# 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, which aimed 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, which were partly offset by non-governmental organizations that subsidized exam-related travel expenses, thereby reducing inequality. 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

Aneja and Xu (2024) Berger et al. (2020)—

Affirmative policies are designed to improve the position of groups that have been underrepresented or disadvantaged. 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.[1] Researchers who have examined affirmative action's effects on equity and efficiency have come to drastically different conclusions.[2]

The imperial examination system in China was a program to recruit individuals for scarce, high-status government jobs through competitive exams. Ordinary individuals from all over China competed. They had to take several exams over nearly two decades to reach the final round. In the absence of mass schooling, the examination system was the main, if not sole, cause of educational attainment at the time.

The average performance of exam candidates varied considerably across the provinces.[3] Candidates from certain provinces found examination preparation more difficult due to linguistic barriers, fewer educational resources, and less convenient locations.[4] In 1712, the Qing state enacted a reform to improve the chance of candidates from underrepresented provinces and to diversify provincial origins of successful candidates. This policy stayed in effect until imperial exams were abolished in 1905.

A central piece of the reform was to make the number of successful candidates per province proportional to the *total* number of candidates from that province who sat in the exam. Before the reform, individuals competed with both those from the same province and those from other provinces. The new policy made the selection criteria based on provincial origins, restricting competition within the province. Conditional on passing lower-level exams, the same percentage of candidates from each province would pass the final round, irrespective of their actual score. This allowed candidates from less competitive provinces to pass the final round and obtain a government position with lower scores.

[1] 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 subject matter.

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

[3] A broad pattern is that candidates from North China performed less well than South China candidates. This particular source of regional disparity had already been corrected through explicit quota systems imposed in 1454.

[4] The imperial exam curriculum was inherently biased against ethnic populations since it was in the Chinese language (Elman, 1991). 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

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.[5] The change in a province's share in its exam region ranged from -47% to 24%. 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.

Contrary to this theoretical expectation, our empirical findings suggest that the reform led to a substantial increase in the density of jinshi, indicating an expansion in the quantity of human capital. Simultaneously, the average bureaucratic rank of successful candidates also increased, suggesting that this growth in quantity was not accompanied by a sharp decline in quality. These results highlight that the reform achieved its goal of broadening access while maintaining the caliber of successful candidates.

Beyond aggregate outcomes, we examine the heterogeneous effects of the reform within

[5]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.

provinces. Pre-existing human capital, measured by the density of jinshi degree holders before 1650, played a critical role in shaping these effects. Our analysis reveals that sub-provincial units with higher pre-existing human capital captured most of the reform's benefits. In reform-negative provinces, where the reform raised the bar for success, sub-provincial units with greater pre-existing human capital were less adversely affected. These results underscore the uneven distribution of gains and losses within provinces, driven by variations in historical human capital endowments.

We further investigate mechanisms that could mitigate the disparities observed within provinces. One key factor is the role of funding agencies. The final-round imperial exam, held in the capital city, required candidates from remote areas to undertake long and costly journeys. Funding agencies provided travel grants to alleviate these constraints. Our results show that prefectures with at least one funding agency by 1840 derived benefits (or endured losses) from the reform in ways that were less dependent on their pre-existing human capital. This finding underscores the importance of institutional mechanisms in equalizing access to opportunities.

Finally, we assess the long-term impact of the reform, particularly after the abolition of the imperial examination system in 1905. Using outcomes from competitive university entrance exams and other educational measures, we document a relative decline in professional outcomes in provinces that had previously benefited from the reform. This finding suggests that the withdrawal of affirmative action policies weakened the advantages conferred by the reform. However, our analysis also uncovers significant spillovers from the reform to human capital formation at lower educational levels. Using the 1982 modern census, we find that secondary and tertiary education levels are positively correlated with the intensity of the 1712 reform, indicating that some of its benefits persisted into the modern era despite the post-1905 reversal.

**Related Literature** Our study contributes to the growing literature on the effects of affirmative action. Several studies provide theoretical support for the incentivizing effect of affirmative action on human capital accumulation. Lundberg and Startz (1983) demonstrate that equal opportunity laws encourage human capital investments, as human capital investment decisions are affected by the presence of labor market discrimination. Schotter and Weigelt (1992) find that affirmative action programs always benefit the intended beneficiaries by alleviating the dropout behavior of disadvantaged subjects. Chung (2000) and Fang and Moro (2011) provide theoretical mechanisms for affirmative action to improve group outcomes through role model effects. Other works point to mismatch effects (Sander, 2004; Arcidiacono et al., 2011; Arcidiacono and Lovenheim, 2016) and strengthening of negative stereotypes (Coate and Loury, 1993).

Our study is most related to the research estimating the effects of affirmative action on intended beneficiaries using natural experiments (Bertrand, Hanna, and Mullainathan, 2010; Kapor, 2015; Bagde, Epple, and Taylor, 2016; Bleemer, 2022). Bleemer (2022) shows that ending

affirmative action caused underrepresented minority freshman applicants to cascade into lower-quality colleges. Kapor (2015) 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 findings suggest that affirmative action policies can significantly enhance the quantity and career outcomes of successful candidates from beneficiary provinces relative to other provinces. Additionally, the long-term effects of these policies appear to extend beyond direct beneficiaries, generating positive spillovers for other members of the beneficiary provinces.

A central question in the affirmative action literature is how efficient these policies are and whether these policies are necessary in perpetuity.[6] Our findings suggest that the career outcome of successful candidates from beneficiary provinces improved after the reform, even though their performance might not be fully on par with other successful candidates yet. Upon the withdrawal of the affirmative action policy in 1905, we document a reversal in the effect of the reform, which suggests that the policies would still be needed to keep the beneficiaries on the same path as before.

Fewer studies within the affirmative action literature have examined the distributional consequences of the reform (Bertrand, Hanna, and Mullainathan, 2010). We find that prefectures with a high level of pre-existing human capital derived the most benefits from the reform. The gap that emerged after 1712 between prefectures with varying levels of pre-existing human capital remained large throughout the period under study. A silver lining is that this gap closed when small subsidies, such as travel grants, were provided to prospective examinees.

A separate literature examines the political determinants of affirmative action and redistribution, focusing on voter preferences (Austen-Smith and Wallerstein, 2006; Chan and Eyster, 2009). In our context, these policies were centrally determined and imposed by the central government and not a direct response to local preferences.

Unlike race- or ethnicity-based affirmative action, the 1712 reform is place-based affirmative action.[7] The recent development and urban economic literature increasingly consider place-based

[6]See Holzer and Neumark (2006) and Arcidiacono, Lovenheim, and Zhu (2015) for a review of the literature. At the heart of this literature is how affirmative action policies affect both equity and efficiency.

[7]Similar policies are found in Australia, France, Sri Lanka and many other countries and regions. In France, Science Po launched the Equal Opportunity Programme in 2001, diversifying geographical origins among its students (Sabbagh, 2002). In Australia, preferential admission policies apply to students with impairments, indigenous students, students from low socioeconomic backgrounds, students who do not speak English, and students from remote locations (sometimes known as "regional") (Farnhill and Thomas, 2017).

policy interventions (Busso, Gregory, and Kline, 2013; Austin, Glaeser, and Summers, 2018). One difficulty of studying the effects of place-based policies is that the benefits will be arbitraged away (and specifically captured in land rents) in the presence of mobility and migration.[8] This concern does not apply to the historical setting considered in this paper. Migration between provinces was much lower than in the modern context, and it was illegal for families to try to move their place of legal residence in order to gain favorable treatment in the examination system.[9]

Historians and economists have investigated the relationship between the imperial examination system, human capital, and social mobility in imperial and modern China (Ho, 1962; Campbell and Lee, 2008; Elman, 2013; Bai and Jia, 2016; Shiue, 2017; Yuchtman, 2017; Shiue, 2019; Chen, Kung, and Ma, 2020). Ho (1962) suggests there was a considerate amount of mobility in Ming China; Elman (1991) and Elman (2013), on the other hand, conclude that there was "a healthy circulation between upper and lower elites" but nowhere near social mobility. This study complements previous research. By showing that the 1712 reform incentivized educational investments in underrepresented provinces and had significant spillover effects on lower educational levels, we provide evidence that the influence of imperial exams was not limited to an unchanging elite.

To our knowledge, this study is the first to examine affirmative action policies in a historical context using a very long-run perspective.[10] The period at which the new policy was implemented allows us to estimate the effects of the policy over a long period and to track beneficiaries throughout their life. The policy under study spanned 193 years—from 1712 to 1905—before it abruptly ended. Rather than looking into a particular set of schools and students, our study analyzes the universe of successful candidates from the entire country who passed the metropolitan exam between 1650 and 1840. This provides an ideal setting for analyzing the long-run dynamics of human capital responses to affirmative action policies, both within and over the generations.

Our setting is characterized by a straightforward admission process and a single uniform labor market for successful candidates. Conditional on provincial origins, exam scores were the sole criteria for determining examinees' success (or failure). This feature ruled out potential

[8]The beneficiaries of the EOP at Science Po now comprise 40 to 45 percent of youngsters whose wealthy parents purposefully enrolled them in underperforming high schools (Faure, 2019). Cullen, Long, and Reback (2013) document strategic high school choice under Texas's top ten percent plan. They show that among the subset of students with both motive and opportunity for strategic high school choice, at least 5% enroll in a different high school to improve their chances of being in the top 10%.

[9]The prerequisite for taking the exam was being registered in a locality where the candidate held residency. At the time, an individual was only permitted to attend the exam in his locality if his extended family had resided there for at least three generations (*jiguan*). This made it difficult to take exams in locations different from an individual's place of origin. See Von Glahn (2012) for details on the household registration system in imperial China.

[10]One exception might be Martin et al. (2001), which descriptively studies the Soviet Uníon as the world's first Affirmative Action Empire.

adjustments along other dimensions in response to the affirmative action policy.[11]

The appointment process was centralized by the Ministry of Personnel, a branch of the central government, and the test score was the most crucial factor in determining the first assignment. Moreover, conditional on passing the final round, exam candidates were guaranteed to obtain important government jobs. This unusual feature mitigated the confounding role of further preferences and discrimination in the labor market faced by affirmative action beneficiaries, which are prevalent in other studies. The aforementioned features of the setting make it possible to pin down specific mechanisms underlying the short- and long-run effects of the 1712 reform.

The remainder of the paper is organized as follows. Section III discusses data sources and variable constructions. Section V links the 1712 reform to successful candidates' academic and career outcomes. Section V.B examines the reform's distributional consequences and analyzes the reform's heterogeneous impact on prefectures varying by pre-existing human capital. Section VI documents the effects of the 1712 reform after the policy withdrawal. Section VII gauge the long-term and spillover effects of the 1712 reform on the broader population. Section VIII concludes.

## II Historical Background

In 1712, a major reform was introduced to the long-standing imperial examination system, the backbone of China's economic and political institutions from 1000 AD onward. The reform equalized acceptance rates at the final round of imperial exams across the provinces. Under the new policy, candidates from less developed parts of the country would still have a chance to pass the exam even when they received lower scores than those of candidates from other provinces. Success at lower-tier exams, which had a quota and were capped at a certain number, was still required in order to take the final-round exam.

The imperial examination system originated in 587 AD and was further institutionalized during the Song Dynasty (960–1279 AD). The system was structured as a tournament and had three tiers: the Prefectural Examination (*yuankao*), the Provincial Examination (*xiangshi*) and the Metropolitan Examination (*huishi*). Academic degrees were conferred to candidates selected at each stage: *shengyuan*, *juren* and *jinshi*. The metropolitan exam was held every three years. After passing the metropolitan exam, candidates became eligible for important government positions. This system is described in Figure I.[12]

This system provided individuals with an incentive to learn to read and write. In the premodern world, such incentives were usually absent, as returns to education were typically low.

[11] In the US, affirmative action and weights assigned to non-test-score items substitute for each other (Chan and Eyster, 2003).

[12] See Appendix D.3 and Appendix D.3.3 for a detailed discussion of job opportunities available to successful and failed candidates.

Passing imperial exams required considerable cognitive skills. There was no formal schooling at that time. Candidates received education at home or attended community schools. Conditional on passing lower-level exams, they also received some training in government-sponsored academies. Successful candidates received high-status positions and social respect (Ho, 1962). Candidates who failed to advance to the next tier routinely pursued a teaching career in local communities, an important source of human capital externalities for the rest of the population. The imperial examination system produced a literate populace that was several times greater than the bureaucracy itself while being utilized as a tool to choose government officials.[13] According to Evelyn Rawski's (likely too optimistic) estimates, 30–45% of adult males in the Yangtze Delta in late imperial China were literate (Rawski, 1979).

The imperial examination system was open to all adult males.[14] There were no additional requirements such as income and wealth. Popular participation in imperial exams was considerable.[15] While initially implemented to recruit officials, the institution became independently crucial over time. Elaborate superstitious beliefs and customs evolved around the imperial examination system. Exam candidates frequented fortune tellers for anxiety relief. Temples devoted to the God of Literature were erected all over the country.[16]

For operating on the basis of merit and being open to all, the system provided political legitimation to the state.[17] Despite incidents of corruption and scandals, the system enjoyed a great deal of transparency. Each time, exam questions were drawn from the same list of classics, which ensured as many ordinary people as possible could access the exam materials. Exam answers were transcribed by a third party before they were graded. Punishment close to or at the same level of death penalty, was imposed on those who violated the rules at any stage, whether it was an organizer, a candidate, or a grader.[18]

Exam performance varied greatly across China. Many factors caused this unevenness, ranging from the examination curriculum to local educational infrastructure.[19] Some provinces were remote, poor, and previously unexposed to the examination system. Due to limited mobility,

[13]The elimination tournament design had an additional effect on the level of effort (see Kracke (1957)).

[14]An exception is the Tanka people (or Boat People). They were considered inferior and were not eligible for imperial exams for much of history. Even after they were permitted to attend imperial exams in the 1700s, the barrier remained substantial for them.

[15]In the late 19th century, it is estimated that about 3 million, i.e., 1 in 50 males (or 1 in 20 boys), took the first-tier exam every year (Elman, 2013).

[16]Appendix D.2.5 contains further details of superstitious beliefs and practices spawn by imperial exams.

