The Short- and Long-Run Effects of Affirmative Action: Evidence from Imperial China*

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Abstract

We study the short- and long-term effects of affirmative action policies in the context of China. During imperial China, official positions were awarded to the most academically talented individuals through a multi-stage examination process administered by the central government. In 1712, a reform was implemented to address disparities in exam performance, aiming to equalize acceptance rates across provinces and increase representation from underrepresented regions. Using a unique dataset, we analyze career outcomes and find that more candidates from underrepresented provinces secured positions without compromising their performance after the reform. However, sub-provincial units showed different trends. Although the reform ended in 1905, the gap between underrepresented provinces and others widened again, but some effects of the reform remained. Moreover, the intervention had spillover effects, extending its impact to secondary education.

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I Introduction

Affirmative policies are designed to improve the position of groups that have been underrepresented or disadvantaged.[1] These measures typically involve granting some degree of preferential treatment to members of disadvantaged groups in the allocation of scarce resources such as jobs, university admissions, and government contracts. Programs to increase the number of non-dominant student groups admitted on the basis of race, gender, ethnicity, class, geographical location, or high school type are implemented by a wide range of institutions and governments across six continents (Moses and Jenkins, 2014). Affirmative action has been a subject of debate since its inception.[2] Researchers who have examined affirmative action's effects on equity and efficiency have arrived at sharply divergent conclusions.[3]

This paper studies a case of affirmative action in an unlikely historical setting: imperial China. At first glance, one may not associate the Qing bureaucracy with policies designed to promote inclusion or redistribution. Yet in 1712, the Qing state enacted a reform to its examination system that shares key features with modern affirmative action: it revised the rules of final-stage selection to boost representation from historically underperforming provinces. In effect, the reform granted preferential treatment to underrepresented regions in the allocation of elite educational and occupational opportunities.

The motivations behind the reform were not ideological in the modern sense, but likely reflected a combination of administrative pragmatism, concerns about geographic balance, and broader efforts to maintain legitimacy across a vast and diverse empire. Regardless of the state's intent, the policy changed the opportunity structure in ways that resemble modern affirmative action—particularly geography-based systems, such as those in France or Australia (Sabbagh, 2002; Farnhill and Thomas, 2017). By raising the probability of success for candidates from disadvantaged regions while keeping earlier stages of selection unchanged, the reform altered educational incentives and long-run access to elite careers. These features make the setting a valuable natural experiment for studying how redistributive selection policies affect human capital accumulation and social mobility.

The imperial examination system in China was a long-standing and highly prestigious method of selecting individuals for scarce, high-status bureaucratic posts. But its appeal extended far beyond government service. Success in the exam conferred cultural distinction and elite social

[1] Although typically associated with liberal democracies, affirmative action policies are not exclusive to them. Both the Soviet Union and contemporary China have implemented ethnicity-based affirmative action systems in education and public employment. These cases highlight that redistributive selection policies can emerge under autocratic regimes as tools of integration, legitimacy, or control. See Martin et al. (2001) on the Soviet Union and and (1998) on minority preferences in socialist China.

[2] Affirmative action began in the United States with Lyndon Johnson's 1965 executive order, preceded by a commencement address he delivered at Howard University on the same topic.

[3] See Arcidiacono and Lovenheim (2016) and Holzer and Neumark (2000) for a review.

standing, and the system shaped educational aspirations across much of the male population. Even candidates who never entered the bureaucracy often became teachers or community elites. In the absence of mass schooling or modern credentialing systems, the examination system emerged as a national institution of aspiration—valued not only for its material rewards but also for its symbolic and cultural significance.

However, large disparities in exam performance across provinces were persistent.[4] Many factors contributed to regional variation, including linguistic barriers, uneven educational resources, and the geographic challenges of traveling to exam sites (Elman, 1991).[5] In 1712, the Qing state implemented a new policy to address these gaps by giving underrepresented provinces a higher probability of producing successful candidates. This reform remained in force until the imperial exam system was abolished in 1905.

A key innovation of the 1712 reform was to apply provincial quotas at the level of the metropolitan exam—the final and most prestigious stage in the three-tiered examination system. Previously, candidates who had passed earlier exams competed in a single national pool. After 1712, acceptance rates were equalized across provinces, conditional on reaching the metropolitan exam. This effectively lowered the bar for provinces with few high performers while raising it for those with historically dominant performances.

The 1712 reform provides an opportunity to estimate the long-term effects of large-scale affirmative action policies. We begin by analyzing the contemporaneous effects of the 1712 reform on the academic and career outcomes of intended beneficiaries, using a novel dataset on the 16,073 successful candidates who received their jinshi degree between 1650 and 1840. Using two sources of variation — the intensity of the reform and timing — we estimate the impact of the reform in a continuous difference-in-differences framework. To understand the distributional consequences of the reform, we estimate the heterogeneous impact of the policy and investigate factors that shaped the distribution of the gains and losses from the reform within the provinces. Our last line of analysis probes into the long-run impact of the reform and its spillover effects on lower educational levels.

To quantify the magnitude of the reform, we first construct a measure of reform intensity. Specifically, we take the difference between a province's share of successful candidates without the reform and its share immediately after the reform. To ensure comparability over time, we create artificial provinces with boundaries well contained within exam regions.[6] The change in a

[4]Historically, candidates from certain regions, especially in the North, performed less well. This imbalance was partly addressed in the fifteenth century by quotas introduced in 1454.

[5]In Schotter and Weigelt (1992), affirmative action programs are a solution to uneven tournaments, in which one group of agents have a higher cost of effort than another group.

[6]Exam regions were instituted in 1454. From 1454 onwards, quotas were assigned to exam regions (North, South and Central) based on the following rule: 35% to North, 55% to South, and 10% to Central. The boundaries of these exam regions did not perfectly overlap with provincial boundaries. These exam regions became irrelevant after 1712.

province's share in its exam region ranged from -15% to 10%. As expected, there is an inverse relationship between a province's initial share and the change in its share. In other words, a province with a lower share of successful candidates without the reform was more likely to see a positive change under the reform. The observed relationship shows that the reform expanded opportunities for individuals from underrepresented provinces.

The 1712 reform expanded opportunities for individuals from underrepresented provinces by altering the allocation of jinshi degrees, which were critical for entry into high-ranking bureaucratic positions. A natural theoretical prediction is that expanding access to jinshi degrees would increase the quantity of human capital but might compromise its quality. This is because the reform effectively lowered the bar for candidates from reform-beneficiary provinces while raising it for candidates from reform-negative provinces, potentially allowing less-qualified individuals to succeed.

Our empirical findings show that successful candidates from reform-beneficiary provinces did not experience worse career outcomes than their peers. Despite the lowered admission thresholds in these regions, their professional trajectories were comparable—if not slightly better—than those from non-beneficiary provinces. This suggests that the reform expanded access without compromising the quality of bureaucratic performance. In doing so, it redistributed opportunity within the existing institutional framework, enabling upward mobility for candidates from historically underrepresented regions.

Beyond these average treatment effects, we also examine how the reform's consequences played out *within* provinces. We find that sub-provincial units possessing higher pre-existing human capital (measured as *jinshi* per capita prior to 1650) were better positioned to capitalize on the new policy, often securing a disproportionate share of its benefits. In contrast, sub-provincial units with weaker historical endowments gained less—and in some cases, appear to have fallen further behind. This suggests that while the reform did broaden representation for some disadvantaged provinces, it simultaneously amplified internal inequalities rooted in historical disparities.

Finally, we extend the analysis beyond 1905, when the imperial exam system was dismantled, to assess whether (and how) the advantages conferred by the 1712 policy persisted after its formal cessation. Using various measures of professional success and educational outcomes in the Republican era and modern times, we observe a partial erosion of the reform's direct benefits. Yet we also uncover significant spillovers. In particular, correlations between the reform's intensity and higher secondary or tertiary educational attainment—evident in twentieth-century data—indicate that some of its positive effects on human capital accumulation endured. Thus, although the post-1905 environment was no longer governed by formal quotas, the reform left behind a legacy that continued to influence educational trajectories long after the policy's repeal.

Related Literature Our study contributes to the growing literature on the effects of affirmative action. Several theoretical models highlight the incentive effects of such policies on human capital accumulation. Lundberg and Startz (1983) show that equal opportunity laws can raise educational investment by altering expectations about labor market returns. Schotter and Weigelt (1992) find experimentally that affirmative action reduces dropout behavior among disadvantaged participants. Other models emphasize role model effects as a channel through which affirmative action improves group outcomes (Chung, 2000; Fang and Moro, 2011), while a separate strand explores potential mismatch effects (Sander, 2004; Arcidiacono et al., 2011; Arcidiacono and Lovenheim, 2016).

The 1712 reform aligns with a strand of theoretical work emphasizing the advantages of last-stage affirmative action—interventions that shift final outcomes without altering earlier stages of preparation. In such models, affirmative action preserves upstream effort incentives while equalizing success rates across groups. Coate and Loury (1993) argue that this structure avoids reinforcing negative stereotypes, while Chan and Eyster (2003) and Schotter and Weigelt (1992) provide theoretical and experimental support for this logic. The Qing reform followed this logic closely: it changed the allocation of final-stage exam slots while leaving earlier exams untouched. This institutional design not only minimizes distortions but also strengthens our identification strategy by isolating the effects of redistributive selection from broader changes in access or curricula.

Empirically, our study relates to recent research leveraging natural experiments to estimate the effects of affirmative action on intended beneficiaries. Bleemer (2022) shows that ending affirmative action caused underrepresented minority freshman applicants to cascade into lower-quality colleges. Kapor (2024) finds that under the "Top Ten Percent" policy in Texas, more students from high-poverty schools enrolled, and students who enrolled under the policy achieved higher GPAs. Bagde, Epple, and Taylor (2016) show that the affirmative action program in India increased college attendance for targeted students and there is no evidence for the "mismatch" effect. Bertrand, Hanna, and Mullainathan (2010) find a positive return to admission for intended beneficiaries, but lower-caste individuals from stronger socioeconomic backgrounds benefited the most.

Our study also contributes to the literature on the long-term persistence of affirmative action effects. A key question in this literature is whether affirmative action policies produce lasting gains or require continued intervention to sustain their benefits.[7] We find that the career outcomes of successful candidates from beneficiary provinces improved after the reform, even though their performance did not fully converge with that of other successful candidates. Upon the withdrawal of the policy in 1905, we document a reversal in the effect of the reform, suggesting that sustained

[7]See Holzer and Neumark (2006) and Arcidiacono, Lovenheim, and Zhu (2015) for a review of the literature on the equity and efficiency trade-offs of affirmative action.

policies may be necessary to prevent backsliding in opportunities for underrepresented groups.

Fewer studies within the affirmative action literature have examined the distributional consequences of these policies (Bertrand, Hanna, and Mullainathan, 2010). We find that prefectures with higher levels of pre-existing human capital derived the greatest benefits from the reform, leading to persistent disparities within provinces.

Unlike race- or ethnicity-based affirmative action, the 1712 reform was a place-based policy, favoring candidates from historically underrepresented provinces. Comparable policies exist today, such as France's Sciences Po Equal Opportunity Program and regional quota systems in Australia and Sri Lanka (Sabbagh, 2002; Farnhill and Thomas, 2017). A key concern in evaluating such policies is the possibility of strategic relocation, where individuals shift locations to benefit from preferential treatment (Cullen, Long, and Reback, 2013). In the Qing context, however, interprovincial migration was tightly constrained by law and social institutions, limiting the feasibility of arbitraging quotas. Although some instances of false registration—such as claiming affiliation with less competitive provinces—have been recorded in the late Qing, these practices were relatively rare, subject to sanction, and unlikely to bias our estimates in the earlier period of analysis.[8]

Our study also contributes to the literature on the intergenerational transmission of human capital. Research in this area has documented the persistence of educational advantages across generations, often shaped by parental background and institutional structures. Becker and Tomes (1986) propose a model in which human capital is passed down through families, while Black, Devereux, and Salvanes (2005) provide empirical evidence on the strength of intergenerational mobility in education. Campbell and Lee (2011) document the persistence of elite lineage advantages in imperial China, emphasizing the role of inherited status over long historical periods. Our findings complement this literature by showing that state interventions can modify intergenerational trajectories, as the 1712 reform generated persistent educational advantages in beneficiary provinces.

More broadly, our results connect to literature on the long-term persistence of inequality. Piketty (2014) argues that once economic advantages are established, they tend to reinforce themselves unless actively disrupted by policy. Our findings provide an educational analogy: the 1712 reform initially expanded access to bureaucratic success, but over time, human capital accumulation became concentrated in areas that already had educational advantages. Even after the examination system was abolished in 1905, reform-beneficiary provinces continued to produce more highly educated individuals, illustrating how affirmative action policies can create self-reinforcing educational advantages that persist across generations.

[8]This practice, known as *maoji*, became more visible in the 19th century, particularly in provinces like Guangdong and Guangxi. See Appendix C.1.1 for further discussion and references. For institutional background on mobility constraints, see Von Glahn (2012).

Finally, we contribute to recent historical and quantitative studies of the Chinese exam system (Ho, 1962; Campbell and Lee, 2008; Elman, 2013; Bai and Jia, 2016; Shiue, 2017; Yuchtman, 2017; Chen, Kung, and Ma, 2020; Shiue, 2025; Wen, Wang, and Hout, 2024). Ho (1962) suggests there was a considerable amount of mobility in Ming China, while Elman (1991) and Elman (2013) argue that elite circulation was limited. Bai and Jia (2016) argue that the abolition of the civil service exam system destabilized Qing rule by politically displacing would-be elites, leading to greater revolutionary participation in regions where the exam had historically provided more opportunities. Yuchtman (2017) argues that the exam system's emphasis on classical learning hindered modernization, while Chen, Kung, and Ma (2020) link historical exam participation to modern human capital investment. Moreover, Shiue (2025) finds that a decline in the returns to exam success in the late 17th century helped increase intergenerational mobility by narrowing group-specific income differences. In this context, our study examines the 1712 reform—a key intervention in the imperial examination system that functioned as a form of affirmative action. We demonstrate that the reform incentivized educational investments in underrepresented provinces and generated significant spillover effects on broader educational outcomes.

First, to our knowledge, this is the first paper to examine an affirmative action policy in a premodern context over nearly two centuries of implementation.The reform spanned 193 years—from 1712 to 1905—allowing us to track beneficiaries over multiple generations. Rather than focusing on a particular institution or subset of students, we leverage comprehensive data on all successful candidates who passed the metropolitan exam between 1650 and 1840. This national scope and extended timeline provide a unique setting for analyzing the long-run dynamics of human capital accumulation and institutional reform.

Our setting also offers advantages for isolating the effects of affirmative action. The imperial examination system had a centralized and transparent selection process, with test scores serving as the sole criterion for determining success. Unlike modern affirmative action policies, which often incorporate holistic admissions criteria, this system allowed us to assess the direct impact of affirmative action without confounding adjustments in subjective evaluation processes.[9] This allows us to study the effects of a last-stage affirmative action policy that shifted outcomes purely through the allocation of final-stage opportunities, without accompanying changes to school access, curriculum, or income support. Moreover, the direct appointment of successful candidates to government positions ensures that we can trace their career trajectories without concerns about post-selection labor market discrimination, a common confounder in studies of affirmative action. These unique features allow us to contribute to both the historical and contemporary understanding of affirmative action's long-run effects.

The remainder of the paper is organized as follows. Section II provides historical background.

[9]In the U.S., for example, affirmative action policies often lead to adjustments in how non-test-score items are weighted (Chan and Eyster, 2003).

Section III details data sources and variable constructions. Section IV describes how we measure the intensity of the reform. Section V analyzes the impact of the 1712 reform on successful candidates' exam and career outcomes, as well as its distributional consequences. Section VI documents the effects of the reform after its formal withdrawal in 1905. Section VII investigates the long-term and spillover effects of the reform on the broader population, including educational and occupational outcomes. Section VIII discusses mechanisms and interpretations. Section IX concludes.

II Historical Background

In 1712, a major reform was introduced to China's long-standing imperial examination system, a core pillar of the country's political and economic institutions since the Song Dynasty (960–1279 AD). The reform equalized acceptance rates across provinces in the final round of the exam. Under the new policy, candidates from less developed regions were no longer disadvantaged by direct competition with candidates from historically dominant provinces; instead, a fixed number of passes was allocated relative to the size of the candidate pool from each province. Success in lower-tier exams—still subject to quotas—remained a prerequisite for reaching the final stage.

The imperial examination system, established in 587 AD and institutionalized during the Song, followed a three-tier structure: the Prefectural Examination (*yuankao*), the Provincial Examination (*xiangshi*), and the Metropolitan Examination (*huishi*). Degrees were awarded at each stage—*shengyuan*, *juren*, and *jinshi*—with *jinshi* eligible for high-ranking bureaucratic posts. While the *jinshi* remained the most prestigious credential, especially for elite appointments, it was not the sole route into officialdom. In the 18th and especially 19th centuries, a growing share of officials qualified through purchased degrees (*juanna*), a practice used by the Qing state to raise revenue.[10] Our analysis focuses on exam-qualified *jinshi*, whose appointments were highly competitive and subject to centralized assessment. The exams were held every three years, as summarized in Figure A.9.[11]

Historically, China exhibited a distinctive pattern in the evolution of inequality: levels of inequality tended to rise toward the end of each dynasty, followed by redistribution and institutional reset after dynastic collapse. Land was periodically reallocated, and formal hereditary aristocracies did not persist across dynastic transitions. By the Qing period, there was no titled Han nobility with guaranteed bureaucratic access, and elite status was no longer transmitted institutionally.[12] Instead, the examination system became the primary mechanism for upward

[10] See Zhang (2022) for an account of purchased degrees in Qing China. For a quantitative breakdown of entry routes into the bureaucracy, see Chen et al. (2020).

[11] Appendix C.3 and C.3.3 provide detailed discussions of career trajectories for successful and unsuccessful candidates.

[12] The one important exception is the Manchu (and allied Mongol) banner aristocracy. Banner titles were

mobility. In this context, access to the exams—and particularly to the *jinshi* degree—became the central axis of status competition, shaping the structure of inequality and the dynamics of elite renewal.[13]

This examination-based system fostered literacy and educational effort in a premodern context where few institutional incentives for broad learning existed. There were no centralized public schools; instruction typically came from families, lineage groups, or community-run schools, with local academies available to those who progressed further. While successful candidates gained prestige and access to official appointments (Ho, 1962), many unsuccessful aspirants became village teachers or tutors, creating local spillovers in literacy and basic education. The result was a class of literate men far larger than the bureaucracy itself, reinforcing norms of learning and preparation across social strata.[14]

Eligibility for the exam system was broad: all adult males could participate,[15] and there were no wealth or income requirements. By the late 19th century, approximately 3 million individuals—about 1 in 50 adult males—sat for the lowest-level exams each year (Elman, 2013). Over time, the system became culturally entrenched, giving rise to an entire universe of rituals, superstitions, and symbols.[16]

Although often idealized for its meritocratic design, the imperial examination system also served important political functions. By selecting officials through a formalized, competitive process, the state bolstered its legitimacy and projected an image of fairness and competence.[17] While the exams were generally conducted with rules to promote fairness—such as standardized texts, anonymized grading, and formal penalties for cheating—corruption and favoritism were not uncommon, especially at lower levels and in later dynasties.[18]

Yet even within this carefully structured system, opportunities remained deeply unequal. Performance across regions varied widely due to a combination of structural, cultural, and geographic disadvantages. Many factors contributed to this inequality, including linguistic differences and

hereditary and, until the late empire, bannermen enjoyed their own examination quotas and privileged access to certain offices; see Elliott (2001, ch. 5) and Xi (2018) and Chen et al. (2023) for details.

[13]See Ma (2012) on elite formation and redistribution across dynasties; Milanovic, Lindert, and Williamson (2011) for comparative inequality trajectories; and Ho (1962) on social mobility through the exam system.

[14]The tournament structure also had important implications for motivation and educational investment, as emphasized in economic models of rank-based competition (e.g., Lazear and Rosen, 1981). Literacy rates varied substantially by region. Evelyn Rawski estimates that national male literacy in the 19th century was roughly 20–30%, while reaching 40–50% in parts of the Yangtze Delta (Rawski, 1979). Elman et al. (2000) similarly notes that in some Jiangnan counties, over half the adult male population had acquired basic classical literacy.

[15]The Tanka people were an exception, excluded for most of imperial history. Even after being formally permitted in the 1700s, they continued to face significant barriers.

[16]Appendix C.2.5 explores these practices in greater detail. See also Li (2023), who documents the popularity of civil service lotteries in 19th-century Guangdong, where participants placed bets based on surname distributions of exam passers.

[17]Bol (2008) describes the examination system as foundational to a "scholar-official government," with the emperor playing a central but constrained role within a broader institutional structure.

[18]See Appendix C.2.2 for a discussion of enforcement practices and known limitations.

unequal access to education.[19] Candidates from remote provinces often had limited exposure to the examination culture, and geographic isolation meant few could seek opportunities elsewhere. This spatial immobility magnified the disadvantages faced by frontier regions.[20]

After 1650, these disparities became more visible as the Qing expanded its territorial control. Moreover, nearly half of official posts were reserved for Manchu elites, reducing opportunities available through the exam system (Xi, 2018). Provinces like Guizhou, home to a large ethnic population, produced only nine successful candidates over the sixty years from 1650 to 1710.

To address these imbalances, Emperor Kangxi issued a reform decree in 1712. In his edict, he proclaimed (*Veritable Records of the Kangxi Emperor,* 1985):

> Across the empire, ever more scholars make the long and arduous journey to the capital to sit for the examinations, many from the humblest of origins. Yet few attain success, however diligently they strive. This is a matter of deep concern. Henceforth, a candidate's province of origin shall be given due consideration. Once all have assembled, the number of successful candidates from each province shall be determined in proportion to the number of examinees it presents, thereby ensuring fairness and preventing the unjust exclusion of worthy men.

Kangxi made this statement following the 1712 metropolitan exam. His officials swiftly acted on the decree and implemented a new set of rules. In a rare move, a second metropolitan exam was held in 1713—only one year after the last—this time incorporating the new system that effectively confined competition within provinces.[21]

This reform marked a significant evolution in the exam system's approach to equity.[22] As early as 1066, thinkers like Sima Guang had argued for regional quotas to address disparities, in contrast to Ouyang Xiu's advocacy for pure meritocracy (Ji, 2005). Over the centuries, various quota systems were introduced. Notably, a North-South quota was established in 1425 (60% for the South, 40% for the North), and refined further in 1454 with a three-region split: South (55%), North (35%), and Central (10%) (Kracke, 1957). These reforms, however, failed to close the regional gap in access to bureaucratic careers.

The 1712 reform was more comprehensive. By tying passing rates to the number of test-takers from each province, the reform ensured that a candidate's chances of success depended not on the strength of national competition but on relative standing within their province. In this way, it extended the logic of equity further than any previous intervention in the history of the examination system.

[19]The curriculum was based on Confucian classics in literary Chinese, disadvantaging those with different mother tongues. See Appendix C.2.3.

[20]See Appendix C.1.1. Related literature on place-based educational inequality includes Ludwig et al. (2013), Chetty and Hendren (2018a), and Chetty and Hendren (2018b).

[21]Metropolitan exams were typically held every three years; back-to-back exams were highly unusual.

[22]See Appendix C.1.2 for the broader intellectual background.

