

# The Eve of Leviathan's Birth: Bureaucratic Reform and State Building in Early Medieval China\*

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## Abstract

How do bureaucratic reforms shape early state building when elite power faces weak institutional constraints? Existing theories emphasize impersonal bureaucracy, yet offer limited evidence on how recruitment reforms affect elite privilege and administrative selection. We examine the Cao Wei regime in early medieval China during the Three Kingdoms period, when rulers sought to centralize authority through political reforms targeting official recruitment. Using textual and prosopographical data, we employ difference-in-differences strategies to estimate the relationship between reform exposure and career outcomes. We find that the reforms significantly reduced aristocrats' likelihood of attaining higher office. Further analyses show that officials with stronger individual qualifications became more likely to advance after the reforms. The study clarifies how recruitment reform can strengthen merit-based selection and contributes to comparative research on bureaucratic development and early state building.

**Keywords:** Historical Political Economy, Political Recruitment, Bureaucracy, Aristocracy, Medieval China

*Nowadays the Secretariat and Chancellery's selection blinds the eyes and deafens the ears; in canvassing candidates under the Nine Ranks, they consult only the zhongzheng. Thus, those who secure the upper grades are either the sons and grandsons of dukes and marquises, or the brothers of men already in power. (今台阁选举，涂塞耳目，九品访人，唯问中正。故据上品者，非公侯之子孙，则当涂之昆弟也。)*

— Fang Xuanling 房玄龄 (Fang, 1974, juan 48, “Duan Zhuo zhuan”)

*The reason why the Central Realm has fallen into decay, why all within the Four Seas has crumbled, lies precisely in the misplacement of talent in selection: reputation is put before substance; superficial rivalry and frantic pursuit prevail; people promote one another by mutual recommendation; those whose words carry weight come to the fore first, while lighter voices are recorded only afterward. Thus they stir one another up like swelling waves, and decline ensues. (中华所以倾弊，四海所以土崩者，正以取才失所，先白望而后实事，浮竞驱驰，互相贡荐，言重者先显，言轻者后叙，遂相波扇，乃至陵迟。)*

— Fang Xuanling 房玄龄 (Fang, 1974, juan 71, “Chen Jun zhuan”)

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# 1 Introduction

State building is rare, fragile, and reversible. Even where states emerge, the consolidation of centralized authority seldom follows a linear or self-reinforcing trajectory. This difficulty lies not in rulers' ignorance of how to concentrate power, but in the fact that power must be exercised through preexisting social structures and political relationships that do not naturally serve the state. Authority's organization, especially along bureaucratic or patrimonial lines (Weber, 2019), has long been seen as a fundamental determinant of state-building outcomes. Classic accounts, exemplified by Ertman (1997), take this structural divide as a starting point for explaining divergent paths of state formation. Yet there has been insufficient attention to how such organizational foundations were initially established, contested, and stabilized—particularly in the early stages when control over official appointments and promotions constituted a core political bottleneck.

Why do some polities succeed in establishing more controllable and impersonal bureaucratic systems, while others remain trapped in patrimonial and privately mediated forms of rule? We argue that the answer lies in the political dynamics surrounding bureaucratic entry and promotion. Reforms designed to rationalize official recruitment can initially strengthen central control by constraining elite privilege, yet these gains are fragile when the institutions governing personnel selection are embedded in elite power structures. We develop this argument through a historical analysis of bureaucratic reform in third-century China, comparing the career trajectories of aristocratic and non-aristocratic officials before and after a major reform of the recruitment system. Using newly constructed prosopographical data and quasi-experimental designs, we show that reforms aimed at bureaucratic rationalization can advance state building, but are prone to elite resistance and institutional reversal.