[17]Bol (2008) views the imperial Chinese government as a "scholar-official government" rather than an autocracy, precisely because of the existence of the examination system. In his view, the emperor was not the top of a pyramid but the keystone in an arch, whose successful functioning depended on his staying in his place; the emperor was not the top of a pyramid but the keystone in an arch, tightly constrained by the system he was part of.

[18]See Appendix D.2.2 for details on measures put in place to deter cheating.

[19]The curriculum was based on Confucian classics and written in the Chinese language. This alone disadvantaged examinees whose mother tongue was not Chinese. See Appendix D.2.3 for more details of the imperial exam curriculum.

no one could easily leave these isolated regions in search of opportunity; in other words, the disadvantages brought on by a person's geographic location were predetermined, and candidates from these provinces suffered at the final-round exam and had a lower chance of becoming jinshi.[20]

After 1650, as the Qing state expanded its territory, the striking deficit of successful candidates in frontier provinces became more noticeable. Furthermore, a significant portion of government posts —close to 50%— was set aside for the Manchu elite, who pursued a separate track from the conventional exam track, which put downward pressure on the number of positions available through the exam track (Xi, 2019). As the total number of candidates to obtain government positions through the exam track become lower, the chance for certain provinces to produce no successful candidates significantly rose. For instance, Guizhou, a remote province with a high share of ethnic population, had only 9 successful candidates over the course of 60 years (1650 – 1710).

Finally, Emperor Kangxi and the officials introduced a reform to the imperial examination system in 1712. In his Imperial Edict of 1712 Kangxi remarked (*Veritable Records of the Kangxi Emperor,* 1985):

> Nationwide, the number of applicants taking imperial exams has soared, even those who come from modest backgrounds and travel great distances. Few of these candidates ever passed the test, despite their best efforts. This situation is deeply unsettling. In the future, we ought to take a candidate's province of origin into account. To accomplish this, we must first wait for all applicants to come before calculating the number of candidates from each province who will pass based on the number of candidates who show up for the exam.

Emperor Kangxi made the above comments soon after the metropolitan exam in 1712. Key officials followed the emperor's decree and devised new rules governing the metropolitan exam. In 1713, another metropolitan exam was held in the capital city, following the new policy that essentially confined competition within the provinces.[21]

This was not the first reform implemented in the imperial examination system to address equity-related concerns.[22] The earliest debate about this issue occurred in 1066 between Sima Guang and Ouyang Xiu. Ouyang Xiu believed in unconditional meritocracy whereas Sima Guang advocated for preferential admissions for candidates from underrepresented regions. After 1400, a number of changes were made to the system: in 1425, regional quotas were imposed on South

[20]See Appendix D.1.1 for a summary of spatial inequalities in exam performance. Recent literature has shown that place-based inequalities in education are widespread even in a modern context (Ludwig et al., 2013; Chetty and Hendren, 2018a, 2018b).

[21]Usually every three years, metropolitan exams were held. Holding two metropolitan exams back-to-back was unusual for the government.

[22]See Appendix D.1.2 for the intellectual background on the equity doctrine in China.

China (60%) and North China (40%).[23] In 1454, the quota system became more refined and three exam regions were established: South (55%), North (35%) and Central (10%) (Kracke, 1957). These interventions were not sufficient to shrink the gap in exam success and access to government jobs between provinces.

The 1712 reform took a step further toward the goal of equity. The reform made the number of successful candidates proportional to the number of examinees. Equalizing acceptance rates across the provinces confined academic competition to within the provinces. The criteria for passing the exam became linked to a candidate's province of origin and would be lower for individuals from provinces whose candidate pool was weaker.

# 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.

## *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 largely from Zhu and Xie (1980), covers over 51,000 individuals—the fullest record for the Ming and Qing dynasties.[24] After each round of examinations, the government published the names, ranks, and birthplaces of these successful candidates.

From these records, we construct three key measures:

1. **Density of Successful Candidates.** 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 captured by a standardized metric:

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

[23] The absence of any successful candidates from North China in 1397 led to a shift in policy. Since the "Tang-Song transition" (750 – 1250 AD), the Yangzi River valley's rice industry had replaced the Central Plain's historic core as the driving force behind the Chinese economy. A series of significant changes in agricultural productivity, technology, industrial growth, transport, finance, and international trade was sparked by the population migration from the north to the south (Glahn, 2016, Chapter 6).

[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 **??**.

so higher values ($\approx 1$) reflect stronger relative performance. For province-level (or county-level) regressions, we take the average standardized rank of all passing candidates within the decade, assigning zero if no candidate passed.

3. **Bureaucratic Rank.** We merge the exam data with Gong (2019), which compiles biographies of 4,314 *jinshi* (27% of the total) who served in the Qing bureaucracy. 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 occupy tiers around 2–3, while minister-level posts exceed 8. As above, we average bureaucratic rank by decade and region, using zero for locations with no successful candidates.

### *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:

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 the share of individuals completing primary, secondary, and tertiary schooling for each prefecture. We then examine whether the 1712 reform's effects persisted into modern educational attainment.

## IV Measures of The 1712 Reform

The core objective of the 1712 reform was to equalize provincial access to *jinshi* degrees (and by extension, elite government positions). It did so by mandating that the number of successful candidates in the final metropolitan exam be proportional to the number of examinees from each province.

Figure II illustrates how *jinshi* density 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* density, consistent with the reform's stated goal.[25]

### *IV.A Measuring Reform Intensity*

To quantify the magnitude of the 1712 reform for each province, we focus on how its share of successful examinees changed relative to a baseline period in which there were no further quotas at the province level. Specifically, we compare each province's *share of jinshi in its exam region* (South, North, or Central) just before the reform to that share immediately after. Formally,

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

where $Share^{1680-1712}$ denotes a province's share of *jinshi* in its exam region prior to 1712, and $Share^{1713-1740}$ is the province's share soon after the reform. A positive $\Delta Share^{1712}$ indicates that the province gained ground relative to others in its region; a negative value signifies that it fell behind.

To construct this measure, we first compute each province's share of jinshi within the region ($Share^{1680-1712}$). We then compute each province's share of jinshi within the region for the period of 1713–1740, $Share^{1713-1740}$, even though these regions were no longer relevant. A province's jinshi share within the region represents how it stands in comparison to other provinces within the same region.[26]

The three examination regions established during the Ming dynasty (South, North, and Central) did not align with the provincial boundaries that existed after the 1712 reform, as these boundaries evolved between the Ming period (1368–1644) and the post-1712 period (1713–1840). To address this, we reconstructed provincial boundaries so that each "province" remains entirely

[25] 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.

[26] Our primary interest lies in examining the change in the admission rate of jinshi across provinces. To accurately calculate this, we would need precise population sizes for each province in both periods, which are unavailable. Population data for the early Qing period (1644–18th century) is particularly challenging due to underreporting in official records and the disruption caused by the Ming-Qing transition. Estimates of China's total population during this time range widely, from 80–100 million around 1644 to 100–120 million by the 1680s, with recovery accelerating under the Kangxi Emperor. By the 1710s–1740s, the population likely reached 150–200 million, driven by agricultural recovery, territorial expansion, and the introduction of high-yield crops like maize and sweet potatoes (Ho, 1959; Liang, 1980; Perkins et al., 1969). However, even these estimates are debated due to the fragmentary nature of the sources, such as household registers, and regional variations in population density. As an alternative to using precise population data, we compute the change in the share of jinshi within each exam region (equation 5) and include exam region fixed effects interacted with decade fixed effects ($\rho_{r\cdot t}$) to absorb changes in population. This approach allows us to approximate the admission rate indirectly, under the assumption that population growth within each region follows a similar trend.

within a single examination region throughout the analysis.[27]

$$\Delta Share^{1712} = Share^{1713-1740} - Share^{1680-1712} \tag{2}$$

The share of jinshi prior to the reform ($Share^{1680-1712}$) is deducted from the share after the reform ($Share^{1713-1740}$) in equation 2.

This yields a measure of effective reform intensity. Figure III depicts effective reform intensity in different provinces. The red, green, and blue color represent the provinces in the South, North, and Central exam region. A lighter shade represents a negative change in the share of jinshi. A province shaded in a lighter color suffered losses from the reform. A darker shade represents a positive change in the share of jinshi. A province shaded in a darker color benefited from the reform. Provinces that profited from the reform were further away from the capital city and had a lower level of roughness than provinces that experienced losses as a result of the change.[28].

In Figure IV, we plot the relationship between a province's share of jinshi without the reform and the change in its share under the reform ($\Delta Share^{1712}$ and $Share^{1680-1712}$). As expected, the direction of the change is inversely related to its share prior to the reform. Provinces having a lower proportion of jinshi prior to the reform experienced a greater increase in jinshi under the reform; provinces with a higher proportion of jinshi prior to the reform experienced a more modest increase or even a fall in jinshi.

## V The Impact of the 1712 Reform, 1660–1840

### *V.A Baseline Estimates*

We investigate the impact of the 1712 reform on both the quantity and performance of successful candidates. This analysis is conducted using panel data spanning the period 1660–1840, covering multiple decades before and after the reform. The cutoff at 1840 is chosen because of two major historical disruptions: (1) the Taiping Rebellion (1850–1864), which significantly disrupted the imperial examination system and regional recruitment patterns, and (2) the rise of office selling in the late Qing period, which altered bureaucratic selection by allowing individuals to purchase positions rather than earning them through examination performance. These changes make post-1840 data less comparable to earlier periods, ensuring that the estimated effects reflect meritocratic selection rather than distortions introduced by later institutional changes.

[27]The reconstruction results in 16 provinces based on the 18 provinces of the post-1712 period. These include *Fujian*, *Guangdong*, *Guangxi*, *Guizhou*, *Henan*, *Huguang* (later divided into *Hubei* and *Hunan*), *Jiangbei* (northern *Anhui* and northern *Jiangsu*), *Jiangnan* (southern *Anhui* and southern *Jiangsu*), *Jiangxi*, *Shanxi*, *Shaanxi* (*Gansu* and *Shaanxi*), *Shandong*, *Sichuan*, *Yunnan*, *Zhejiang*, and *Zhili* (*Hebei*).

[28]The average distance from prefectures in provinces with gains to Beijing is 1260 km, whereas the average distance from prefectures in provinces with losses to Beijing is 1098 km.

### *V.A.1 The Quantity of Successful Candidates*

The 1712 reform significantly reshaped the regional distribution of jinshi. To examine how the reform affected the number of successful candidates, we estimate the following regression model:

$$JinshiDensity_{pref,prov,t} = \beta_0 + \beta_1 ReformIntensity_{prov} \cdot \text{Post}_t + \gamma X_p \cdot \eta_t + \delta_{pref} + \theta_r \cdot \eta_t + \varepsilon_{pref,prov,t} \tag{3}$$

In equation 3, the dependent variable $JinshiDensity_{pref,prov,t}$ represents the density of successful jinshi candidates from prefecture $pref$ in province $p$ during decade $t$, normalized by population. The key independent variable, $ReformIntensity_{prov} \cdot \text{Post}_t$, captures the interaction between the intensity of the 1712 reform for the province ($ReformIntensity_{prov}$) and a post-reform indicator ($Post_t$).

The term $ReformIntensity_{prov}$ is defined as the difference in a province's share of jinshi before and after the reform:

$$ReformIntensity_{prov} = Share^{1713-1740} - Share^{1680-1712} \tag{4}$$

The regression also includes prefecture fixed effects ($\delta_{pref}$), which account for time-invariant characteristics of prefectures, and the interaction of region fixed effects and decade fixed effects ($\theta_r \cdot \eta_t$), which controls for region-specific time trends. The term $X_{pref} \cdot \eta_t$ represents prefecture-level control variables interacted with decade fixed effects, and $\varepsilon_{pref,prov,t}$ is the error term.

Initial results, summarized in Table I, suggest that provinces with positive changes in jinshi shares experienced a significant increase in jinshi density post-reform. This finding underscores the role of the reform in redistributing examination success across provinces, favoring historically underrepresented regions.

### *V.A.2 The Performance of Successful Candidates*

A key concern regarding the 1712 reform is its potential impact on the professional performance of successful candidates. By lowering the passing thresholds for reform-positive provinces and raising them for reform-negative provinces, the reform may have allowed less-qualified individuals to succeed in some regions while disadvantaging highly capable candidates in others. These dynamics have implications for the professional success of jinshi graduates.

To assess this, we estimate the following model:

$$BureaucraticRank_{pref,prov,t} = \beta_0 + \beta_1 ReformIntensity_{prov} \cdot Post_t + \gamma X_{pref} \cdot \eta_t + \delta_{pref} + \theta_r \cdot \eta_t + \varepsilon_{pref,prov,t} \tag{5}$$

Here, $BureaucraticRank_{pref,p,t}$ represents the average standardized bureaucratic rank of jinshi from prefecture $pref$ in province $p$ during decade $t$. The key variable $ReformIntensity_{prov} \cdot Post_t$ captures how changes in jinshi shares post-reform affected career outcomes, averaged over all successful candidates at the prefecture level.

As in equation 3, $X_{pref}$ represents prefecture-level control variables, while $\delta_{pref}$ captures prefecture fixed effects. The term $\theta_r \cdot \eta_t$ denotes the interaction of region fixed effects and decade fixed effects, controlling for region-specific time trends. Finally, $\varepsilon_{pref,prov,t}$ is the error term.

The results, presented in Table II, provide two critical insights into the professional outcomes of successful candidates following the 1712 reform. First, the reform had a positive and significant impact on both initial placement and final placement. For initial placement, candidates from provinces benefiting from the reform were assigned to higher positions, as shown by the significant coefficients in columns 1 and 2. This effect persists even after including additional controls, such as population density, agricultural suitability, and access to navigable rivers, in column 2. Similarly, the results in columns 3 and 4 indicate that the reform also led to higher final placements, with substantial and statistically significant increases in bureaucratic ranks.

Second, the inclusion of additional controls in columns 2 and 4 does not diminish the significance of the reform's impact, suggesting that these results are robust to differences in local economic conditions and historical jinshi representation. The magnitude of the coefficients is larger for final placement than for initial placement, implying that the reform may have allowed reform-positive provinces to better leverage previously untapped talent pools over the course of a candidate's career.

These findings challenge the theoretical expectation that lowering entry thresholds for certain provinces would result in lower professional performance. Instead, they highlight that reform-positive provinces benefited from previously underutilized talent pools, which not only gained entry to the bureaucracy but also achieved significant professional success over time.