Figure A.1 illustrates how *jinshi* per capita evolved after 1712 for provinces with high versus low initial success rates. Provinces whose pre-reform ratio of *jinshi* to *juren* was above the median (upper panel) experienced little change; conversely, those below the median (lower panel) saw notable increases in *jinshi* per capita, consistent with the reform's stated goal.[23]

III Data

This section describes the primary data sources and variables underpinning our analysis. Table A.1 presents the summary statistics of the core variables. Additional variables and their construction details are provided in Appendix B.1.

III.A Successful Candidates in Imperial Exams

We assemble a comprehensive dataset of successful candidates in the civil service examinations who obtained the *jinshi* degree between 1371 and 1840. This dataset, drawn primarily from Zhu and Xie (1980), includes over 51,000 individuals—the most complete record available for the Ming and Qing dynasties.[24] For each candidate, we observe exam year, birthplace, and final exam rank. To study longer-term outcomes, we supplement this dataset with information on bureaucratic appointments drawn from Gong (2019) and the China Government Employee Database–Qing (CGED-Q) (Ren et al., 2016; Campbell et al., 2019), both of which record official posts and administrative ranks for a subset of *jinshi* over their careers.

From these records, we construct three key measures:

1. **Jinshi Per Capita.** For each province (or prefecture) in every ten-year period, we compute the count of *jinshi* per 10,000 residents. Population data come from 1776 and 1820 censuses (and interpolations thereof), and sensitivity tests using other denominators (e.g., the 1820 population alone) yield similar results.

2. **Exam Rank.** Each candidate's academic performance is measured using their final placement in the Palace Examination, the highest stage of the imperial examination system. After passing the Metropolitan Examination, successful candidates proceeded to the Palace Examination, where they were ranked again by senior officials and the emperor. This final

[23] We calculate a province's pre-reform ratio of highest-level exam passers (*jinshi*) to lower-level exam passers (*juren*) over 1644–1712. We then classify provinces into high or low groups relative to the median. Most provinces with below-median *jinshi*-to-*juren* ratios prior to the reform were relatively underdeveloped by the early Qing period. While some—such as Jiangxi—had been cultural and economic centers in earlier centuries, they had already entered a period of relative decline by the 1600s. Thus, the set of provinces benefiting most from the reform broadly corresponds to areas with weaker educational and institutional foundations at the time.

[24] Zhu and Xie (1980) documents 51,000+ *jinshi* from 201 exam cohorts spanning 1371–1904. We end in 1840 for reasons discussed in Section V.

rank determined their standing on the official jinshi list and was used for formal appointments.

We construct a standardized version of this rank:

$$\text{Standardized Rank} \;=\; 1 \;-\; \frac{\text{Raw Rank}}{\text{Total Number of Passes}},$$

so higher values (≈ 1) reflect stronger relative performance. For prefecture-level (or county-level) regressions, we compute the average standardized rank of all passing candidates within a given decade, assigning a value of zero if no candidate from that unit passed.

3. **Bureaucratic Rank.** We use two sources to construct measures of bureaucratic rank. The first is Gong (2019), which contains biographical entries for a large number of *jinshi*, including mentions of bureaucratic appointments for 4,314 individuals (approximately 27% of all *jinshi*). To supplement this, we incorporate information from the China Government Employee Database–Qing (CGED-Q) (Ren et al., 2016; Campbell et al., 2019), which is organized around official posts. The database records, post by post and quarter by quarter, the individuals who held a given office based on archival appointment rosters. While CGED-Q is still under development, three periods of data have been released: 1760–1798, 1850–1864, and 1900–1912. From these, we identify 527 additional *jinshi* who assumed office during one of these periods. When individuals appear in both sources, we prioritize Gong, as the CGED-Q snapshots—due to the short coverage windows—are unlikely to capture an official's entire career.[25]

   Official posts were organized into nine principal ranks, each divided into two sub-levels, producing 18 total tiers. We assign a numeric scale from 0.5 (lowest) to 9 (highest). For instance, county-level officials typically occupy tiers around 2–3, while ministerial posts exceed 8. As above, we average bureaucratic rank by decade and region, assigning a value of zero to locations with no recorded officials.

III.B Highly Educated Individuals in Republican China

To investigate the reform's long-run spillovers, we use data from Republican China (circa 1912–1949). These records document local elites—university graduates, educators, and public figures—to see whether regions benefiting from the 1712 reform performed differently educationally or socially after the exam system was abolished in 1905. Key sources include:

[25]While Gong (2019) includes many *jinshi*, only a subset contain references to bureaucratic appointments. CGED-Q supplements this by linking individuals to specific posts based on archival records, enabling us to identify additional officeholders not listed in Gong's database. However, because each CGED-Q release covers only about a decade or two, it likely reflects only a portion of an individual's full career trajectory.

1. **Notable Figures.** Xu (2007) lists more than 17,000 notable individuals—politicians, military officers, academics, journalists, and entrepreneurs—along with their birthplaces, which we geocode at the prefecture level.

2. **University Graduates.** Official alumni directories from Peking University and Tsinghua University identify over 16,000 graduates, including those who studied abroad. We track each graduate's home prefecture and birth/enrollment year.

III.C 1982 Population Census

Finally, to measure human capital outcomes in the late twentieth century, we use the 1% public micro-sample of the 1982 Chinese census (King et al., 2017). Each respondent's location is matched to 1911 prefectural boundaries, enabling us to calculate, for each prefecture, the share of individuals completing primary, secondary, and tertiary schooling. In addition to education levels, we also examine respondents' occupations and convert them into standardized occupational prestige scores using two common measures: the International Socio-Economic Index (ISEI) and the Standard International Occupational Prestige Scale (SIOPS). This allows us to assess not only formal schooling outcomes but also the reform's long-run relationship with the social and economic status of individuals' occupations. We then examine whether the 1712 reform's effects persisted into modern educational and occupational attainment.

IV Measuring Reform Intensity

To quantify the magnitude of the 1712 reform for each province, we examine how its share of successful *jinshi* changed relative to a baseline period when no province-specific quotas were in place. We compare each province's share of *jinshi* within its exam region (South, North, or Central) before and after the reform. The treatment variable is defined as:

$$\Delta Share^{1712} \;=\; Share^{1713\text{–}1740} \;-\; Share^{1680\text{–}1712}, \tag{1}$$

where $Share^{1680\text{–}1712}$ is the province's share of regional *jinshi* before the reform, and $Share^{1713\text{–}1740}$ is its share after. A positive $\Delta Share^{1712}$ indicates that the province gained relative to others in the same region; a negative value means it lost ground.

We begin by computing each province's share of *jinshi* for 1680–1712 ($Share^{1680\text{–}1712}$), and then for 1713–1740 ($Share^{1713\text{–}1740}$), even though the formal division into exam regions was no longer relevant after 1712. We do so because historically the South, North, and Central regions were defined in the Ming dynasty (1368–1644), yet the provincial boundaries that emerged by 1712 did not align perfectly with these older regions. Consequently, we reconstruct provincial boundaries so that each modern "province" remains entirely within one of the three historical

exam regions.[26]

Our main interest is to capture changes in each province's admission rate for the highest-level exams, but precise population data at the provincial level for both periods are unavailable. The early Qing era (1644–18th century) was marked by underreporting in official household registers and large-scale disruptions during the Ming-Qing transition. Estimated total population figures vary widely, from 80–100 million around 1644 to 150–200 million by 1740 (Ho, 1959; Liang, 1980; Perkins et al., 1969). We therefore rely on each province's fraction of *jinshi* within its exam region, combined with region-by-decade fixed effects, assuming that population growth followed sufficiently similar trends within each region.[27]

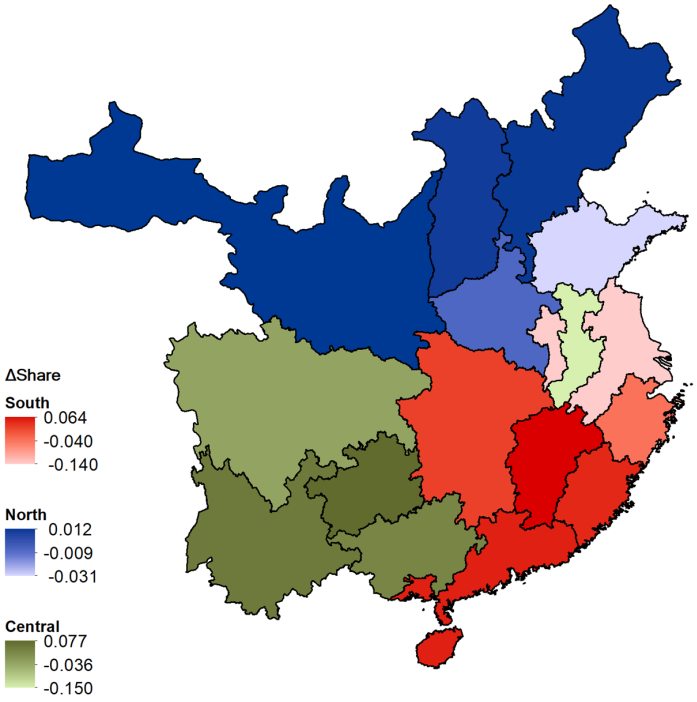


Figure I: Who Benefited From the Reform?

Note: This map illustrates the difference between the share of jinshi within the region in 1713–1740 and the share of jinshi within the region in 1680–1712, or the change in a province's share of jinshi within its region before and after the reform. Darker shades correspond with a larger, positive change.

By subtracting $Share^{1680–1712}$ from $Share^{1713–1740}$ (Equation 1), we obtain a measure of how much each province's share of successful *jinshi* rose or fell. Figure I maps the resulting $\Delta Share^{1712}$ values: lighter shading indicates losses, while darker shading denotes gains. Notably, provinces

[26]The reconstruction yields 16 provinces (rather than 18) in the post-1712 period. Examples include *Fujian*, *Guangdong*, *Guangxi*, *Guizhou*, *Henan*, *Huguang* (later *Hubei* and *Hunan*), *Jiangbei* (northern *Anhui* and northern *Jiangsu*), *Jiangnan* (southern *Anhui* and southern *Jiangsu*), *Jiangxi*, *Shanxi*, *Shaanxi* (including *Gansu*), *Shandong*, *Sichuan*, *Yunnan*, *Zhejiang*, and *Zhili* (*Hebei*).

[27]This approach is explained in Equation (4). Decade fixed effects interacted with exam region fixed effects ($\rho_{r\cdot t}$) absorb region-level shifts that might reflect overall population changes.

that profited from the reform were generally farther from the capital city and had somewhat less rugged terrain.[28] Although the reform did not explicitly target particular social or cultural groups, the provinces that gained tend to overlap geographically with historically peripheral or ethnic regions, including those classified as frontier provinces. This pattern is visualized in Figure A.2, which shows considerable alignment between reform-beneficiary areas and frontier or minority-populated provinces.

Figure S.1 further illustrates an inverse relationship between $\Delta Share^{1712}$ and $Share^{1680\text{–}1712}$. Provinces that initially had a lower share of *jinshi* see a larger boost under the new policy, while those with higher initial shares typically experienced smaller gains or even net losses. Overall, this pattern indicates that the 1712 reform expanded opportunities for historically underrepresented provinces, although the measure is strictly comparable only within each exam region. For robustness, we also implement an alternative version of the treatment variable using national *jinshi* shares instead of regional ones; while this nationwide measure is less cleanly identified due to structural differences in the pre-1712 quota system, we report the results in Appendix B.2.2 for completeness.

V The Impact of the 1712 Reform, 1650–1840

Modern models of *last-stage* affirmative action—where quotas apply only at the final round of a competitive process—make two sharply contrasting predictions.[29] On one hand, if individual effort is fixed, such policies merely reallocate a fixed number of slots: disadvantaged groups gain representation, but average performance may fall. On the other hand, if individuals adjust their behavior in response to increased returns, such policies can incentivize greater human capital investment among previously excluded groups.

The 1712 reform provides a compelling historical setting to test these predictions. It imposed province-specific quotas only at the final stage of the civil service exam—the metropolitan round—while leaving earlier stages of selection (prefectural and provincial exams) unchanged. In doing so, it shifted the probability of success for candidates from underrepresented provinces without altering access to the broader pipeline of lower-tier degrees (*shengyuan*, *juren*), which remained governed by fixed quotas. As a result, any behavioral response to the reform—such as increased effort or ambition—must reveal itself not in the size of the candidate pool but in outcomes that were not themselves quota-constrained, especially downstream performance in the bureaucracy.

In this section, we evaluate both components of the theoretical framework. First, we assess how the reform affected the *quantity* of successful candidates across space and time. Second,

[28] On average, provinces with gains lie 1,260 km from Beijing, whereas those with losses are 1,098 km away.

[29] See Coate and Loury (1993), Chan and Eyster (2003), and the experimental results in Schotter and Weigelt (1992).

we investigate *quality effects*, using a range of career-based metrics to capture whether newly admitted candidates performed differently once in office. While an increase in quantity may simply reflect mechanical redistribution under the new quota rules, improvements in downstream outcomes provide stronger evidence that the reform activated human capital investments among historically disadvantaged groups.

We draw on panel data spanning 1650 to 1840, which allows us to trace outcomes over multiple decades before and after the reform. The end date is chosen to exclude two major disruptions that complicate identification thereafter: (1) the Taiping Rebellion (1850–1864), which destabilized recruitment and governance across large parts of the country, and (2) the increasing prevalence of office-selling in the late Qing, which gradually weakened the merit-based appointment process.[30] By limiting attention to the pre-1840 period, we ensure that the results reflect institutional responses to the reform rather than broader structural changes.

The next two subsections present the main results, beginning with the reform's impact on the distribution and density of successful candidates.

V.A Quantity: Did the Reform Raise the Number of Jinshi?

The 1712 reform significantly reshaped the regional distribution of *jinshi* degrees by introducing province-specific quotas in the final metropolitan exam. To assess its impact on the number of successful candidates, we estimate how the reform affected the per capita production of *jinshi* at the prefecture level.

Our outcome variable is $JinshiPerCapita_{pref,prov,t}$, defined as the number of successful metropolitan exam candidates from prefecture $pref$ in province $prov$ during decade t, normalized by population. The key explanatory variable is the interaction between a province's *ReformIntensity* and a post-reform indicator. Reform intensity, defined below, captures the change in a province's share of national *jinshi* following the implementation of the reform:

$$ReformIntensity_{prov} = Share_{prov}^{1713-1740} - Share_{prov}^{1680-1712} \tag{2}$$

We estimate the following difference-in-differences model:

$$JinshiPerCapita_{i,prov,t} = \beta_0 + \beta_1 ReformIntensity_{prov} \cdot \text{Post}_t + \gamma X_i \cdot \eta_t + \delta_i + \theta_r \cdot \eta_t + \varepsilon_{i,prov,t} \tag{3}$$

The dependent variable is the number of successful metropolitan exam candidates per capita from unit i (either a prefecture or a county) in province $prov$ during decade t. The treatment variable interacts reform intensity with an indicator for the post-reform period. To ensure a clean

[30] See Zhang (2022), who documents how office purchase, while present earlier, became more widespread from the Jiaqing period onward. Purchasers typically held a degree, but the practice distorted access to high-ranking appointments.

separation between the pre- and post-reform periods, we drop jinshi who obtained the degree during the 1710s—the decade in which the reform was implemented. This avoids transitional contamination, since the 1712 reform fell mid-decade. We adopt this treatment of the 1710s consistently across all specifications in the paper.

The specification includes several sets of controls to address confounding and isolate the reform's effect. Unit fixed effects (δ_i) absorb all time-invariant local characteristics, such as geography, historical wealth, or long-run educational traditions. We also include region-by-decade fixed effects ($\theta_r \cdot \eta_t$), which flexibly capture common shocks and secular trends at the macroregional level. These fixed effects serve two important roles. First, they allow North, South, and Central China to follow distinct trajectories over time, accounting for regional differences in economic development, state presence, or demographic growth. Second, they absorb any artifacts resulting from the dismantling of the regional quota system after 1712—prior to which examinees were grouped into broad exam regions for purposes of admission. Since our treatment definition relies on changes in province-level shares, accounting for the prior regional regime helps ensure the comparability of pre- and post-reform periods.

In addition to these fixed effects, we control for several time-invariant characteristics of unit i, interacted with decade dummies. These include population density (as of 1776), caloric suitability, ruggedness, access to navigable rivers, and predetermined quotas for lower-tier exams. These variables proxy for underlying differences in economic development, agricultural productivity, geographic accessibility, and institutional access to the examination system. By interacting them with decade fixed effects, we allow the influence of these structural characteristics to evolve over time, thereby improving identification of the reform's effects under shifting baseline conditions.

Table I presents the main results. Columns 1 and 2 report estimates at the prefecture level, while Columns 3 and 4 report estimates at the county level. Across both levels of aggregation, provinces with higher reform intensity experienced significant increases in jinshi per capita after 1712, even after controlling for local covariates and region fixed effects. This pattern is consistent with the reform's stated goal of redistributing success toward historically underrepresented provinces. As a robustness check, Appendix B.2.2 shows that the results remain robust when using an alternative treatment definition based on national rather than regional shares.

V.B Career Performance: Did the Reform Affect Bureaucratic Outcomes?

A major concern in the literature on affirmative action is the potential for *quality dilution*—that is, the risk that lowering selection thresholds for disadvantaged groups leads to the admission of less qualified candidates. In our setting, the 1712 reform made it easier for candidates from underrepresented provinces to succeed in the metropolitan exam, potentially allowing weaker candidates to pass. If the effort margin is inelastic, or if the upstream pipeline remains unchanged, this shift in thresholds could reduce the average quality of admitted candidates.

Table I: The Impact of the 1712 Reform on Jinshi Per Capita

	Dependent Variable: Jinshi Per Capita			
	(1)	(2)	(3)	(4)
1712 Reform Intensity × Post	0.0971***	0.0606***	0.269***	0.160***
	(0.019)	(0.022)	(0.038)	(0.039)
Decade FE	Yes	Yes	Yes	Yes
Decade × Region FE	Yes	Yes	Yes	Yes
Prefecture or County FE	Prefecture	Prefecture	County	County
Decade × Controls	No	Yes	No	Yes
R-squared	0.564	0.603	0.416	0.448
Observations	4806	4806	29646	29646

Note: This table reports the impact of the 1712 reform on jinshi per capita. Each observation is a prefecture–decade (columns 1–2) or county–decade (columns 3–4) from 1650 to 1830, excluding 1710. The dependent variable is the number of *jinshi* per 10,000 population. "Reform-intensity" is defined as the change in a province's quota share in the 1712 reform. Columns 2 and 4 include controls for population density, agricultural suitability, lower-tier quotas, ruggedness, and river access, each interacted with decade fixed effects. Standard errors, clustered at the province–decade level, are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

To evaluate this concern, we examine whether successful candidates from reform-beneficiary provinces performed worse in their bureaucratic careers following the reform. In particular, we test whether the quality of selected candidates declined relative to their counterparts from non-beneficiary provinces.

We estimate the following difference-in-differences model:

$$BureaucraticRank_{pref,prov,t} = \beta_0 + \beta_1 ReformIntensity_{prov} \cdot Post_t + \gamma X_{pref} \cdot \eta_t + \delta_{pref} + \theta_r \cdot \eta_t + \varepsilon_{pref,prov,t} \tag{4}$$

where i indexes prefectures, p provinces, and t decades. The dependent variable is the average standardized rank (0.5–9 scale) of successful *jinshi* from a given prefecture–decade. We use three alternative measures of career outcomes: the rank of a candidate's first position, their highest position, and the average across all recorded positions.

The interaction term $ReformIntensity_p \times Post_t$ captures the differential impact of the reform across provinces. In the difference-in-differences framework, the coefficient β_1 identifies whether career outcomes improved (or deteriorated) more in provinces that gained more from the reform, relative to those that gained less or lost. A positive β_1 implies that reform-intensity provinces saw greater gains in bureaucratic outcomes after 1712 than others.

The set of controls mirrors those used in Equation 3. Specifically, X_{pref} includes time-invariant prefecture-level characteristics—such as population density (in 1776), caloric suitability, ruggedness, access to navigable rivers, and predetermined quotas for lower-tier exams—each interacted with decade fixed effects. δ_{pref} denotes prefecture fixed effects, while $\theta_r \cdot \eta_t$ captures region-

specific time trends through the interaction of region and decade fixed effects. Together, these terms account for both persistent geographic differences and differential temporal dynamics across regions.

Table II: The Impact of the 1712 Reform on Career Outcomes

	Initial Placement		Highest Placement		Average Placement	
	(1)	(2)	(3)	(4)	(5)	(6)
1712 Reform Intensity × Post	2.271***	1.929**	4.523***	3.939***	3.391***	3.295***
	(0.659)	(0.771)	(1.187)	(1.314)	(0.971)	(1.112)
Decade FE	Yes	Yes	Yes	Yes	Yes	Yes
Decade FE × Region FE	Yes	Yes	Yes	Yes	Yes	Yes
Prefecture FE	Yes	Yes	Yes	Yes	Yes	Yes
Decade FE × Controls	No	Yes	No	Yes	No	Yes
R-squared	0.444	0.444	0.414	0.416	0.430	0.430
Observations	4806	4806	4806	4806	4806	4806

Note: This table reports the impact of the1712 reform on career outcomes. Each observation is a prefecture–decade from 1650 to 1830, excluding 1710. Bureaucratic Rank refers to the rank of the initial position held by a successful candidate in columns 1 and 2, the highest position ever attained in columns 3 and 4, and the average rank across all recorded positions in columns 5 and 6. The rank is standardized from 0.5 (lowest) to 9 (highest). Each observation represents the average for all successful candidates from prefecture p in period t. A value of zero is assigned if no candidate from a prefecture-period held a position. Columns 2, 4, and 6 include controls: population density, agricultural suitability, predetermined quotas at lower-tier exams, ruggedness, and access to navigable rivers, all interacted with decade fixed effects. All specifications include decade fixed effects, prefecture fixed effects, and interactions between decade fixed effects and region fixed effects. Standard errors are clustered at the province level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels.

Table II presents the baseline results on career outcomes. Across all three measures—initial placement, highest placement attained, and average rank across recorded postings—the interaction between reform intensity and the post-reform period is positive and statistically significant. This implies that successful candidates from reform-beneficiary provinces, on average, entered the bureaucracy at higher ranks and sustained stronger career trajectories than their peers from non-beneficiary regions.

These patterns are consistent with the idea that the reform did not dilute candidate quality. If the policy had simply lowered admission standards without a compensating increase in effort or preparation, one might expect weaker downstream performance. Instead, the evidence suggests that expanding access brought in previously excluded but capable individuals who went on to succeed within the system. The positive coefficients on career outcomes thus provide indirect support for an incentive-based response to the reform: by improving the expected returns to effort, the policy activated latent talent without sacrificing professional competence.

Controlling for Exam Performance Successful candidates were hired into different positions in the bureaucracy based on their exam rank, personality, and demeanor (see Figure A.10). Figure A.6 and Table A.6 confirm a strong positive correlation between exam rank and career outcomes, particularly in terms of the highest bureaucratic position attained.

Because exam rank reflects accumulated academic preparation, it serves as a proxy for candidate quality. However, the reform also affects which candidates appear in the ranking in the first place. Although raw exam scores continued to be assigned in a consistent way, the 1712 reform imposed province-specific quotas that excluded some candidates—particularly from reform-negative provinces—from the ranking process altogether. As a result, the exam rank is constructed from a truncated pool of individuals, whose composition varies systematically with reform intensity.

We do not include exam rank in the baseline specification, where our goal is to assess the overall impact of the reform on professional outcomes. But to probe whether the observed differences were driven primarily by exam performance, we add exam rank as a control in Table A.2, columns 1–3. The coefficient on reform intensity becomes smaller and statistically insignificant, indicating that differences in bureaucratic outcomes were largely mediated through exam rank. Importantly, however, candidates from reform-beneficiary provinces still did not fare worse than their peers. That is, even when conditioning on a post-treatment variable, we find no evidence of quality dilution.