This question also speaks to a broader historical puzzle of divergent state-building trajectories across regions. As Dincecco and Wang (2018) note, political geography shaped the long-run development of Europe and China, yet this contrast is often interpreted in overly static terms. Although ancient China is often described as having “prematurely” established a centralized bureaucratic state (Huang, 1988) that later influenced Japan and Korea (Huang and Kang, 2022), it remains underrepresented in general theories of state building (Chen, 2024). Conventional accounts often treat China's bureaucratic capacity as a fixed attribute and overlook the processes through which it was constructed, contested, and at times undermined. Some scholars recognize the decline of bureaucratic capacity in late imperial China (cf. Suryanarayan, 2024), yet rarely examine the dynamics of its initial development.

This omission matters for understanding China's divergence from Europe. After the classical era, China and Europe entered their “First Great Political Divergence” (Scheidel, 2009). Medieval China nonetheless shared key features with medieval Europe, including external threats, fragmented authority, and repeated yet fragile efforts at recentralization. Recent research links this divergence to differences in conflict, political development, and the informational and incentive problems of Chinese state institutions (Dincecco and Wang, 2018; Ma, 2011). Explaining their divergent institutional outcomes requires attention to the political struggles surrounding early bureaucratic reforms rather than treating state capacity as a static endowment.

One critical arena where these broad structural divergences became politically concrete was the control over bureaucratic recruitment. In early medieval China, authority over official appointment and promotion was not merely an administrative matter but a central mechanism through which rulers sought to penetrate society and constrain elite power. Our research revisits a pivotal episode in this struggle: the institutionalization of the Nine-Rank System (*jiupin guanrenfa*, 九品官人法) under the Cao Wei regime (220–265 CE), an effort to rationalize recruitment and reassert central control within a fragmented political order. Yet precisely because personnel selection lay at the heart of elite reproduction, the newly established institution was soon captured, and reforms which later disadvantaged powerful lineages (i.e., Zhengshi Reform [*zhengshi gaizhi*, 正始改制]) generated immediate resistance. As authority over evaluation and ranking was delegated to actors embedded in privileged families, the very mechanisms designed to enhance bureaucratic rationality became instruments of aristocratic consolidation. This logic suggests that reforms curtailing elite privilege may advance state building in the short run. Without durable control over personnel institutions, however, elites may later capture and reverse these reforms.

Our empirical analysis draws on two newly constructed datasets assembled through extensive manual collection from classical Chinese sources. The first is a cross-sectional dataset that records the highest official rank attained by all identifiable elites under the Cao Wei regime, capturing the career ceilings of individual officials. The second is a panel dataset that traces officials' rank trajectories across political periods, allowing us to observe promotions and demotions over time. These measures have clear historical meaning because office rank was the primary institutionalized indicator of political authority and access to state power in early imperial China. Leveraging variation in lineage status and entry timing around the reform, we employ difference-in-differences designs to estimate the impact of the Zhengshi Reform on aristocratic advantage in officeholding and promotion.

The estimates show a marked but temporary weakening of aristocratic advantage. During the reform period, aristocratic families experienced a significant decline in their likelihood of attaining high-ranking positions and in their pace of promotion after Cao Shuang's regency in the Zhengshi era. This pattern runs against the conventional view that the system entrenched hereditary privilege (Von Glahn, 2016). We further link promotion outcomes to indicators of individual ability and ethical reputation, showing that the reform improved bureaucratic quality by strengthening merit-based selection. These effects proved temporary. When political opposition culminated in the reform's reversal, aristocratic control over personnel institutions reemerged.

Our study contributes most directly to long-standing debates over the political foundations of state building. A dominant account links the growth of administrative institutions to external geopolitical competition. Sustained warfare can compel rulers to mobilize resources, expand administrative reach, and develop institutions for coercion and extraction (Tilly, 1975; Tilly et al., 1992; Mann, 1986; Giddens, 2013). This perspective identifies the conditions under which rulers begin to organize authority more systematically. Yet war does not uniformly strengthen administrative authority. Where rulers rely on external revenues or lack the capacity to penetrate society, conflict may intensify without generating state-building gains (Centeno, 1997). We identify a complementary pathway that operates through internal political conflict. Reforms of recruitment and

promotion can improve bureaucratic quality by aligning advancement more closely with competence and conduct. State building may therefore advance through struggles over how government operates, even when external conflict remains only a background condition.