**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.12 for more details on official recruiting). Figure A.4 and Table A.6 confirm a strong positive correlation between exam rank and professional outcomes, indicating that candidates who scored higher on the final-round exam generally achieved higher bureaucratic ranks.

The reform improved the exam ranks of candidates from beneficiary provinces.[29] To account for this, in Table A.2, we explicitly control for exam rank when assessing the relationship between the reform and career outcomes.

The results indicate that improvements in career outcomes among candidates from reform-positive provinces were largely driven by their improved exam rank. After controlling for exam rank (column 2), the estimated effect of the reform is no longer significant, suggesting that exam

[29]Exam ranks are not fully comparable before and after the reform. The reform introduced varying criteria for candidates based on their province, applying stricter standards to candidates from reform-negative provinces. As a result, many candidates from these provinces were excluded from the ranking process altogether because they could not meet the new, higher criteria imposed on them. This limitation also explains why we do not examine exam performance as a separate outcome.

performance explains much of the observed gains. However, even after accounting for this channel, candidates from beneficiary provinces did not experience worse professional outcomes compared to those from other provinces. This finding suggests that while the reform reshaped candidate selection by improving exam ranks, it did not lower the professional performance of those who entered the bureaucracy under the new system.

**Controlling for Initial Placement** Initial placement in the bureaucracy was strongly influenced by exam rank, as higher-ranked candidates were assigned to more prestigious positions upon entry. Studies have shown that initial career placement has long-term implications, shaping future promotions, career trajectories, and overall professional success (Oyer, 2006). This persistence is often attributed to institutional structures that reward early career advantages and path dependencies in bureaucratic careers.

To account for this, in Table A.2, we control for initial placement instead of exam rank. The results in columns 4–6 indicate that improvements in long-term career outcomes were largely explained by initial placement. Once this factor is accounted for, the estimated reform effect diminishes, implying that much of the professional advantage experienced by candidates from reform-beneficiary provinces stemmed from their stronger initial placements. However, even after controlling for initial placement, their career trajectories did not deteriorate. That is, while the reform did not lead to a persistent career advantage beyond initial assignments, it also did not compromise the professional success of those selected under the new criteria.

*V.A.3 Age and Family Background*

Table III examines how the 1712 reform affected two attributes of successful jinshi candidates: their age at the time they passed the exam and the size of their extended family network. A major limitation is that these variables are rarely reported for individuals who took the exam prior to 1712, making it impossible to implement a standard difference-in-differences analysis. Hence, our results rely on a pooled cross-sectional approach using post-1712 data only.

Columns 1 and 3 show that the reform significantly lowered the average exam-passing age of successful candidates, with an even larger effect in the extended sample (1710–1905). This finding suggests that the reform broadened access to the jinshi degree, enabling younger individuals to achieve success earlier in their careers.

Meanwhile, columns 2 and 4, examining the number of kin-related jinshi, show no significant correlation between reform intensity and family background. Other studies have found that larger clans often command greater wealth and thus enjoy educational or social advantages. Yet here, the absence of any notable association implies that the 1712 reform did not disproportionately favor candidates from larger (and presumably wealthier) families, but instead offered more equitable opportunities across the socioeconomic spectrum.

*V.B The Distributional Consequences of the Reform*

A key question in the literature on affirmative action concerns the distributional effects of such policies and their implications for inequality among beneficiaries. Some studies have found that inequalities tend to grow among intended recipients when these policies are implemented (Bertrand, Hanna, and Mullainathan, 2010). While it is relatively straightforward to predict increased inequality in the short term due to varied starting conditions, the long-term dynamics of such policies are far less predictable and require empirical investigation.

To explore the heterogeneous impact of the 1712 reform, we examine the density of jinshi across provinces, focusing on differences within prefectures based on pre-existing levels of human capital. As illustrated in Figure V, there was substantial variation in pre-existing human capital across prefectures, measured by the total number of jinshi per 10,000 people before 1650.

Unlike previous sections where a single measure of reform intensity was used, here we distinguish between provinces that gained or lost from the reform. Specifically, we introduce separate measures: $Gain_p$ captures the magnitude of gains from the reform in provinces that benefited. $Loss_p$ captures the magnitude of losses from the reform in provinces that were negatively affected.

This distinction allows for separate estimation of the reform's impact in provinces that gained and those that lost, rather than assuming a uniform treatment effect. By doing so, it is possible to examine how the reform affected different parts of the distribution and whether the consequences were symmetrical for winners and losers.

To estimate how this variation shaped the reform's impact, we use the following equation:

$$\begin{aligned} Jinshi_{pref,prov,t} =& \beta_0 + \beta_1 \text{Gain}_{prov} \cdot \text{Pre1650HC}_{pref} \cdot Post_t + \beta_2 \text{Loss}_{prov} \cdot \text{Pre1650HC}_{pref} \cdot Post_t \\ &+ \gamma X_{pref} \cdot \eta_t + \delta_p \cdot \eta_t + \theta_{pref} + \eta_t + \varepsilon_{pref,prov,t} \end{aligned} \tag{6}$$

In equation 6, the dependent variable $Jinshi_{pref,prov,t}$ represents the number of successful candidates (jinshi) in prefecture $pref$, normalized by population, in decade $t$. $\text{Gain}_{prov}$ and $\text{Loss}_{prov}$ denote the province-level gains and losses due to the reform, respectively. $\text{Pre1650HC}_{pref}$ is a measure of pre-existing human capital, calculated as the density of jinshi in prefecture $pref$ prior to 1650. $Post_t$ is a binary indicator equal to 1 for post-reform periods. Control variables at the prefecture level are represented by $X_{pref}$, while $\delta_{prov} \cdot \eta_t$ captures province-specific trends. Fixed effects at the prefecture and decade levels are denoted by $\theta_{pref}$ and $\eta_t$, respectively, and $\varepsilon_{pref,prov,t}$ is the error term.

Table IV shows the regression results from estimating equation 6. In all columns, we use our baseline measure of the reform intensity. Decade fixed effects and prefecture fixed effect are included in every specification. We further control for the interaction of decade fixed effect and province fixed effect for provincial heterogeneous time trends.[30] We also control for the

[30]By controlling for the interaction of decade fixed effect and province fixed effect, we only focus on 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 allow the trends to be related to the prefecture's initial conditions, including population density, agricultural suitability, predetermined quota at lower-tier exams, ruggedness, and whether a prefecture had access to any major navigable rivers. Column 3 includes only the prefectures in the provinces that gained from the reform. Column 4 includes only the prefectures in the provinces with losses from the reform.

The coefficients of triple interactions $Gain_{prov} \times Pre1650HC \times Post$ and $Loss_{prov} \times Pre1650HC \times Post$ are positive and significant in column 2, with all the controls present. Prefectures with stronger pre-existing human capital had more successful candidates following the reform within a province that benefited from it. In other words, the prefectures with higher levels of pre-existing human capital reaped the majority of the benefits from the reform. Prefectures with more pre-existing human capital, on the other hand, inside a province harmed by the reform, also had more successful candidates following the change. The prefectures with the least prior human capital suffered the most from the reform, whereas those with more prior human capital continued to produce candidates who were more likely to succeed.

In column 3, only the prefectures in the provinces that gained from the reform are included. In column 4, only the prefectures in the provinces adversely affected by the reform are included. The coefficient of the triple interaction $Gain_{prov} \times Pre1650HC \times Post$ in column 3 and that of $Loss_{prov} \times Pre1650HC \times Post$ in column 4 are positive and significant. This further suggests that there was more intra-provincial inequality in both the reform-positive and reform-negative provinces.

The distributional consequences are large. We focus on column 2 when interpreting the magnitude of the distributional consequences. The average jinshi density before 1650, our measure of pre-existing human capital, is 1.33. In a province that benefited from the reform, if the increase in the jinshi share is 0.1, prefectures with greater pre-existing human capital (1.33 higher in jinshi density before 1650) had 0.006 more successful candidates per 10,000 in every period after the reform. Since a prefecture had an average of 0.024 successful candidates per 10,000 in a period, the distributional impact of the reform is equal to an increase of 24% of successful candidates in prefectures with greater pre-existing human capital. [31]

To understand the dynamics, we estimate the equation 9. $Period_t$ is a group of dummies for 20-year periods[32] It is conceivable for intraprovincial disparities to increase over time under the following scenario: after watching the poor performance of the first few post-reform cohorts of examinees, those growing up in prefectures with lower pre-existing human capital invested

difference between prefectures within the same province. We control for the confounding changes due to the different province-level conditions. For example, the changes in the quotas of the province-level exam.

[31] $1.33 \times 0.1 \times 0.0429/0.024 = 23.8\%$

[32] $Period_t$ is equal to one for the period from year $t$ to $t + 19$. For instance, $Period_{1650}$ is equal to one for the years of 1650–1669.

less in education than those growing up in prefectures with higher pre-existing human capital.[33] Without any intervention, the widening gap between prefectures in exam performance could lead to differential investments, which could further widen the gap between them.

In Figure A.5, we plot the point estimates of the coefficients $\beta_{1,t}$ and $\beta_{2,t}$. According to these coefficients, the divergent trend that followed the reform expanded progressively over time, particularly in the provinces that were negatively impacted by it. There is no indication of convergence during this time period.

Having demonstrated the different impacts of the reform on achievement gaps between and within the provinces, we briefly analyze overall and between-province inequality in terms of the density of jinshi in Appendix C.4. Our main finding is that overall inequality declined after the reform, but not as much as between-province inequality.

**Replicating the Analysis at the County Level** In this section, we replicate the above analysis at the county level. Table A.3 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.C The Role of Funding Agencies: The Great Equalizer*

Next, we estimate the distributional consequences of the 1712 reform in prefectures with or without funding agencies. As the metropolitan exam was held in the capital city, *Beijing*, the cost of attending the exam was high for many.

In some prefectures, the wealthy set up funding agencies to subsidize travel, lowering the cost of attending the exam. For a marginal candidate, access to travel funding could be pivotal for their decision to attend the exam. While the effect of travel funding at an aggregated level is ambiguous, it is safe to say travel funding made continued participation in the exam more likely

[33] Jensen (2010) shows that *perceived* returns affect schooling decisions. Youths often observe the earnings of workers who live in their neighborhoods to make schooling decisions.

for prefectures that saw little exam success. We ask: did this change the long-run trajectory in human capital for these prefectures?

Table A.4 shows the regression results from estimating equation 6. In all columns, we use our baseline measure of the reform intensity. We include time and prefecture fixed effects. We include the interaction of time and province fixed effects to allow for provincial heterogeneous time trends. Column 1 only includes the prefectures with a funding agency in 1840, while we focus on the prefectures without funding agencies in 1840 in column 2. We then divided the prefectures into two samples, the prefecture with and without funding agencies in 1840. In columns 3 and 4, we estimate the same equation on matched pairs of prefectures. In Appendix C.3.2, we discuss the full details of the matching process.

In columns 2 and 4, the triple interactions' coefficients are positive and significant. The results suggest that the reform led to increased disparity in the sample of prefectures without any funding agency, but not in those with at least one funding agency. Our results suggest even small interventions such as travel subsidies can greatly reduce the gap that emerged within the provinces subsequently after the reform. The polarizing impact of the reform within the provinces was lessened by travel funding.

## VI The Policy Reversal in 1905

In this section, we look at how the 1712 reform affected society in the first half of the 20th century. We wonder if the reform still had an impact when the imperial tests and the policy withdrawal in 1905.

After 1905, there was no clear replacement for the imperial examination system. We start our investigation with people who rose to any level of social prominence between 1912 and 1949. Politicians, military officers, scientists, professors, teachers, journalists, writers, and business owners are some of these people. Then, we concentrate our attention to those who passed competitive tests before enrolling in prestigious universities, including as Tsinghua University and Peking University graduates and those who got government support to pursue their studies abroad.

First, we look into how the 1712 reform affected the number of jinshi in the final few imperial exams just before 1905 and the number of people in one of the aforementioned groups after 1905. After 1905, when the examination system was abandoned, places that had generated a large number of successful candidates in part as a result of the reform during the imperial era may confront stiffer competition.

We compile a panel dataset including years both before and after 1905. For the first, second, and third eras, the dependent variable is the density of jinshi who passed imperial examinations soon before 1905, that is, examinations that took place in the eras of 1870-1880, 1880-1890, and 1890-1905. The number of notable figures, university graduates, or Chinese students studying

in Japan is the dependent variable for the fourth, fifth, sixth, and seventh periods (1910–20, 1920–30, 1930–40, and 1940–50). We normalize the outcome variable by time period to correct for unit variations. Below we estimate the following equation:

$$Y_{pref,prov,t} = \beta_0 + \beta_1 ReformIntensity_{prov} \cdot Post_t + \gamma X_{pref} \cdot \eta_t + \theta_{pref} + \eta_t + \varepsilon_{pref,prov,t} \quad (7)$$

The dependent variable $Y_{pref,prov,t}$ is the density of highly educated individuals from prefecture $pref$ in province $prov$ in period $t$. $ReformIntensity_{prov}$ is the change in the share of jinshi of province $p$ from the 1712 reform. $Post_t$ is equal to zero in the first period and equal to one after the second period. $X_{pref}$ is a set of prefecture-level control variables. $\theta_{pref}$ is the time-invariant effect unique to prefecture $pref$, and $\eta_t$ is a decade fixed effect. $\varepsilon_{pref,prov,t}$ is the error term.

Table V reports the results. We find that after 1905, prefectures in provinces that benefited more from the reform produced fewer notable figures and fewer students in selective universities than those in provinces that benefited less. The results confirm our prior that gains from the 1712 reform were partly reversed after 1905.

Traditional and modern human capital might vary in their geographical distribution. To address this concern, we explicitly control for the interaction term between the density of jinshi for 1650–1712 and the post-1905 dummy in all columns. We show that the coefficient for the 1712 reform is negative and robust despite the inclusion of this control.

The dynamic effect of the 1712 reform on the density of the highly educated individuals is examined below. We estimate the equation 10 by including the interactions between decade dummies and change in the share of jinshi. The point estimates of the coefficients $\beta_{1,t}$ are plotted in Figure A.10. Figure A.10 demonstrates that, over several decades after 1905, a greater gain (or smaller loss) from the 1712 reform is associated with a decline in the size of educational and social elite.