Controlling for Initial Placement Initial placement in the bureaucracy was also strongly influenced by exam rank, as higher-performing candidates were more likely to receive prestigious assignments upon entry. Prior research has shown that early career placement has lasting consequences, shaping future promotions, career trajectories, and overall bureaucratic advancement (Oyer, 2006). These patterns are often reinforced by institutional structures that reward early advantage and promote within established hierarchies.

To isolate the contribution of early career assignments, we re-estimate the reform effect on *highest placement* while controlling for initial placement. The results, shown in columns 4–6 of Table A.2, indicate that improvements in highest bureaucratic rank were largely mediated by stronger initial appointments. Once initial placement is controlled for, the reform coefficient declines and loses statistical significance. Nevertheless, even after accounting for this factor, candidates from reform-beneficiary provinces did not perform worse in their careers. That is, while the reform did not create persistent advantages beyond the initial posting, it also did not compromise the ability of these candidates to progress through the ranks.

Beyond Rank: Other Attributes of Bureaucratic Appointments Beyond formal bureaucratic rank, we also examine whether the reform affected the nature of positions held by successful candidates. Even if candidates from reform-beneficiary provinces reached comparable ranks, they may have been more likely to hold lower-prestige or less influential posts. Table A.3 explores this possibility by analyzing non-rank characteristics of each jinshi's highest recorded appointment. Specifically, we assess whether these posts were located farther from provincial centers or Beijing (columns 1 and 2), whether they were in the central government or designated as institutionally important (columns 3 and 4), and whether they were based in areas with lower

tax revenues or urbanization levels (columns 5 and 6). Across all dimensions, we find no evidence of systematic disadvantage: candidates from reform-beneficiary provinces did not disproportionately attain lower-quality or more remote positions. This reinforces the conclusion that the 1712 reform expanded access to high-level bureaucratic careers without relegating successful candidates to peripheral roles.

Alternative Measure of Performance: Conflict at Jinshi Office Location While bureaucratic rank provides a standardized and widely used measure of success within the imperial system, it may not fully capture an official's effectiveness in governance. Rank captures formal position within a hierarchy but not necessarily administrative competence or impact. To complement this measure, we examine local conflict as an alternative proxy for performance. The underlying logic is that a capable jinshi should be able to maintain order in their jurisdiction; if the reform had admitted weaker candidates, we might observe increased unrest in areas under their administration.

Table A.4 tests this hypothesis by linking reform intensity to recorded conflict at jinshi office locations. The dependent variable is a binary indicator for whether any local conflict occurred in a given decade relative to the year a jinshi passed the exam. Panel A uses the location where a jinshi reached their highest bureaucratic rank; Panel B uses their first official posting. The columns span decades from 40–30 years before to 30–40 years after the exam, capturing both pre-existing conditions and delayed effects of governance. Since most appointments lasted 3 to 6 years, the structure allows for cumulative influence to manifest even after the official had left office.

We exclude capital postings—where conflict is either rare or not meaningfully localized—and restrict attention to officials posted at the prefectural or county level, where administrative effectiveness is more likely to influence unrest. Conflict is measured at the post level, regardless of whether the jinshi was still serving in that role at the time.

Across both panels, the coefficients on reform exposure in post-exam decades are small, statistically insignificant, and inconsistent in sign. There is also no evidence of diverging pretrends. Together, the results suggest that jinshi from reform-beneficiary provinces were neither more likely to be posted to unstable regions nor associated with greater instability once in office. This provides further reassurance that the reform did not compromise administrative effectiveness.

V.B.1 Candidate Characteristics and Background

Table III examines how the 1712 reform influenced three attributes of successful jinshi candidates: (i) the age at which they passed the highest-level exam, (ii) the size of their extended family networks, and (iii) their duration in bureaucratic service. These measures come from the China Biographical Database Project (CBDB) (Harvard University, Academia Sinica, and Peking University, 2024) and the currently available portions of the China Government Employee

Database–Qing (CGED-Q) (Campbell et al., 2019). While CGED-Q is still incomplete, it provides a partial view of jinshi careers. Moreover, limited data coverage for pre-1712 candidates prevents a strict difference-in-differences design, so we rely on a cross-sectional sample of post-1712 records.

Table III: The 1712 Reform: Age, Family Background, and Duration in Bureaucracy

	1713–1840			1713–1905		
	Age	Num. Relatives	Duration	Age	Num. Relatives	Duration
1712 Reform Intensity	-12.62**	-99.83	0.322	-14.54***	-68.38	-1.581
	(4.603)	(213.659)	(2.962)	(3.772)	(88.959)	(3.095)
Population Density 1776	0.00043	0.159	-0.00028	-0.00117	-0.0470	-0.00033
	(0.002)	(0.113)	(0.001)	(0.001)	(0.023)*	(0.001)
Population Density 1820	-0.00181	-0.300	0.00062	-0.00293*	-0.0364	0.00016
	(0.002)	(0.171)	(0.002)	(0.002)	(0.044)	(0.002)
Avg. Quota	0.212	3.214	0.555***	-0.219	-6.387**	0.272
	(0.437)	(6.434)	(0.128)	(0.217)	(2.700)	(0.202)
Caloric Suitability Index	0.00062	0.0576	0.00058	0.000089	0.0284**	0.00027
	(0.001)	(0.037)	(0.000)	(0.000)	(0.013)	(0.000)
Log Ruggedness	-0.0997	-21.45	0.416**	-0.216*	-3.848	0.146
	(0.204)	(13.218)	(0.144)	(0.118)	(7.401)	(0.131)
River Access	-1.609**	-41.43	1.030	-1.598***	3.685	0.991**
	(0.583)	(37.131)	(0.593)	(0.325)	(10.327)	(0.447)
Region FE	Yes	Yes	Yes	Yes	Yes	Yes
Decade FE	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.042	0.070	0.220	0.026	0.043	0.185
Observations	771	84	2256	2298	1193	3943

Note: This table reports the1712 reform's association with age, family background, and bureaucratic duration of jinshi degree holders. Each observation is a successful *jinshi* candidate. Dependent variables include age, number of relatives, and duration in bureaucracy (years). Columns 1–3 restrict the sample to successful candidates before 1840, while columns 4–6 extend the sample to 1905. Coefficients are reported with standard errors clustered at the province level in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Columns 1 and 4 confirm that the reform significantly lowered the average age at which candidates obtained the jinshi degree, with the effect being more pronounced in the extended sample (1712–1905). This suggests that the reform expanded access to the jinshi degree, allowing younger individuals to enter the elite examination track earlier.

Columns 2 and 5 examine whether reform intensity influenced family background, measured by the total number of relatives recorded for each jinshi. The estimates suggest no significant correlation between reform intensity and family size, meaning that jinshi from reform-beneficiary provinces did not systematically come from larger or smaller families compared to those from non-beneficiary provinces. This does not rule out the possibility that wealthier or more powerful families continued to enjoy advantages within each province, but it suggests that such advantages did not expand more in reform-beneficiary provinces than in others.

Columns 3 and 6 examine whether reform intensity affected bureaucratic career length. In both samples, the coefficients are statistically insignificant, and their signs are inconsistent across

periods—positive in the 1710–1840 sample and negative in the 1710–1905 sample. These results suggest that reform intensity had no systematic effect on how long successful candidates remained in government service. In related work, Chen et al. (2020) interpret duration in office as a proxy for bureaucratic performance; under that interpretation, the lack of a significant effect here implies that while the reform expanded access to the *jinshi* degree, it did not noticeably change the average performance of those selected.

Taken together, the evidence suggests that the 1712 reform did not compromise candidate quality, as reflected in long-run bureaucratic outcomes. Jinshi from reform-beneficiary provinces entered the civil service at higher ranks, attained more senior positions, and held consistently stronger posts throughout their careers. Part of this success is mechanically driven by improved exam ranks and stronger initial placements—both of which shaped career trajectories in a system that rewarded early advantage. But that is not the full story. These boosts would not have translated into lasting success unless the candidates were capable of performing well once in office. The fact that reform-era jinshi from beneficiary provinces did not experience worse outcomes—either in terms of later promotions, posting quality, or governance effectiveness—suggests they were not of lower ability. This also makes shirking or strategic underinvestment unlikely: if candidates had reduced effort in response to relaxed admission thresholds, we would expect to observe weaker bureaucratic performance. That we do not is likely due to the reform intervening only at the final stage of a multi-tiered system, where earlier exams continued to impose strong selection and effort incentives. Rather than lowering standards, the reform likely encouraged greater investment in preparation by increasing the expected returns for candidates from previously disadvantaged regions. In that sense, the policy activated effort and ambition among individuals who had been structurally excluded and improved allocative efficiency without sacrificing quality.

V.C Distributional Consequences within Provinces

A central question in the affirmative action literature is whether policies designed to reduce inequality between groups inadvertently widen disparities within the beneficiary group. While such policies often increase representation for disadvantaged groups, the distribution of gains can be uneven, particularly when recipients differ in their ability to respond to new incentives (Bertrand, Hanna, and Mullainathan, 2010).

To examine this possibility in the context of the 1712 reform, we analyze heterogeneity in gains across sub-provincial units. Specifically, we ask whether prefectures with greater historical human capital—measured by *jinshi* per capita before 1650—derived more benefit from the reform. Figure S.2 illustrates the wide variation in pre-reform educational endowments across prefectures.

Unlike the previous section, which estimates an average treatment effect using a continuous measure of reform intensity, we now distinguish between provinces that gained and those that lost

from the reform. We define two variables: $Gain_{prov}$, the increase in a province's share of jinshi after 1712; and $Loss_{prov}$, the corresponding decrease for negatively affected provinces. This allows us to flexibly estimate how historical human capital interacted with both positive and negative changes in quota assignment.

To assess how this variation shaped the reform's impact, we estimate the following model:

$$\begin{aligned} Jinshi_{pref,prov,t} = \beta_0 &+ \beta_1 Gain_{prov} \cdot Pre1650HC_{pref} \cdot Post_t + \beta_2 Loss_{prov} \cdot Pre1650HC_{pref} \cdot Post_t \\ &+ \beta_3 Gain_{prov} \cdot Pre1650HC_{pref} + \beta_4 Loss_{prov} \cdot Pre1650HC_{pref} + \beta_5 Pre1650HC_{pref} \cdot Post_t \\ &+ \beta_6 Gain_{prov} \cdot Post_t + \beta_7 Loss_{prov} \cdot Post_t \\ &+ \gamma X_{pref} \cdot \eta_t + \delta_p \cdot \eta_t + \theta_{pref} + \eta_t + \varepsilon_{pref,prov,t} \end{aligned} \tag{5}$$

In this equation, the dependent variable $Jinshi_{pref,prov,t}$ is the number of successful candidates per capita from prefecture $pref$, province $prov$, and decade t. The interaction terms allow the effects of reform-induced gains and losses to vary by pre-existing levels of human capital, captured by $Pre1650HC_{pref}$, the *jinshi*-per-capita prior to 1650.

The model includes prefecture fixed effects θ_{pref}, decade fixed effects η_t, and province-by-decade fixed effects $\delta_{prov} \cdot \eta_t$, which flexibly capture province-specific trends over time. This approach allows us to compare subunits within each province while accounting for macro-level shifts in exam institutions, population, or provincial composition. All lower-order interactions involving $Pre1650HC_{pref}$, $Gain_{prov}$, and $Loss_{prov}$ are included to isolate the causal contribution of the triple interaction terms.

The vector of time-invariant covariates X_{pref} includes population density in 1776, caloric suitability, ruggedness, access to navigable rivers, and lower-tier quota assignments. These are interacted with decade fixed effects to allow their influence to vary over time.

Table IV presents the regression results estimating Equation 5. All specifications include prefecture and decade fixed effects, as well as province-by-decade fixed effects to account for heterogeneous province-specific trends. Lower-order interactions are included throughout. Columns 2 through 4 progressively add controls for structural characteristics. Column 3 limits the sample to provinces that gained from the reform; Column 4 restricts to provinces that lost.

Across all specifications, we find that prefectures with stronger pre-existing human capital saw larger post-reform gains (in gain provinces) or smaller losses (in loss provinces). This suggests that the reform reinforced intra-provincial inequalities, favoring already advantaged areas. The effect holds even when conditioning on a wide range of covariates, including geography, infrastructure, and prior access to lower-tier exams.

To rule out the possibility that these patterns reflect wealth rather than human capital, we conduct a robustness check using the caloric suitability index (CSI) as a proxy for long-run economic potential. As shown in Appendix B.4.1, the inclusion of CSI interactions leaves our

Table IV: The Distributional Consequences of the 1712 Reform

	Dependent Variable: Jinshi Per Capita			
	(1) All	(2) All	(3) Reform Positive	(4) Reform Negative
Gain × Pre1650HC × Post	0.112***	0.0830***	0.114**	
	(0.031)	(0.029)	(0.045)	
Loss × Pre1650HC × Post	0.0600***	0.0395**		0.0360*
	(0.018)	(0.016)		(0.018)
Controls × Decade FE	No	Yes	Yes	Yes
Province FE × Decade FE	Yes	Yes	Yes	Yes
Prefecture FE	Yes	Yes	Yes	Yes
Decade FE	Yes	Yes	Yes	Yes
R-squared	0.574	0.609	0.526	0.690
Observations	5073	5073	2831	2242

Note: This table examines the heterogeneous effects of the 1712 reform across prefectures with different levels of pre-reform human capital. Each observation is a prefecture–decade from 1650 to 1830, excluding 1710. Pre1650HC is jinshi per capita in a prefecture before 1650. In all columns, we control for main effects and lower-order interactions, including the interaction of pre-existing human capital and post-reform dummy. In columns 2, 3, and 4, we control for population density, agricultural suitability, predetermined quota at lower-tier exams, ruggedness, and whether a province had access to any major navigable rivers, interacted with decade fixed effects. Column 3 only includes prefectures in provinces benefiting from the reform. Column 4 only includes prefectures in provinces hurt by the reform. Decade fixed effects, province fixed effects, and the interaction of decade fixed effects and province fixed effects are included in all columns. Coefficients are reported, with standard errors clustered at the province-period level in round brackets. ***, **, and * indicate significance at 1%, 5%, and 10% levels.

main results largely unchanged. This supports the interpretation that historical educational endowments, rather than unobserved wealth, shaped the heterogeneous effects of the reform.

Quantitatively, the effect is substantial. Based on column 2, a one-standard-deviation increase in pre-reform human capital (2.097 jinshi per 10,000) yields 0.0011 additional jinshi per 10,000 per decade post-reform—equivalent to a 7% increase over the sample mean.[31]

These results are consistent with theoretical models of persistent inequality, in which early advantages in human capital compound over time through self-reinforcing mechanisms (Durlauf, 1996). The logic mirrors that of Piketty (2014), who argues that inequalities—whether of wealth or educational opportunity—tend to reproduce themselves in the absence of redistributive interventions. In our context, a reform intended to equalize opportunity between provinces simultaneously widened disparities within them.

Figure A.7 shows that this divergence continued to grow over time, especially in provinces that lost quota shares. Without further policy efforts to support lagging areas, the perceived returns to education may have declined in low-human-capital prefectures, discouraging investment and entrenching disparities—a mechanism echoed in modern settings (Jensen, 2010).

[31] $2.097 \times 0.01 \times 0.0830/0.024 = 7\%$

Replicating the Analysis at the County Level In this section, we replicate the above analysis at the county level. Table A.5 summarizes the results. In all columns, we use our baseline measure of reform intensity and include decade and county fixed effects. We further control for the interaction of decade fixed effects and province fixed effects to account for provincial heterogeneous time trends. We also control for the interaction of pre-existing human capital and post dummy. In columns 2, 3 and 4, we control for the interactions of different historical variables and decade fixed effects. We let the trends to be related to a county's initial conditions, including population density, agricultural suitability, predetermined quota at lower-tier exams, ruggedness, and whether a county had access to any major navigable rivers. In column 3, we only include the counties in the provinces with gains from the reform. In column 4, we only include the counties in the provinces with losses from the reform. With all the controls included, the coefficients of triple interactions are positive and significant (column 2). The results parallel those in column 2 of Table IV. The distributional pattern present at the county level is in line with results found using prefecture-level data, confirming our conclusion that the reform created greater within-province inequality.

V.D Trends in Inter- and Intra-Provincial Inequality

To quantify the impact of the 1712 reform on inequality, we construct measures of inequality in jinshi per capita for the entire period 1650–1840. We use both the Gini index and the Theil index to track changes in overall inequality and decompose inequality into between-province and within-province components.

The Gini index, commonly used to measure income or wealth inequality, ranges from 0 (perfect equality) to 1 (perfect inequality). The Theil index measures how far a population deviates from an egalitarian state; it ranges from 0 (perfect equality) to infinity, with higher values indicating greater inequality. For our analysis, we define prefectures as the unit of observation and decompose both the Gini index and Theil index to measure changes in inequality between provinces and within provinces over time.

Figure S.3a and Figure S.3b illustrate the trends in inequality before and after the reform. Both overall inequality and between-province inequality declined following the reform, but the decline in between-province inequality was more pronounced. This pattern suggests that while the reform successfully reduced disparities between provinces, inequality within provinces did not decline to the same extent.

This result aligns with our earlier analysis in Section V.C, where we found that the reform's benefits were concentrated in prefectures with higher pre-existing human capital. In other words, while provinces that gained from the reform saw an overall increase in jinshi per capita, the distribution of these gains within provinces was uneven. This uneven distribution contributed to persistent disparities at the sub-provincial level.

Taken together, these findings indicate that while the 1712 reform contributed to greater inter-provincial equality, it also created new disparities within provinces. Prefectures with stronger pre-existing human capital disproportionately benefited, reinforcing intra-provincial inequalities.

VI The Policy Reversal in 1905

This section examines how the effects of the 1712 reform evolved into the early 20th century, particularly after the abolition of the imperial examination system in 1905. We assess whether the reform's influence persisted once the favorable conditions for admission were removed and all candidates were subject to uniform selection criteria.

After 1905, the imperial examination system was abolished, and no single system of equivalent national prominence fully replaced it. Instead, new institutions and pathways emerged—such as modern schools and universities—that provided alternative routes to official and elite status. To evaluate the reform's long-term impact under these new conditions, we analyze the career trajectories of individuals who rose to social prominence between 1912 and 1949. This group includes politicians, military officers, scientists, professors, teachers, journalists, writers, and business leaders. We also examine individuals who gained admission to elite institutions such as Tsinghua University and Peking University through competitive entrance exams, as well as those who received government sponsorship to study abroad.

First, we examine whether the reform's effects extended into the final years of the examination system by analyzing jinshi per capita in the last few exams before 1905. We then assess whether the reform influenced the production of notable figures and university graduates in the decades following the policy's repeal. If the reform had created durable advantages, we would expect its effects to persist even after the examination system was dismantled. However, with the return to uniform admission criteria across provinces, reform-beneficiary areas may have faced increased competition.

To formally test this, we compile a panel dataset covering both the pre- and post-1905 periods. For the pre-1905 period, the dependent variable is jinshi per capita, based on the final three examination cohorts (1875–1885, 1885–1895, and 1895–1905). For the post-1905 period, the dependent variable captures the number of highly educated individuals—including notable figures, university graduates, and Chinese students studying in Japan—across four periods (1905–1915, 1915–1925, 1925–1935, and 1935–1945), normalized by population. All outcome variables are normalized by period to account for differences in scale across time.

$$Y_{pref,prov,t} = \beta_0 + \beta_1 ReformIntensity_{prov} \cdot Post_t + \gamma X_{pref} \cdot \eta_t + \theta_{pref} + \eta_t + \varepsilon_{pref,prov,t} \tag{6}$$

where $Y_{pref,prov,t}$ is the number of highly educated individuals from prefecture $pref$ in province

prov during period t, normalized by population. $ReformIntensity_{prov}$ measures the change in a province's share of jinshi after the 1712 reform. The indicator $Post_t$ equals one for periods after 1905, when the imperial examination system was abolished. We thus interpret this regression as capturing the long-run legacy of the 1712 reform on elite educational attainment in the Republican and early PRC periods.

The control vector $X_{pref} \cdot \eta_t$ includes the same prefecture-level characteristics as in Equation 3—population density, agricultural suitability, lower-tier examination quotas, ruggedness, and access to navigable rivers—interacted with period fixed effects. The model also includes prefecture fixed effects θ_{pref}, period fixed effects η_t, and region-by-period fixed effects to capture regional variation in trends over time.

Table V: The Impact of the 1712 Reform on Highly Educated Individuals Upon Policy Reversal in 1905

	(1) Notable Figures	(2) Tsinghua Graduates	(3) Peking Graduates	(4) Oversea Students
1712 Reform Intensity × Post 1905	-4.045***	-2.184**	-1.120	-3.658***
	(0.941)	(1.002)	(1.023)	(1.039)
Controls × Decade FE	Yes	Yes	Yes	Yes
Region FE × Decade FE	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes
Decade FE	Yes	Yes	Yes	Yes
R-squared	0.502	0.457	0.593	0.590
Observations	1869	1869	1869	1869

Note: This table reports the impact of the1712 reform on highly educated individuals after the 1905 policy reversal. Each observation is a prefecture-period from 1875 to 1945. We regress the number of highly educated individuals per capita on the interaction between reform intensity and the post-1905 dummy. "Higher educated individuals" are proxied by jinshi for the pre-1905 period and notable figures, elite university students or students going abroad for the post-1905 period. In all columns, we control for jinshi per capita prior to the reform, population density, agricultural suitability, predetermined quota at lower-tier exams, ruggedness, and whether a prefecture had access to any major navigable rivers, interacted with decade fixed effects. Decade fixed effects, province fixed effects, and exam region fixed effects interacted with decade fixed effects. Coefficients are reported with standard errors clustered at the province-level in round brackets. ***, **, and * indicate significance at 1%, 5% and 10% levels.

Table V presents the results. We find that after 1905, prefectures in provinces that had benefited more from the 1712 reform produced fewer notable figures and fewer graduates from elite universities than those in provinces that had benefited less. This suggests a partial reversal of the reform's effects, likely driven by the removal of preferential admission policies, which had previously provided candidates from beneficiary provinces with greater access to educational and bureaucratic opportunities.

To further examine the trajectory of reform effects over time, we estimate a dynamic specification by interacting decade dummies with reform intensity:

$$Y_{pref,prov,t} = \beta_0 + \sum_{t=1875}^{1945} \beta_{1,t} ReformIntensity_{prov} \cdot Period_t + \gamma X_{pref} \cdot \eta_t + \theta_{pref} + \eta_t + \varepsilon_{pref,prov,t} \quad (7)$$

Figure II plots the estimated $\beta_{1,t}$ coefficients, revealing that the negative effect of the reform on educational and occupational outcomes grew stronger over time. This suggests that the advantages conferred by the reform were gradually eroded in the decades following 1905.

