. *Hankow: Commerce and Society in a Chinese City, 1796–1889*. Stanford University Press, 1984.
- T.-H. Sng. Size and dynastic decline. *Explorations in Economic History*, 54:107–127, 2014.
- T.-H. Sng and C. Moriguchi. Asia’s little divergence: State capacity in China and Japan before 1850. *Journal of Economic Growth*, 19(4):439–470, 2014.
- J. D. Spence. *God’s Chinese Son*. W.W. Norton, 1996.
- G. J. Stigler. The theory of economic regulation. *Bell Journal of Economics*, 2(1):3–21, 1971.
- Q. Tan. *Zhongguo Lishi Dituji (Historical Atlas of China)*. China Maps Press, 1982. [In Chinese].
- C. Tilly. *Coercion, Capital, and European States, AD 990–1990*. Basil Blackwell, 1990.
- G. Tullock. The welfare costs of tariffs, monopolies, and theft. *Western Economic Journal*, 5(3):224–232, 1967.
- X. Wang. Jindai zhongguo shougongye hanghui de yanbian (the evolution of modern chinese handicraft guilds). *Lishi Yanjiu*, (4):55–69, 1998. [In Chinese].
- Y.-c. Wang. Western impact and social mobility in China. *American Sociological Review*, pages 843–855, 1960.

- G. Xu. The costs of patronage: Evidence from the British Empire. *American Economic Review*, 108(11):3170–3198, 2018.
- Z. Yan. *Zhongguo Jindai Jingjishi Tongji Ziliao Xuanji (Selected Statistical Materials on Modern Chinese Economic History)*. Kexue Chubanshe, 1955. [In Chinese].
- M. Zelin. *The Merchants of Zigong*. Columbia University Press, 2005.
- H. Zhang. *Zouxiang Dazhong de Jiran Zhishu: Ming Qing Shiqi Shangshu Yanjiu (Toward a Popular Art of Jiran: The Study of Commercial Books in the Ming and Qing Periods)*. Shanghai Guji Chubanshe, 2019. [In Chinese].
- L. Zhang. Legacy of success: Office purchase and state–elite relations in Qing China. *Harvard Journal of Asiatic Studies*, pages 259–297, 2013.
- Y. Zhou. *Wanqing Caizheng yu Shehui Bianqian (Late Qing Public Finance and Social Change)*. Shanghai People’s Press, 2000. [In Chinese].

Tables and Figures

Table 1: Summary Statistics

Categories	Variable	Source ^a	N	Mean	SD	Min	Max
Dependent Variable	Quota before Taiping	1	262	96.137	62.553	2	422
	Quota after Taiping	1	262	113.771	75.728	2	423
	Quota change	1	262	17.634	23.835	0	135
	Density of quota change	1	262	0.002	0.002	0	0.019
Independent Variables	Guilds	2	262	0.790	5.047	0	55
	IHS guild density	2	262	0.000	0.000	0	0.001
Mechanism	No. of Ming trade routes	3	262	1.7	2.7	0	17
	Density of population loss	4	262	0.126	0.323	−0.673	0.907
	Density of natural population loss	4	262	0.315	0.254	−0.008	1.020
	Annual <i>lijin</i> revenue	5, 6	262	0.131	0.242	0	1.600
	Density of main stations	5, 6	262	0.000	0.000	0	0.004
	Density of all stations	5, 6	262	0.001	0.002	0	0.028
	Taiping dummy	7	262	0.374	0.485	0	1
Baseline Controls	Coast	9	262	0.134	0.341	0	1
	Main river	8	262	0.618	0.487	0	1

(Continues)

Categories	Variable	Source ^a	N	Mean	SD	Min	Max
	Latitude	9	262	30.679	4.961	20.043	42.864
	Longitude	9	262	111.519	5.838	93.550	121.550
	Treaty port	10	262	0.115	0.319	0	1
	Size (km ²)	9	262	15,434	17,843	1,270	192,200
	Capital	9	262	0.069	0.253	0	1
Baseline Controls	Rank	11	262	0.760	0.428	0	1
(continued)	Academy	12	262	14.553	14.066	0	135
	<i>Jinshi</i> before 1850	13	262	48.966	91.035	0	719
	Population in 1776 (thousands)	4	262	1,421.7	1,330.6	26	10,886
	Population in 1851 (thousands)	4	262	1,621.7	1,548.2	30	13,066
	Population in 1880 (thousands)	4	262	1,328.9	1,236.0	27	6,844

^a Data sources:

1: [Kun \(1899\)](#) 2: [Peng \(1995\)](#) 3: [Huang \(1507\)](#); ? 4: [Cao \(2001\)](#) 5: [Luo \(1936\)](#) 6: [Chen \(2015\)](#) 7: [Chinese Military History Editorial Team \(2003\)](#)
8: [Tan \(1982\)](#) 9: [Harvard Yenching Institution \(2016\)](#) 10: [Yan \(1955\)](#) 11: [Liu \(1993\)](#) 12: [Ji \(1996\)](#) 13: [Gong \(2019\)](#)

Table 2: Calculation Methods for Independent and Dependent Variables

Categories	Variable	Definition
Dependent Variable	Quota change	Quota after Taiping – Quota before Taiping
	Density of quota change	Quota change / land area in km ²
Independent Variables	IHS guild density	$\text{asinh}(\text{guilds up to 1850}) / \text{land area in km}^2$
	No. of Ming trade routes	Count of Ming-dynasty routes for which the prefecture was recorded
Mechanism Variables	Density of population loss	$(\text{Population 1880} - \text{Population 1851}) / \text{Population 1851}$
	Density of natural population loss	$[(\text{Population 1880} - \text{Population 1851}) - (\text{Population 1851} - \text{Population 1820})] / \text{Population 1851}$
	Annual <i>lijin</i> revenue	Number of main stations $\times$ provincial <i>lijin</i> tax rate
	Density of main stations	Number of main stations / land area in km ²
	Density of all stations	Number of all stations / land area in km ²
	Taiping dummy	= 1 if a prefecture experienced Taiping battles
Fujian Variables	Weighted number of <i>lijin</i> employees	$30 \times \text{number of provincial bureaus} + 35 \times \text{number of main stations}$
	<i>lijin</i> revenue (Deng)	$553,794 \times (\# \text{ of county employees} / \# \text{ of provincial employees}) / \text{area} \times 1000$, where 553,794 silver taels is Fujian's average <i>lijin</i> revenue 1853–1864
	Military expenditure (Deng)	$493,463 \times (\# \text{ of county employees} / \# \text{ of provincial employees}) / \text{area} \times 1000$, where 493,463 silver taels is Fujian's average military expenditure 1853–1864