## 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 education beyond those who acquired degrees through the imperial examination system. Moreover, the number of candidates who passed lower-level exams was tightly regulated by a predetermined quota, making it difficult to assess educational expansion using direct administrative records.

To overcome these limitations, we use twentieth-century census data to evaluate the reform's long-term impact on educational attainment and occupational status. The 1982 census provides the first modern dataset with disaggregated information on educational levels. This allows us

to estimate how the 1712 reform influenced the educational attainment of later generations. Specifically, we measure the completion rates of primary, secondary, and tertiary education as proxies for human capital accumulation in the long run.

The results in Table VI indicate that the reform had lasting educational effects. Even after controlling for pre-existing human capital and other historical characteristics, provinces that benefited from the reform had higher secondary and tertiary educational attainment in 1982. These findings suggest that the impact of the reform extended beyond the candidates who directly benefited, influencing broader patterns of education.

We also examine whether the reform had persistent effects on occupational outcomes, using historical data on occupational prestige scores. Table VII presents estimates of the reform's impact on occupational status using the International Socio-Economic Index (ISEI) and the Standard International Occupational Prestige Scale (SIOPS). The results show that reform intensity is positively associated with higher occupational prestige, particularly for individuals employed in non-agricultural sectors.

A possible explanation for these patterns is that the reform increased the incentives for education, leading to broader investment in literacy and formal schooling. Even though many individuals did not advance to the final stages of the examination system, they likely acquired basic literacy and numeracy skills that improved their occupational prospects. Many who did not succeed in the exams took up positions as teachers, local administrators, or village leaders, contributing to long-term human capital formation within their communities.[34]

Taken together, these findings indicate that the reform's effects persisted beyond its formal repeal in 1905. Despite the withdrawal of affirmative action policies, the improvements in education and occupational outcomes remained visible in the late twentieth century. The results suggest that adjustments to the criteria for advancement within the examination system had long-term effects on human capital accumulation and social mobility, even after the policy itself had ended.

## VIII Conclusion

Imperial China used a competitive examination system to choose its government officials. Despite the traditional appeal of this meritocratic system, growing inequalities induced by the same system eventually started to weaken the legitimacy of the state. We look at the effects of a widespread affirmative action policy that was implemented in 1712 and favored candidates from previously underperforming regions. In particular, this approach balanced the final round acceptance percentages among the provinces.

[34]The quality of a child's education can have lasting effects on their well-being in adulthood (Card and Krueger, 1992; Chetty et al., 2011).

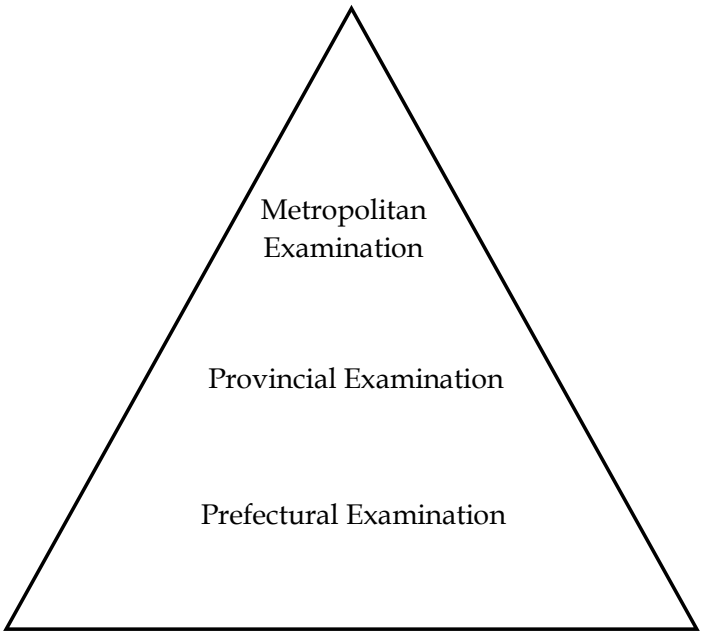
Our analysis shows that the reform led to an increase in the density of successful candidates. However, the gains were not uniform across all sub-provincial units. Prefectures with greater pre-existing human capital benefited more, producing a larger share of jinshi after the reform, while those with weaker educational foundations experienced more limited gains. This suggests that the reform reduced inequality between provinces while reinforcing disparities within provinces.

Examining professional outcomes, we find that successful candidates from reform-beneficiary prefectures achieved higher initial and final bureaucratic ranks. These results challenge concerns that lowering barriers to entry would necessarily lead to lower professional performance. Instead, the reform appears to have mobilized previously underutilized talent in certain regions.

Following the abolition of the imperial examination system in 1905, the reform's effects weakened. The density of highly educated individuals 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.

# Figures and Tables




Venue: National Capital
Degree Holder: Jinshi
Competition: within exam regions -before 1712; within provinces – after 1712

Venue: Provincial Capitals
Degree Holder: Juren
Competition: Quota assigned to provinces

Venue: Prefectural Capitals
Degree Holder: Shengyuan
Competition: Quota assigned to counties and prefectures

Figure I: The Three-Tier Imperial Examination System

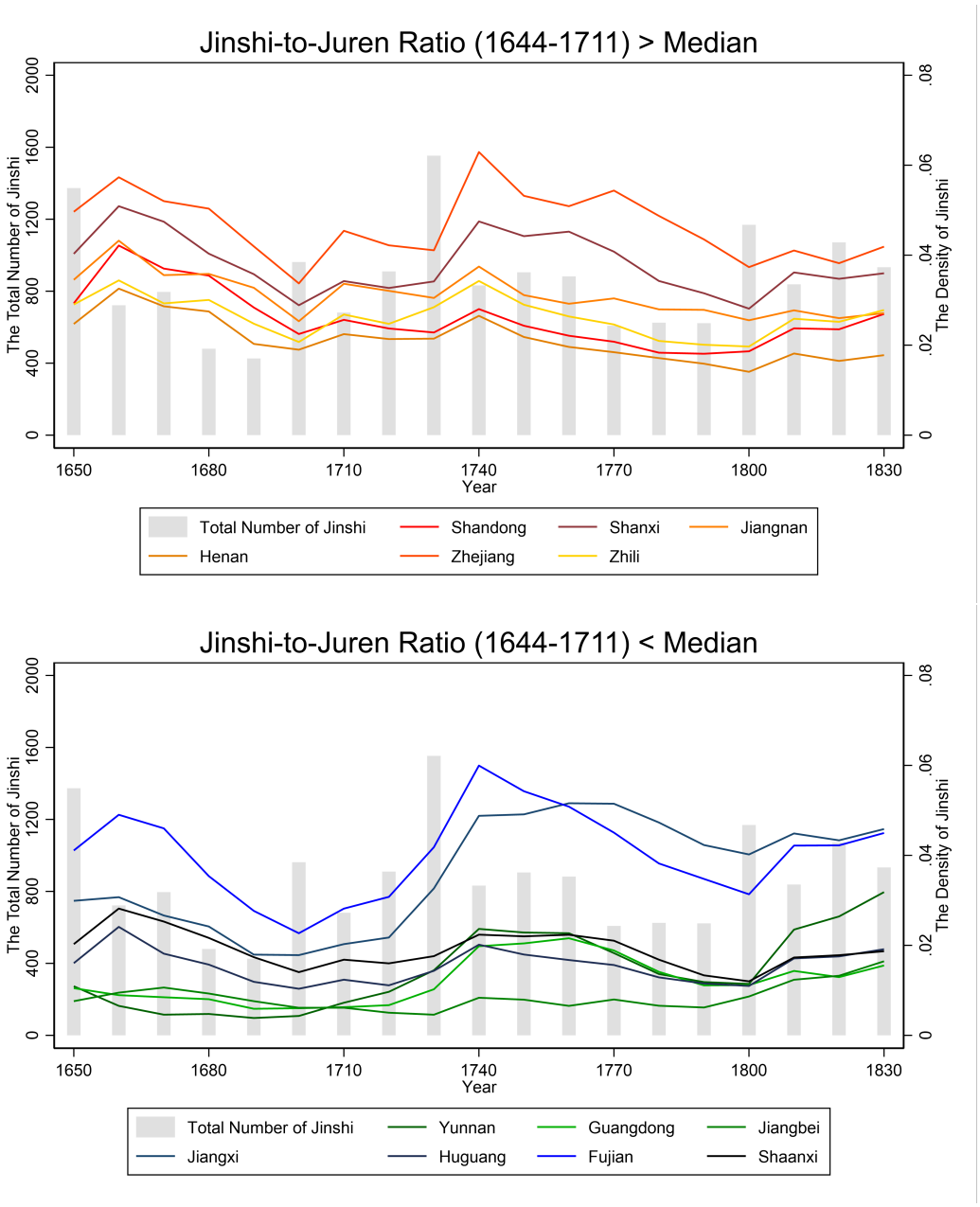



Figure II: Trends in the Density of Jinshi

Notes: This figure shows trends in the density of jinshi 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.

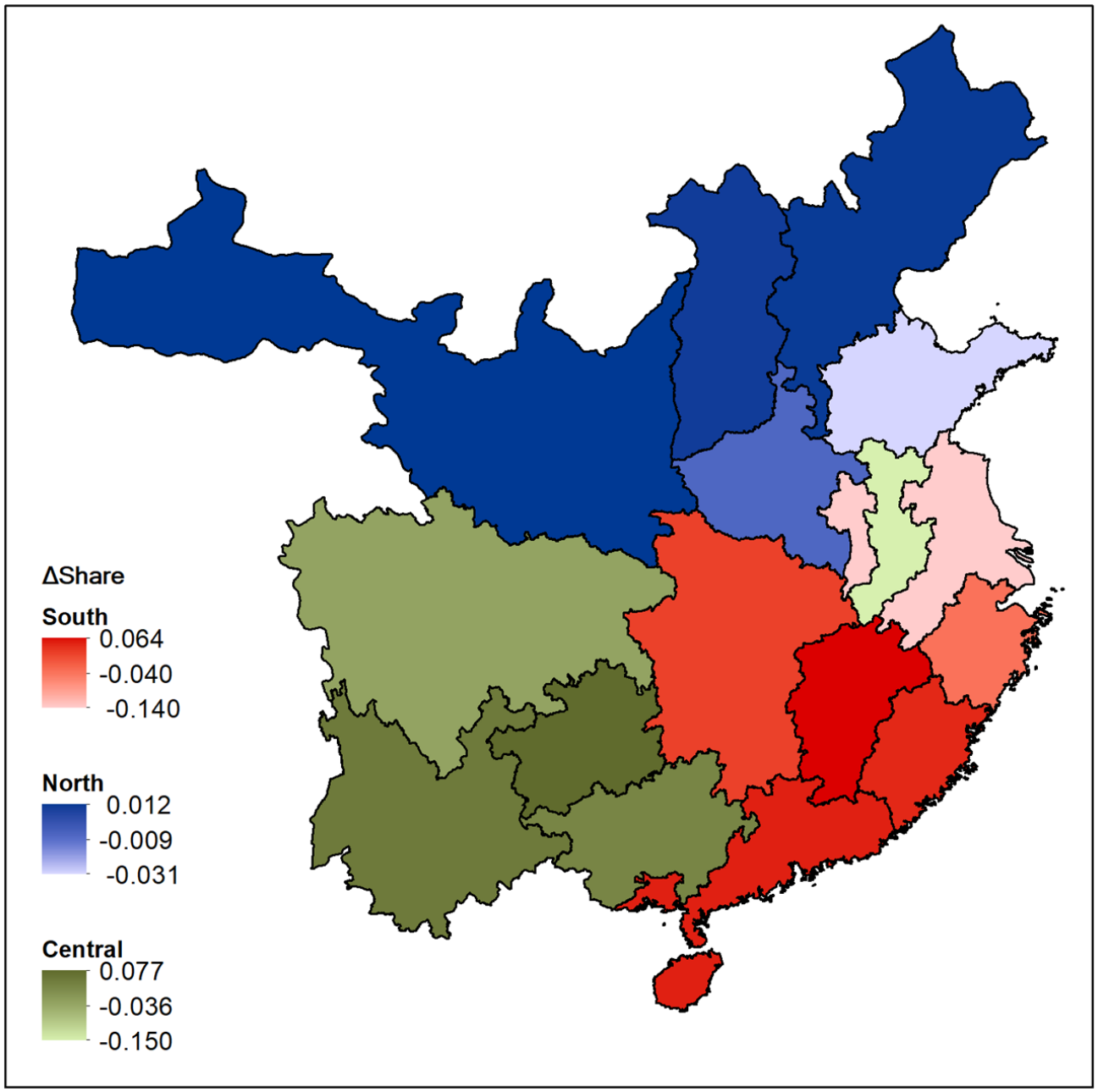



Figure III: Who Benefited From the Reform?

Notes: 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.

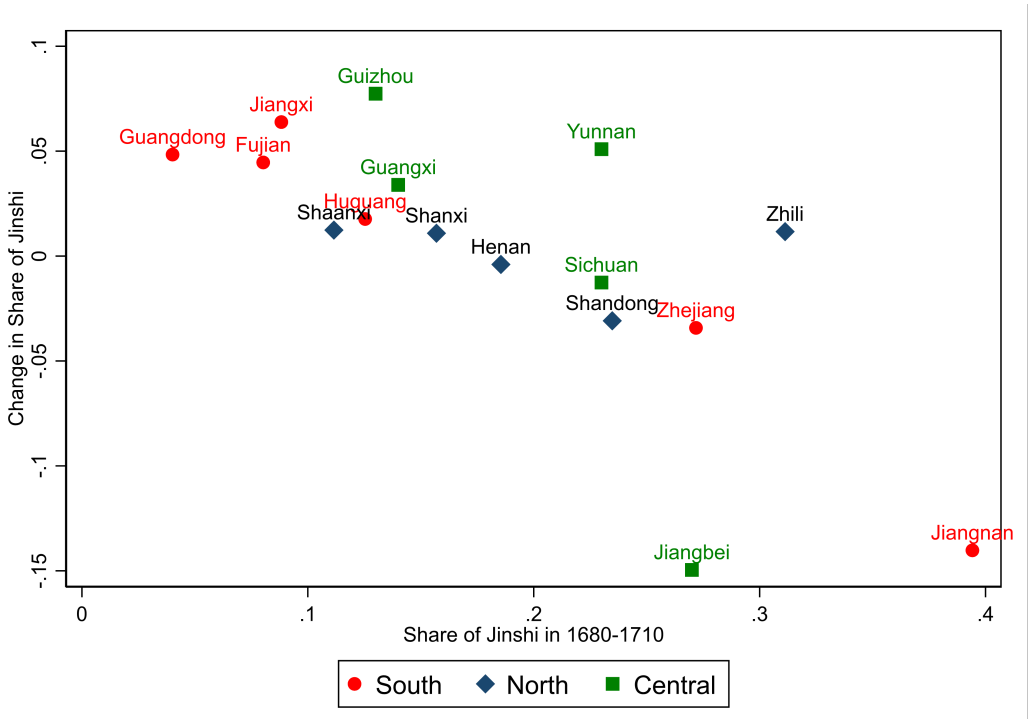



Figure IV: Who Benefited From the 1712 Reform?