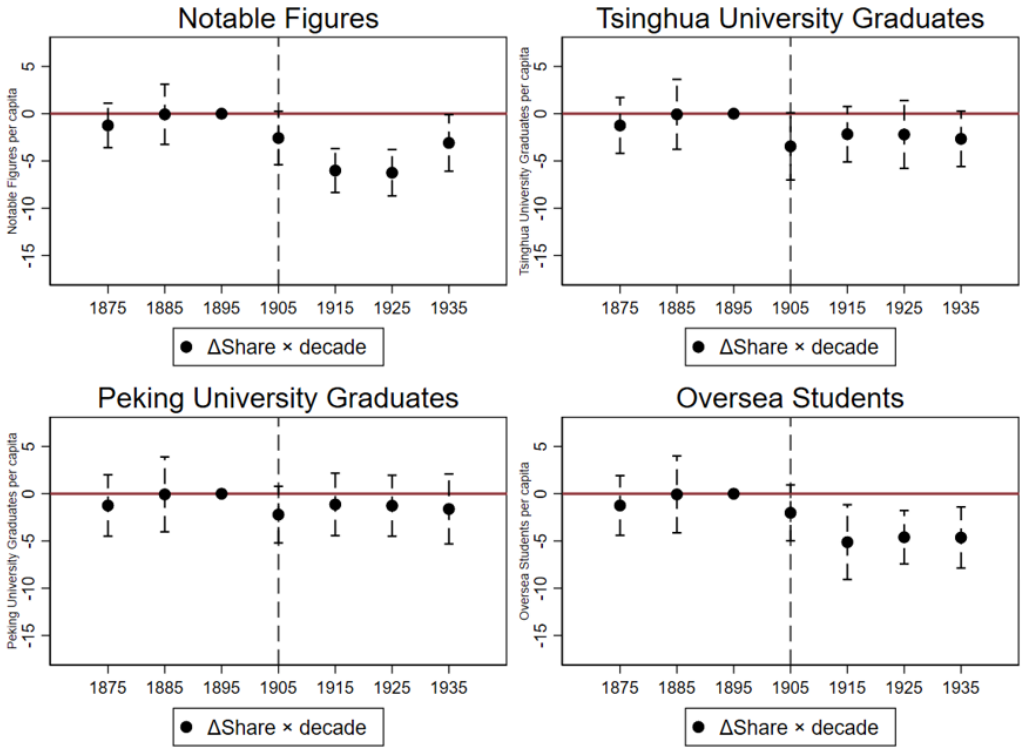


Figure II: The Impact of The 1712 Reform Upon Policy Reversal in 1905

Notes: This figure plots the estimation results of Equation 7. The points represent the coefficients, and the dash lines are confidence intervals (90%).

In sum, while the 1712 reform had lasting effects on human capital accumulation and educational attainment, its influence weakened after the examination system was abolished. Prefectures that had benefited from the reform lost some of their competitive edge in producing highly educated individuals. This underscores the long-run implications of affirmative action policies: while they can shift access to elite positions, their effects may fade when institutional structures change.

VII Persistence and Spillovers

The 1712 reform was explicitly designed to adjust the allocation of jinshi degrees, but its broader consequences remain an open question. Did the reform only affect a small group of successful candidates, or did it also have long-term effects on broader segments of society?

One challenge in answering this question is the lack of contemporaneous data on educational attainment beyond those who passed formal exams. The number of candidates allowed to pass each level of the exam system was limited by quota, making it difficult to assess educational expansion directly through administrative records.

To overcome these limitations, we turn to twentieth-century census data, which provide a retrospective window into educational and occupational outcomes. The 1982 census was the first national census in China to report disaggregated information on education levels. Using this data, we examine whether historical variation in reform intensity shaped long-run differences in the share of individuals who completed primary, secondary, or tertiary education. We complement this with measures of occupational status based on the International Socio-Economic Index (ISEI) and the Standard International Occupational Prestige Scale (SIOPS).

To estimate these relationships, we control for a range of covariates that might confound the relationship between historical reform exposure and modern outcomes. The baseline controls mirror those used in earlier sections: time-invariant prefecture characteristics such as population density (in 1820), agricultural suitability, predetermined quotas at lower-tier exams, ruggedness, and access to major navigable rivers. We also include measures of the age structure in 1982—specifically, the share of residents aged 40, 60, and 80 and above—to account for potential cohort effects in educational attainment or occupational structure.

In addition, we introduce a set of historical covariates designed to capture intermediate shocks or sources of long-run heterogeneity. These include distance to the coast, exposure to the Taiping Rebellion, treaty port status, Ming-era urbanization rates (reflecting initial conditions), and measures of Christian institutional presence during the Republican period (churches and Christian adherents per capita). These additional controls help ensure that the estimated effects of the reform are not driven by unrelated historical processes.

Table VI presents the results. Panel A shows that reform-positive provinces exhibit significantly higher rates of secondary and tertiary educational attainment, even after accounting for pre-reform jinshi prevalence and other controls. These patterns suggest that the effects of the reform extended beyond those who directly benefited, shaping the educational trajectories of subsequent generations.

Panel B focuses on occupational prestige. The estimates are imprecise for the full sample of workers but become large and statistically significant when we restrict to non-agricultural sectors. This suggests that the long-term benefits of the reform were concentrated among those who moved

Table VI: The Long-Term Impact of the 1712 Reform on Educational and Occupational Outcomes

Panel A. Educational Attainment (1982)

	Primary			Secondary			College		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1712 Reform Intensity	0.117	0.111	0.121	0.106**	0.103**	0.103***	0.0143**	0.0142**	0.0144**
	(0.132)	(0.092)	(0.101)	(0.038)	(0.027)	(0.027)	(0.005)	(0.006)	(0.006)
Jinshi Per Capita$^{1368–1712}$	No	No	Yes	No	No	Yes	No	No	Yes
Additional Controls	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.384	0.457	0.448	0.539	0.437	0.517	0.551	0.533	0.600
Observations	266	266	251	266	251	251	251	251	251

Panel B. Occupational Prestige (1982)

	ISEI			SIOPS			ISEI (Non-agri)			SIOPS (Non-agri)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1712 Reform Intensity	2.001	1.933	1.931	1.016	0.851	0.854	20.05**	17.03**	16.79**	12.58*	10.07*	9.941*
	(4.860)	(5.202)	(5.258)	(3.171)	(3.520)	(3.561)	(7.780)	(6.569)	(6.762)	(6.215)	(5.249)	(5.361)
Jinshi Per Capita$^{1368–1712}$	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes
Additional Controls	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.378	0.486	0.521	0.374	0.476	0.512	0.418	0.523	0.560	0.418	0.533	0.567
Observations	266	251	251	266	251	251	266	251	251	266	251	251

Note: This table reports the relationship between the 1712 reform and occupational prestige outcomes in 1982. Each observation represents a prefecture. Panel A reports the share of the population with primary, secondary, or tertiary education in 1982. Panel B reports occupational prestige using ISEI and SIOPS measures, including subsamples for non-agricultural workers. All regressions include controls for population density in 1820, agricultural suitability, predetermined quotas at lower-tier exams, ruggedness, access to major navigable rivers, and age structure in 1982 (measured as the share of residents aged 40, 60, and 80 and above). Additional controls include distance to the coast, Taiping Rebellion presence, treaty port status, Ming-era urbanization rate, and measures of Christian influence in the Republican era: churches per capita and number of Christian adherents per capita. Jinshi per capita in 1368–1712 is included selectively as shown. Coefficients are reported with standard errors clustered at the province level in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

into skilled or white-collar occupations—sectors where formal education was likely to carry the highest returns.

A possible explanation for these patterns is that the reform increased the perceived value of education, spurring broader investment in literacy and exam preparation. Even those who did not advance to the final exam likely acquired basic reading, writing, and numeracy skills that improved their occupational prospects. Many took up roles as teachers, village clerks, or local administrators, facilitating human capital accumulation at the community level.[32]

It is also worth noting that these patterns appear in a context of relatively slow structural change. In 1982, China had not yet undergone the dramatic economic transformation of the

[32]The quality of schooling can have long-lasting effects on individuals' earnings and well-being (Card and Krueger, 1992; Chetty et al., 2011).

subsequent decades. GDP per capita remained low, and large-scale urbanization had yet to occur. This helps mitigate concerns that the patterns we observe are driven by post-1980s modernization, rather than by the historical reform itself.

Taken together, the results suggest that the 1712 reform produced lasting spillovers well beyond its immediate targets. Although only a few hundred jinshi were selected every three years, the imperial examination system played an outsized role in structuring aspirations, social mobility, and community norms. By increasing access at the final stage, the reform likely affected how effort and educational investment were distributed across society. In particular, it may have increased the perceived value of pursuing education, leading to greater participation in the exam system and stronger demand for local instruction. These effects reinforced the spread of educational norms and investment beyond the exam elite, embedding learning more deeply in community life and broadening the base of human capital formation.

VIII Discussion

While our main results show that the 1712 reform increased the number of *jinshi* in underrepresented provinces and improved their relative performance, the mechanisms through which these changes translated into broader outcomes warrant further discussion.

The most compelling mechanism involves changes in the perceived returns to education. By increasing the likelihood of success in the highest-level exam for candidates from previously underrepresented provinces, the reform raised the expected payoff from investment in education. This shift in incentives likely encouraged greater commitment to education at the household and community level, particularly in regions that had historically faced low probabilities of success. Even if the number of successful candidates remained small, the signal that success was now more attainable could have shifted marginal cost–benefit calculations in favor of educational effort. Because the reform targeted only the final stage of the exam system, earlier selection hurdles remained intact. This structure preserved incentives for sustained preparation, while expanding access at the top and limiting the risk of shirking or strategic underinvestment.

These incentive effects were likely magnified by the tournament-like structure of the imperial examination system. Although only around 300 *jinshi* were awarded every three years, the exams functioned as a high-stakes contest with outsized symbolic and material rewards. A rich literature in economics shows that tournament settings amplify responses to rank-based incentives (e.g., Lazear and Rosen, 1981; Schotter and Weigelt, 1992). In the context of imperial China, even modest improvements in the probability of winning the tournament could generate large behavioral responses across generations, as families invested more in their sons' schooling in hopes of eventual success.

Beyond these direct incentives, the reform likely triggered educational spillovers and shaped

broader cultural norms. The increased visibility of successful candidates from reform-beneficiary provinces may have reshaped beliefs about who could aspire to elite status. Success in the exam system carried profound symbolic significance, and its expansion into new regions may have transformed local educational cultures, normalizing aspiration and reinforcing ambition. Households might have increased investment in education not only in anticipation of bureaucratic appointment but also in response to shifting norms and expectations regarding social mobility. In this way, the reform's consequences may reflect both instrumental responses to increased returns and deeper changes in how success and effort were socially framed.

Alternative mechanisms appear less likely. For example, although the reform may have created stronger personal ties between successful candidates and the central state, there were few institutional channels for those ties to translate into broader provincial benefits. The Qing state played a limited role in expanding educational infrastructure or distributing resources to localities based on exam outcomes.[33] Similarly, the reform's impact on the size or influence of the local elite was likely small: most gentry status derived from lower-tier degrees (*shengyuan* and *juren*), which remained governed by fixed quotas.

While our empirical analysis covers both reform-positive and reform-negative provinces, the narrative in this paper has focused more on the gains experienced by provinces that benefited from the reform. However, it is equally important to consider the potential responses in provinces that lost. In theory, the reform lowered the expected returns to educational investment in these regions by reducing the probability of success at the final exam stage. But such shifts may not have led to immediate reductions in effort or human capital accumulation. Educational behavior often adjusts slowly, particularly in settings where exam preparation is shaped by longstanding norms, institutional continuity, or inertia in expectations. Candidates in reform-negative provinces may have continued to invest in preparation at similar levels, even as competition intensified.

Finally, the 1712 reform may have had broader consequences beyond those documented here. By expanding exam opportunities to frontier and minority regions, the policy may have strengthened perceptions of fairness and inclusion within the imperial system. In provinces that lost under the new allocation, individuals may have redirected effort toward alternative pathways of advancement, such as commerce, local education, or informal leadership roles. Such responses would not bias our estimates upward; if anything, they would attenuate the measured effects of the reform by dampening observed differences between beneficiary and non-beneficiary provinces. The fact that we still observe sizable and persistent effects suggests our estimates are, if anything, conservative.[34] More broadly, the reform may have enhanced the perceived legitimacy of the ex-

[33]One partial exception is the establishment of academies (*shuyuan*), which represent one of the few areas where the Qing state actively invested in educational infrastructure. We examine whether academy construction increased in response to the reform but do not find any systematic change; see Appendix B.6.

[34]For example, if individuals in reform-negative provinces increased investment in alternative forms of mobility (e.g., commercial careers or local leadership) in response to reduced exam access, this would raise outcomes in

amination system by acknowledging regional disparities and explicitly incorporating fairness into its institutional design.

These broader implications also intersect with a wider literature on bureaucratic selection and state capacity. While our analysis does not directly evaluate bureaucratic performance, the finding that reform beneficiaries performed no worse in their professional careers suggests that redistributive selection need not compromise downstream effectiveness. This echoes recent evidence from modern contexts: Aneja and Xu (2024) show that U.S. civil service reform during the Gilded Age improved public sector performance by altering the composition of bureaucrats. Similarly, Rasul and Rogger (2015) find that ethnic diversity in Nigerian bureaucracies shaped project outcomes. Although we do not assess whether greater regional representation affected governance in imperial China, our findings suggest that broader access to the state need not come at the expense of capability, and future research may explore how such representation shaped long-term political legitimacy and institutional resilience.

IX Conclusion

Imperial China relied on a competitive examination system to select officials for the bureaucracy. While often viewed as a cornerstone of meritocratic governance, this system also generated large geographic disparities in success rates. In 1712, the Qing state introduced a major reform to address these disparities by standardizing acceptance rates in the final stage of the examination across provinces—effectively implementing a region-based form of affirmative action.

We find that the reform increased overall access to the *jinshi* degree, particularly in provinces that had been underrepresented prior to 1712. However, the gains were unevenly distributed across sub-provincial units. Prefectures with stronger pre-existing educational foundations benefited more, while those with lower levels of historical human capital saw smaller improvements. As a result, the reform reduced inequality between provinces but intensified disparities within them.

Looking beyond exam success, we examine the professional trajectories of successful candidates. Candidates from reform-beneficiary prefectures did not fare worse in their bureaucratic careers; if anything, they began at higher initial ranks and achieved similar or superior final placements. This challenges the view that redistributive selection necessarily dilutes candidate quality. Rather, the reform appears to have activated previously untapped talent, broadening the pool of successful candidates without compromising downstream performance.

Following the abolition of the imperial examination system in 1905, the reform's effects weak-

the control group. This type of behavioral adjustment would mechanically reduce treatment–control differences, making it harder—not easier—to detect the reform's effects on exam-linked outcomes. Our estimates therefore likely understate the full impact of the policy.

ened. The number of highly educated individuals per capita declined more in reform-beneficiary provinces compared to others, suggesting that the reform had not fully equalized access to education and that some of its effects depended on the continued operation of the examination system. However, the impact did not disappear entirely. Reform intensity remained positively correlated with educational attainment at both secondary and tertiary levels, and reform-beneficiary prefectures exhibited higher occupational prestige scores.

These findings highlight that while the influence of the reform diminished over time, it did not vanish. Some of its effects on human capital accumulation and occupational mobility persisted well into the 20th century, suggesting that affirmative action policies can leave long-term legacies.

Supplementary Figures

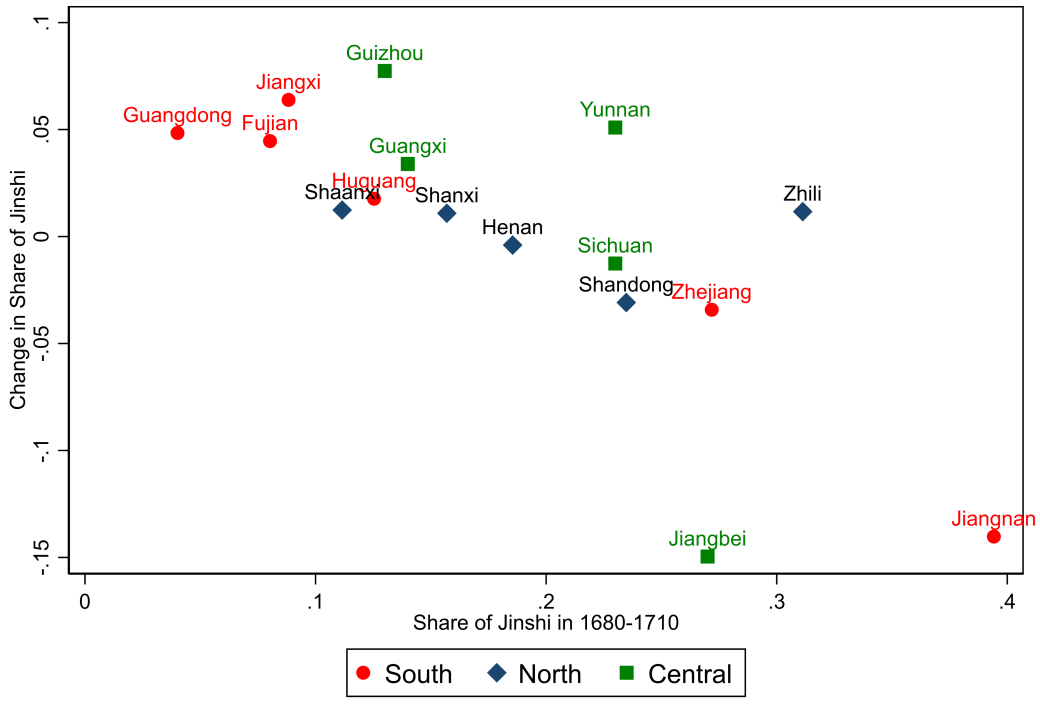


Figure S.1: Who Benefited From the Reform?

Note: The vertical axis shows the change in a province's share of *jinshi* within its region, calculated as the difference between the share in 1713–1740 and in 1680–1712. The horizontal axis plots the province's baseline share in 1680–1712. There is a strong inverse relationship: provinces with smaller initial shares within their region saw the largest gains following the 1712 reform.

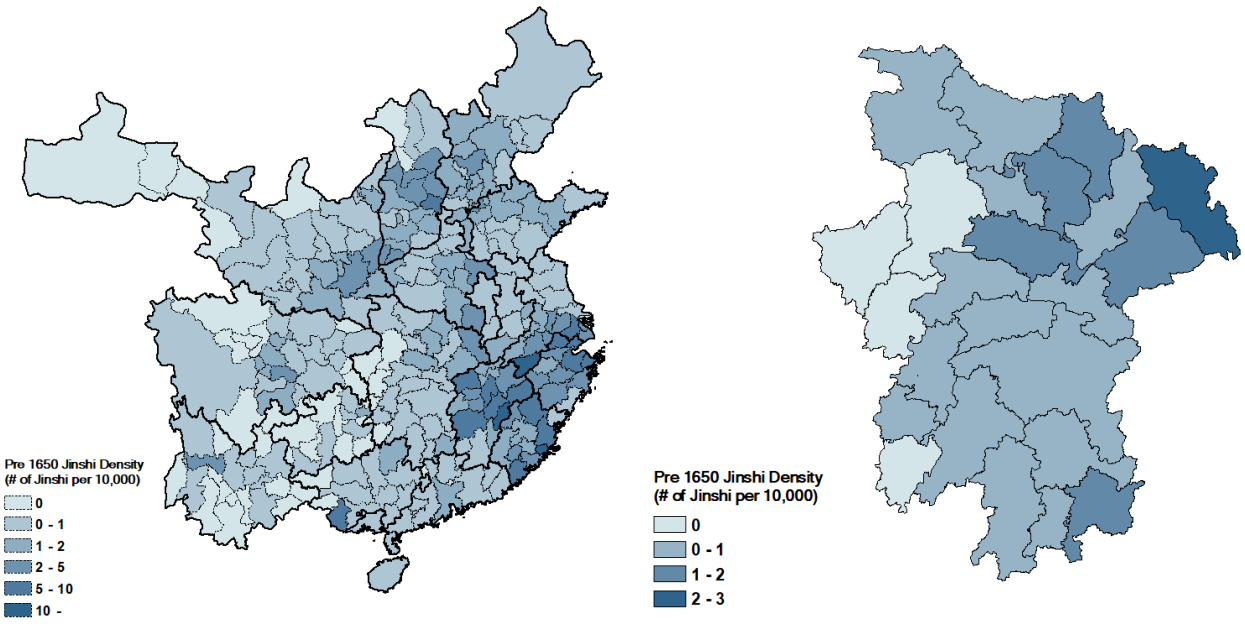
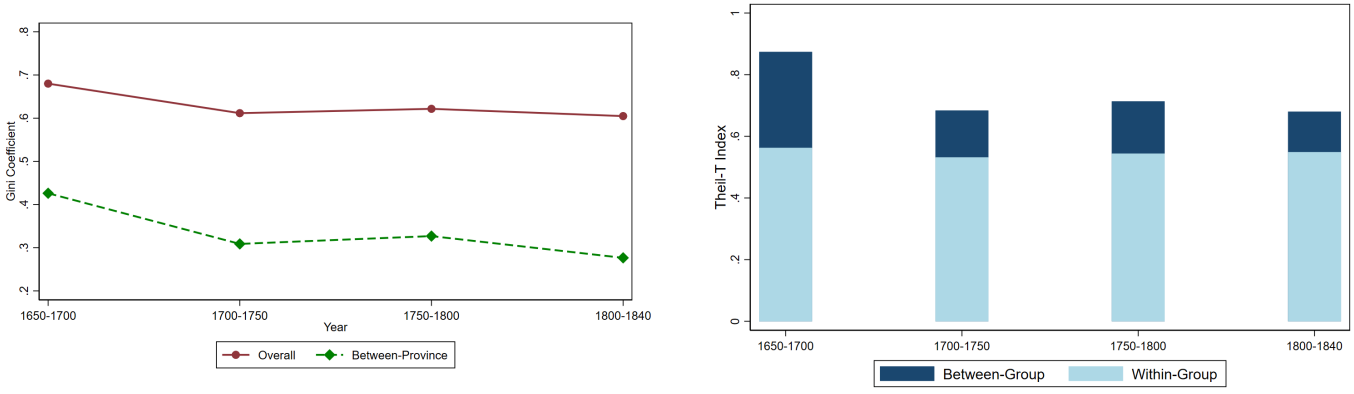


Figure S.2: Heterogeneity in Pre-Existing Human Capital

Note: The left map depicts the spatial variation in pre-1650 human capital across the country. The right map depicts spatial variation in pre-existing human capital within Huguang.



(a) Overall vs. Between-Province Inequality, Gini Coefficient

(b) Overall vs. Between-Province Inequality, Theil-T Index

Figure S.3: Trends in Inter- and Intra-Provincial Inequality

Note: The figures show the Gini coefficient and Theil-T index for jinshi per capita across the country and between provinces. The unit of analysis is a prefecture.