Table 3: Impact of Commerce on the Density of Quota Increase: OLS Estimate

	DV: Density of Quota Change					
	Whole Sample		Taiping		Non Taiping	
	(1)	(2)	(3)	(4)	(5)	(6)
IHS guild density	12.271*** (0.833)	9.259*** (1.496)	11.080*** (1.068)	7.051*** (2.050)	4.013 (3.265)	−2.014 (3.839)
Control Variables	No	Yes	No	Yes	No	Yes
Province Cluster	Yes	Yes	Yes	Yes	Yes	Yes
Observations	262	262	98	98	164	164
R^2	0.168	0.392	0.200	0.490	0.005	0.256

Note: Control Variables include coast, main river, latitude, longitude, treaty port, capital, rank, academy, *jinshi* before 1850, and log population in 1851. Robust standard errors in parentheses are clustered at the province level, ***, **, and * indicate statistical significance at the 1%, 5%, and 10%, respectively.

Table 4: Impact of Commerce on the Quota Increase: Un-Normalised Regressions Robustness

	DV: Quota Change (raw)					
	Whole Sample		Taiping		Non Taiping	
	(1)	(2)	(3)	(4)	(5)	(6)
Guilds (raw count)	1.410*** (0.507)	0.684* (0.353)	1.363** (0.587)	0.638** (0.323)	0.431 (0.824)	−0.588* (0.322)
Control Variables	No	Yes	No	Yes	No	Yes
Province Cluster	Yes	Yes	Yes	Yes	Yes	Yes
Observations	262	262	98	98	164	164
R^2	0.091	0.582	0.137	0.660	0.004	0.587

Note: Control Variables include $\ln(\text{size})$, coast, main river, latitude, longitude, treaty port, capital, rank, academy, *jinshi* before 1850, and log population in 1851. Robust standard errors in parentheses are clustered at the province level, ***, **, and * indicate statistical significance at the 1%, 5%, and 10%, respectively.

Table 5: Placebo Test for the Instrumental Variable

	Land Size (logged)	Population Change	<i>Jinshi</i> in Song (logged)	Academies
	(1)	(2)	(3)	(4)
No. of Ming trade routes	0.018 (0.017)	0.032 (0.029)	-0.056 (0.052)	0.022 (0.301)
Control Variables	Yes	Yes	Yes	Yes
Observations	262	262	262	262
R^2	0.432	0.111	0.321	0.527

Note: The population change is the difference in population from 1776 to 1880, standardized. Control Variables include coast, main river, latitude, longitude, treaty port, capital, rank, academy, *jinshi* before 1850, and log population in 1851. Column (4) excludes academy from controls. Standard errors in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10%, respectively.

Table 6: Impact of Commerce on the Density of Quota Increase: Instrumented Results

	(1)	(2)	(3)
<i>Panel A: Reduced Form: DV = Density of Quota Change</i>			
No. of Ming trade routes	0.00039*** (0.00005)	0.00039*** (0.00005)	0.00022*** (0.00006)
Passby trade route		0.00005 (0.00029)	−0.00051 (0.00029)
R^2	0.187	0.187	0.394
<i>Panel B: First Stage: DV = IHS Guild Density</i>			
No. of Ming trade routes	0.00001*** (0.000002)	0.00001*** (0.000002)	0.00001*** (0.000002)
Passby trade route		−0.00002 (0.00001)	−0.00002* (0.00001)
R^2	0.133	0.142	0.342
<i>Panel C: 2SLS: DV = Density of Quota Change</i>			
IHS guild density	35.897*** (6.125)	35.557*** (6.010)	19.630*** (5.336)
Passby trade route		0.00060 (0.00039)	−0.00014 (0.00031)
First-stage F	39.72	40.59	26.87
Control Variables	No	No	Yes
Observations	262	262	262

Note: Control Variables include coast, main river, latitude, longitude, treaty port, capital, rank, academy, *jinshi* before 1850, and log population in 1851. IV is the number of Ming-dynasty trade routes. Standard errors in parentheses. R^2 is not reported for the 2SLS panel, as it is not well-defined in IV estimation. ***, **, and * indicate statistical significance at the 1%, 5%, and 10%, respectively.

Table 7: Reward Mechanism: *Lijin* Taxation and Quota Increase

	DV: Density of Quota Change					
	(1)	(2)	(3)	(4)	(5)	(6)
Annual <i>lijin</i> revenue	0.004*** (0.001)	0.002** (0.001)				
Density of main stations			2.650*** (0.294)	1.753*** (0.305)		
Density of all stations					0.488*** (0.094)	0.396*** (0.067)
Guilds	No	Yes	No	Yes	No	Yes
Control Variables	No	Yes	No	Yes	No	Yes
Province Cluster	Yes	Yes	Yes	Yes	Yes	Yes
Observations	262	262	262	262	262	262
R^2	0.172	0.361	0.230	0.403	0.193	0.402

Note: Control Variables include coast, main river, latitude, longitude, treaty port, capital, rank, academy, *jinshi* before 1850, and log population in 1851. Even columns include raw guild counts as a control (coefficient not reported). Robust standard errors in parentheses are clustered at the province level, ***, **, and * indicate statistical significance at the 1%, 5%, and 10%, respectively.