Notes: The Y-axis is 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. The X-axis is a province's share of jinshi in 1680–1712. There is an inverse relationship between the change in a province's share and its share before the reform.

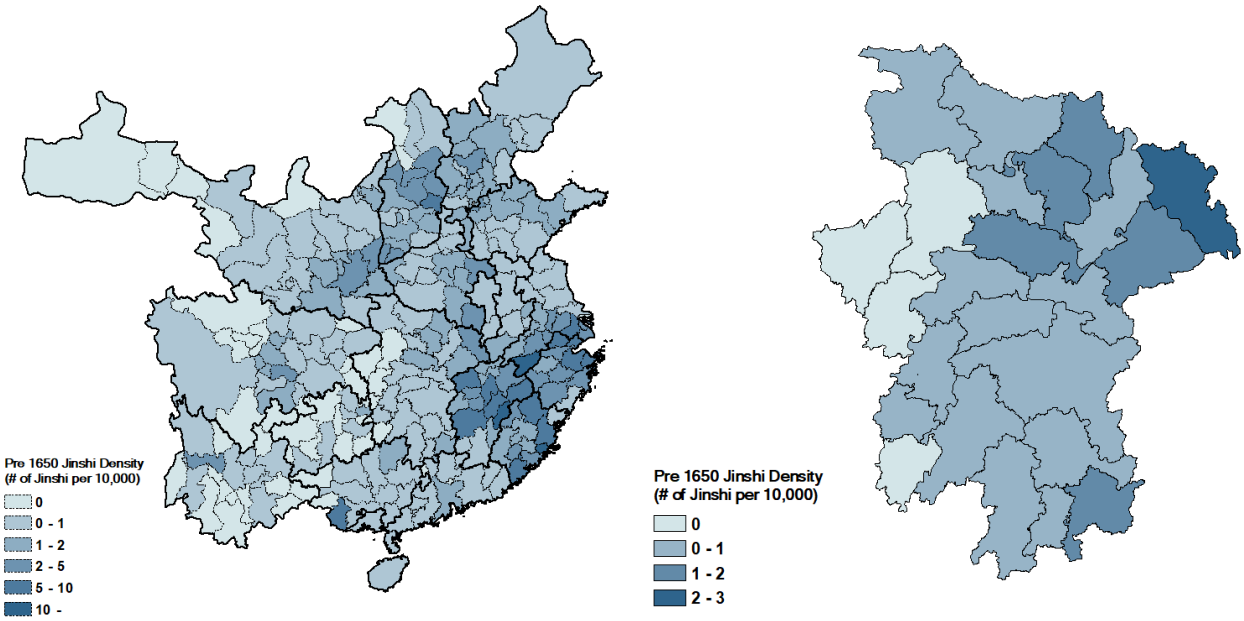



Figure V: Heterogeneity in Pre-Existing Human Capital

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

Table I: The Impact of the Reform on the Density of Successful Candidates

| | Dependent Variable: Density of Jinshi | | | |
|---|---|---|---|---|
| | (1) All | (2) All | (3) Reform Positive | (4) Reform Negative |
| 1712 Reform Intensity × Post | 0.0971*** | 0.0606*** | 0.441*** | -0.0372 |
| | (0.019) | (0.022) | (0.052) | (0.030) |
| Decade FE | Yes | Yes | Yes | Yes |
| Decade FE × Region FE | Yes | Yes | Yes | Yes |
| Prefecture FE | Yes | Yes | Yes | Yes |
| Decade FE × Controls | No | Yes | Yes | Yes |
| R-squared | 0.564 | 0.603 | 0.499 | 0.806 |
| Observations | 4806 | 4806 | 3240 | 1566 |

Note: The dependent variable is the density of jinshi in a prefecture. Column 1 estimates the average effect for all prefectures, while column 2 includes additional controls, such as population density, agricultural suitability, predetermined quotas, ruggedness, and access to navigable rivers, all interacted with decade fixed effects. Columns 3 and 4 split the sample into prefectures from reform-positive and reform-negative provinces, respectively. All specifications include decade fixed effects, prefecture fixed effects, and the interaction of decade fixed effects and region fixed effects. Coefficients are reported with standard errors clustered at the province-period level in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table II: The Impact of the Reform on Career Outcomes

| | Initial Placement | | Final Placement | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| 1712 Reform Intensity × Post | 2.271*** | 1.929** | 4.601*** | 4.239*** |
| | (0.659) | (0.771) | (1.145) | (1.285) |
| Decade FE | Yes | Yes | Yes | Yes |
| Decade FE × Region FE | Yes | Yes | Yes | Yes |
| Prefecture FE | Yes | Yes | Yes | Yes |
| Decade FE × Controls | No | Yes | No | Yes |
| R-squared | 0.444 | 0.444 | 0.414 | 0.416 |
| Observations | 4806 | 4806 | 4806 | 4806 |

Note: Bureaucratic Rank refers to the rank of the initial position held by a successful candidate in the bureaucracy in columns 1 and 2, and the highest position ever attained by a successful candidate in columns 3 and 4. The rank is standardized on a scale from 0.5 (lowest) to 9 (highest). Each observation represents the average rank of successful candidates from prefecture $p$ in period $t$. If no candidate from a prefecture-period obtained a position, that prefecture-period is assigned a value of zero. Columns 2 and 4 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. All specifications account for decade fixed effects, province fixed effects, and interactions between decade fixed effects and exam region fixed effects. 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 III: The 1712 Reform: Age and Family Background

| | 1710–1840 | | 1710–1905 | |
|---|---|---|---|---|
| | (1) Age | (2) Num. Relatives | (3) Age | (4) Num. Relatives |
| 1712 Reform Intensity | -10.56* | -99.83 | -13.39*** | -70.53 |
| | (5.441) | (316.610) | (3.468) | (81.070) |
| Pop. Density (1820) | -0.00114 | 0.159 | -0.00189* | -0.0451 |
| | (0.003) | (0.208) | (0.001) | (0.007) |
| Agricultural Suitability | 0.0659 | 12.653 | -0.239 | 0.707 |
| | (0.411) | (12.653) | (0.199) | (4.436) |
| CSI | 0.000578*** | 0.00091*** | 0.000409*** | 0.00287*** |
| | (0.000) | (0.000) | (0.000) | (0.001) |
| Ruggedness | 0.0660 | -21.45 | -0.230 | -3.693 |
| | (0.015) | (41.43) | (0.186) | (1.780) |
| River Access | -1.295 | -41.43 | -1.496 | -41.43 |
| | (0.015) | (10.35) | (0.419) | (3.500) |
| Decade FE × Region FE | Yes | Yes | Yes | Yes |
| Adjusted $R^2$ | 0.016 | 0.070 | 0.018 | 0.028 |
| Observations | 771 | 84 | 2,298 | 1,193 |

Dependent variables include age and number of relatives. columns 1 and 2, sample ends at 1840, to be consistent. columns 3 and 4, expand to the end of Qing. Robust standard errors are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table IV: The Distributional Consequences of the 1712 Reform

| | Dependent Variable: The Density of Jinshi | | | |
|---|---|---|---|---|
| | (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 |
| Observations | 5073 | 5073 | 2831 | 2242 |
| Adjusted $R^2$ | 0.574 | 0.609 | 0.526 | 0.690 |

Each observation is a prefecture in period $t$. Pre1650HC is the density of jinshi 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.

Table V: The Impact of the 1712 Reform on Highly Educated Individuals Upon a 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 |
| Observations | 1869 | 1869 | 1869 | 1869 |
| Adjusted $R^2$ | 0.502 | 0.457 | 0.593 | 0.590 |

Each observation is a prefecture in period $t$. We regress the density of highly educated individuals 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 the density of jinshi 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 VI: The Long-Term Impact of the 1712 Reform on Educational Attainment

| | Primary 1982 | | Secondary 1982 | | College 1982 | |
|---|---|---|---|---|---|---|
| | (1) | (4) | (2) | (5) | (3) | (6) |
| 1712 Reform Intensity | 0.117 | 0.111 | 0.106** | 0.103** | 0.0143** | 0.0142** |
| | (0.132) | (0.092) | (0.038) | (0.027) | (0.005) | (0.006) |
| Additional Controls | No | Yes | No | Yes | No | Yes |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes |
| Region FE | Yes | Yes | Yes | Yes | Yes | Yes |
| R-squared | 0.384 | 0.457 | 0.539 | 0.437 | 0.551 | 0.533 |
| Observations | 266 | 266 | 266 | 251 | 251 | 251 |

Each observation is a prefecture. The dependent variable is the share of the population with tertiary education, with secondary education or above, or with primary education or above. In all columns, we control for population density in 1820, agricultural suitability, predetermined quotas at lower-tier exams, ruggedness, and access to major navigable rivers. Additional controls include variables like coastal proximity, presence of Taiping rebellions, treaty port status, urbanization rates, and exposure to the Christianity Mission. Coefficients are reported with robust standard errors in round brackets. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table VII: The Long-Term Impact of the 1712 Reform on Occupational Status

| | ISEI | | SIOPS | | ISEI | | SIOPS | |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| 1712 Reform Intensity | 2.001 | 1.933 | 1.016 | 0.851 | 20.05** | 17.03** | 12.58* | 10.07* |
| | (4.860) | (5.202) | (3.171) | (3.520) | (7.780) | (6.569) | (6.215) | (5.249) |
| Additional Controls | No | Yes | No | Yes | No | Yes | No | Yes |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Region FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Adjusted $R^2$ | 0.378 | 0.486 | 0.374 | 0.476 | 0.418 | 0.523 | 0.418 | 0.533 |
| Observations | 266 | 251 | 266 | 251 | 266 | 251 | 266 | 251 |

Note: Each observation represents a prefecture. The dependent variables are occupational prestige scores: ISEI (International Socio-Economic Index) and SIOPS (Standard International Occupational Prestige Scale). Columns 1–4 include all individuals with recorded occupations, while columns 5–8 focus on individuals employed in non-agricultural jobs. All columns control for population density in 1820, agricultural suitability, predetermined quotas at lower-tier exams, ruggedness, and access to major navigable rivers. Additional controls include coastal proximity, the presence of Taiping Rebellions, treaty port status, urbanization rates, and exposure to Christian missions. Robust standard errors are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

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# For Online Appendix

## A Additional Tables and Figures

Table A.1: Summary Statistics

| | Obs. | Mean | S.D. |
|---|---|---|---|
| Density of Jinshi | 5,073 | 0.024 | 0.041 |
| Density of Juren | 4,256 | 0.125 | 0.180 |
| Pre-Existing Human Capital | 267 | 1.330 | 2.097 |
| Population Density (1776) | 267 | 132.01 | 146.46 |
| Population Density (1820) | 267 | 130.22 | 136.51 |
| Quota for Shengyuan | 267 | 1.052 | 0.983 |
| Caloric Suitability Index | 267 | 3631.62 | 949.02 |
| Ruggedness | 267 | 408.32 | 306.76 |
| Navigable River (dummy) | 267 | 0.345 | 0.476 |

**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) *Density of Jinshi/Juren* is the number of successful candidates per 10,000 population in a 10-year period. (4) *Pre-Existing 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 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) *Navigable River* is a dummy indicating major rivers identified by Matsuura (2009).

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 All | (5) Reform Positive | (6) Reform Negative |
| 1712 Reform Intensity × Post | 0.0157 | 0.185 | 1.468 | 0.102 | -0.331 | 0.754 |
| | (0.686) | (2.384) | (1.822) | (0.506) | (1.319) | (1.079) |
| Exam Rank | 7.625*** | 7.797*** | 7.366*** | | | |
| | (0.108) | (0.144) | (0.171) | | | |
| Initial Placement | | | | 1.717*** | 1.728*** | 1.695*** |
| | | | | (0.015) | (0.019) | (0.026) |
| 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 | 0.833 | 0.829 | 0.825 | 0.926 | 0.927 | 0.917 |
| Observations | 4806 | 3240 | 1566 | 4806 | 3240 | 1566 |

Each observation is a prefecture-period. 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.3: The Distributional Consequences of the 1712 Reform: Between Counties

| | Dependent Variable: The Density of Jinshi | | | |
|---|---|---|---|---|
| | (1) All | (2) All | (3) Reform Positive | (4) Reform Negative |
| $G^{1712}$ × PHC × Post | 0.0638*** | 0.0538*** | 0.0870*** | |
| | (0.019) | (0.018) | (0.021) | |
| $L^{1712}$ × PHC × Post | 0.0206*** | 0.0229*** | | 0.0161*** |
| | (0.005) | (0.006) | | (0.006) |
| 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 |
| Observations | 31293 | 31293 | 16682 | 14611 |
| Adjusted $R^2$ | 0.437 | 0.463 | 0.419 | 0.535 |

Each observation is a county in period $t$. $PHC$ is the density of jinshi in a county before 1650. $G^{1712}$ and $L^{1712}$ are our baseline measure of reform intensity. 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 county had access to any major navigable rivers, interacted with decade fixed effects. Column 3 only includes counties in provinces benefiting from the reform. Column 4 only includes counties in provinces harmed 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.