We also advance research on elite politics and institutional change. Existing scholarship shows how rulers and dominant groups bargain over offices, resources, and institutional arrangements (Reinhard, 1996; Maćzak, 1996). It also shows that formal reforms may be neutralized or captured when entrenched elites retain de facto power (Acemoglu and Robinson, 2008). Recent work further explains how rulers manage elite resistance through institutional strategies that stabilize authority and facilitate political consolidation (Chen et al., 2025, 2026). These accounts generally treat offices and appointments as distributive stakes or instruments of elite bargaining. We instead treat personnel institutions as an organizational arena within the state. Control over recruitment, promotion, and career structures determines who governs and on what terms. It thereby translates political conflict into systematic changes in the organization of authority.

Third, the study connects state building to the literature on bureaucratic quality. Research on elites and administration often recognizes that rulers can use offices to reward allies or incorporate powerful groups. It has paid less attention to how personnel rules shape the qualities that officials must possess to enter and advance within the state. Our analysis identifies a mechanism through which political reform can affect state capacity: changes in recruitment and promotion reshape the relationship between individual qualifications and official advancement. This mechanism also clarifies why institutional gains may be reversible. When political opponents recover control over personnel institutions, they can restore elite advantage and undo earlier improvements in bureaucratic quality. Personnel institutions thus constitute an organizational technology of authority through which state capacity can be strengthened, weakened, or reversed over time.

The remainder of the paper proceeds as follows. Section 2 develops the theoretical argument and outlines the conditions under which personnel reforms can reshape bureaucratic quality and state-building trajectories. Section 3 provides the historical context of the Cao Wei regime and the political conflict surrounding the Zhengshi Reform. Section 4 introduces the data and empirical strategy. Section 5 presents the main findings and examines the mechanisms linking recruitment reform to merit-based promotion. Section 6 concludes.

## 2 Theoretic Model

### 2.1 A Minimal Model of Personnel Reform and Elite Conflict

#### 2.1.1 Actors

We consider a minimal political game between a ruler  $R$  and an aristocratic coalition  $A$ , embedded in a bureaucratic system  $B$ . The ruler represents the imperial authority or regency, while the aristocratic coalition captures coordinated noble families that possess local resources and reputational networks. The bureaucracy is modeled as an institutional device that governs access to office and the structure of career advancement—determining who enters the state, who rises to high rank, and how rapidly promotion occurs.

The interaction unfolds over three stages. At  $t = 0$ , the ruler chooses whether to reform personnel institutions,  $r \in \{0, 1\}$ . When  $r = 0$ , the pre-reform arrangement prevails, under which aristocratic advantages in recruitment and promotion remain intact. When  $r = 1$ , the ruler initiates a personnel reform, corresponding to the bureaucratic reform, which alters the rules governing appointment and advancement. At  $t = 1$ , the aristocratic coalition observes the institutional choice and responds by either complying with the reform ( $C$ ) or opposing and attempting to capture its implementation ( $O$ ). At  $t = 2$ , offices are allocated and promotions realized, generating observable outcomes in career ceilings and promotion rates across groups.

### 2.1.2 Two Institutional Outputs

To move beyond treating bureaucracy as a black box, we characterize personnel institutions through two observable institutional outputs that directly map onto bureaucratic career outcomes. The first is the career ceiling of aristocratic families. Let  $H$  denote the set of high-ranking offices within the state. We define  $\pi_H(r, a) \in [0, 1]$  as the probability or share with which members of the aristocratic coalition attain positions in  $H$ , conditional on the ruler's reform choice  $r$  and the coalition's response  $a$ . This quantity captures the extent to which elite families are able to occupy the upper tiers of the administrative hierarchy.