Table 8: Reward Mechanism: *Lijin* Taxation and Quota Increase in Taiping Prefectures

	DV: Density of Quota Change					
	(1)	(2)	(3)	(4)	(5)	(6)
Annual <i>lijin</i> revenue	0.004*** (0.001)	0.008 (0.001)				
Density of main stations			2.366*** (0.274)	1.266** (0.478)		
Density of all stations					0.421*** (0.079)	0.246*** (0.081)
Guilds	No	Yes	No	Yes	No	Yes
Control Variables	No	Yes	No	Yes	No	Yes
Province Cluster	Yes	Yes	Yes	Yes	Yes	Yes
Observations	98	98	98	98	98	98
R^2	0.143	0.463	0.235	0.489	0.212	0.486

Note: Sample restricted to 98 prefectures affected by Taiping battles. Control Variables include coast, main river, latitude, longitude, treaty port, capital, rank, academy, *jinsshi* before 1850, and log population in 1851. Even columns include raw guild counts as a control (coefficient not reported). Robust standard errors in parentheses are clustered at the province level, ***, **, and * indicate statistical significance at the 1%, 5%, and 10%, respectively.

Table 9: Reward Mechanism: *Lijin* Taxation and Quota Increase in Fujian Province

	DV: Density of Quota Change				
	(1)	(2)	(3)	(4)	(5)
Annual <i>lijin</i> revenue	0.003*** (0.00074)				
Density of zhengka stations		0.360*** (0.111)			
Density of all stations			0.101* (0.049)		
<i>lijin</i> revenue (logged) (Deng's method)				0.00009** (0.00003)	
Military expenditure (logged) (Deng's method)					0.00009** (0.00003)
Guilds	Yes	Yes	Yes	Yes	Yes
Control Variables	Yes	Yes	Yes	Yes	Yes
Prefecture Cluster	Yes	Yes	Yes	Yes	Yes
Observations	61	61	61	61	61
R^2	0.228	0.242	0.210	0.213	0.213

Note: County-level regressions for Fujian Province. Controls include the number of guilds (coefficient not reported), capital, log population in 1851, and main river. Columns (4) and (5) follow the employee-share logic of [Deng \(2021\)](#) but use Fujian's actual provincial wartime totals from [Luo \(1936\)](#): total *lijin* revenue of 553,794 silver taels and total military expenditure of 493,463 silver taels for 1853–1864, distributed across counties by the share of weighted *lijin* bureau and station employees (county / 1,381 provincial total), then divided by county area and log-transformed. Standard errors are clustered at the prefecture level because the sample contains only one province. ***, **, and * indicate statistical significance at the 1%, 5%, and 10%, respectively.

Table 10: Compensation Mechanism: Quota Change and Population Loss

	DV: Density of Quota Change					
	(1)	(2)	(3)	(4)	(5)	(6)
IHS guild density	12.453*** (0.895)	11.211*** (1.259)	9.560*** (1.415)	12.411*** (1.243)	11.517*** (1.401)	9.724*** (2.003)
Population loss density	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)			
IHS guild $\times$ pop. loss	1.578** (0.671)	1.113 (0.766)	0.635 (0.762)			
Natural pop. loss density				0.001 (0.001)	0.001 (0.001)	0.001 (0.001)
IHS guild $\times$ nat. loss				-0.043 (0.377)	-0.270 (0.467)	-0.250 (0.714)
Population 1851	No	Yes	Yes	No	Yes	Yes
Control Variables	No	No	Yes	No	No	Yes
Province Cluster	Yes	Yes	Yes	Yes	Yes	Yes
Observations	262	262	262	262	262	262
R^2	0.185	0.246	0.412	0.180	0.244	0.417

Note: Control Variables include coast, main river, latitude, longitude, treaty port, capital, rank, academy, *jinshi* before 1850, and log population in 1851. Robust standard errors in parentheses are clustered at the province level, ***, **, and * indicate statistical significance at the 1%, 5%, and 10%, respectively.

Table 11: Consequences of Quota Increase: Upward Mobility to *Jinshi*

	DV: Density of <i>Jinshi</i>				
	(1)	(2)	(3)	(4)	(5)
Density of quota change $\times$ Post 1864	0.011*** (0.003)	0.008** (0.003)	0.010** (0.004)	0.008** (0.003)	0.010** (0.004)
Prefecture Fixed Effects	Yes	Yes	Yes	Yes	Yes
Baseline Controls $\times$ Post 1864	No	Yes	No	Yes	Yes
Time Fixed Effects	No	No	Yes	Yes	Yes
Province $\times$ Post 1864	No	No	No	No	Yes
Province Cluster	Yes	Yes	Yes	Yes	Yes
Observations	12,838	12,838	12,838	12,838	12,838
R^2 (within)	0.021	0.031	0.012	0.021	0.019

Note: Balanced prefecture-year panel of *jinshi* counts, 1800–1904. Baseline Controls include coast, main river, treaty port, capital, rank, academy, and population in 1851 and 1880. R^2 (within) reports the within-prefecture R^2 after absorbing fixed effects. Robust standard errors in parentheses are clustered at the province level, ***, **, and * indicate statistical significance at the 1%, 5%, and 10%, respectively.