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For Online Appendix

A Additional Figures and Tables

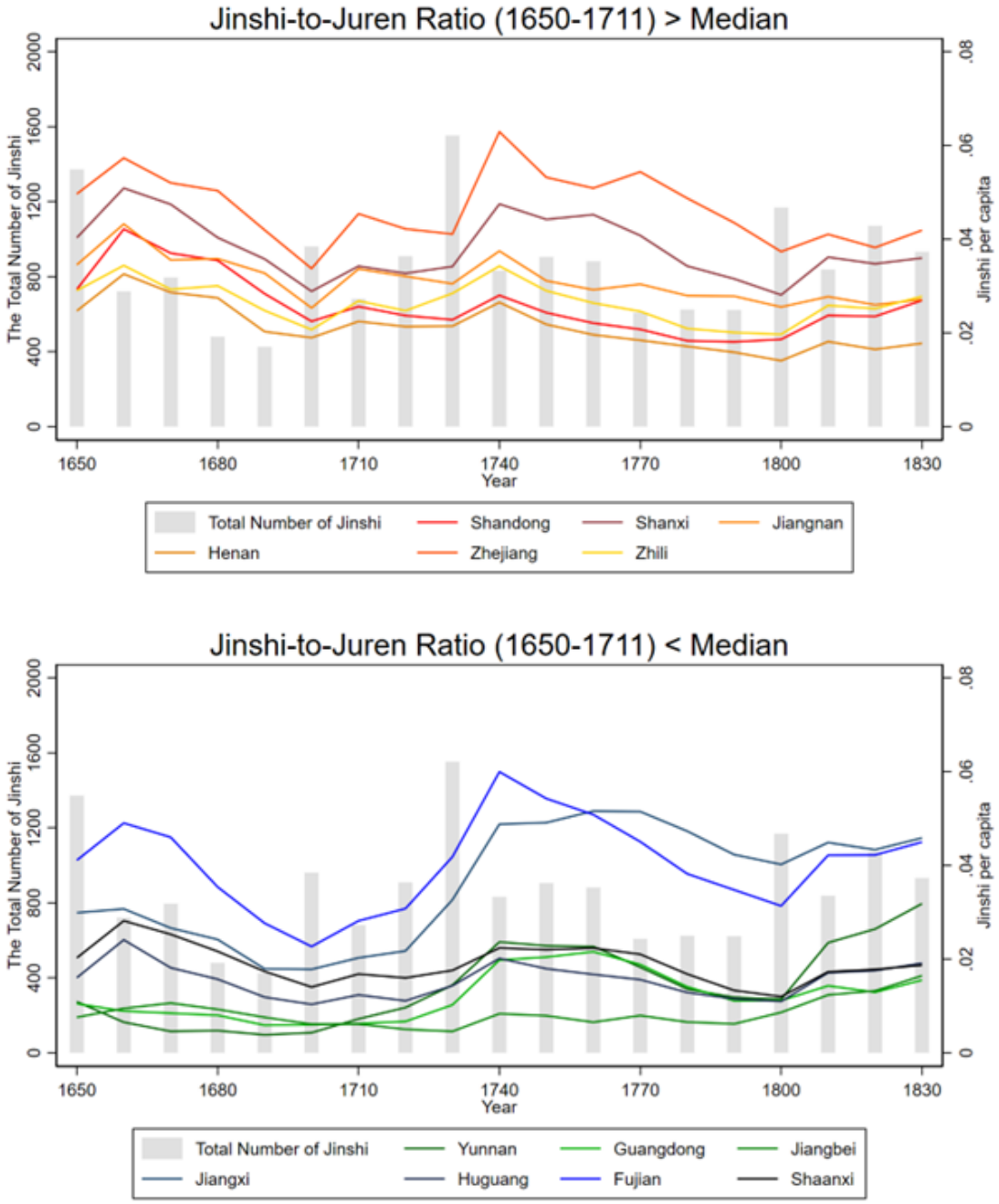


Figure A.1: Trends in Jinshi Per Capita

Note: This figure shows trends in jinshi per capita in the subsample of provinces with a below-median jinshi-to-juren ratio and the subsample of provinces with an above-median jinshi-to-juren ratio. Jinshi-to-juren ratio is a rough proxy for exam success, i.e. the share of examinees who passed the final round exam.

Table A.1: Summary Statistics

	Obs.	Mean	S.D.
A. Prefecture-decade-level Data in 1650–1840			
Jinshi per capita	4806	0.024	0.042
Av. Bureaucratic Rank (Highest Placement)	4806	1.701	2.546
Av. Bureaucratic Rank (Initial Placement)	4806	1.021	1.519
Av. Bureaucratic Rank (Average Placement)	4806	1.497	2.096
B. Prefecture-level Data in 1650–1840			
Pre-Existing Human Capital	267	1.330	2.097
Population Density (1776)	267	132.014	146.462
Population Density (1820)	267	130.220	136.512
Quota for Shengyuan	267	1.052	0.983
Caloric Suitability Index	267	3631.617	949.024
Ruggedness	267	408.323	306.756
Has Navigable River	267	0.345	0.476
C. County-decade-level Data in 1650–1840			
Jinshi per capita	29646	0.045	0.151
Av. Bureaucratic Rank (Highest Placement)	29646	0.466	1.548
Av. Bureaucratic Rank (Initial Placement)	29646	0.284	0.927
Av. Bureaucratic Rank (Average Placement)	29646	0.434	1.326
D. County-level Data in 1650–1840			
Pre-1650 Human Capital	1647	2.847	9.483
Population Density (1780)	1647	89.980	72.379
Quota for Shengyuan	1647	1.370	1.635
Caloric Suitability Index	1647	3686.768	826.050
Ruggedness	1647	350.043	305.328
Has Navigable River	1647	0.179	0.383
E. Individual-level Data in 1712–1840			
Exam Rank	16073	0.499	0.288
Bureaucratic Rank (Highest Placement)	4627	5.231	1.577
Bureaucratic Rank (Initial Placement)	4704	3.218	0.556
Bureaucratic Rank (Average Placement)	5714	4.212	1.141
F. Individual-level Data in 1712–1905			
Age	2298	34.079	7.917
Number of Relatives	1193	82.516	121.110
Duration	3943	9.948	10.386
G. Prefecture-level Data in 1875–1945			
Notable Figures per capita (z-score)	1068	-0.000	1.000
Tsinghua University Graduates per capita (z-score)	1068	-0.000	1.000
Peking University Graduates per capita (z-score)	1068	0.000	1.000
Oversea Students per capita (z-score)	1068	-0.000	1.000
Notable Figures per capita	1068	0.043	0.069
Tsinghua University Graduates per capita	1068	0.012	0.021
Peking University Graduates per capita	1068	0.056	0.076
Oversea Students per capita	1068	0.013	0.025
H. Prefecture-level Data in 1982			
Share of Population with Primary Education	266	0.573	0.101
Share of Population with Secondary Education	266	0.061	0.029
Share of Population with Tertiary Education	266	0.004	0.004
Average ISEI	266	22.603	3.045
Average SIOPS	266	25.580	2.064

Note: (1) *Exam Rank* is an examinee's standardized percentile rank (0–1) in the metropolitan exam. (2) *Bureaucratic Rank* is an 18-level scale from 0.5 (lowest) to 9 (highest). (3) *Jinshi/Juren Per Capita* is the number of successful candidates per 10,000 population in a 10-year period. (4) *Pre-1650 Human Capital* is the total jinshi count from 1371–1650, normalized by population circa 1600. (5) *Population Density* is persons per km^2 in 1776, 1780, or 1820. (6) *Quota for Shengyuan* is the assigned number of lower-tier exam pass slots per 10,000 people. (7) *Caloric Suitability Index* measures potential caloric yield from Galor and Özak (2016). (8) *Ruggedness* is derived from elevation data in Danielson and Gesch (2011). (9) *Has Navigable River* is a dummy indicating major rivers identified by Matsuura (2009). (10) *Age* is an examinee's age when he passed the metropolitan exam. (11) *Number of Relatives* is the number of an examinee's relatives. (12) *Duration* is an examinee's duration of career. (13) *Notable Figures per capita* is the number of notable figures per 10,000 population in a 10-year period. (14) *Tsinghua University Graduates per capita* is the number of Tsinghua University graduates per 10,000 population in a 10-year period. (15) *Peking University Graduates per capita* is the number of Peking University graduates per 10,000 population in a 10-year period. (16) *Oversea Students* is the number of oversea students per 10,000 population in a 10-year period. (17) *Share of Population with Primary Education* is from the 1982 census. (18) *Share of Population with Secondary Education* is from the 1982 census. (19) *Share of Population with Tertiary Education* is from the 1982 census. (20) *Average ISEI* is the average value of the International Socio-Economic Index in the 1982 census. (21) *Average SIOPS* is the average value of the Standard International Occupational Prestige Scale in the 1982 census.

Table A.3: The Impact of 1712 Reform on Career Outcomes, Other Attributes

	(1) Distance to Border	(2) Distance to Capital	(3) Whether in Capital	(4) Whether Important	(5) Tax per Capita	(6) Urban Pop
1712 Reform Intensity	-264.4	-198.1	-0.189	0.0790	-9.049	-2.030
	(517.467)	(361.547)	(0.174)	(0.088)	(6.376)	(5.083)
Decade FE	Yes	Yes	Yes	Yes	Yes	Yes
Decade FE × Region FE	Yes	Yes	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes	Yes	Yes
Decade FE × Controls	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.065	0.064	0.090	0.078	0.071	0.081
Observations	2802	2820	2820	2820	2774	2619

Note: The table presents estimates of the impact of the 1712 reform on various attributes of the highest position held by a successful candidate. Each observation represents a successful candidate from prefecture $pref$ in period t. From column 1 to column 6, the dependent variable is a position's distance to the border, distance to Beijing, whether a position is in the central government, the importance of the position, the amount of tax revenue collected in the location of the position, and the share of urban population in the location of the position, respectively. All models include decade fixed effects, region-by-decade fixed effects, province fixed effects, and decade-by-control interactions. Coefficients are reported with standard errors clustered at the province level in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table A.2: The 1712 Reform and Career Outcomes, Controlling for Exam Rank and Initial Placement

	Bureaucratic Rank					
	(1) All	(2) Reform Positive	(3) Reform Negative	(4) All	(5) Reform Positive	(6) Reform Negative
1712 Reform Intensity × Post	0.0107	0.673	1.192	0.171	0.0625	0.139
	(0.678)	(2.372)	(1.783)	(0.499)	(1.355)	(1.069)
Exam Rank	7.351***	7.531***	7.066***			
	(0.107)	(0.142)	(0.174)			
Initial Placement				1.649***	1.658***	1.634***
				(0.015)	(0.020)	(0.025)
Decade FE	Yes	Yes	Yes	Yes	Yes	Yes
Decade FE × Region FE	Yes	Yes	Yes	Yes	Yes	Yes
Prefecture FE	Yes	Yes	Yes	Yes	Yes	Yes
Decade FE × Controls	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.828	0.823	0.817	0.920	0.919	0.914
Observations	4806	3240	1566	4806	3240	1566

Note: This table reports the effects of the 1712 reform on final bureaucratic rank, accounting for candidates' exam performance and initial placement. Each observation is a prefecture-decade from 1650 to 1830, excluding 1710. The dependent variable is the bureaucratic rank, measured for final placement. Exam rank is standardized, with higher values indicating better performance. Initial placement rank refers to the first bureaucratic position attained by a successful candidate. Reform Positive and Reform Negative columns split the sample by provinces benefiting or losing from the reform. Decade fixed effects, prefecture fixed effects, and interactions of decade fixed effects with region fixed effects and control variables are included. Standard errors clustered at the province-period level are in parentheses. ***, **, and * indicate significance at 1%, 5%, and 10% levels.

Table A.4: Conflict at Jinshi Post Location

	(1) 40–30 yrs before	(2) 30–20 yrs before	(3) 20–10 yrs before	(4) 10–0 yrs before	(5) 0–10 yrs after	(6) 10–20 yrs after	(7) 20–30 yrs after	(8) 30–40 yrs after
Panel A. Highest Placement								
1712 Reform Intensity × Post	-0.0495	0.228	0.0655	0.286	-0.290	-0.137	0.0224	0.00685
	(0.137)	(0.157)	(0.118)	(0.315)	(0.240)	(0.114)	(0.142)	(0.197)
Decade FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Decade FE × Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Decade FE × Post Location Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Decade FE × Origin Prefecture Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.351	0.297	0.334	0.321	0.299	0.419	0.505	0.474
Observations	1188	1188	1188	1188	1188	1188	1188	1188
Panel B. Initial Placement								
1712 Reform Intensity × Post	-0.729	-0.388	0.149	0.773	-0.104	0.133	0.0204	-0.590
	(0.594)	(0.647)	(0.594)	(0.902)	(0.797)	(0.272)	(0.537)	(0.855)
Decade FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Decade FE × Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Decade FE × Post Location Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Decade FE × Origin Prefecture Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.507	0.533	0.778	0.630	0.696	0.868	0.738	0.726
Observations	388	388	388	388	388	388	388	388

Note: This table reports the likelihood of conflict occurring at the location of a jinshi's post in each decade relative to their exam year. Panel A uses the location of the jinshi's *highest-ranked* bureaucratic placement, while Panel B uses the location of their *Initial* official appointment. The sample excludes jinshi from the 1710s and those posted to the border or the capital. All regressions include decade fixed effects, region-by-decade fixed effects, and province fixed effects. Control variables—population density, agricultural suitability, quota assignment, ruggedness, river access, and urbanization—are included for both the jinshi's birthplace and the post location, each interacted with decade fixed effects. Standard errors are clustered at the province-decade level and reported in round brackets. ***, **, and * denote significance at the 1%, 5%, and 10% levels.

Table A.5: The Distributional Consequences of the 1712 Reform: Between Counties

	Dependent Variable: Jinshi Per Capita			
	(1) All	(2) All	(3) Reform Positive	(4) Reform Negative
Gain × Pre1650HC × Post	0.129***	0.115***	0.163***	
	(0.042)	(0.036)	(0.035)	
Loss × Pre1650HC × Post	0.0357***	0.0347***		-0.0558***
	(0.009)	(0.008)		(0.014)
Controls × Decade FE	No	Yes	Yes	Yes
Province FE × Decade FE	Yes	Yes	Yes	Yes
County FE	Yes	Yes	Yes	Yes
Decade FE	Yes	Yes	Yes	Yes
R-squared	0.237	0.295	0.290	0.378
Observations	29646	29646	19332	10314

Note: This table examines the heterogeneous effects of the 1712 reform across counties with different levels of pre-reform human capital. Each observation is a county–decade from 1650 to 1830, excluding 1710. Pre1650HC is jinshi per 10,000 in a county before 1650. Columns 1 and 2 include all counties, while columns 3 and 4 split the sample into counties in reform-positive and reform-negative provinces, respectively. In columns 2, 3, and 4, controls include population density, agricultural suitability, predetermined quotas, ruggedness, and access to navigable rivers, all interacted with decade fixed effects. Decade fixed effects, province fixed effects, and their interactions are included in all columns. Standard errors are clustered at the province level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

B Empirical Appendix

B.1 Additional Variables and Data Sources

(a) Pre-Existing Human Capital

To proxy for baseline educational strength, we measure *jinshi* per capita prior to 1650. Specifically, we count the total number of successful candidates between 1371 and 1650 in each locality, then divide by population in 1600.[1] This captures long-run historical differences in educational infrastructure before the Qing era.

(b) Lower-Tier Exams and Quotas

Unlike the final metropolitan exam (which lacked province-specific quotas prior to 1712), lower-tier exams allocated fixed quotas across counties and prefectures. We collect these quotas from the *Imperially Established Institutes and Laws of the Great Qing Dynasty* for 1724–1851 and normalize by population at each level. We also incorporate historical adjustments to provincial exam quotas from 1645, 1660, 1696, 1711, and 1744. Further details on these lower-level exams and how they enter our regressions appear in Appendix C.2.

(c) Historical Population

We rely primarily on prefecture-level population estimates from the *Population History of China* by Ge and Cao (2001), widely regarded as the most accurate compilation of Chinese population statistics from 200 BC to 1953 AD. For the specific period of interest (i.e., 1650–1830), these estimates are available in 1776, 1820, and 1910. To fill intermediate years and cross-check coverage, we also incorporate the Historical Database of the Global Environment (HYDE) by Klein Goldewijk et al. (2017), which models population and land use data at a 5-arc-minute resolution (roughly 8–10 kilometers per cell). Combining these two sources allows us to derive consistent population densities at the province, prefecture, and county levels.[2]

(d) Agricultural Suitability

To approximate agricultural productivity, we use the *Caloric Suitability Index* (CSI) from Galor and Özak (2016), which provides an estimate of the maximum caloric yield (kilocalories per hectare) that can be attained in 5-arc-minute grid cells. We focus on the post-1500 period to capture late-imperial agricultural conditions. For each province, prefecture, or county, we compute the mean CSI value across all relevant cells within its boundaries.

(e) Terrain Ruggedness

To measure topographical roughness, we employ the Global Multi-Resolution Terrain Elevation Data 2010 (*GMTED2010*) from Danielson and Gesch (2011). Each cell covers 7.5 arc-seconds of longitude and latitude. For each cell, we take the difference between its elevation and that of the eight surrounding cells (squared to ensure positiveness) and then compute the square root of the sum of these differences. We average this ruggedness measure across all grid cells in a given administrative unit (province, prefecture, or county).

(f) Navigable Rivers

We construct a binary indicator for whether an administrative unit has access to any major navigable river. River data are drawn from the China Historical Geographic Information System (CHGIS, 2016b), and navigability is defined based on the classification by Matsuura (2009). The dummy takes a value of

[1] Our results are robust to denominators in 1400 or 1500.

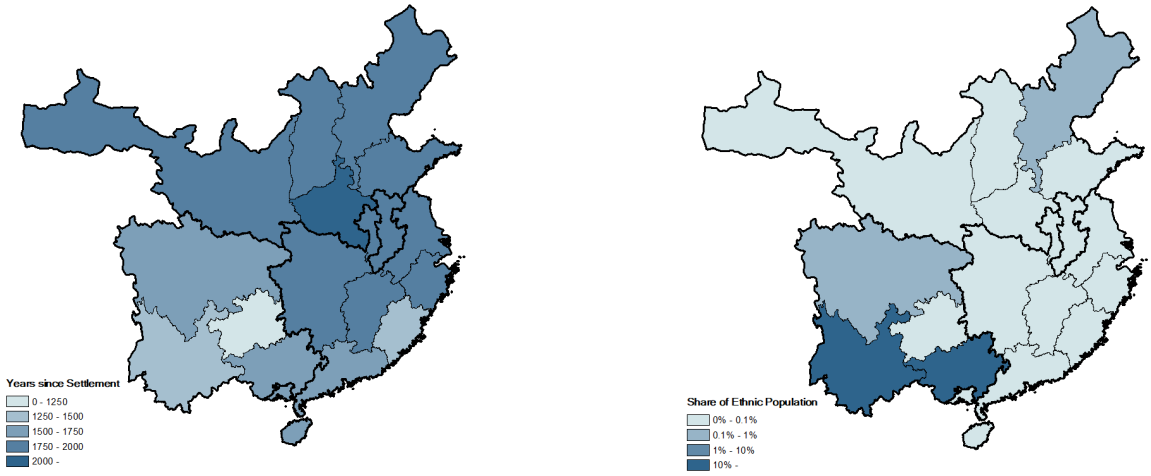
[2] See CHGIS (2016b) for GIS-based boundaries and Klein Goldewijk et al. (2017) for spatial population estimates.

1 if at least one major navigable river passes through (or borders) the province, prefecture, or county.

B.2 Measuring Reform Intensity: Additional Results

B.2.1 Ethnic and Frontier Regions

The 1712 reform favored provinces with a lower success rate in the metropolitan exam by construction. We find that reform-positive provinces, as shown in Figure I, tended to be in the hinterland with a high share of ethnic populations (Figure A.2b). Aside from the ethnic populations, these provinces were also home to a large number of Han Chinese who had only recently settled the frontier (Figure A.2a). After the reform, these provinces saw an increase in jinshi per capita in provinces with less exam success before (Figure A.1).



(a) Years since settlement (b) Share of ethnic populations

Figure A.2

B.2.2 Alternative Measure: Jinshi Share Within the Nation

Our main measure of reform intensity, $\Delta Share^{1712}$, is based on the change in a province's share of jinshi within its historical exam region (South, North, or Central). This captures redistribution among provinces that previously competed in the same pool. As an alternative, we construct a national-level version by computing the change in each province's share of total jinshi in the nation before and after the reform. This approach makes the treatment intensity comparable across regions, not just within them. While conceptually appealing, it implicitly assumes that all provinces would have competed freely in a national system absent the reform—an assumption that may not hold given the region-based quotas in place before 1712. Results using this alternative measure are reported in Appendix B.5.

B.3 The Impact of the 1712 Reform, 1650–1840: Additional Results

B.3.1 Treatment of Shuntian Registrations

Shuntian Prefecture (which included the capital, Beijing) presents complications for our analysis. Many jinshi registered under Shuntian were not local residents, but sons or relatives of officials temporarily stationed in the capital. Because these registrations do not reliably reflect place of origin, we re-estimate our main regressions excluding all candidates with Shuntian registrations. The results are unchanged, confirming that these observations do not drive our findings.

B.3.2 The 1712 Reform: Dynamic Impact

To examine how the effects of the 1712 reform evolved over time, we estimate the following model:

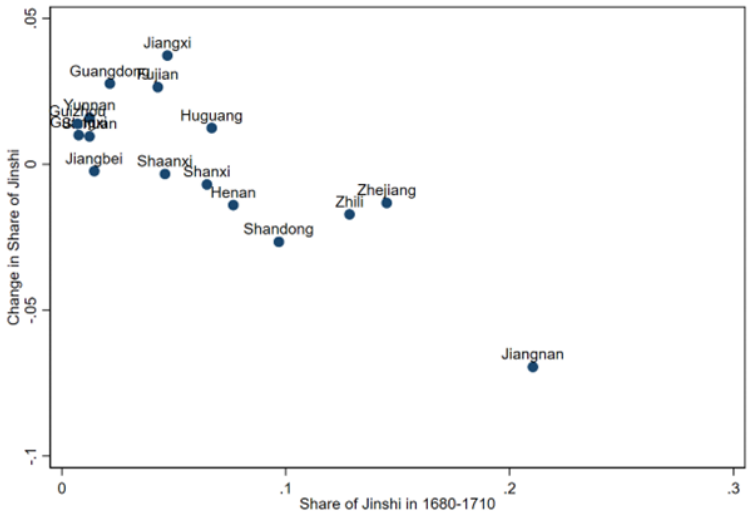


Figure A.3: Who Benefited From the Reform?

Note: The vertical axis measures the change in a province's share of *jinshi* within the nation, calculated as the difference between its share in 1713–1740 and in 1680–1712. The horizontal axis shows the province's baseline share in 1680–1712. There is an inverse relationship between the change in a province's share and its share before the reform.

$$Y_{pref,prov,t} = \beta_0 + \sum_{t=1650}^{1830} \beta_{1,t} ReformIntensity_{prov} \cdot Period_t + \gamma X_{pref} \cdot \eta_t + \delta_{pref} + \eta_t + \varepsilon_{pref,t} \tag{8}$$

where the dependent variable $Y_{pref,prov,t}$ denotes either the number of *jinshi* per capita or the average bureaucratic rank of successful candidates from prefecture $pref$, province $prov$, and decade t. The coefficients $\beta_{1,t}$ capture how the impact of reform intensity varied over time. The model includes prefecture fixed effects δ_{pref}, period fixed effects η_t, and controls $X_{pref} \cdot \eta_t$ as defined previously.

Results are available in Figure A.4 and Figure A.5.

The dynamic estimates suggest that the 1712 reform produced a sustained positive impact on both exam success and career outcomes in reform-beneficiary provinces. Figure A.4 shows that *jinshi* per capita rose notably in the decades following the reform, with several coefficients that are both positive and statistically significant. Figure A.5 reveals a similar pattern for bureaucratic rank, with candidates from reform-beneficiary prefectures more likely to attain higher official positions. While some decade-to-decade variation remains, the overall trajectory indicates a durable improvement in both selection and advancement outcomes.

B.3.3 The Relationship Between Exam Rank and Career Outcomes

We document a clear link between exam performance and subsequent professional attainment. Table A.6 shows that a successful candidate's standardized exam rank is strongly correlated with the bureaucratic positions he ends up holding. Notably, a higher rank in the final-round examination predicts both one's *initial* placement (columns 1–2) and the *highest* position achieved over the course of one's career (columns 3–6). Figure A.6 reinforces this point visually. It plots a binned scatter of exam rank versus bureaucratic rank, fitted with a quadratic curve. The strong positive slope indicates that individuals who scored higher on the final exam tended to secure more prestigious posts.