The second output is the pace of promotion. Let  $S$  denote the intensity of upward mobility from lower or mid-level offices to higher ranks. We define  $\pi_S(r, a) \in [0, 1]$  as the rate at which aristocratic officials advance along the bureaucratic hierarchy, measured as the probability of promotion within a given period or as the speed of rank transitions. Conceptually,  $\pi_H$  reflects cross-sectional differences in career endpoints, while  $\pi_S$  captures dynamic career trajectories over time. Together, these two outputs summarize how personnel institutions structure elite access to authority and the temporal dynamics of bureaucratic advancement.

## 2.2 Equilibrium

### 2.2.1 Pre-Reform Equilibrium

Under the pre-reform arrangement ( $r = 0$ ), aristocratic families possess structural advantages in both recruitment and advancement within the bureaucracy, rooted in reputational credentials, recommendation networks, local influence, and informational control. We capture these advantages in reduced form by assuming that, when the aristocratic coalition complies with the existing order, its members attain high-ranking offices with probability  $\pi_H(0, C) = \bar{h}$  and advance through the bureaucratic hierarchy at rate  $\pi_S(0, C) = \bar{s}$ , where  $\bar{h}$  and  $\bar{s}$  are relatively high.

The ruler's payoff depends on the degree of centralized control exercised through the bureaucracy. Let  $V(\pi_H, \pi_S)$  denote the ruler's benefit from bureaucratic performance and controllability, net of the political trade-offs associated with elite incorporation. While high-ranking aristocrats may provide coordination or cooperation benefits, greater aristocratic dominance over senior offices and rapid elite promotion constrain the ruler's ability to discipline officials and to align ad-

ministrative behavior with central priorities. Accordingly, we assume

$$\frac{\partial V}{\partial \pi_H} < 0 \quad \text{and} \quad \frac{\partial V}{\partial \pi_S} < 0.$$

In addition, confronting aristocratic opposition entails political costs  $K > 0$ , reflecting risks of instability or governance breakdown.

Given that the pre-reform system preserves aristocratic privileges, the coalition has no incentive to mount costly opposition. The resulting equilibrium is therefore  $(r = 0, a = C)$ , which constitutes the baseline world against which the effects of personnel reform are evaluated: aristocratic families enjoy high career ceilings and rapid promotion within the bureaucracy.

### 2.2.2 Personnel Reform as an Institutional Shock

We model the personnel reforms as an exogenous shock to personnel institutions that alters the constraints governing aristocratic access to office and advancement. When reform is implemented and the aristocratic coalition initially complies  $(r = 1, a = C)$ , the probability that aristocratic officials attain high-ranking positions declines to

$$\pi_H(1, C) = \bar{h} - \kappa_H, \quad \kappa_H > 0,$$

where  $\kappa_H$  captures the tightening of institutional constraints on aristocratic career ceilings. At the same time, the reform restructures promotion pathways—by increasing the weight of centralized evaluation or assessments of competence and conduct—such that the aristocratic rate of advancement falls to

$$\pi_S(1, C) = \bar{s} - \kappa_S, \quad \kappa_S > 0.$$

Together,  $\kappa_H$  and  $\kappa_S$  summarize the intended impact of personnel reform on bureaucratic careers. They represent reductions in aristocratic dominance at the top of the hierarchy and slow-downs in elite promotion induced by institutional reconfiguration, and correspond empirically to reform-period shifts in career endpoints and promotion dynamics.

### 2.2.3 The Aristocratic Response

Personnel reform induces a strategic response from the aristocratic coalition. The coalition's payoff has two components: benefits from officeholding and elite reproduction, which increase with aristocratic access to high office and rapid promotion, and the political costs of resistance, denoted by  $c > 0$ , which encompass risks associated with open opposition, coalition-building, obstruction, or attempts at institutional capture. We write aristocratic utility in reduced form as

$$U_A(r, a) = R(\pi_H(r, a), \pi_S(r, a)) - \mathbf{1}[a = O] \cdot c,$$

where  $R(\cdot)$  is increasing in both  $\pi_H$  and  $\pi_S$ .