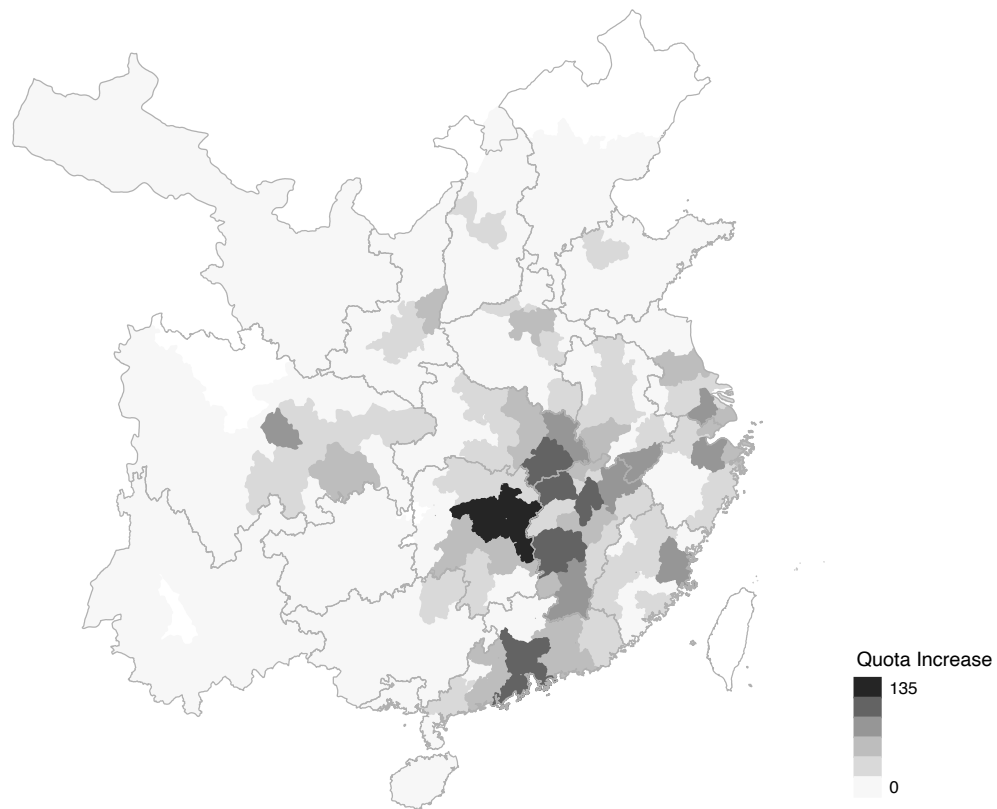


Figure 1: The Quota Increase across 18 Provinces

Notes: The shaded areas are the prefectures where the quota increased, the largest increase being 135 during the Taiping Rebellion, and the smallest increase being zero. The inner borders are the borders for each province.

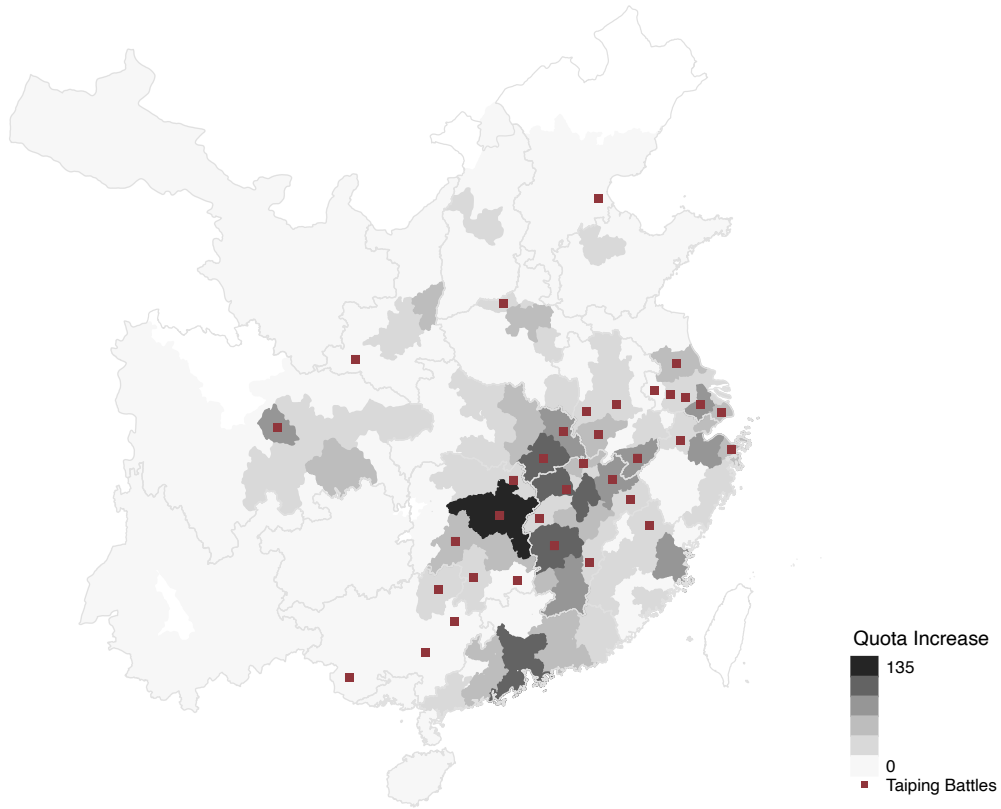


Figure 2: Quota Increase in 18 Provinces and Distribution of Taiping Wars

Notes: The shaded areas are the prefectures where the quota increased. The maroon squares are the sites of the Taiping War from 1851 to 1864.