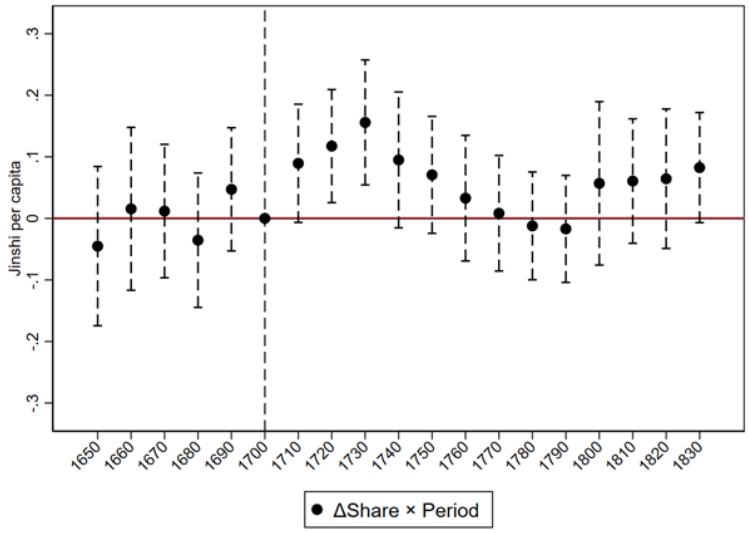


Figure A.4: The Dynamic Impact of 1712 Reform on Jinshi Per Capita

Note: This figure plots the estimation results of Equation 8. The points represent the coefficients, and the dash lines are confidence intervals (90%).

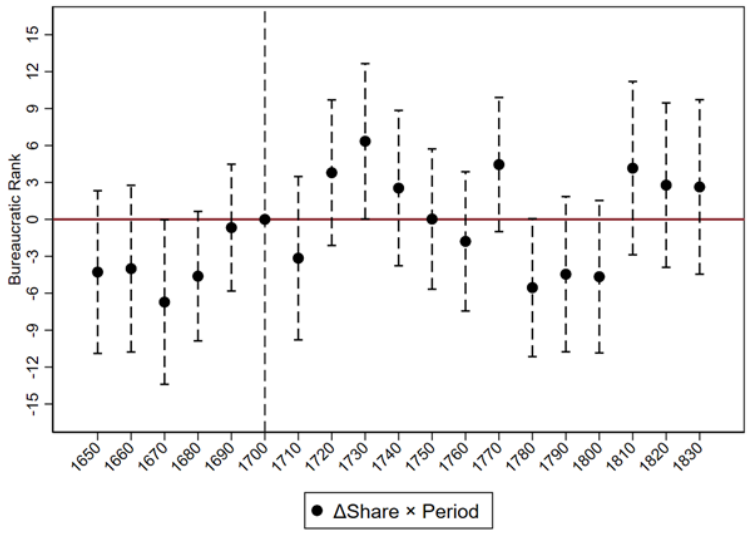


Figure A.5: The Dynamic Impact of 1712 Reform on Bureaucratic Ranks of Successful Candidates

Note: This figure plots the estimation results of Equation 8. The points represent the coefficients, and the dash lines are confidence intervals (90%).

B.4 The Distributional Consequences of The 1712 Reform: Additional Results

B.4.1 Competing Hypothesis: Wealth vs. Human Capital

One alternative explanation for our findings is that preexisting wealth—rather than human capital—drove regional responses to the 1712 reform. Since the reform reallocated quotas based on past exam participation, wealthier prefectures may have had a structural advantage: their resources enabled more candidates to sit for the exam prior to 1712, boosting their future quota shares regardless of underlying educational endowments.

To test this hypothesis, we include the caloric suitability index (CSI)—a standard proxy for historical

Table A.6: Exam Performance and Career Outcomes

	Bureaucratic Rank					
	(1)	(2)	(3)	(4)	(5)	(6)
	Initial Placement		Highest Placement			
Exam Rank	0.104**	0.109***	1.343***	1.380***	1.119***	1.148***
	(0.038)	(0.035)	(0.073)	(0.079)	(0.099)	(0.104)
Initial Placement Rank					0.102*	0.0976*
					(0.048)	(0.048)
Decade FE	Yes	Yes	Yes	Yes	Yes	Yes
Decade FE × Region FE	Yes	Yes	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes	Yes	Yes
Decade FE × Controls	No	Yes	No	Yes	No	Yes
R-squared	0.043	0.064	0.088	0.110	0.079	0.108
Observations	4540	4540	4477	4477	3501	3501

Note: This table assesses how performance on the imperial exam relates to career success in the Qing bureaucracy. Each observation represents a successful candidate (jinshi) from province p in period t. Exam Rank is the standardized ordinal ranking of a successful candidate based on his raw exam score, scaled from 0 (lowest) to 1 (highest). Bureaucratic Rank measures the standardized rank of the highest position held by successful candidates in the bureaucracy, ranging from 0.5 (lowest) to 9 (highest). Columns 1 and 2 examine the relationship between exam rank and initial placement, while columns 3 to 6 analyze the highest position attained. Columns 2, 4, and 6 include controls for population density, agricultural suitability, predetermined quotas at lower-tier exams, ruggedness, and access to navigable rivers, all interacted with decade fixed effects. Decade fixed effects, province fixed effects, and the interaction of decade fixed effects and exam region fixed effects are included in all specifications. Standard errors clustered at the province level are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

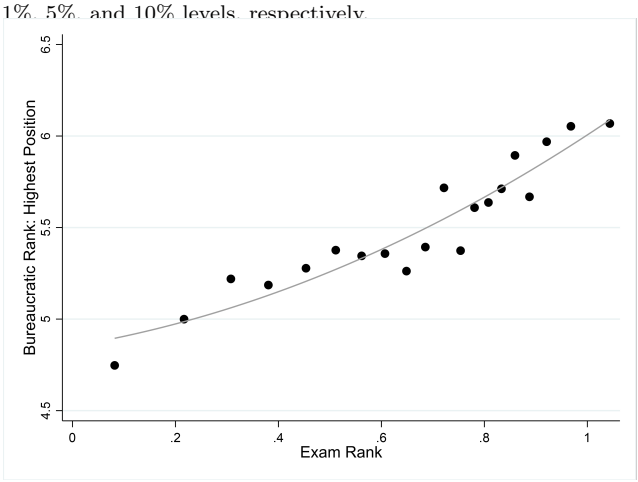


Figure A.6: The Relationship Between Exam Performance and Career Outcome

Note: This figure shows a binned scatterplot of Exam Rank vs. Bureaucratic Rank, with a quadratic fit. Each point represents an individual. Controls correspond to column 4 of Table A.6. Standard errors are clustered by province.

economic productivity (Galor and Özak, 2016)—interacted with the treatment variables. If the effects we attribute to human capital are instead driven by wealth, then introducing CSI interactions should attenuate the coefficients on pre-1650 jinshi density.

Table A.7 reports the results. In all specifications, the human capital interactions remain positive and statistically significant. In reform-positive provinces (column 3), the coefficient on *Gain* × *Pre1650HC* × *Post* is virtually unchanged. In reform-negative provinces (column 4), the corresponding coefficient also remains stable. By contrast, the CSI interactions are either insignificant or signed in the opposite direction of the wealth-based hypothesis. For instance, the coefficient on *Gain* × CSI × *Post* is significantly negative in columns 1 and 2.

Taken together, these results suggest that the long-run consequences of the reform are not merely re-

flections of preexisting affluence. Rather, they underscore the role of historical human capital—measured by early jinshi density—in shaping how regions responded to the redistributive shock of 1712.

Table A.7: The Distributional Consequences of the 1712 Reform: Controlling for Prosperity

	Dependent Variable: Jinshi Per Capita			
	(1) All	(2) All	(3) Reform-Positive	(4) Reform-Negative
Gain × Pre1650HC × Post	0.112***	0.0820***	0.113**	
	(0.031)	(0.029)	(0.045)	
Loss × Pre1650HC × Post	0.0694***	0.0535***		0.0379**
	(0.018)	(0.016)		(0.018)
Gain × Caloric Suitability Index × Post	-0.000122*	-0.000151*	0.0000696	
	(0.000)	(0.000)	(0.000)	
Loss × Caloric Suitability Index × Post	0.000140	0.000232***		0.0000611
	(0.000)	(0.000)		(0.000)
Decade FE	Yes	Yes	Yes	Yes
Decade FE × Province FE	Yes	Yes	Yes	Yes
Prefecture FE	Yes	Yes	Yes	Yes
Decade FE × Controls	No	Yes	Yes	Yes
R-squared	0.573	0.608	0.494	0.806
Observations	4806	4806	3240	1566

Note: This table investigates whether the distributional impact of the 1712 reform reflected preexisting human capital or underlying economic productivity. Each observation is a prefecture–decade from 1650 to 1830, excluding 1710. avjinshiming refers to average jinshi per 10,000 population in the Ming. All columns control for the caloric suitability index, interacted with the gain/loss treatment and the post-reform dummy. All specifications include decade fixed effects, prefecture fixed effects, and province-by-decade fixed effects. Coefficients are reported with standard errors clustered at the province-period level in round brackets. ***, **, and * indicate significance at 1%, 5%, and 10% levels.

B.4.2 Dynamic Impact

We estimate the dynamics of the distributional impact of the 1712 reform using the following equation:

$$\begin{aligned} Jinshi_{pref,prov,t} = & \beta_0 + \sum_{t=1650}^{1830} \beta_{1,t} Gain_p^{1712} \cdot Pre1650HC_{pref} \cdot Period_t + \\ & \sum_{t=1650}^{1830} \beta_{2,t} Loss_p^{1712} \cdot Pre1650HC_{pref} \cdot Period_t + \gamma X_{pref} \cdot \eta_t + \\ & \delta_p \cdot \eta_t + \theta_{pref} + \eta_t + \varepsilon_{pref,prov,t} \end{aligned} \tag{9}$$

Figure A.7 presents the dynamic estimates. In reform-positive provinces (left panel), prefectures with stronger pre-1650 human capital experienced a clear and sustained increase in jinshi per capita following the reform. These gains are visible from the 1720s onward and remain consistently positive for over a century. This long-term pattern reflects the ability of high-capacity prefectures in reform-beneficiary provinces to take advantage of newly created quota space and convert educational potential into actual examination success.

In reform-negative provinces (right panel), the results also show a positive effect for high-human-capital prefectures, particularly in the decades immediately following the reform. While these provinces lost quota space overall, their top-performing prefectures nonetheless maintained or slightly improved their success rates. In this sense, the observed "gains" are relative: elite prefectures in losing provinces were able to hold their ground, likely by outcompeting peers within their now tighter provincial quota. In contrast, lower-human-capital areas within the same provinces likely saw further marginalization, consistent with the evidence in Table IV.

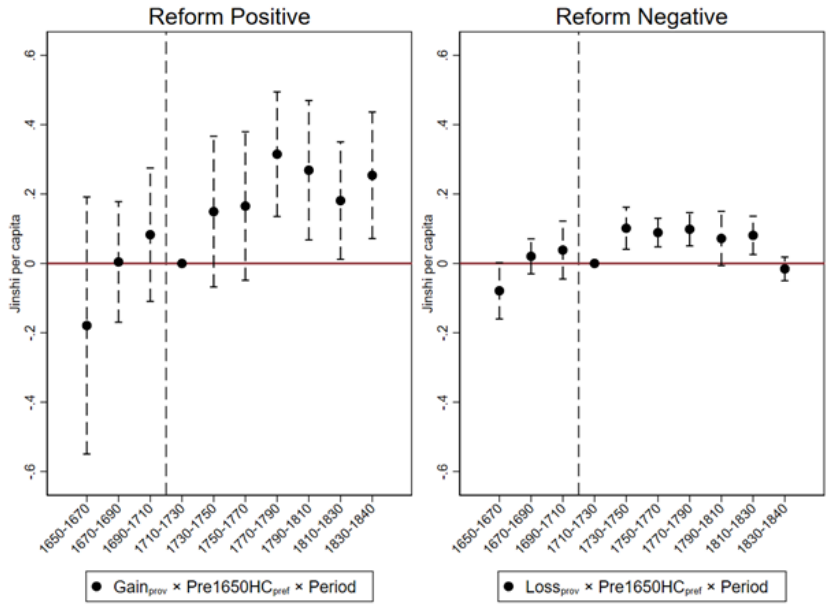


Figure A.7: The Distributional Consequences of the 1712 Reform, Dynamic Impact

Note: This figure plots the estimation results of Equation 9. The points represent the coefficients, and the dash lines are confidence intervals (90%).

Taken together, these dynamic estimates show that the reform amplified intra-provincial disparities in both types of provinces. While high-human-capital prefectures in gaining provinces expanded their lead, their counterparts in losing provinces resisted decline. This points to a broader pattern: once institutional barriers are partially lifted, the ability to benefit still depends heavily on pre-existing capacity. Even in settings of apparent redistribution, local inequalities may deepen unless offset by more targeted policies.

B.5 Main Results Using Alternative Measure of Reform Intensity

This subsection revisits our core specifications using an alternative definition of reform intensity: the change in a province's share of successful jinshi candidates relative to the national total. The precise construction of this national share-based measure is described in Appendix Section B.2.2. While our baseline analysis relies on within-region comparisons that more accurately reflect the quota structure before 1712, this national share-based approach provides a complementary perspective. It is, however, less ideal for characterizing the pre-1712 period, since provinces had not competed for national share since 1454, when quotas began to be allocated within regions.

B.6 Investment in Educational Institutions

The reform changed the incentive to learn and study for the exam. But was there also an increase in the supply of education, such as additional educational investments made by the state? To shed light on this question, we examine the impact of the reform on the number of newly constructed academies.

The Qing state did not develop a large-scale schooling system, unlike modern states. However, it did provide funding to academies. Academies were mainly founded by private individuals before the Qing period. From the Qing onwards, the government became more involved in founding and running academies. In Table A.13, we show little change in the number of academies constructed by the government after the reform. Therefore, pure supply-side factors are unlikely to be the main explanations for the results shown in Section V.

Table A.8: The Impact of the 1712 Reform on Jinshi Per Capita: National Share-Based Treatment

	Dependent Variable: Jinshi Per Capita			
	(1)	(2)	(3)	(4)
1712 Reform Intensity × Post	0.225***	0.138**	0.554***	0.372***
	(0.051)	(0.059)	(0.096)	(0.106)
Decade FE	Yes	Yes	Yes	Yes
Decade FE × Region FE	Yes	Yes	Yes	Yes
Prefecture or County FE	Prefecture	Prefecture	County	County
Decade FE × Controls	No	Yes	No	Yes
R-squared	0.564	0.603	0.415	0.448
Observations	4806	4806	29646	29646

Note: This table estimates the impact of the 1712 reform on the number of successful candidates per capita, using an alternative measure of reform intensity based on changes in a province's share of jinshi relative to the national total. Each observation is a prefecture–decade (columns1–2) or county–decade (columns 3–4) from 1650 to 1830, excluding 1710. Columns 1 and 2 report prefecture-level estimates of the 1712 reform's effect on jinshi per capita, based on the change in a province's national jinshi share. Columns 3 and 4 report analogous estimates at the county level. All specifications include decade fixed effects, region-by-decade fixed effects, and prefecture or county fixed effects. Columns 2 and 4 additionally control for population density, agricultural suitability, lower-tier exam quotas, ruggedness, and navigable river access, all interacted with decade fixed effects. Standard errors clustered at the province-period level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels.

Table A.9: The Impact of the 1712 Reform on Career Outcomes: National Share-Based Treatment

	Initial Placement		Highest Placement		Average Placement	
	(1)	(2)	(3)	(4)	(5)	(6)
1712 Reform Intensity × Post	5.703***	5.362***	10.58***	9.381***	7.746***	7.725***
	(1.630)	(2.006)	(3.080)	(3.572)	(2.467)	(2.967)
Decade FE	Yes	Yes	Yes	Yes	Yes	Yes
Decade FE × Region FE	Yes	Yes	Yes	Yes	Yes	Yes
Prefecture FE	Yes	Yes	Yes	Yes	Yes	Yes
Decade FE × Controls	No	Yes	No	Yes	No	Yes
R-squared	0.444	0.444	0.412	0.414	0.430	0.430
Observations	4806	4806	4806	4806	4806	4806

Note: This table analyzes how the 1712 reform affected the career trajectories of successful candidates. Each observation is a prefecture–decade from 1650 to 1830, excluding 1710. The treatment is the change in national jinshi share, interacted with a post-reform dummy. Bureaucratic Rank refers to the rank of the initial position held by a successful candidate in columns 1 and 2, the highest position ever attained in columns 3 and 4, and the average rank across all recorded positions in columns 5 and 6. The rank is standardized from 0 (lowest) to 10 (highest). A value of zero is assigned if no candidate from a prefecture-period held a position. Columns 2, 4, and 6 include controls: population density, agricultural suitability, predetermined quotas at lower-tier exams, ruggedness, and access to navigable rivers, all interacted with decade fixed effects. All specifications include decade fixed effects, prefecture fixed effects, and interactions between decade fixed effects and region fixed effects. Standard errors are clustered at the province-decade level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels.

Table A.10: The Distributional Consequences of the 1712 Reform: National Share-Based Treatment

	Dependent Variable: Jinshi Per Capita			
	(1) All	(2) All	(3) Reform-Positive	(4) Reform-Negative
Gain × Pre1650HC × Post	0.152***	0.120***	0.111	
	(0.048)	(0.046)	(0.074)	
Loss × Pre1650HC × Post	0.0984***	0.0633**		0.0701*
	(0.034)	(0.031)		(0.036)
Year FE	Yes	Yes	Yes	Yes
Year × Province FE	Yes	Yes	Yes	Yes
Prefecture FE	Yes	Yes	Yes	Yes
Year × Controls	No	Yes	Yes	Yes
R-squared	0.572	0.607	0.547	0.615
Observations	4806	4806	2592	2214

Note: This table examines whether the effects of the reform differed depending on preexisting levels of educational attainment. Each observation is a prefecture–decade from 1650 to 1830, excluding 1710. Pre1650HC is jinshi per capita in a prefecture before 1650. In all columns, we control for main effects and lower-order interactions, including the interaction of pre-existing human capital and post-reform dummy. In columns 2, 3, and 4, we control for population density, agricultural suitability, predetermined quota at lower-tier exams, ruggedness, and whether a province had access to any major navigable rivers, interacted with decade fixed effects. Column 3 only includes prefectures in provinces benefiting from the reform. Column 4 only includes prefectures in provinces hurt by the reform. Decade fixed effects, province fixed effects, and the interaction of decade fixed effects and province fixed effects are included in all columns. This table uses an *alternative treatment measure* based on each province's change in *national* jinshi share, rather than the *within-region share* used in the baseline specifications. Coefficients are reported, with standard errors clustered at the province-period level in round brackets. ***, **, and * indicate significance at 1%, 5%, and 10% levels.

Table A.11: The Impact of the 1712 Reform on Highly Educated Individuals Upon Policy Reversal in 1905: National Share-Based Treatment

	(1) Notable Figures	(2) Tsinghua Graduates	(3) Peking Graduates	(4) Oversea Students
1712 Reform Intensity × Post 1905	-8.973***	-3.500	-1.431	-7.366**
	(2.829)	(2.453)	(2.550)	(3.081)
Decade FE	Yes	Yes	Yes	Yes
Region FE × Decade FE	Yes	Yes	Yes	Yes
Prefecture FE	Yes	Yes	Yes	Yes
Controls × Decade FE	Yes	Yes	Yes	Yes
R-squared	0.500	0.455	0.593	0.588
Observations	1869	1869	1869	1869

Note: This table investigates whether the long-term effects of the 1712 reform persisted after the abolition of the exam system in 1905. Each observation is a prefecture–period from 1875 to 1945. The treatment variable is the change in national jinshi share × Post1905. "Highly educated individuals" are proxied by jinshi in the pre-1905 period and by notable figures, elite university students, or students going abroad for the post-1905 period. All regressions control for pre-reform jinshi per capita, population density, agricultural suitability, lower-tier quotas, ruggedness, and access to navigable rivers, all interacted with decade fixed effects. All models include decade fixed effects, prefecture fixed effects, and region-by-decade fixed effects. Standard errors are clustered at the province level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table A.12: The Long-Term Impact of the 1712 Reform on Educational and Occupational Outcomes: National Share-Based Treatment

Panel A. Educational Attainment (1982)

	Primary			Secondary			College		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1712 Reform Intensity	0.725	0.595**	0.596**	0.194**	0.170**	0.170**	0.0193*	0.0191	0.0192
	(0.296)	(0.227)	(0.223)	(0.068)	(0.073)	(0.073)	(0.011)	(0.013)	(0.013)
Jinshi Per Capita$^{1368–1712}$	No	No	Yes	No	No	Yes	No	No	Yes
Additional Controls	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.396	0.445	0.456	0.450	0.508	0.508	0.527	0.587	0.589
Observations	266	251	251	266	251	251	266	251	251

Panel B. Occupational Prestige (1982)

	ISEI			SIOPS			ISEI (Non-agri)			SIOPS (Non-agri)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1712 Reform Intensity	0.961	3.468	3.468	-0.109	1.401	1.402	15.54	9.919	9.895	7.851	3.345	3.333
	(10.912)	(12.882)	(12.922)	(7.324)	(9.050)	(9.068)	(16.832)	(13.793)	(13.981)	(12.660)	(10.348)	(10.602)
Jinshi Per Capita$^{1368–1712}$	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes
Additional Controls	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.403	0.521	0.521	0.400	0.512	0.512	0.408	0.529	0.535	0.417	0.546	0.549
Observations	266	251	251	266	251	251	266	251	251	266	251	251

Note: This table evaluates the reform's long-run legacy using data from the 1982 census. Each observation represents a prefecture. Panel B reports occupational prestige using ISEI and SIOPS scores, with subsamples for non-agricultural workers. Columns 1–3 and 4–6 show ISEI and SIOPS scores for the full sample; Columns 7–9 and 10–12 show outcomes for non-agricultural populations. The treatment variable is the change in national jinshi share. Columns 3, 6, 9, and 12 include additional controls, including pre-reform jinshi per capita (1368–1712), distance to coast, Taiping Rebellion presence, treaty port status, Ming urbanization rate, and Republican-era Christian activity. All regressions include controls for population density (1820), agricultural suitability, ruggedness, river access, and 1982 age structure. Standard errors are clustered at the province level. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table A.13: The Impact of the 1712 Reform on the Construction of New Academies

	Dependent Variable: Number of New Academies Per Capita		
	(1)	(2)	(3)
	All	Gentry	State Official
1712 Reform Intensity × Post	-0.00712**	-0.00352*	-0.00333
	(0.003)	(0.002)	(0.002)
Decade FE	Yes	Yes	Yes
Decade FE × Region FE	Yes	Yes	Yes
Province FE	Yes	Yes	Yes
Decade FE × Controls	Yes	Yes	Yes
R-squared	0.065	0.050	0.073
Observations	4806	4806	4806

Note: This table examines whether the 1712 reform influenced the construction of new academies across prefectures. Each observation is a prefecture–decade from 1650 to 1830, excluding 1710. The dependent variable is the number of newly constructed academies per 10,000 population. Column 1 reports results for all newly constructed academies, column 2 for academies set up by gentry, and column 3 for academies set up by state officials. The main explanatory variable measures the interaction of jinshi share in 1710–1740 minus jinshi share in 1680–1710 (within region) with a post-reform dummy (after 1712). All models include decade fixed effects, region-by-decade fixed effects, province fixed effects, and decade-by-control interactions. Coefficients are reported with robust standard errors in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