## Appendix.2

Table A.4: The Distributional Consequences of the 1712 Reform: The Role of Funding Agencies

| | Dependent Variable: The Density of Jinshi | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| | With Agencies | Without Agencies | With Agencies | Without Agencies |
| $G^{1712}$ × PHC × Post | -0.00106 | 0.117*** | -0.169 | 0.122*** |
| | (0.027) | (0.031) | (0.104) | (0.031) |
| $L^{1712}$ × PHC × Post | 0.0161* | 0.0418*** | 0.0145 | 0.0431*** |
| | (0.010) | (0.008) | (0.014) | (0.008) |
| Matched Sample | No | No | Yes | Yes |
| Controls × Decade FE | Yes | Yes | Yes | Yes |
| Province FE × Decade FE | Yes | Yes | Yes | Yes |
| Prefecture FE | Yes | Yes | Yes | Yes |
| Decade FE | Yes | Yes | Yes | Yes |
| Observations | 2489 | 2527 | 2204 | 2451 |
| Adjusted $R^2$ | 0.634 | 0.585 | 0.591 | 0.499 |

Each observation is a prefecture in period $t$. $PHC_p$ is the density of jinshi in prefecture $p$ before 1650. We use our main measure of reform intensity, $G^{1712}_{prov}$ and $L^{1712}_{prov}$. Column 1 includes prefectures with funding agencies in 1840. Column 2 includes prefectures without funding agencies in 1840. In columns 3 and 4, we use matched pairs of prefectures. Decade fixed effects, province fixed effects, and the interaction of decade fixed effects, province fixed effects, as well as 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, 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.

# B Data Appendix

This Appendix provides additional details on variables used in our analysis, including measures of population, land area, agricultural suitability, ruggedness, navigable rivers, funding agencies, and modern human capital outcomes. Table A.1 at the end summarizes key descriptive statistics for both individual- and prefecture-level variables.

## *B.1 Additional Variables and Data Sources*

### *(a) Pre-Existing Human Capital*

To proxy for baseline educational strength, we measure the density of *jinshi* 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 D.2.

### *(c) Historical Population*

We rely primarily on prefecture-level population estimates from the *Population History of China* by Cao (2005), 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., 1650–1840), 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

[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.

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

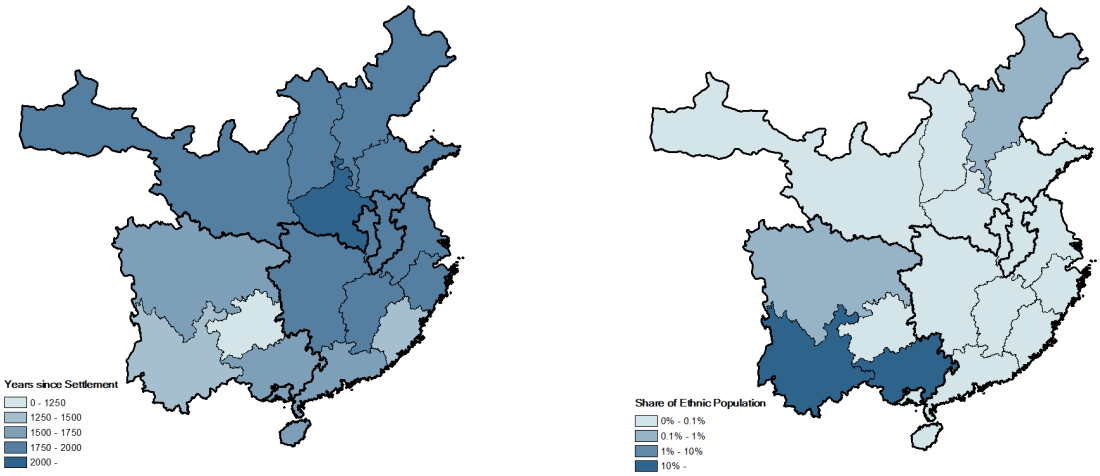
*(g) Funding Agencies for Imperial Exam Travel*

During the Qing era, wealthy donors in certain locales established *binxing ju* (travel-funding agencies) to subsidize the journey to Beijing for examinees attending the metropolitan exam. Mao (2014) compiles historical records of these agencies—covering the years 1644–1905—and documents their founding years and locations. We aggregate these data to the prefecture level and define a dummy variable indicating whether a prefecture had at least one funding agency by 1840.

# C Empirical Appendix

## *C.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 III, tended to be in the hinterland with a high share of ethnic populations (Figure A.1b). 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.1a). After the reform, these provinces saw an increase in the density of jinshi provinces with less exam success before (Figure II).




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

Figure A.1

## *C.2 The Impact of the 1712 Reform, 1660–1840: Additional Results*

### *C.2.1 The 1712 Reform: Dynamic Impact*

We estimate the dynamic impact of the 1712 reform on the quantity and bureaucratic rank of successful candidates using the following equation:

$$Y_{pref,t} = \beta_0 + \sum_{t=1650}^{1830} \beta_{1,t} ReformDensity_{prov} \cdot Period_t + \gamma X_p \cdot \eta_t + \delta_{pref} + \eta_t + \varepsilon_{i(p),t} \tag{8}$$

Results are available in Figure A.2 and Figure A.3.

### *C.2.2 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

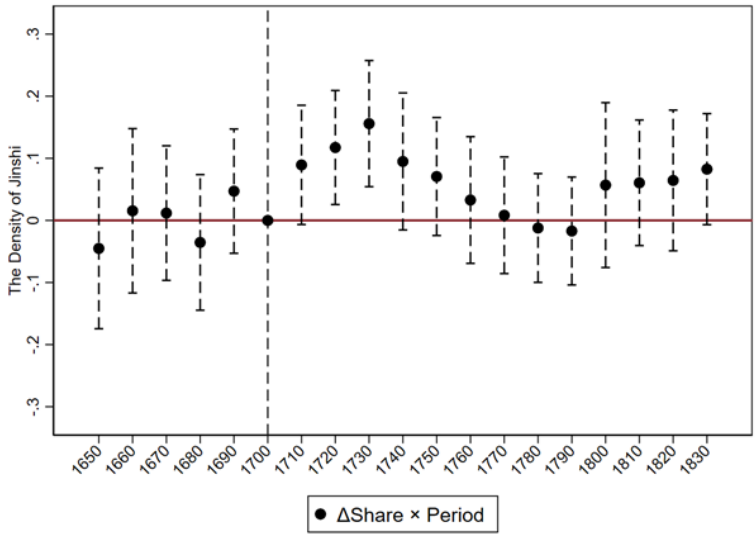



Figure A.2: The Dynamic Impact of The 1712 Reform

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

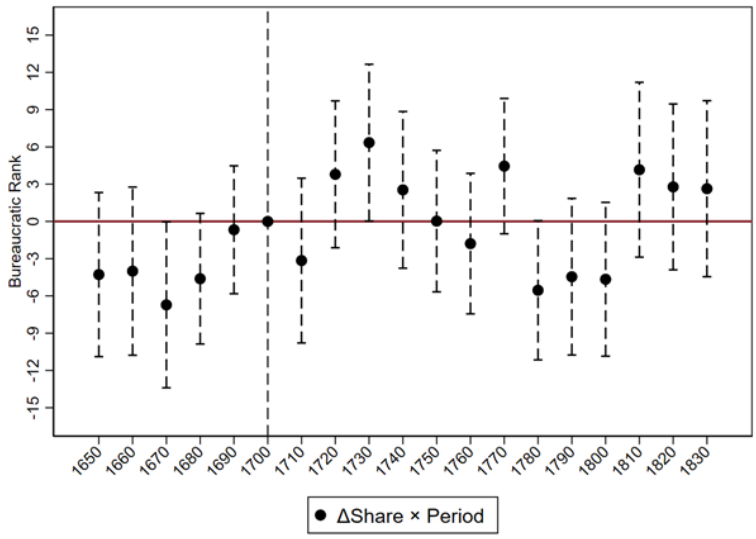



Figure A.3: The Dynamic Impact of The 1712 Reform

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

Appendix.7

the Qing period. From the Qing onwards, the government became more involved in founding and running academies. In Table A.5, 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.5: The Impact of the 1712 Reform on the Construction of Educational Institutions

| | Dependent Variable: Number of New Academies per 10,000 | | |
|---|---|---|---|
| | (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: 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.2.3 The 1712 Reform and Career Outcome Outcome: Further Investigation*

The 1712 reform had a different impact on the exam performance and professional outcome of successful candidates. To shed some light on these differences, in this section, we further unpack the impact of the reform on the professional outcome of successful candidates from underrepresented provinces.

We begin by showing that there is a linear relationship between exam performance and professional outcome. In Table A.6, a successful candidate's exam rank is consistently correlated with the various positions held by him. Notably, the rank received at the final round exam predicts both his initial placement and the highest position he ever reached.

Table A.6: Exam Performance and Career Outcome

| | Bureaucratic Rank | | | | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| | Initial Position | | Highest Position | | | |
| Exam Rank | 0.113*** | 0.118*** | 1.233*** | 1.277*** | 1.020*** | 1.060*** |
| | (0.037) | (0.035) | (0.090) | (0.103) | (0.099) | (0.101) |
| Initial Placement | | | | | 0.126*** | 0.123*** |
| | | | | | (0.031) | (0.031) |
| Controls × Decade FE | No | Yes | No | Yes | No | Yes |
| Region FE × Decade FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Province FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Decade FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 4704 | 4704 | 4314 | 4314 | 3532 | 3532 |
| Adjusted $R^2$ | 0.039 | 0.037 | 0.052 | 0.050 | 0.045 | 0.044 |

Each observation is a successful candidate (jinshi) from province $p$ in period $t$. Exam Rank is the ordinal rank of a successful candidate based on his raw score, standardized to 0 (lowest) to 1 (highest). Bureaucratic Rank is the standardized rank of the highest position held by successful candidates in the bureaucracy, ranging from 0.5 (lowest) to 9 (highest). In columns 2 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. Decade fixed effects, province fixed effects, and the interaction of decade fixed effects and exam region fixed effects are included in all columns. Coefficients are reported with robust standard errors in round brackets. ***, **, and * indicate significance at 1%, 5% and 10% levels.

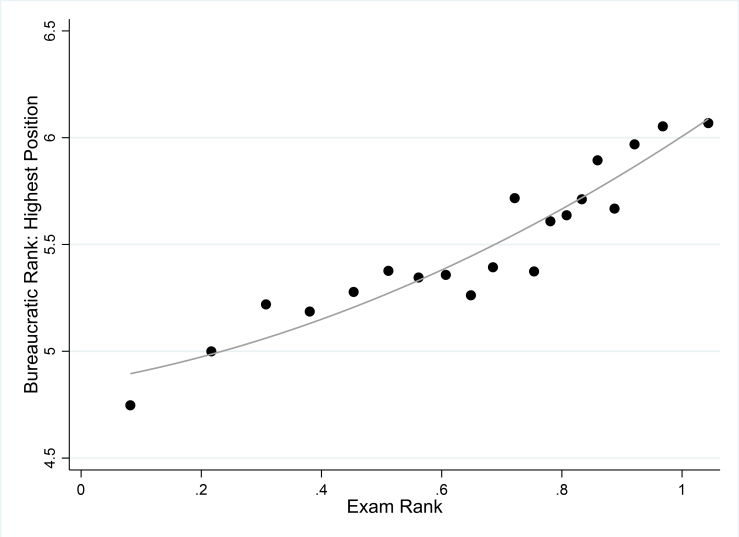



Figure A.4: The Relationship Between Exam Performance and Career Outcome

Notes: This figure is a binned scatterplot of the relationship between exam and bureaucratic rank with a quadratic fit. Each observation is an individual. Controls are the same as in column 4 of Table A.6. Standard errors are clustered at the province level.

### *C.3 The Distributional Consequences of The 1712 Reform: Additional Results*

#### *C.3.1 Dynamic Impact*

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

$$Jinshi_{pref,prov,t} = \beta_0 + \sum_{t=1650}^{1830} \beta_{1,t} G_p^{1712} \cdot Pre1650HC_{pref} \cdot Period_t + \sum_{t=1650}^{1830} \beta_{2,t} L_p^{1712} \cdot PHC_{pref} \cdot Period_t + \gamma X_{pref} \cdot \eta_t + \delta_p \cdot \eta_t + \theta_{pref} + \eta_t + \varepsilon_{pref,prov,t} \quad (9)$$

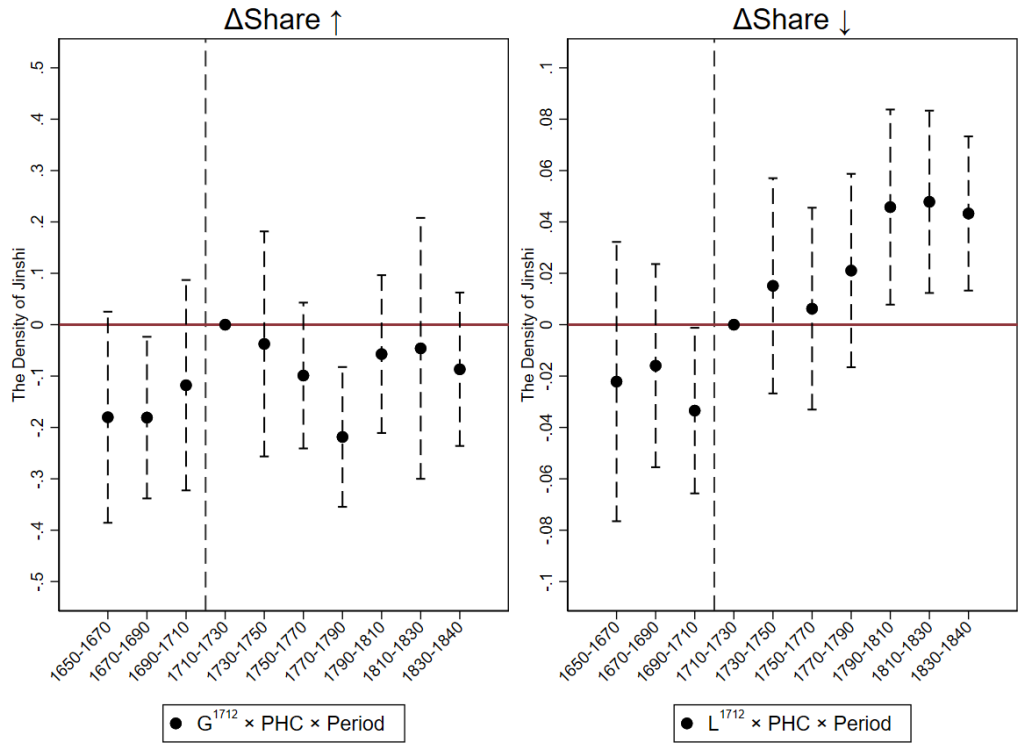



Figure A.5: The Distributional Consequences of the 1712 Reform, Dynamic Impact

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

#### *C.3.2 The Role of Funding Agencies*

Funding agencies in a prefecture in 1840 were not randomly assigned. As shown in Figure A.6, there were more funding agencies in eastern and southern provinces. We employ propensity score matching to improve the comparability of our treatment and control group. In calculating the probability for a prefecture to have a funding agency in 1840, we consider four variables: the prefecture's jinshi density before to 1650, its population density, its suitability for agriculture, and its predetermined quota at lower-tier exams. We apply a caliper of 0.1 using a nearest neighbor matching estimator, and choose up to 5 nearest neighbors.