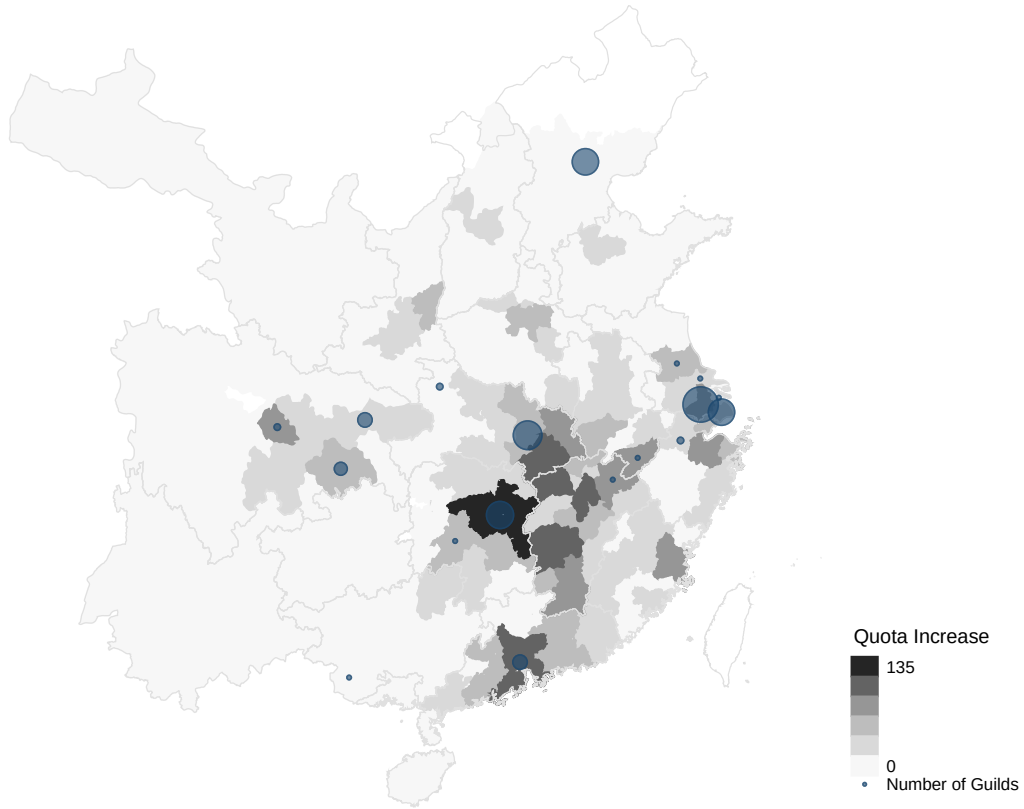


Figure 3: Quota Increase in 18 Provinces and Distribution of Guilds

Notes: The shaded areas are the prefectures where the quota increased. The navy circles represent the number of guilds in each prefecture, with circle size proportional to guild count.

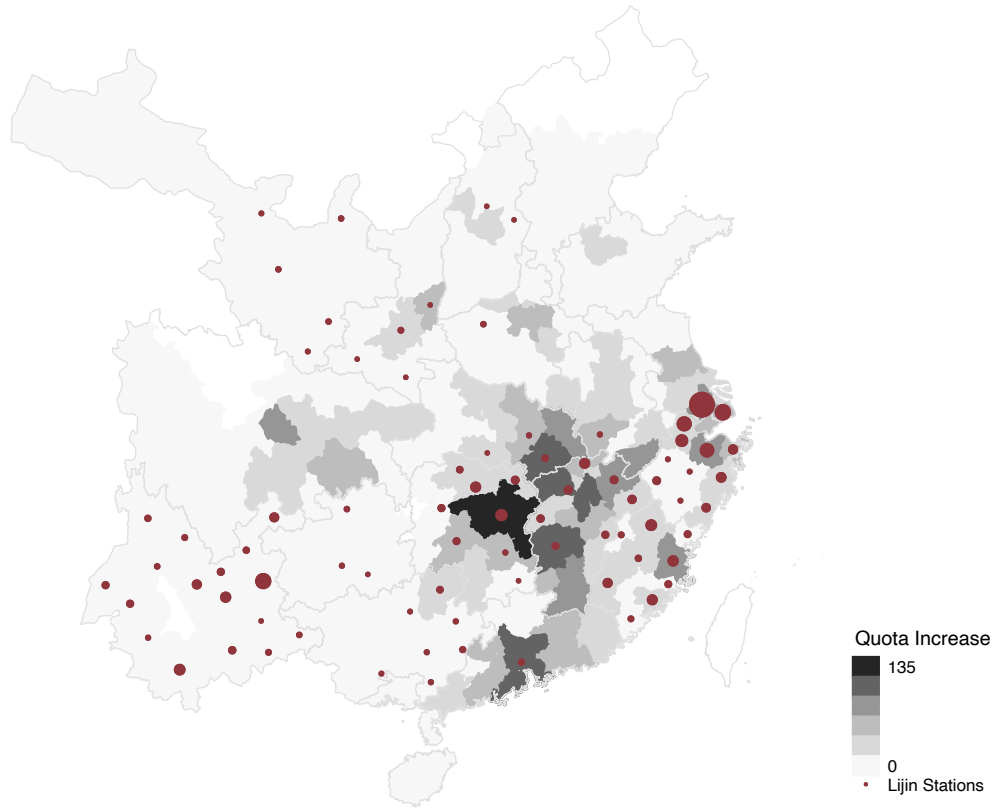


Figure 4: Quota Increase in 18 Provinces and Distribution of *Lijin* Stations

Notes: The shaded areas are the prefectures where the quota increased. The maroon squares represent the number of *lijin* stations, with size proportional to station count. Only prefectures with four or more stations are shown.