If the coalition chooses to oppose the reform  $(a = O)$ , it seeks to reshape the implementation and control of personnel institutions—by influencing evaluation procedures or occupying key

gatekeeping positions—thereby partially or fully offsetting the reform’s intended effects. We capture this possibility by allowing resistance to attenuate the institutional constraints introduced by reform:

$$\begin{aligned}\pi_H(1, O) &= \bar{h} - \lambda_H \kappa_H, \\ \pi_S(1, O) &= \bar{s} - \lambda_S \kappa_S,\end{aligned}$$

where  $\lambda_H, \lambda_S \in [0, 1)$  measure the degree of institutional capture. Lower values of  $\lambda$  correspond to stronger capture and greater reversal of reform effects. The coalition resists if and only if

$$R(\bar{h} - \lambda_H \kappa_H, \bar{s} - \lambda_S \kappa_S) - c \geq R(\bar{h} - \kappa_H, \bar{s} - \kappa_S).$$

Intuitively, reforms that impose tighter constraints on aristocratic careers increase incentives to resist, while higher political costs of opposition discourage capture.

#### 2.2.4 The Short-Run Equilibrium of Reform

Anticipating the aristocratic coalition’s response, the ruler chooses whether to implement personnel reform at  $t = 0$ . The ruler’s utility is given by

$$U_R(r, a) = V(\pi_H(r, a), \pi_S(r, a)) - \mathbf{1}[a = O] \cdot K - \mathbf{1}[r = 1] \cdot F,$$

where  $F > 0$  denotes the fixed costs of initiating reform and  $K > 0$  captures the political risks associated with elite opposition. The function  $V(\cdot)$  represents the benefits of centralized control exercised through the bureaucracy and is decreasing in both  $\pi_H$  and  $\pi_S$ : greater aristocratic access to high office and faster elite promotion reduce the ruler’s ability to discipline officials and align administrative behavior with central priorities.

Reform is attractive when the expected gains from tightening personnel control outweigh the combined costs of reform and potential resistance. However, the ruler’s decision gives rise to distinct equilibrium trajectories depending on the political environment. In one equilibrium, reform is implemented under conditions in which elite resistance is temporarily deterred or delayed, leading initially to lower aristocratic career ceilings and slower promotion. Over time, as the costs of resistance decline or the ruler’s capacity to enforce reform weakens, the aristocratic coalition may shift to opposition and capture personnel institutions, attenuating or reversing the reform’s effects. This equilibrium generates a dynamic pattern in which reform produces observable short-term changes in bureaucratic careers, followed by longer-term erosion as institutional control is reasserted by entrenched elites. The model thus highlights the inherently reversible nature of personnel reform under conditions of sustained elite contestation.

### 2.3 Propositions and Empirical Implications

The model yields a set of propositions that directly translate into observable empirical predictions.