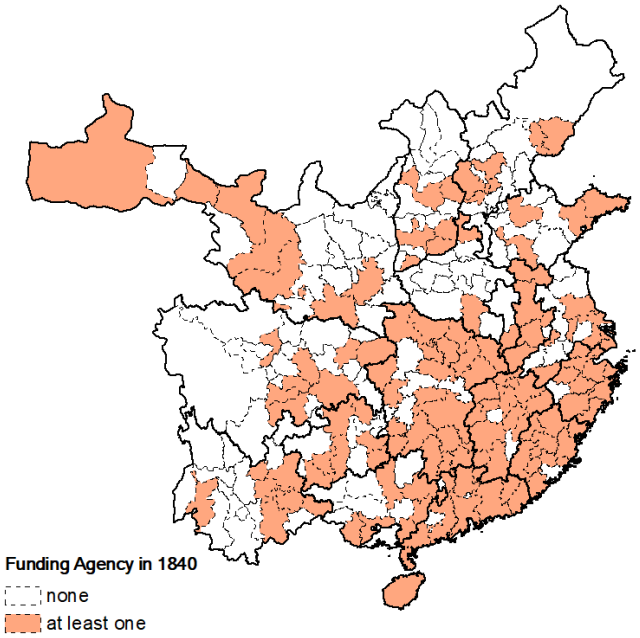



Figure A.6: The Geography of Funding Agencies

Table A.7 shows the results of a balancedness test for prefectures with and without funding agencies. Before matching, the prefectures with at least one funding agency had a slightly higher density of jinshi prior to 1650 and also a higher population density. After matching, the two samples are balanced on all characteristics. Figure A.7 also shows the distribution of propensity scores for prefectures with and without funding agencies both before and after the matching.

Table A.7: Balancedness Test for Prefectures With and Without Funding Agencies

| | Before Matching | | | |
|---|---|---|---|---|
| | With Agencies | Without Agencies | Bias (%) | T-Test |
| The Density of jinshi Before 1650 | 1.851 | 0.828 | 49.8 | 4.10*** |
| Population Density in 1776 | 158.78 | 106.24 | 36.3 | 2.97*** |
| Population Density in 1820 | 147.67 | 113.41 | 25.2 | 2.06** |
| Quota for Shengyuan | 0.948 | 1.152 | -20.9 | 1.70* |
| Caloric Suitability Index | 3620.3 | 3642.5 | -2.3 | -0.19 |
| | After Matching | | | |
| | With Agencies | Without Agencies | %Bias | T-Test |
| The Density of jinshi Before 1650 | 0.841 | 0.866 | 1.2 | 0.19 |
| Population Density in 1776 | 111.40 | 109.22 | 1.5 | 0.16 |
| Population Density in 1820 | 111.67 | 114.66 | -2.2 | -0.22 |
| Quota for Shengyuan | 1.074 | 0.994 | 8.3 | 0.90 |
| Caloric Suitability Index | 3575.4 | 3615.5 | -4.2 | -0.34 |

***, **, and * indicate significance at 1%, 5% and 10% levels.

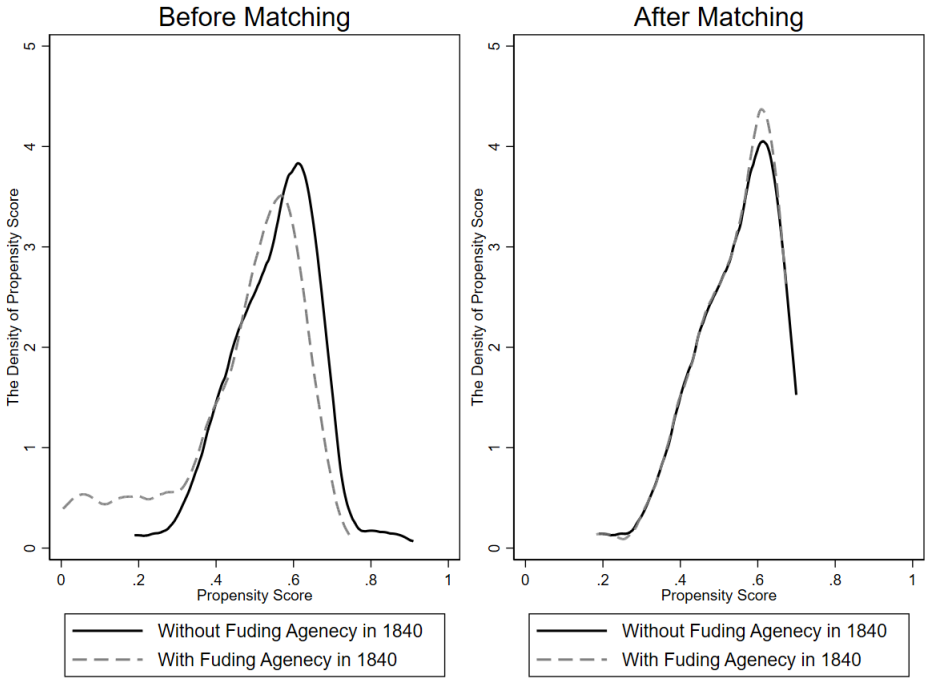



Figure A.7: The Distribution of the Propensity Scores of Funding Agencies

### *C.4 Changes in Inequality*

We construct measures of inequality in the density of jinshi for the entire period of 1650–1840. We use both Gini index and Theil index to measure inequality.

The Gini index is commonly used to measure income or wealth inequality in a population. It ranges from 0 to 1, with 0 indicating perfect equality (everyone has the same income or wealth) and 1 indicating perfect inequality (one person has all the income or wealth). The Theil index measures an entropic "distance" the population is away from the "ideal" egalitarian state of everyone having the same income. Theil index ranges from 0 to infinity, with 0 indicating perfect equality (everyone has the same level of a given variable) and higher values indicating greater inequality. We define a prefecture as our unit and decompose both gini index and theil index to measure between-province and within-province inequality.

Both overall inequality and between-province inequality declined after the reform, but there was a more substantial decline in between-province inequality. This implies that within-province inequality did not decline to the same extent. According to our analysis in Section V.B , indeed, the impact of the reform on individual prefectures depends greatly on the pre-existing human capital in a prefecture.

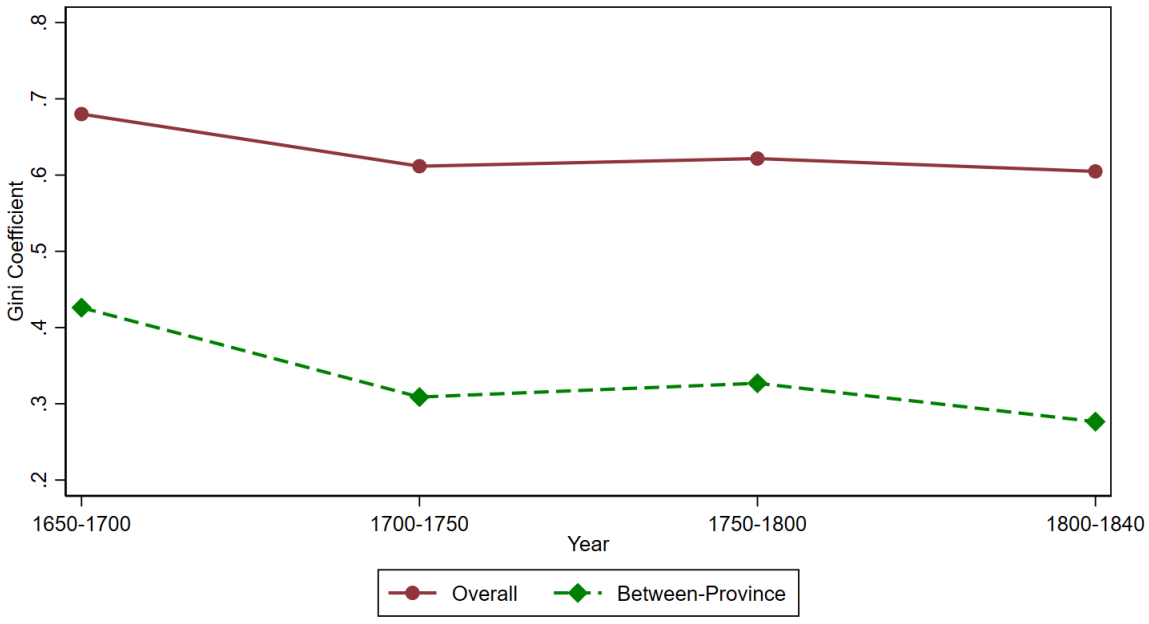



Figure A.8: Overall vs. Between-Province Inequality, Gini Coefficient

Note: The figures shows the gini coefficient for the density of jinshi across the country and between provinces. Our unit of analysis is a prefecture.

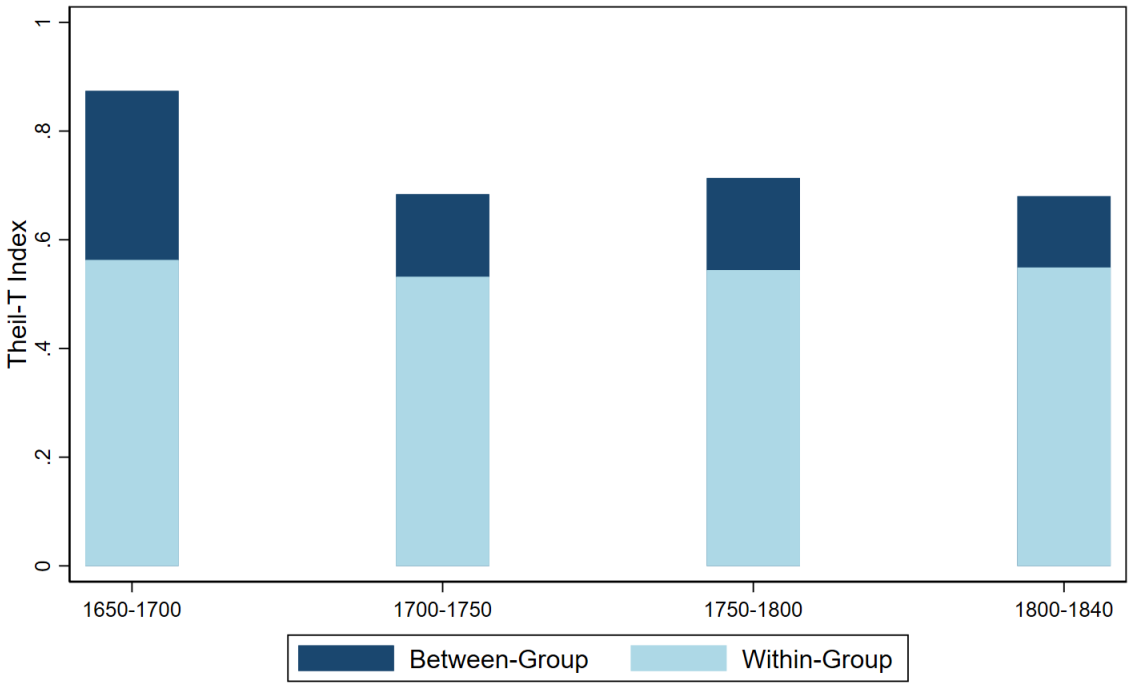



Figure A.9: Overall vs. Between-Province Inequality, Theil-T Index

Notes: The figures shows the Theil-T index for the density of jinshi across the country and between provinces. Our unit of analysis is a prefecture.

### C.5 The Policy Reversal in 1905: Additional Results

#### C.5.1 Dynamic Impact

We estimate the dynamic impact of the 1712 reform on the highly educated individuals using the following equation:

$$EducationalElite_{pref,prov,t} = \beta_0 + \sum_{t=1650}^{1830} \beta_{1,t} ReformIntensity_{prov} \cdot Period_t + \gamma X_{pref} \cdot \eta_t + \theta_{pref} + \eta_t + \varepsilon_{pref,prov,t} \tag{10}$$