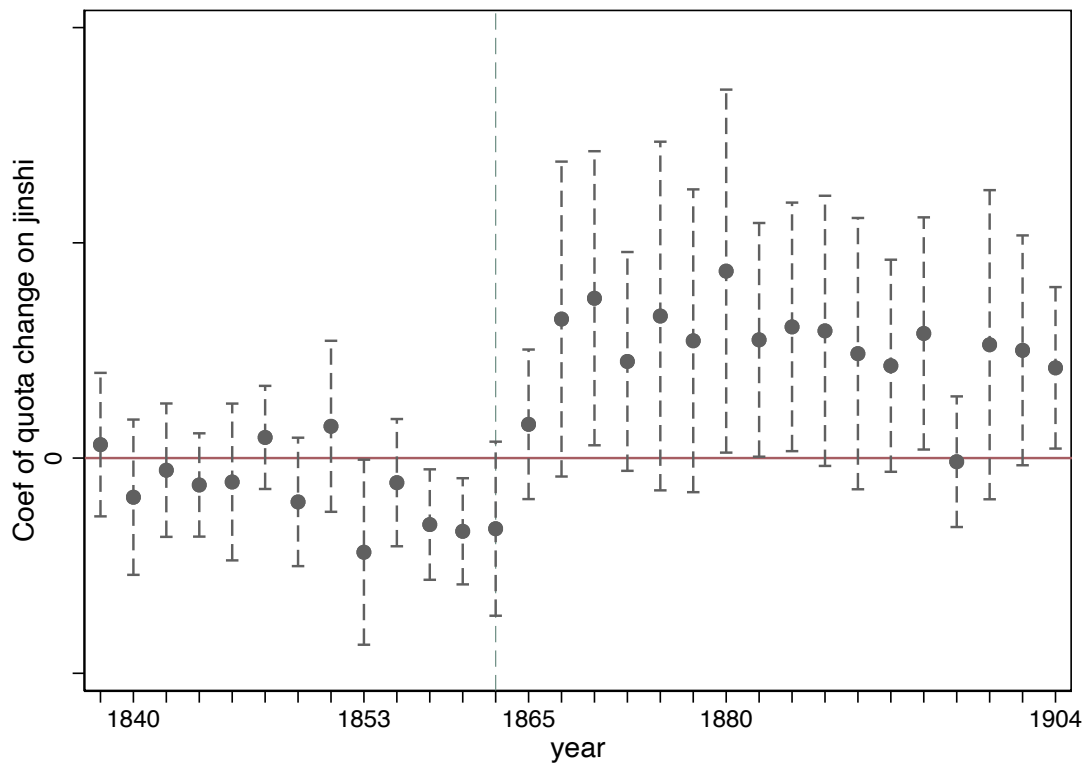


Figure 5: Event Study: Quota Change and *Jinshi* Density

Notes: Coefficients from the event-study regression of *jinshi* density on quota change interacted with year dummies, with prefecture fixed effects and year fixed effects. The omitted period is $t - 1$ (1863). Dashed vertical line marks 1864. 95% confidence intervals shown. Standard errors clustered at the province level.

Appendix A: Tables and Figures

Table A1: Robustness: Guilds Measured up to 1864

	DV: Density of Quota Change					
	Whole Sample		Taiping		Non Taiping	
	(1)	(2)	(3)	(4)	(5)	(6)
IHS guild density (up to 1864)	12.271*** (0.833)	9.253*** (1.480)	11.080*** (1.068)	7.000*** (2.101)	4.013 (3.265)	−0.765 (2.623)
Control Variables	No	Yes	No	Yes	No	Yes
Province Cluster	Yes	Yes	Yes	Yes	Yes	Yes
Observations	262	262	98	98	164	164
R^2	0.168	0.392	0.200	0.488	0.005	0.245

Note: The independent variable is the IHS of guild counts measured up to 1864, normalized by land area. This captures guild formation during the entire Taiping Rebellion period, allowing for the possibility that wartime commercial development also contributed to quota increases. Control Variables include coast, main river, latitude, longitude, treaty port, capital, rank, academy, *jinsi* before 1850, and log population in 1851. Standard errors in parentheses clustered at the province level. ***, **, and * indicate significance at 1%, 5%, and 10%.

Table A2: 2SLS Robustness to Polynomial Controls

	DV: Density of Quota Change			
	Baseline	+ Quadratic	+ Cubic	+ Quartic
	(1)	(2)	(3)	(4)
IHS guild density	19.630*** (5.336)	16.486*** (5.252)	16.760*** (5.146)	14.178*** (5.100)
Passby trade route	−0.0001 (0.0003)	−0.0003 (0.0003)	−0.0002 (0.0003)	−0.0002 (0.0003)
Control Variables	Yes	Yes	Yes	Yes
Polynomial order	Baseline	2	3	4
First-stage F	26.9	23.2	24.3	23.3
R^2	0.284	0.414	0.437	0.500
Observations	262	262	262	262

Note: All columns report 2SLS estimates with IHS guild density instrumented by the number of Ming-dynasty trade routes. Column (1) reproduces the baseline specification from Table 6 column (3). Columns (2)–(4) progressively add quadratic, cubic, and quartic polynomials of log population in 1851, latitude, and longitude. Control Variables include coast, main river, latitude, longitude, treaty port, capital, rank, academy, *jinshi* before 1850, and log population in 1851. Standard errors in parentheses (homoskedastic). ***, **, and * indicate statistical significance at the 1%, 5%, and 10%, respectively.