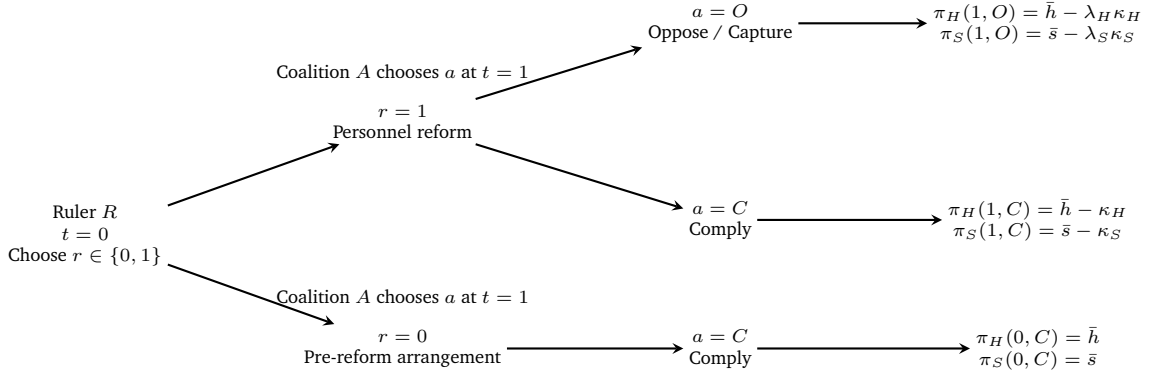


Figure 1: A minimal reform game

*Note:* At  $t = 0$ , the ruler chooses whether to implement personnel reform. At  $t = 1$ , the aristocratic coalition chooses whether to comply or to oppose and capture the reform. These choices generate observable personnel outcomes in career ceilings and promotion pace.

**Proposition 1 (Career Ceiling).** When personnel reform is implemented and institutional capture is absent or incomplete—i.e., the aristocratic coalition initially complies or capture remains limited—the probability that aristocratic families attain high-ranking offices declines:

$$\pi_H(1, \cdot) < \pi_H(0, C).$$

Reform-induced constraints  $\kappa_H > 0$  reduce aristocratic dominance at the top of the bureaucratic hierarchy.

Accordingly, aristocratic families should be less likely to reach the highest offices, producing a downward shift in the upper tail of the career distribution during reform periods.

**Proposition 2 (Promotion Pace).** Under the same conditions, reform also slows aristocratic advancement by tightening promotion rules and weakening elite-biased career channels:

$$\pi_S(1, \cdot) < \pi_S(0, C).$$

Here,  $\kappa_S > 0$  captures the reform's effect on promotion dynamics.

Accordingly, aristocratic officials should experience slower promotion rates, longer intervals between rank transitions, and reduced promotion hazards during reform periods.

**Proposition 3 (Reversibility).** If political contestation later enables successful institutional capture—reflected in declining  $\lambda_H$  and  $\lambda_S$ —the reform's effects attenuate or disappear:

$$\pi_H(1, O) \approx \pi_H(0, C), \quad \pi_S(1, O) \approx \pi_S(0, C).$$

Accordingly, reform effects should be strongest in the initial window following implementation and weaken over time, a pattern testable using dynamic designs.

## 3 Historical Context

### 3.1 Aristocracy in Medieval China

“Medieval China” refers to the period from the late Eastern Han through the fall of the Tang dynasty. It began with the uprisings and civil wars that shattered the Eastern Han and concluded with the Tang collapse. Chronologically, this era roughly corresponds to the early and middle stages of medieval Europe. Politically, medieval China and medieval Europe shared striking similarities: both lacked a unified central authority, experienced political fragmentation and the diffusion of power, and witnessed the rise of feudal politics. Socially, however, medieval China has been characterized as an “aristocratic society” (Tanigawa, 2013; Kawakatsu, 2018). The aristocracy formed the principal actors on the political stage of this period.

Johnson (2019) offered a classic definition of such aristocratic lineages (also termed *shizu*): several hundred great families whose genealogies were incorporated for multiple generations into the officially compiled registers. Like the feudal nobility of medieval Europe, the Chinese aristocracy enjoyed a high degree of autonomy. Their political legitimacy and socio-economic status derived from hereditary descent rather than recognition by the throne, which meant they were not dependent upon the monarch. Spread throughout the social fabric of the time, aristocratic families dominated bureaucratic offices and even state power itself, constantly pulling against rulers who sought to consolidate authority. Their presence exerted a profound and enduring influence on the trajectory of state formation.

In this dynamic, emperors interacted with the aristocracy through reforms and institutional innovations designed both to penetrate society and to concentrate power upward. The creation of the Nine Ranks System of Categorizing Officials was one such institutional design. Although it underwent significant transformation from inception to implementation, it epitomized the structural adjustments devised to mediate the relationship between monarchy and aristocracy.