C Historical Appendix

C.1 The 1712 Reform

C.1.1 Spatial Inequalities in Exam Performance

At the Imperial Exams, the Qing provinces displayed a range of performances. Southeastern China clearly outperformed the rest of China in the tests. As a contemporary noted:

> Since the Southern Song Dynasty made Hangzhou its capital, the lower Yangtze valley has become the focus of politics, culture, and business. Scholars in the Qing Empire outperformed those in earlier dynasties in terms of intellectual achievement, yet the majority of the top scholars are from Jiangsu and Zhejiang, two provinces in the lower Yangtze.[3]

The key factor influencing Southern China's superior exam results is the region's large economic advantage, which translated into an educational edge over the core area. A contemporary wrote:

> Now Northern China had two problems: the first is deserted land, and the second is the shortage of talent.[4]

Another factor is that the bordering provinces performed poorly in the Imperial Exams due to language barriers, which was a problem that was particularly acute in the southwest provinces. The ethnic makeup of the southwest provinces was more complex than that of the inner land because they had just recently been inhabited in compared to other interior provinces.Figure A.8 shows the 18 inner provinces of Imperial China's language distribution in 1820. A mix of ethnic groups, mostly Miao people, made up the population of the southwestern provinces. According to a local gazetteer,

> (Miao people) could not read Chinese at first. Recently, they began to understood the value of attending school. The intelligent students took the Imperial Exams as registered Miao people since they have become well versed.[5]

After the 1712 reform, there began to disparities in admission criteria across the country. Opportunistic migration to a province with lower criteria was unlikely to succeed. In addition to the government's rigorous guidelines against faking registered origins in exams, locals monitored examinees' legal residency. For instance, from 1719 to 1804, the locals in Tongdao county, Jingzhou prefecture, had many legal disputes with 18 families who moved in there before 1644, charging the latter of being illegally registered as local examinees.[6] Another instance is that there were more than 2,000 immigration families on the coast of Xinning county, Guangdong Province, who were prohibited from attending the imperial exams as registered residents in Xinning county by the locals. They had legal disputes for years.[7]

[3] Shengmu Liu. 1998. *Five Books of Essays in Changchuzhai (Changchuzhai Suibi, Xubi, Erbi, Sanbi, Sibi, Wubi).* Vol. 5. Zhonghua Book Company, 104

[4] Yanwu Gu. 1994. *Compiled Annotations of Rizhilu (Ri Zhi Lu Ji Shi).* Vol. 17. Yuelu Press, 615

[5] *Gazetteers of Longshan County (Longshan Xianzhi).* 1818. Chap. Culture (Fengsu)

[6] Xiwei Liu. 2012. *On Imperial Examination Migrants in the Qing Dynasty (Qingdai Keju Maoji Yanjiu).* Central China Normal University Press, 243–246

[7] Xun Zhu. 2000. "Shaanxi Governor Zhuxun's Memorial to the Throne on Regulations of Immigrants and Aborigines to Take Exams in Shangzhou (Shaanxi Xunfu Zhuxun Wei Zhuoding Shangzhou Jiji Tuzhu Yingshi Zhangcheng Shi Zouzhe)." In *Historical Materials on Fake Registered Residence in the Imperial Examinations at Qianlong Emperor and Jiaqing Emperor (Qianjia Shiqi Keju Maoji Shiliao),* edited by Che Wang. The First Historical Archives of China

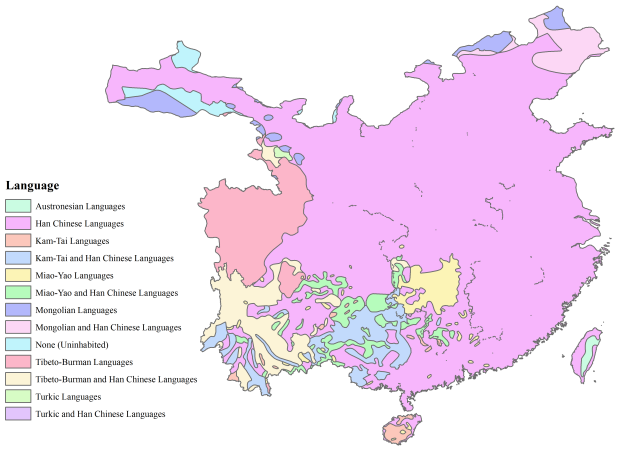


Figure A.8: The Language Distribution of Imperial China's 18 Inner Provinces

Data Sources: Lawrence W. Crissman. 2012. *Digital Language Atlas of China.* V. V6; CHGIS. 2016a. *1820 Layers GBK Encoding.* V. V1

C.1.2 The Equity Doctrine in the Imperial Examination System

The equity doctrine has a long history in China, and has frequently appeared in traditional Chinese political thought. Equity was seen as crucial as wealth. In the Analects, Confucius (551 B.C. – 479 B.C.) stated that whether it be lords of states or feudal lords, they should not be concerned about having few people, but only about an unequal distribution of wealth; they need not be concerned about having little wealth, but only about insecurity within their borders.[8] His emphasis on equality was followed by his disciples throughout the whole history of Imperial China, and they believed that even though a country may have a large population and a large territory, it cannot be truly prosperous if social wealth is not distributed fairly..[9]

The equality doctrine was also reflected in the imperial examination system. Degree holders were hailed with pride as the representatives of the local society. Therefore, there were voices calling for affirmative action ever since the system became more institutionalized in the Song period. In 1066, Sima Guang, a senior official in Northern Song, proposed that the imperial examination system should set aside admission quotas for provinces in Northwest China:

> A total of roughly 2000 people have obtained jinshi degrees in recent years, with 200 coming from Southern China and about half from the Capital. The average number of new jinshi degree holders per province is less than 100. Especially, only one or two people have received the degrees in recent years in the provinces of Shaanxi, Hedong, Hebei, Jinghubei, and Guangnandongxi...In certain provinces today, not even one person holds a degree. The implementation of a province-degree quota system is necessary. One jinshi degree should be given to every ten examinees from a province.[10]

The importance of the imperial examination system in the political equilibrium of imperial China should not be understated; some historians even claim that the Ming and Qing Empires' territorial

[8]Confucius. 2016. "Jishi." In *The Analecta of Confucius (Lunyu).* Beijing: Zhonghua Book Company

[9]Juyi Bai. 1994. "On Division of Cultivated (Yi Jingtian Qianmo)." In *The Compilation of Bai Juyi (Baishi Changqing Ji).* Shanghai Classics Publishing House

[10]Guang Sima. 2009. "Proposal for a Province-Degree-Quota System in the Imperial Examinations (Qi Gongyuan Zhulu Quren Zhuang)." In *Comments on the Compilation of Essays by Sima Guang in Chronological Order (Sima Wengong Ji Biannian Jianzhu).* Ba Shu Press.

integrity may be linked to the success of implementing a provincial-quota system, whereas the Northern Song Empire's military defeat against nomads can be related to the failure to do so.[11]

In a few instances, attempts to equalize the access to jinshi degrees were supported by emperors. The emperor believed there was bias among officials in charge of the Imperial Exam because they were also from Southern China in 1397 when all of the jinshi degrees were awarded to examinees from that region. As a result, the emperor executed criminal suspects and only conferred jinshi degrees on Northern Chinese examinees that year.[12] These feelings are also expressed in Qianlong Emperor's comments on affirmative action policies. In 1788, an official named *Qian Feng* suggested Qianlong Emperor abandon the 1712 reform. Qianlong's reply was:

> Some recurring issues might be resolved by Qian's suggestion. But, the government should choose its officials from a diverse pool that includes not just brilliant academics but also candidates from a vast geographic area. As the academic performance of the provinces varies, if Qian's proposal were to be implemented, the provinces of Jiangsu and Zhejiang would obtain more than half of the degrees, while the remote provinces at the border might not even obtain one. Qian should be blameless because he is from the province of Yunnan. He must have selfish intentions if he was from the provinces of Jiangsu or Zhejiang.[13]

C.2 An Overview of the Imperial Examination System

To earn a range of degrees, candidates in the Qing Empire had to pass a number of exams. The exams and accompanying degrees of the imperial examination system are briefly described in this section.

C.2.1 Three-Tier System

Shengyuan Degrees A basic degree in the imperial examination system is shengyuan. An examinee had to pass three exams in order to earn a shengyuan degree. The first exam was administrated at the county level (*Xian Shi*), followed by the second (*Fu Shi*) and third (*Yuan Shi*) exams at the prefecture level. Only those who passed all three exams typically were permitted admission to the Confucian Schools established by prefectures or counties, where they received shengyuan degrees. Regardless of their actual ages, the examinees were referred to as tongsheng (or government students) before receiving shengyuan degrees. regardless of their real ages. The three exams as a whole were called the Child Examination (*Tong Shi*). These exams were held twice every three years.[14]

Juren Degrees The next exam for shengyuan degree holders was at the province level (*xiangshi*, or Provincial Examination). The Provincial Examination was held once every three years, and those who made it through would be awarded juren degrees. The Provincial Examination took place at the provincial capital.[15]

Juren Degree holders, in principle, were qualified for posts in government.[16] One of the most well-known officials in the late Qing Empire, Zuo Zongtang (1812–1885), only held a juren degree. A juren degree holder, however, had little prospect of being given an official post in the actual world. Nonetheless, those who earned a juren degree rose to gentry status in their community and frequently assumed control of village affairs. In fact, local gentry had a significant role in grass-roots government throughout the

[11] Zheng Jin. 1990. *The Imperial Examination System Institution and Chinese Culture (Keju Zhidu Yu Zhongguo Wenhua)*. Shanghai People's Publishing House, 178

[12] Tingyu Zhang. 1974. *The History of Ming Dynasty (Ming Shi)*. Zhonghua Book Company, 1697

[13] "Qianlong Wushisan Nian Sanyue Yiyou." n.d. In *Historical Records of Qianlong Emperor in Qing Dynasty (Qing Gaozong Shilu)*, vol. 1301

[14] Yanliu Shang. 2003. *The Memoirs of Qing's Imperial Examination and Other Relevant Books (Qingdai Keju Kaoshi Shulu Ji Youguan Zhuzuo)* , 1-33

[15] *id.*, 48-56

[16] *id.*, 94-96

Qing Empire, and they frequently received special treatment under the tax and judicial systems.s[17]

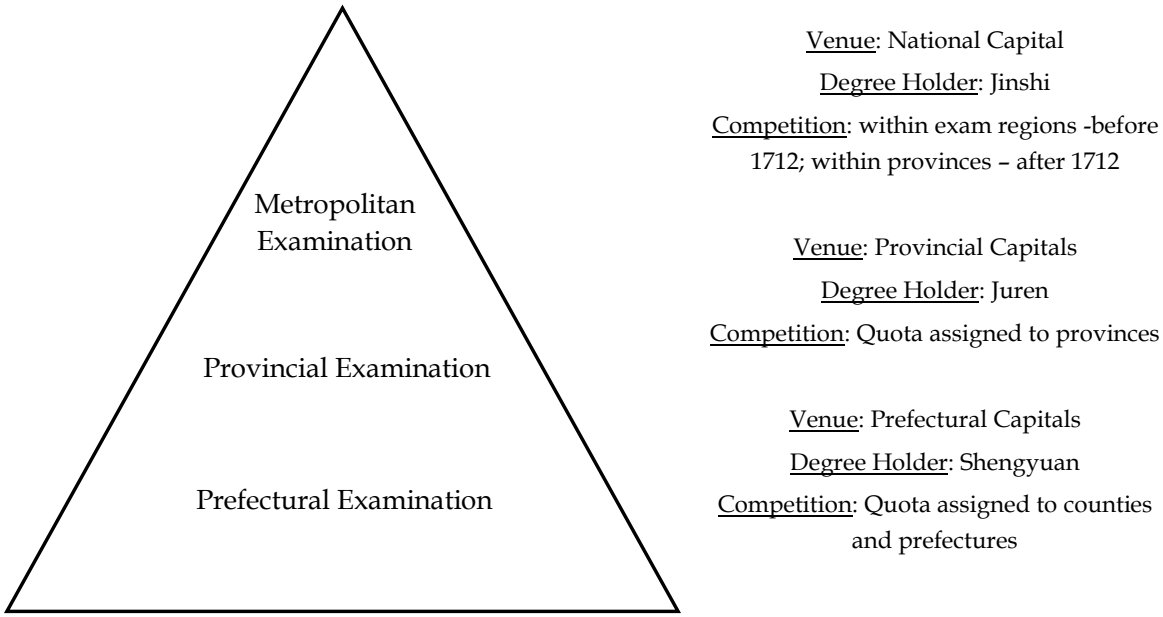


Figure A.9: The Three-Tier Imperial Examination System

Jinshi Degrees Holders of a juren degree were eligible to sit for the national exam, known as the "Metropolitan Examination," which was held the year following the Provincial Examination at the nation's capital. Every three years, the Metropolitan Examination was also held. The top degrees in the imperial examination system, known as jinshi degrees, were awarded to successful candidates at the Metropolitan Examination.[18]

C.2.2 Verification of Residency

To take the imperial exams in a particular area, one had to be a local resident. The residency of exam candidates had to be verified before they could sit for the exams. The techniques for verification include the following:

Proof Materials for Registered Residence In order to avoid fraudulent registered residency in the Imperial Examination System, sophisticated evidence materials were required. There were two residence registration systems operating concurrently in the Qing Empire: the residence registration system for public security and the residence registration system for taxation. An examinee's residence was determined by his tax system registration, but he must also supply his public security system registration records. The examinees also had to present proof documents that may attest to the whereabouts of his home and his ancestors' graves.[19] As stated in the following imperial edict from 1733, the information on buildings and tombs was no less significant for confirming an examinee's registered residence:

> Before it has been confirmed that they have lived in Waisha with the proof of buildings and tombs there, the examinees from Chongming and Zhaowen in Jiangnan Province are not permitted to take imperial exams at Tongzhou. They are unable to sit for the exam without

[17] Zhongli Zhang. 1955. *The Chinese Gentry: Studies on Their Role in Nineteenth-Century Chinese Society.* Seattle: University of Washington Press

[18] Shang, 2003, 102-107

[19] Liu, 2012, 257-260

confirmation that they have arrived there. The degrees of the examinees and guarantors will be revoked if they take the exam in Tongzhou but do not have homes or graves in Waisha.[20]

Guarantors of Registered Residence Examinees had to locate guarantors of their domicile to prevent fraudulent registered addresses. A group of five examinees, each of whom must guarantee the other four members' right to live in the localit legally, must be formed.[21] The examinee also needed a second guarantor who held a shengyuan degree and had access to government funding. Following is a 1652 imperial decree:

> A group must consist of five examinees, and a shengyuan degree holder with a strong track record must sign as a guarantor. ... The linsheng guarantor, along with the other five members of the group, are required to check each other out at the roll call and denounce any cheaters right away. If the five members cover up the cheat, they will be punished, and their degree will be revoked.[22]

Following 1792, Qing's county officials added a second shengyuan degree holder to serve as a backup guarantee for the examinees' residence in the event that the first shengyuan degree holder was compromised by the examinee. An observer observed:

> For the prefecture-level examination, a second guarantor would also be necessary in addition to the first one. The examinees would invite them to serve as the second guarantors in the prefecture-level examination, and the county education officials would display the name list of designated guarantors in front of their offices.[23]

The county and prefecture officials were also in charge of verifying the real addresses of the examinees and would be held accountable if examinees lied about their actual residence.[24] The exam rules were as follows:

> The test must be administered to the candidates at their registered address. The examinee's degree as well as the degree of his guarantor will be revoked if there is a phoney registered residence in the test...Trials will be held against the local officials in charge of the exam, instruction, and administration.[25]

Accent Verification Prior to an exam, it may be required to assess the examinee's accent. Exams for shengyuan degrees in Wanping County and Daxing County were the first places where the accent verification was used; thereafter, it was extended to more places.[26] In 1844, the regulation read as below:

> As is customary in Wanping County and Daxing County, every county under the control of the Shuntian Prefecture and Tianjin Prefecture must rigorously check the examinees' accents and maintain records with the Province Education Commissioners.[27]

[20] Gang Kun et al. 1995. *Changes in Qing's Political System (Qinding Daqing Huidian Shili).* Shanghai Classics Publishing House, 239

[21] 2012, 262-263

[22] Youming Huo and Haiwen Guo. 2009. *Collation and Annotation on the Imperial School Regulations (Qinding Xuezheng Quanshu Jiaozhu).* Wuhan University Press, 77

[23] Shang, 2003, 10

[24] Liu, 2012, 271-277

[25] Dingbao Wang, Dong Qichang, et al. 2006. *Compilation of Each Dynasty's Literature on the Imperial Examination System (Lidai Keju Wenxian Jicheng)* , 2672

[26] 2012, 278-279

[27] Tedeng'e. 1844. *Regulations on the Ministry of Rites (Libu Zeli)*

The role of the special censor on examinees' accents was established in 1745.[28] In addition, if the censor did not catch the cheaters, he would be punished:

> Examinees who falsely claim to live in Daxing County and Wanping County will first have their guarantor's degree revoked, be subject to a bribery investigation and trial, and will no longer be eligible to sit for the Imperial Examination. Also, the accent censor will be put on trial.[29]

C.2.3 Curriculum and Syllabi

The Imperial Exams curriculum can be classified into three primary categories: basic information for beginners, core Confucianism classics, and direct preparation materials for the imperial examinations.

By age 8, children in the Qing Dynasty began their education. Education at this stage, known as "Meng Xue," placed a strong emphasis on the pupils' proficiency with Chinese characters. Basic moral principles were also taught to the kids. There were many different textbooks available, and professors typically selected their own. The "Three-Characher Scripture," "the Book of Family Names," "Thousand Characters," and other popular textbooks were among the most well-known. This stage lasted one or two years, according to the rules of a private school run by a Qing teacher.[30]

The imperial examination system made test questions from these classics, including The Four Books ("The Great Learning", "The Doctrine of the Mean", "The Confucian Analects", and "The Works of Mencius"), and The Five Classics, so the second stage required the students to read and memorize these works ("The Book of Songs", "The Book of History", "The Book of Changes", "The Book of Rites" and "The Spring and Autumn Annals").[31] The additional reading requirements varied amongst schools, teachers, and students, but they can include reading other works of art, philosophy, or history.

The final stage required pupils to get familiar with the Imperial Exams' writing requirements. The "eight-part essays" must be written by the pupils using a specific format, which can only be learned thoroughly. At this point, there was no standardized textbook on the market because private publishers had assembled the "eight-part essay" examples in enormous volumes for sale. Some examinees solely read these texts and neglected the fundamental Confucianism classics because they were so helpful in preparing for the Imperial Exams.[32]

C.2.4 Appointment Procedures

Despite the fact that jinshi was the highest degree awarded by the Imperial Examination System, successful candidates must pass additional checks in order to be considered for open official jobs. Those who performed well in supplementary exams could move quickly through the appointment and promotion processes, while the rest had to wait in line for a small number of appointment openings. In order for someone with a jinshi degree to get an appointment, the supplementary exams were therefore equally vital.

Jinshi degree holders must complete the Court Examination, and only the successful ones were admitted to Hanlin Academy.[33] The rest must wait in the Ministry of Personnel's lengthy line, and it may take years for the Ministry of Personnel to appoint them as an official.This was the first time that the paths of the jinshi degree holders diverged.

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[28] 2012, 278-279

[29] Kun et al., 1995, 257

[30] Chang Wang. n.d. *Regulations of the Free Private School (Yi Shu Gui Tiao)*

[31] Chang Wang. 2011. "Regulations of Youjiao School (You Jiao Shu Yuan Gui Tiao)," edited by Hongbo Deng. Zhongxi Book Company, 624

[32] Zongxi Huang. 1972. "The Imperial Examinations (Keju)." In *The Compilation of Modern China's Historical Materials (Jindai Zhongguo Shiliao Congkan),* edited by Yunlong Shen. Taibei Wenhai Press, 2108-2109

[33] Only the top three candidates in the National Examination qualified to forego the Court Examination and receive direct admission to Hanlin Academy.

"Hanlin Bachelors," as the enrollees at the Hanlin Academy were known, worked primarily in administration. Hanlin Bachelors had to pass the Hanlin Academy Graduation Examination three years later in order to keep their positions as Hanlin Academy officials. Those who failed the exam would also join the ministry of personnel's official reserve and wait for a position. This is the second split among jinshi degree holders.

However, in accordance with the appointment regulations of the Ministry of Personnel, individuals who failed the graduation examination of the Hanlin Academy were placed ahead of those who failed the imperial court examination, so they did not have to wait too long for jobs. As a contemporary noted,

> No matter how well they do, if recommended for posts, the official candidates from Hanlin Academy and the Household Administration of the Heir Apparent will be given preference over those who are currently in line. They are known as the Tiger Class because, if suggested for County Magistrate, they would be appointed first, without going through the formalities.[34]

The emperor himself should theoretically appoint all of the Imperial officers. The emperor must thus interview the person recommended by the Ministry of Personnel before the appointment is made.[35] The emperor could also directly appoint someone as an official, although in this case, he could only select someone he knew very well. For that reason, Hanlin scholars had a substantial edge in advancement as the emperor frequently visited Hanlin Academy and sought advice from officials there regarding policymaking. As a contemporary noted,

> Hanlin Academy Bachelors have a low rank, but they receive the same respect as elite officials, as they directly assist the emperor in administration[36].

Hanlin Academy was obviously a fast-track to promotion, hence holders of jinshi degrees considered Hanlin Bachelor to be a higher honour:

> After three years, Hanlin Bachelors will take the Hanlin Academy Graduation Examination. The winners will remain appointed in Hanlin Academy to do administrative work, while those who fail will be appointed as Supervising Secretaries (*Jishi Zhong*), Censors (*Yu Shi*), Secretaries in a Bureau of a Ministry (*Zhu Shi*), Secretaries in the Grand Secretariat (*Zhong Shu*), Judges (*Tui Guan*), County Magistrates (*Zhi Xian*), and Educational Posts (*Jiao Zhi*)... They can waive the tests to serve the central and provincial governments, do paperwork and organize exams... The Hanlin Bachelors who have remained in the Hanlin Academy are promoted faster than other officials. They were the primary source of potential Prime Minister candidates during the Qing Dynasty, and many of them were selected as high-ranking members of the central government and province governors. Hanlin Bachelors are considered an honour by all jinshi degree holders.[37]

The appointment procedure of Jinshi degree holders is demonstrated in Figure A.10.

Under the Qing Empire, hiring practices were generally merit-based. The primary source for middle- and high-level officials was jinshi. Table A.14 shows the degree distribution across official ranks based on the Qing emperors' interview records. In comparison to jinshi, who held approximately one-third of middle- and high-level official jobs but only one-fifth of low-level ones, juren held around one-third of low-level positions but only one-sixth of middle- and high-level positions. Low-level positions refer to positions below the fourth rank.