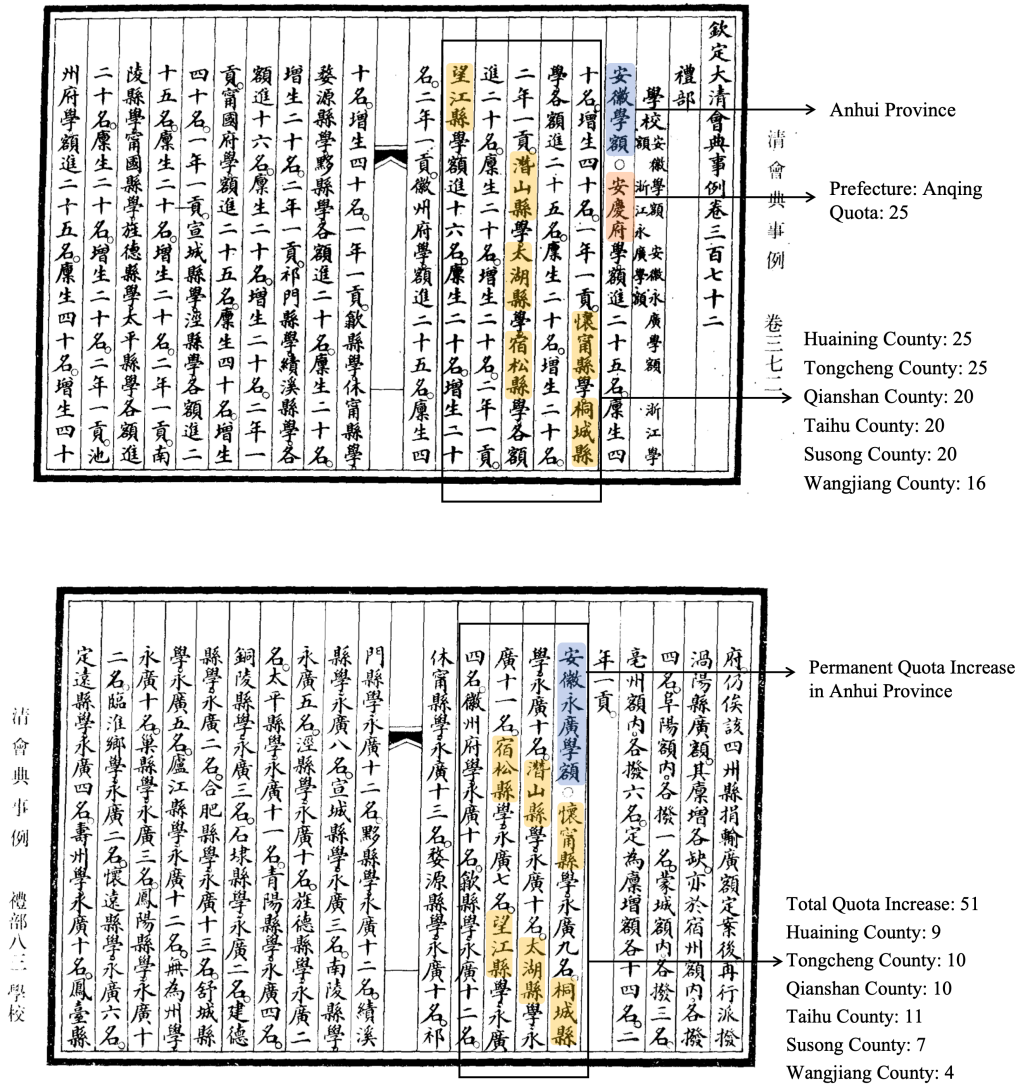


Figure A1: Data Collection: *Shengyuan* Quotas

Notes: The quota data come from the *Qinding Da Qing Huidian Shili* (欽定大清會典事例), compiled by Kun (1899). The top panel shows the pre-Taiping quotas by prefecture and county. The bottom panel shows the permanent quota increases awarded during the Taiping Rebellion. I illustrate the data collection using Anqing Prefecture (安慶府) in Anhui Province as an example. In the top panel, the prefecture-level quota for Anqing is 25, and the subordinate counties (Huaining 25, Tongcheng 25, Qianshan 20, Taihu 20, Susong 20, Wangjiang 16) contribute a combined total of 126, yielding a pre-Taiping total of 151. In the bottom panel, the quota increases for the same counties (Huaining 9, Tongcheng 10, Qianshan 10, Taihu 11, Susong 7, Wangjiang 4) sum to 51. The post-Taiping total for Anqing Prefecture is therefore $151 + 51 = 202$.

Year	Region	Name of the Guilds		
年代	地区	行业	会馆或公所名称	附 记
二年(1797)	重庆	陕西绸缎布匹头绳坊业		嘉庆元年重整章程。
	上海		四明公所(宁波会馆)	嘉庆二年, 宁波同乡之从宦服贾者, 捐资置地建公所。
	北京		孟县公所	山西孟县六家翟毡行, 于乾隆末年筹备, 嘉庆二年建成。
五年(1800)	苏州	金箔业	经匠差局公所	嘉庆五年立碑作记。
八年(1803)	北京		当业会馆	嘉庆八年成立公合堂, 又名当业会馆。
十年(1805)	长沙	芽菜业		嘉庆十年整顿旧规。光绪二十年重定条规。
十三年(1808)	苏州	理发业	江镇公所(整容公所)	嘉庆十三年创立。
十四年(1809)	上海		北货行公所(南阜公墅)	嘉庆十四年建。
十五年(1810)	苏州	煤炭柴船业	时入公所	碑记为嘉庆十四年四月。
	苏州		嘉应会馆	最早碑记为嘉庆十四年。
	吴江盛泽镇		徽宁会馆	嘉庆十四年建。
	吴县	木作	小木作公所	嘉庆十五年成立, 道光二十四年重修。
	重庆	弹棉业		嘉庆十五年重订行规。
	北京		平定会馆	山西平定县雨衣、钱庄、染坊等商人会馆。成立年代不详, 最早碑记为嘉庆十五年。

Figure A2: Data Collection: Commercial Guilds

Notes: The guild data come from Peng (1995), *Zhongguo Gongshang Hanghui Shiliao Ji* (中国工商行会史料集), which provides a comprehensive catalogue of commercial guilds (*gongsuo* and *huiguan*) across China. Each entry records the founding year, region, industry, and name of the guild. The figure shows a sample page from the catalogue. Guilds are listed chronologically, with columns for the year of establishment, the region (province and city), the industry or trade, and the full name of the guild organization.

第六十表 咸豐十一年安徽省所設釐金局卡表 *					
各總局所屬正卡			分卡	巡卡	各總局所屬正卡
省城釐局					宣城縣灣沚正卡
懷甯縣鹽河正卡			3	3	建平縣定埠正卡
望江縣華陽正卡			2	8	淮北釐局
含山縣運漕正卡			3	13	六安州六安正卡
銅陵縣大通正卡				1	霍邱縣三河尖正卡
皖南釐局					五河縣五河正卡
休寧縣屯溪正卡			3	2	總計
					22
					37

Figure A3: Data Collection: *Lijin* Stations

Notes: The *lijin* station data come from provincial financial reports compiled by Luo (1936) and Chen (2015). The figure shows a sample table for Anhui Province in the eleventh year of the Xianfeng reign (1861), listing main *lijin* stations (*zhengka*, 正卡) and their subordinate stations (*fenka*, 分卡). For example, Huaining County has one main station with three substations. The rightmost columns record the number of substations under each main station. I use both the count of main stations and the total count (main plus subordinate) as measures of *lijin* tax infrastructure at the prefecture level.