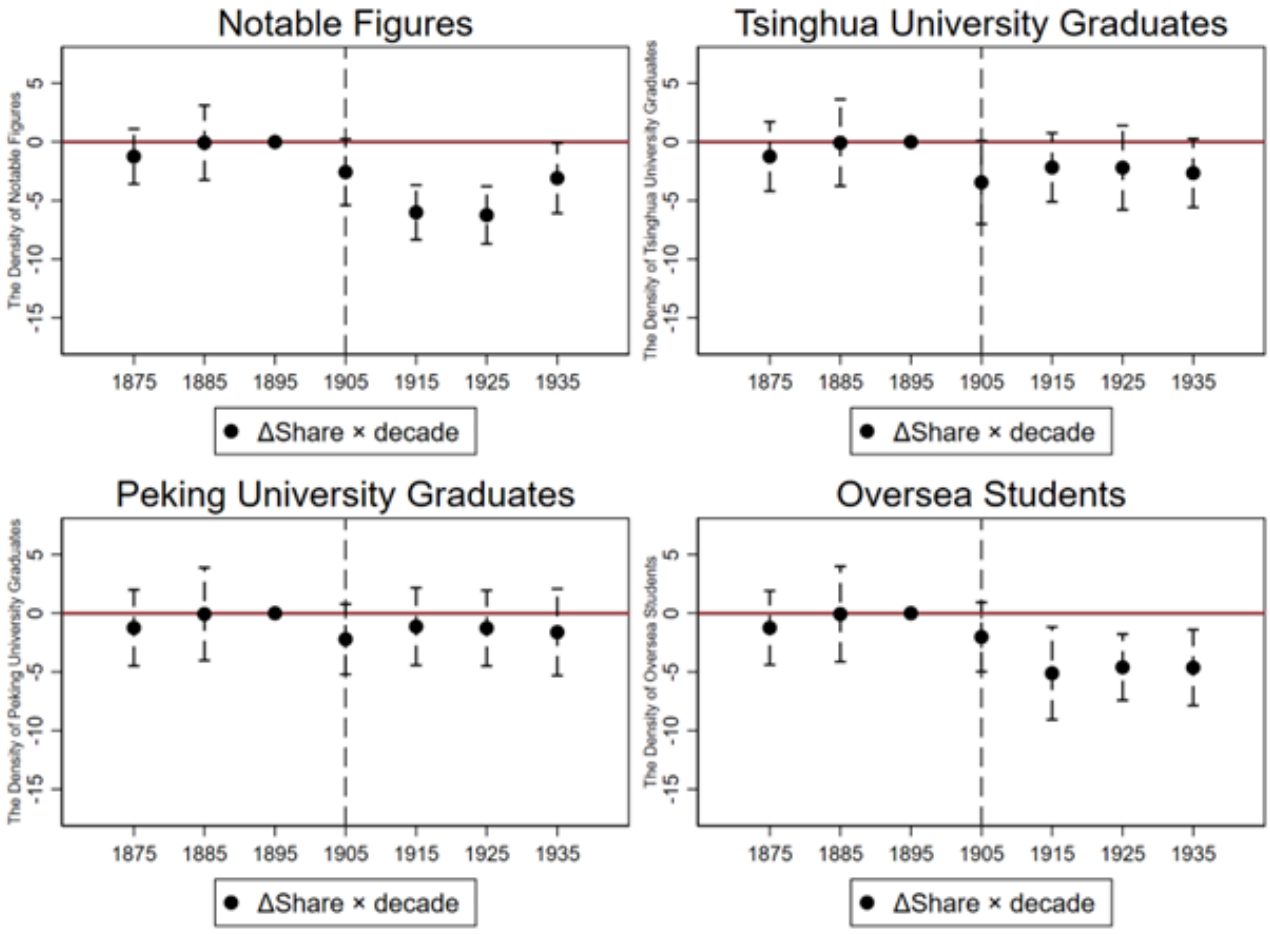



Figure A.10: The Impact of The 1712 Reform following a Poilcy Reversal in 1905

Notes: This figure plots the estimation results of equation 10. The points represent the coefficients, and the dash lines are confidence intervals (90%).

### C.6 Persistence and Spillovers: Additional Results

We perform a subsample analysis of the long-run effects of the 1712 reform on educational attainment. We find a strong correlation between the 1712 reform and the share of education with

tertiary education in 1982 across all subsamples . While women did not participate in imperial exams, there were positive gains for women from the reform in the long run when educational opportunities became available to them (columns 4-6). The positive impact of the reform on women could be due to positive spillovers from male members of society or an increased supply of teachers.

For secondary education or above, the positive association with the 1712 reform is the strongest for women (column 5), and there is a generally positive association across all subsamples. However, statistical significance is lacking in a few instances.

In column 3 of Table VI, we find a negative association between the reform and the share of the population with primary education. A subsample analysis suggests that the negative association is mainly driven by the rural sample (column 7), and the negative association is muted in the urban sample (column 10). Factors such as urban-rural migration and brain drain might explain the differential impact, but also the institutional differences between rural and urban schooling in 20th-century China. Further investigation is required to understand the cause of this negative association between the reform and primary education.

# D Historical Appendix

## *D.1 The 1712 Reform*

### *D.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.11 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

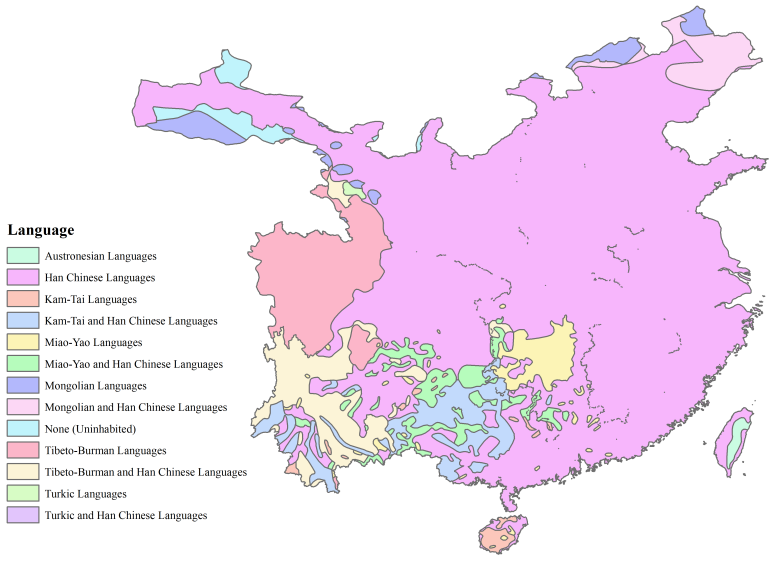



Figure A.11: The Language Distribution of Imperial China's 18 Inner Provinces

Data Source: ;

### *D.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

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

[8]Confucius. 2016. "Jishi." In *The Analecta of Confucius (Lunyu).* 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

> 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 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]

### *D.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.

#### *D.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

[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.

[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

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

**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]

### *D.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

[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

[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

> 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 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]

[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

**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]

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]

*D.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

[26] 2012, 278-279

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

[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

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]

*D.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.

"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,

[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.

[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

> 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.12.

Under the Qing Empire, hiring practices were generally merit-based. The primary source for middle- and high-level officials was jinshi. Table A.8 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.

Table A.8: Degree Distribution Across Official Ranks

| **The Emperor** | **Middle- & 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.9 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

[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

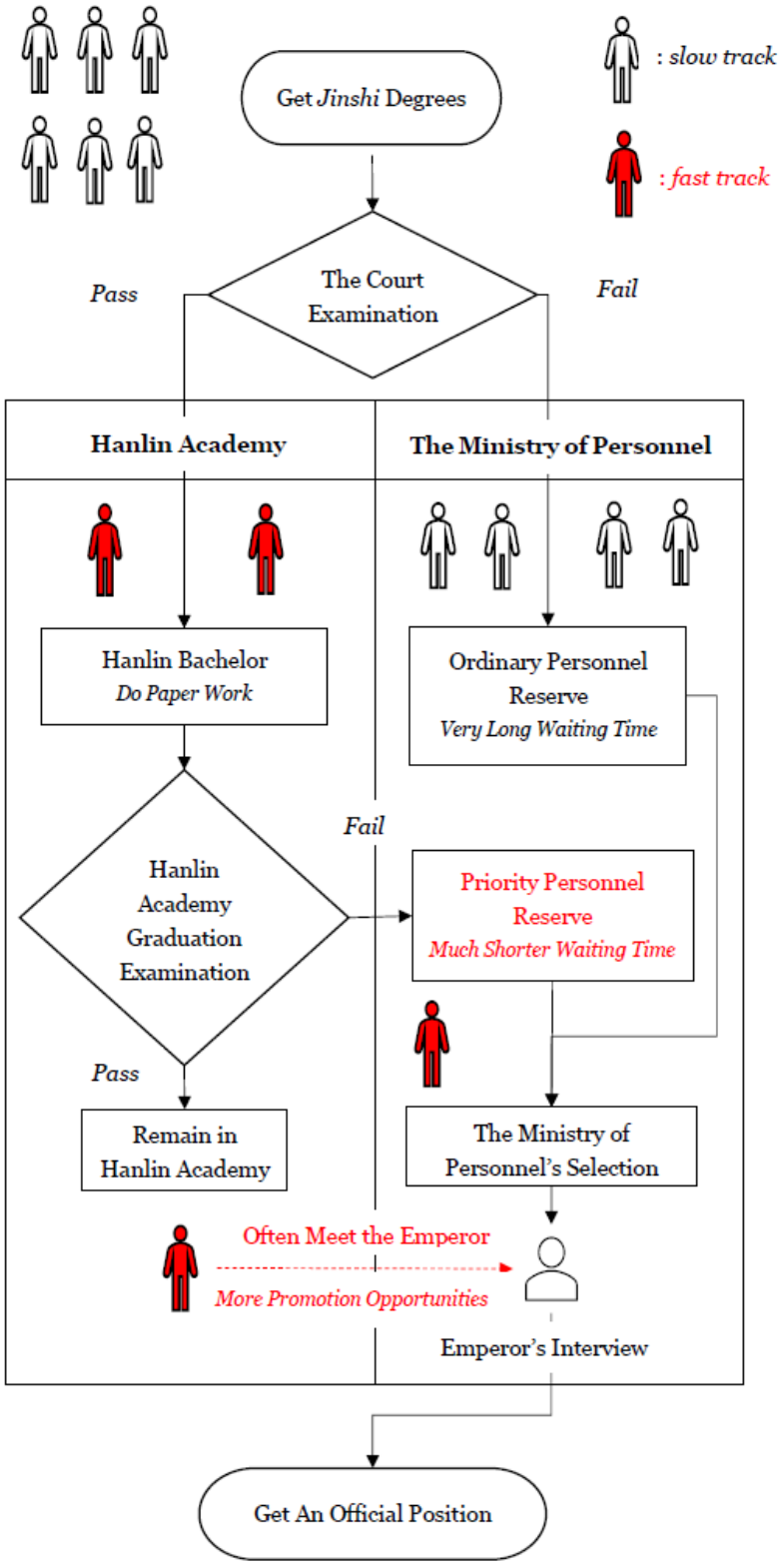



Figure A.12: Procedure for jinshi's Appointment as Officials

Table A.9: 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

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.9. 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]

*D.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 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

[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

> 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]

### *D.3 The Life of a Qing Intellectual*

#### *D.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 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

[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

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.

*D.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

[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.

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. 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]

*D.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:

[53] Xue, 2020. Chap. Two.
[54] Zhao et al., 2020
[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

> 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]

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]

[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

[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

### *D.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.

#### *D.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]

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 biassed 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

[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

[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

Table A.10: The Origins of Admitted University Students in ROC (1931–1934)

| Province | 1931 | | 1932 | | 1934 | |
|---|---|---|---|---|---|---|
| | Amount | Share | Amount | Share | Amount | Share |
| Hebei | 4268 | 9.60% | 4142 | 9.70% | 3701 | 9.69% |
| Shandong | 2857 | 4.20% | 1659 | 3.88% | 1674 | 4.38% |
| Zhejiang | 2469 | 5.60% | 3582 | 8.35% | 2972 | 7.78% |
| Guangdong | 5844 | 13.30% | 6072 | 14.21% | 7168 | 19.56% |
| Anhui | 1916 | 4.30% | 1901 | 4.45% | 1291 | 3.38% |
| Henan | 1236 | 2.80% | 1338 | 3.12% | 1238 | 3.24% |
| Sichuan | 2885 | 6.60% | 2853 | 6.07% | 2144 | 5.61% |
| Hubei | 1302 | 3.00% | 1350 | 3.16% | 1190 | 3.12% |
| Jiangxi | 1346 | 3.10% | 1376 | 3.21% | 1186 | 3.11% |
| Shanxi | 2387 | 5.40% | 2250 | 5.27% | 1946 | 5.10% |
| Hu'nan | 1592 | 3.60% | 1811 | 4.24% | 1721 | 4.51% |
| Liaoning | 3003 | 6.80% | 1756 | 4.12% | 1407 | 3.68% |
| Guangxi | 1073 | 2.40% | 1274 | 2.98% | 1192 | 3.12% |
| Fujian | 2609 | 6.90% | 1846 | 4.37% | 1665 | 4.36% |
| Jiangsu | 6647 | 15.10% | 7122 | 16.67% | 5902 | 15.46% |
| Gansu | 164 | 0.40% | 199 | 0.47% | 119 | 0.31% |
| Jilin | 865 | 2.00% | 567 | 1.32% | 297 | 0.78% |
| Heilongjiang | 327 | 0.70% | 338 | 0.79% | 106 | 0.28% |
| Yunnan | 329 | 0.70% | 320 | 0.75% | 219 | 0.57% |
| Shaanxi | 361 | 0.80% | 236 | 0.55% | 229 | 0.60% |
| Guizhou | 184 | 0.40% | 204 | 0.48% | 189 | 0.58% |
| Rehe | 84 | 0.19% | 69 | 0.16% | 36 | 0.09% |
| Suiyuan | 104 | 0.20% | 78 | 0.18% | 86 | 0.23% |
| Chahaer | 133 | 0.30% | 132 | 0.31% | 92 | 0.24% |
| Menggu | 2 | 0.01% | 11 | 0.03% | 12 | 0.03% |
| Ningxia | 25 | 0.06% | 20 | 0.05% | 28 | 0.07% |
| Xinjiang | 54 | 0.12% | 55 | 0.13% | 55 | 0.14% |
| Qinghai | 7 | 0.02% | 42 | 0.10% | 19 | 0.05% |
| Xikang | 6 | 0.01% | 7 | 0.02% | 2 | 0.01% |
| Tibet | 51 | 0.11% | 51 | 0.12% | - | - |
| Foreign | 37 | 0.08% | 54 | 0.13% | 124 | - |

Data Source: The Education Ministry (Jiaoyu Bu). 1933. *The Statistics of National High Education in 1932 (Ershi Niandu Quanguo Gaodeng Jiaoyu Tongji).* Commercial Publishing House, 25-26; The Education Ministry (Jiaoyu Bu). 1935. *The Statistics of National High Education in 1933 (Ershiyi Niandu Quanguo Gaodeng Jiaoyu Tongji).* Commercial Publishing House, 89-90; The Education Ministry (Jiaoyu Bu). 1936. *The Statistics of National High Education in 1934 (Ershisan Niandu Quanguo Gaodeng Jiaoyu Tongji).* Commercial Publishing House, 36

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]

Table A.10 provides a description of where the newly admitted students to the universities in 1931, 1932, and 1934 came from. It appears that students from economically developed eastern Chinese provinces including Hebei, Zhejiang, Guangdong, and Jiangsu had a strong advantage in admission. Students from Jiangsu and Guangdong made up more over 10% of the newly admitted students, respectively. The percentage of students from inner provinces like Yunnan, Gansu, Shaanxi, and Guizhou, in contrast, was typically less than 1%.

*D.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 & Guangxi, Zhejiang & 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 interior provinces had considerably easier access to the exam rooms and may benefit from exam papers that were district-specific.

[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