[34]Kejing Zhu. 1983. "Notes in Hanlin Academy (Hanlin Yipin Ji)." In *Two Volumes in Ming'an House (Ming An Er Zhi).* Yuelu Press

[35]Zhenguo Zhang. 2010. "Researches on Qing's Civil Official Selection (Qingdai Wenguan Xuanren Zhidu Yanjiu)." PhD diss., Nankai University, 58

[36]Zhu, 1983

[37]Erxun Zhao et al. 2020. "Regulations on Official Selection (Xuan Ju Zhi)." In *Draft of Qing History (Qing Shi Gao).* Zhonghua Book Company

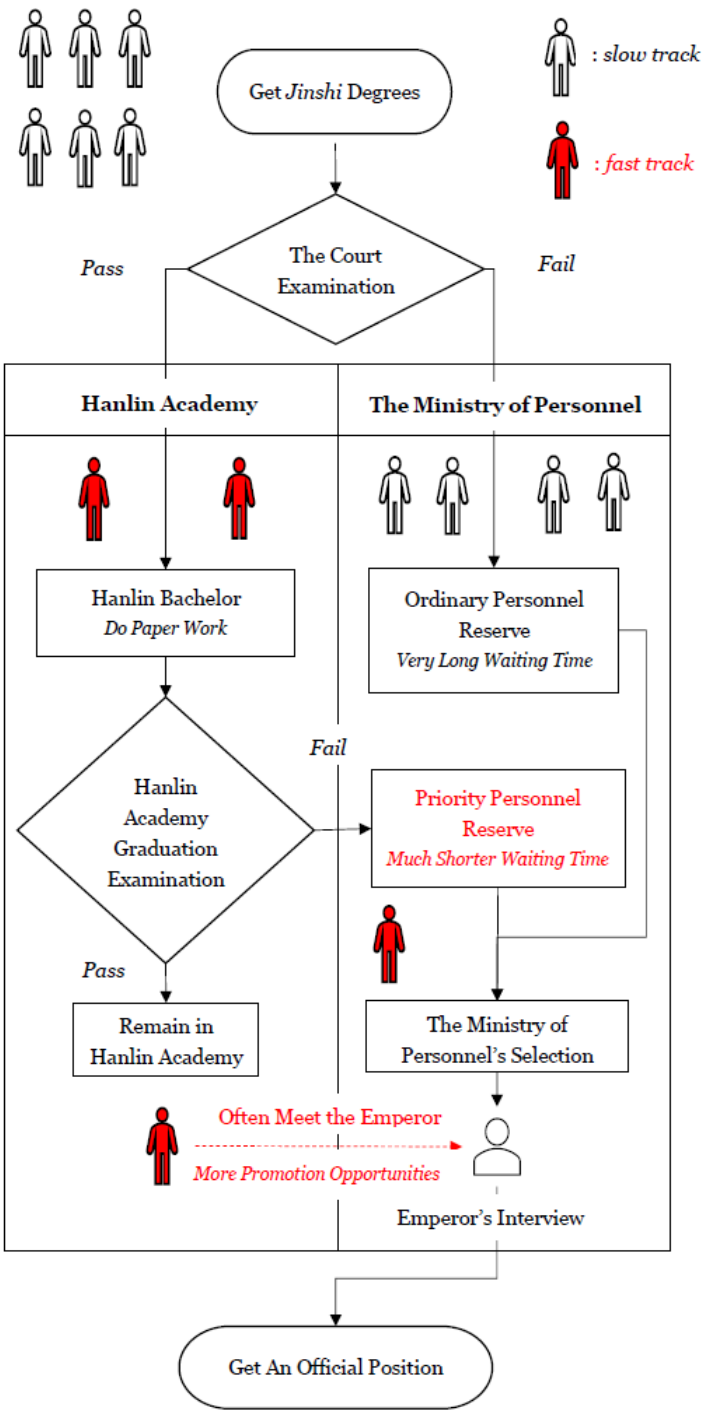


Figure A.10: Procedure for jinshi's Appointment as Officials

Note: After receiving the jinshi degree, all candidates sat a Court Examination. Success brought entry into the Hanlin Academy, where "Hanlin Bachelors" enjoyed frequent audience with the emperor and, if they later passed the Academy's graduation test, rapid promotion from within the institution. Those who failed that second exam still entered the Ministry of Personnel's priority reserve, ensuring only a brief wait before appointment. Candidates who failed the initial Court Examination bypassed the Academy and joined the Ministry's ordinary reserve, a slow-moving queue that could delay office for years. In every path, final appointment required an imperial interview, but the two examinations created a clear fast track for Hanlin alumni and a much slower route for the rest.

Table A.14: Degree Distribution Across Official Ranks

The Emperor	Middle- and High-Level Officials (%)			Low-Level Officials (%)		
	Jinshi	*Juren*	*Others*	Jinshi	*Juren*	*Others*
Yongzheng	33.9	9.6	56.5	16.2	31.2	52.6
Qianlong	30.9	14.9	54.2	25.1	44.5	30.4
Jiaqing	30.2	15.4	54.4	24.3	35.5	40.2
Guangxu	41.3	12.2	46.5	19	20.2	60.8
Total	34.5	13.4	52.1	21.1	34.8	44.1

Source: Zhiming Wang. 2016. *Research on Qing Officials' Career Path: Analysis based on Emperor's Interviewees' Resumes (Qingdai Zhiguan Renshi Yanjiu: Jiyu Yinjian Guanyuan Lvli Dangan De Kaozheng Fenxi).* Shanghai Bookstore Publishing House, 168

Table A.15: The Proportion of Jinshi in Qing's Crucial Positions

Position	Total Number	Jinshi	Percentage
Minister (Shang Shu)	744	339	46%
Senior Censors-in-Chief (Zuo Du Yu Shi)	430	221	51%
Governors-General (Zong Du)	585	181	31%
Governors (Xun Fu)	989	390	39%

Data Source: Dezhao Wang. 1984. *Research on the Imperial Examination Institutions in Qing Dynasty (Qingdai Keju Zhidu Yanjiu).* Zhonghua Book Company, 58

Table A.15 provides a summary of the percentage of jinshi degree holders in key positions during the Qing Empire. Around half of the critical positions in the central government (Minister and Senior Censor-in-Chief) and roughly one-third of the critical positions in provincial governments were held by people with jinshi degrees (Governors-General and Governors).

The percentage of people with jinshi degrees who held important positions during the Qing Empire is summarised in Table A.15. Those with jinshi degrees occupied about one-third of the critical posts in provincial governments (Governors-General and Governors) and about half of the critical positions in the central government (Minister and Senior Censor-in-Chief).

Second, the principal source of senior officials was Hanlin Bachelors. Since there were only 6,065 Hanlin Bachelors and 26,848 Jinshi degree holders in the Qing Empire, only about a quarter of Jinshi degree holders were admitted as Hanlin Bachelors.[38] This made the Court Examination, or the Hanlin Academy admission exam, extremely competitive. Hanlin Bachelors was anticipated to advance to the first and second rank official positions after four or five promotions[39].

Observers of the time saw Hanlin Bachelors as potentially strong contenders to become the *de facto* Prime Ministers of the Qing Empire, or Grand Ministers of State.[40] Under the Qing Empire, there were 138 Grand Ministers of State in all, 64 of whom were Hanlin Bachelors, making up 46% of the Grand Ministers of State.[41]

C.2.5 Superstitious Beliefs and Practices

Examinees frequently turned to supernatural power because the degrees offered through the Imperial Examination System were so alluring. The examinees were the most significant clients for the

[38] Runqiang Li. 2007. *Qing's Jinshi Degree Holders and their Academic Culture (Qingdai Jinshi Qunti Yu Xueshu Wenhua).* China Social Science Press, 79

[39] *id.*, 107

[40] Dezhao Wang. 1984. *Research on the Imperial Examination Institutions in Qing Dynasty (Qingdai Keju Zhidu Yanjiu).* Zhonghua Book Company, 56-57

[41] Jianhua Wu. 1994. "A Brief Analysis of Hanlin Bachelors in Qing Dynasty (Qingdai Shujishi Qunti Jianxi)." *Social Science Journal (Shehui Kexue Jikan),* no. 4, 107–115

fortunetellers because they were so worried about their scores in the Imperial Exams.

> Only when examinees consult them during an Imperial Examination can the capital's fortunetellers turn a profit. The fortunetellers use a number of strategies to increase their revenues. When an examinee asks, some fortunetellers would respond, "you will get in," because they are more concerned with short-term gains. Many test takers would go ask these fortunetellers because they are eager to hear their predictions.
>
> The fortunetellers in the imperial capital can only make profits when examinees consult them as an Imperial Examination is being held. The fortunetellers have a variety of tricks to make profits. Some of the fortunetellers care more about short-term profits, then they will answer "you must get enrolled" every time an examinee asks them. The examinees are happy to hear their predictions, so a lot of examinees will go to ask these fortunetellers. Some fortunetellers are more concerned with long-term gains, thus they always respond, "You will not get in," when an examinee asks. These fortunetellers are regarded as having higher talents and more honest. After all, they are more likely to be correct since the losers make up about 70% of all the examinees. These fortune tellers will then benefit greatly in the upcoming years. Several of them have achieved great fame in this field of fortunetelling and have lived prosperous lives.[42]

Apart from fortunetellers, examinees often sought for anxiety alleviation by praying for dream oracles in temples:

> At the western end of the inner city in the imperial capital stands the Temple of Two Gentlemen. The juren degree holders must travel to the imperial capital before the national level exams in order to pray for oracles, which will manifest in the dreams of followers. They all placed money in the two servant statues' left and right hands, respectively. The oracles there are reputed to be the most accurate.[43]

Last but not least, believers of China's religions were even promised degrees from imperial exams. Eight stories from a well-known Buddhist book from the Qing period featured major characters who, in return for their sexual restraint, had earned degrees in imperial exams.[44] Also, since the God of Books was said to have his birthday on February 3rd in Taoism, examinees performed elaborate ceremonies of homage on that day:

> The God of Literature is revered with great fervor by the exam candidates in Taizhou County. More than ten halls worship him in addition to the two public schools in the prefecture and county. Each venue generated money on the day before February 3rd in their own way by performing music and songs nonstop for three days.[45]

C.3 The Life of a Qing Intellectual

C.3.1 Preparation for Imperial Exams

A Qing intellectual began to study for imperial exams from a young age. As only shengyuan degree holders were permitted to study in official Confucian schools on prefecture or county levels and take the

[42]Kuo Shen. 2016. "Deception Tricks (Miu Wu Jue Zha Fu)." In *Brush Talks From Dream Book (Meng Xi Bi Tan).* Zhonghua Book Company

[43]Mai Hong. 1981. "The Temple of Two Gentlemen (Er Xiang Gong Miao)." In *Records by Yijian (Yi Jian Zhi).* Zhonghua Book Company

[44]Anshi Zhou. 2013. "For the Degree Seekers (Quan Qiu Gong Ming Zhe)." In *Compilation of Zhou Anshi's Essays (An Shi Quan Shu).* Unity Press

[45]Yitian Lu. 1984. "Notes in a Cold House (Leng Lu Za Zhi)." In *Collection of Qing Notes as Historical Materials (Qingdai Shiliao Biji Congkan),* edited by Zhonghua Book Company. Zhonghua Book Company, 120

Province Examination, the entry-level examinations (tongshi) were no less important for him than higher-tier examinations. Preparation for the entry-level examination would take him many years. According to Zhang's estimate, the expected age of acquiring the shengyuan degree was 24.[46] This indicates that a child should spend more than ten years preparing for the entry-level examination.

After earning a Shengyuan degree, he was allowed to attend formal schools to finish his studies and get ready for the Provincial Examination to earn a juren degree. The Province Examination is thought to be the imperial examination system's most challenging component.[47] Zhang estimated that 24 was the expected age for obtaining the shengyuan degree.[48] This suggests that a young person should devote more than ten years to studying for the entry-level exam.

Zhang predicted that people who obtained juren degrees would typically be 31 years old.[49] Juren degree holders may theoretically be appointed as officials directly, but the chance was too low. Therefore, he must prepare for the Metropolitan Examination to get the jinshi degree to pursue an official career path. Zhang predicted that a person would typically earn a jinshi degree between the ages of 33 and 36.[50] Zhang also demonstrates that a Shengyuan degree holder's predicted death age was around 60.[51] This means that an intellectual had spent more than half of his life preparing for the Imperial Exams, and that he had spent around two-thirds of that time on the Child Examination.

C.3.2 Becoming a Professional Bureaucrat

The intellectual may anticipate being appointed as an official after passing every exam. He might, however, have to wait a while for a post to open up. His formal career would be largely based on how well he performed in his role after being appointed. Three assessment procedures used in the Qing Empire were used to evaluate his performance:

1. The Ratings Fulfilled System. The evaluation timetable is individual-specific since under the Ratings Fulfilled System, an official's performance was assessed every three years over his nine-year term in office. In this system, the emperor was in charge of evaluating province governors and high-ranking Beijing officials, while low-ranking Beijing officials were evaluated by high-ranking Beijing officials, and lower-level local authorities were evaluated by provincial governors. In 1665, this rating system was abandoned.

2. The Capital Evaluation System. Every three years, the officials employed in Beijing were examined, but the evaluation cycle was not person-specific. In Beijing, high officials and the Ministry of Personnel were in charge of evaluating high-ranking officials, while the emperor was responsible for evaluating low-ranking officials.[52]

3. The Great Reckoning System (*Da Ji*). Every three years, local leaders were reviewed, and the timing wasn't person-specific either. Before to 1686, the emperor conducted his own personal interviews with local authorities; but, from 1686, the provincial governors were in charge of evaluating local officials.[53]

Retirement as Local Gentry The regulations state that officials who are more beyond a certain age shall be regarded as being past retirement age. The age cutoff was imposed in 1757 at 55, increased to 65 in 1768, and finally to 70 in 1798.[54] In general, Qing officials were expected to retire at age 70 or so.

[46] Zhang, 1955, 95
[47] Wang, 1984, 35
[48] Zhang, 1955, 95
[49] *id.*, 126
[50] *id.*, 122
[51] *id.*, 96
[52] Gang Xue. 2020. *The Study on the Assessment of the Civil Officials in Qing Dynasty (Qingdai Wenguan Kaohe Yanjiu).* China Social Sciences Press. Chap. Three.
[53] *id.*. Chap. Two.
[54] Zhao et al., 2020

However there were some latitudes in how this regulation was applied.

The official continued to have political and financial advantages in his hometown after he retired. Under the Qing Empire, retired officials played a significant role in the local gentry and assumed a variety of duties related to local administration, such as providing the local population with public goods and services.[55]

C.3.3 Non-Official Careers

Although the imperial examination system attracted numerous intellectuals in the Qing Empire, some chose other professional paths. Most did so because they had to look for work elsewhere after failing higher-level tests.

Informal Government Staff In contrast to its huge population, the Qing Empire maintained a small bureaucracy. A contemporaneous estimate placed the entire number of administrators in the Qing Empire in 1850 at just 26,408.[56] Hence, the true rule of the Qing Empire was mainly dependent on informal personnel. Because it required a lot of administrative work, working as informal government employees provided an excellent opportunity to those who did not pursue an official career. As a contemporary noted below,

> We must pursue alternative vocations since we have failed the Imperial Exams. Working as informal government worker is the most comparable to just reading literature, thus many of us would choose it.[57]

Private School Teachers Working as a teacher in private schools was another common job choice for unsuccessful candidates. The Qing Empire mandated local governments aid in the establishment of more private schools and the employment of intellectuals as instructors in 1723:

> Counties must establish private schools in sizable local towns, staff them with qualified instructors with shengyuan degrees who have demonstrated academic and moral excellence, waive their corvee fees, and pay them a living wage.[58]

Attorneys Attorneys were a despicable professional choice for unsuccessful candidates. Intellectuals had a comparative advantage in attorney jobs since they required a lot of writing skills. But in the Qing Dynasty, lawyers were despised because it was thought that they were the source of conflict and trouble. As a result, it was considered shameful for intellectuals to practice law, as a contemporary stated below:

> Some academics were so destitute that they needed to file lawsuits to purchase food. I felt pity for them and gave them money so they could provide for their family. Along with sending them to schools to finish their education and paying their tuition, I also convinced them to change occupations.[59]

Other Occupations Candidates who were unsuccessful also had access to less common career options. As noted in the following family historical record, merchant families from the Huizhou prefecture occasionally had their descendants join the family business if they failed to pass imperial exams:

> (He) gave up his academic career to pursue entrepreneurship after failing the imperial exams as a child. The family business was then passed down to him.[60]

[55] Zhang, 1955, 3-71

[56] Qi Zhong. 1897. *Records of Trivial Matters in Qing Dynasty (Huang Chao Suo Xie Lu)*

[57] Huizu Wang. 1786. *Advice on Governance (Zuo Zhi Yao Yan)*

[58] Kun et al., 1995. Vol. 396

[59] Tingyao Gao. 1859. *My Life as an Official (Huan You Ji Lue)*

[60] Runzhuang Shi. n.d. "The Biography of Mr. Gongshu Cheng in the West of Xi County (Xi Xi Gong Shu Cheng Jun Zhuan)." In *Bibliographies of Cheng Family Southern Branch's Historical Records in Xin'an County,* edited by Mihong Cheng

Some other failed examinees even became doctors:

> When he was younger, he studied for the Imperial Exams and was capable of writing good essays. He first had no idea how difficult imperial exams could be, and as a result, he repeatedly failed. He so received the family business and pursued a career in medicine.[61]

Records show that the poor intellectuals frequently sold their calligraphy since they had undergone rigorous handwriting training:

> He taught kids and sold calligraphy to support his family's meagre means.[62]

Sometimes they might also sell paintings:

> He was a teacher and supported a low-income family. Nonetheless, his salaries were insufficient to support his daily expenses, so he turned to selling paintings for additional income.[63]

Some intellectuals even became fortunetellers:

> He studied divination in addition to educating students for a living. After closing his school, he moved to the Lizhou Prefecture with his books of divination. He lived in Liu Qingli's house. Liu had a shengyuan degree, and worked as a fortune teller.[64]

C.4 University Admissions in Republican China

This section surveys university admission policies in the Republican China. These policies can be divided into two time periods: (1) before 1938, the admission process was decentralized, and universities enjoyed considerable freedom in deciding how to conduct their own entrance exams; and (2) after 1938, as a result of the Second Sino-Japanese War, the admission process was largely under the control of the government.

C.4.1 University Admission Before 1938

Prior to 1938, universities had a great deal of autonomy over how they conducted admissions tests and decided who would be admitted. Each university could autonomously select exam questions, schedule exam times and venues, and decide whether to admit students. The government only sometimes stepped in. According to a contemporary:

> It is challenging to get a consensus because each university has a finite number of lecture halls, laboratories, and instructors. It is impossible to standardize the selection process. It will be easier if each university can decide how many students to accept on their own.[65]

[61] Letao Wang. 1999. *Doctors in Xin'an County (Xin An Yi Ji Kao).* Anhui Science & Technology Press, 111

[62] Shao Liang. 2002. "Essays in Liang Ban Qiu Yu An (Liangban Qiuyu An Suibi)." In *The Continued Imperial Collection of Four Divisions (Xu Xiu Siku Quanshu),* edited by Yun Ji et al., vol. 1263. Shanghai Classics Publishing House, 142

[63] Tingji Zhong. 1992. "The Local Gazetteer of Sheng Lake (Shenghu Zhi)." In *The Compilation of China's Local Gazetteers: Villages and Towns (Zhongguo Difangzhi Jicheng: Xiangzhen Zhi Zhuanji),* vol. 11. Shanghai Bookstore Publishing House, 528

[64] The Palace Museum (Gugong Bowuyuan). 2011. *The Records of Qing's Literacy Inquisition: Amplified Version (Qingdai Wenziyu Dang: Zengding Ben).* Shanghai Bookstore Publishing House, 237

[65] Shuangqiu Tai et al., eds. 1936. "Proposition that University Admission in Each Department Should be Allocated According to Need (Daxue Geke Xuee Yiongfou Shi Xuyao Yufou Er Zhuojia Fenpei An)." In *Compilation of Propositions and Resolutions in Each Education Conference (Lijie Jiaoyu Huiyi Yijuean Huibian).* Institute for Educational Compilation / Translation (Jiaoyu Bianyi Guan), 18-19

The sole factor used to determine admission to institutions was student achievement on admissions examinations. Even if some highly talented students may forego the entrance examinations, they still needed to do well on the middle school graduation exam.[66] Universities only have vague entrance criteria for students' moral standing and physical fitness. The only requirements for admission to Tsinghua University are that applicants "should conduct with honesty and have never been dismissed from school."[67] If the students did not have any serious health issues, they could be admitted.[68]

Such an entrance policy was obviously biased against students from far inner provinces. The pupils from the inner provinces had little chance of being admitted because of (2) the stark discrepancy in middle school academic levels and (3) the expensive travel expenditures. The Education Ministry presented a plan to distribute admissions based on provinces at the Tenth Education Union Congress, but the proposal was rejected by the government. The suggestion was written as follows:

> Several provinces had very few, if any, newly admitted students at national universities. About all of the newly admitted students come from areas where transportation is readily available, and institutions purposefully schedule admissions exams in these areas. . . . . Universities exclusively use exam scores as a criterion for admission, but they are unaware that students from distant areas are not less intelligent as they simply received less education, which led to poorer exam performance. The absence of qualified teachers is the cause of the poorer education. If affirmative action is not implemented right away, student quality will never improve, and applicants to national universities will never have a chance to be accepted. Secondly, the Education Ministry needs to inform the national universities and colleges that they need to set aside some slots for admissions from particular provinces. Finally, the provinces ought to provide a stipend for the admitted students coming from there.[69]

C.4.2 University Admission After 1938

The government tightened its control over admissions after the Second Sino-Japanese War broke out in 1937 in an effort to maintain national unity, and universities moved inland. The Education Ministry designated a committee in charge of selecting students for each university between the years of 1938 and 1940, and that committee was in charge of setting exam questions.[70] After 1940, institutions were given the authority to determine exam topics and admission standards, but the government retained oversight of the exam's content and admission criteria.[71]

The government split the nation into exam districts and made sure that each district had exam rooms in order to increase the likelihood that students from inner provinces would be allowed into institutions. Chongqing, Chengdu, Kunming, Guiyang, Northwestern China, Guangdong and Guangxi, Zhejiang and Jiangxi, Fujian, Hunan, and Hubei were the ten test districts in 1942. A committee tasked with developing exam questions and grading exam papers was assigned to each district. The district may also be designated as the admissions committee for universities outside the district.[72] Students from the

[66] "The 1938 Regulations on Recommendation for University Admission of Distinct Students in the Graduation Examination in Each Province and Prefecture and Graduates from National Senior High Schools (Ershiqi Niandu Ge Shengshi Gaozhong Huikao Chengji Youxiu Xuesheng Ji Guoli Ge Zhongxue Gaozhong Biyesheng Baosong Mianshi Shengxue Banfa)." 1938. In *Communique from the Ministry of Education (Jiaoyu Bu Gonggao),* vol. 10, 19-20

[67] Xuewei Yang, Xin Liu, et al., eds. 2003. *Compilation of Literature on China's Examination History: The Republic Era (Zhongguo Kaoshishi Wenxian Jicheng: Minguo).* Vol. 7. Higher Education Press, 42-43

[68] Tao Li. 2014. "A Study on Admission System of National Universities in Republic Era (Minguo Shiqi Guoli Daxue Zhaosheng Yanjiu)." PhD diss., Southwest University, 51

[69] Yang, Liu, et al., 2003, 43

[70] "The 1938 Regulations on Unified Admission of National Universities (Ershiqi Niandu Guoli Ge Yuanxiao Tongyi Zhaosheng Banfa Dagang)." 1938. In *Communique from the Ministry of Education (Jiaoyu Bu Gonggao),* vol. 10, 9-10

[71] Li, 2014, 40

[72] The Education Annual Committee (Jiaoyu Bu Jiaoyu Nianjian Bianzuan Weiyuanhui). 1948. *The Second Annual of China's Education (Dierci Zhongguo Jiaoyu Nianjian).* Commercial Press, 530-543

interior provinces had considerably easier access to the exam rooms and may benefit from exam papers that were district-specific.

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