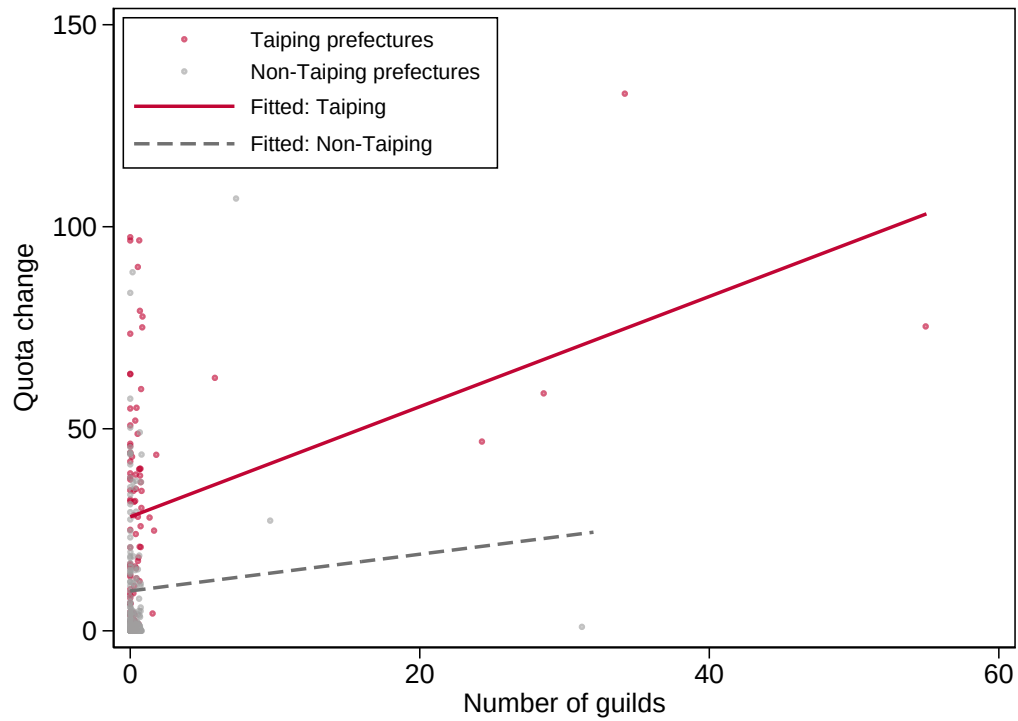


Figure A4: Guild Presence and Quota Change

Notes: Each point represents a prefecture. The x-axis is the raw count of guilds; the y-axis is the raw change in *shengyuan* quotas during the Taiping Rebellion.

Appendix B: Guild Terminology and Classification

When referring to “guilds” in the Ming and Qing dynasties, the term often corresponds to the Chinese word *hanghui* (行会) (Peng, 1995; Quan, 2007; Wang, 1998). *Hanghui* can be classified into two broad categories. The first encompasses craft guilds characterized by clear industry classifications and relatively small geographic scope. The second includes merchant guilds, which were organized around long-distance trade and operated across larger geographic areas. The use of the single term *hanghui* to describe both categories has been criticized by some scholars, as it reduces the complexity of Chinese trade and craft associations by conflating two distinct organizational forms (Qiu, 1990). Nevertheless, the term remains standard in the literature and I follow this convention.

Within the broader category of merchant guilds, two organizational forms are particularly relevant. *Gongsuo* (公所) initially referred to “public halls” and described primarily associations of individuals within the same occupation or trade (Moll-Murata, 2008). These were organized along occupational lines: silk merchants, tea traders, or porcelain dealers in a given city might form a *gongsuo* to coordinate commercial practices, settle disputes, and maintain quality standards. *Huiguan* (会馆) originally meant “assembly house” and referred to associations of people sharing the same geographic origin (Rowe, 1984). A *huiguan* in Shanghai, for example, might bring together all merchants originally from Ningbo, regardless of their specific trade. Both types served as institutions for collective action, providing mutual aid, facilitating information exchange, and mediating between member merchants and local authorities.

In this paper, I define guilds as associations formed by merchants with shared interests to facilitate commercial activities, collecting both *gongsuo* and *huiguan* in the dataset following Peng (1995). The data come from Peng’s comprehensive catalogue, which records the name, location, founding year, and type of each guild across China. Because merchants established guilds within the same sector or from the same region of origin for convenience in commercial activities, the emergence of guilds is representative of the development of commerce in a given prefecture.

One might ask why I do not restrict the analysis to *huiguan* (merchant guilds orga-

nized by geographic origin) rather than including both types. The reason is pragmatic: the historical sources do not always distinguish cleanly between the two categories, and many organizations combined occupational and regional functions. Moreover, both *gongsuo* and *huiguan* contributed to the commercial infrastructure that generated *lijin* revenue. A guild organized by trade (*gongsuo*) and a guild organized by native-place (*huiguan*) both facilitated commercial transactions that were taxed at *lijin* stations. The relevant margin for the fiscal mechanism is the total volume of organized commercial activity, which both types capture.

The distinction between craft guilds and merchant guilds matters for interpretation. Craft guilds tended to be local institutions concerned with production standards and labor relations. Merchant guilds, by contrast, were embedded in interregional trade networks and had greater capacity to mobilize financial resources. During the Taiping Rebellion, it was primarily the merchant guilds, with their connections to long-distance trade and their capacity to organize collective fiscal contributions through the *lijin* system, that served as the institutional infrastructure linking commercial wealth to political reward.