### 3.2 A recruitment system built for disorder

The collapse of the Eastern Han (东汉) fractured northern China through war, migration, and unstable local loyalties. The early Wei order answered this by creating a *zhongzheng*-based information system to keep candidate screening functioning for the center (Du, 2016). In this logic, the Nine-Rank system was first framed as a talent-sorting fix rather than a hereditary ranking (Shen, 1974). *Sanguozhi* later reports Xiahou Xuan’s critique of how local grading and central appointment had blurred into one another (Chen, 1959), which is why the Zhengshi reforms should be read as an attempt to pull personnel authority back toward the Ministry of Personnel.

Great families did supply officials, networks, and reputational information, so their influence could still be substantial. But the core claim is that reform sought to correct the institutional logic: when a local evaluator both ranked moral reputation and decided career claims, central appointment lost informational control. The Zhengshi measures therefore aimed at strengthening the Ministry of Personnel’s comparative authority, even if they operated in an elite-heavy coalition.

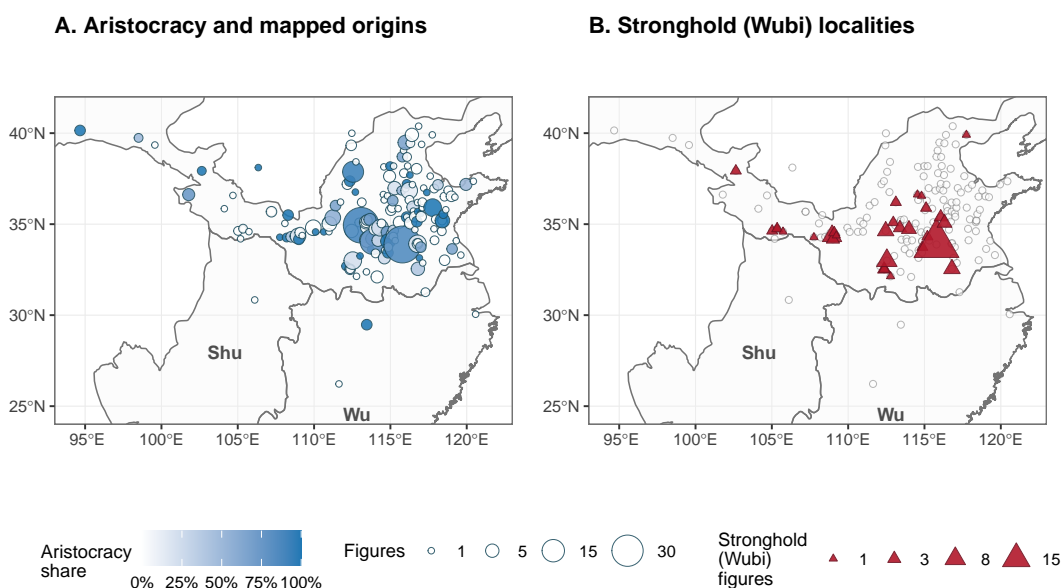


Figure 2: Mapped Aristocracy and Stronghold (Wubi) Locations

*Note:* The base map uses the Three Kingdoms 262 CE shapefile supplied with the replication materials. Coordinates are origin or location proxies from the audited person file, not observed movements or administrative jurisdiction. Panel A aggregates figures by mapped coordinate; bubble size is the number of figures at that coordinate and color is the aristocracy share. Panel B shows all mapped coordinates in grey and figures whose mapped locality has a recorded stronghold (*wubi*, 坞壁) in red triangles. The figure is descriptive and is not used for causal inference.

### 3.3 Zhengshi centralization and the Gaopingling reversal

The Zhengshi era began after Emperor Ming (明帝), Cao Rui (曹睿), died in 239, when Cao Shuang and Sima Yi became co-regents for the young Cao Fang (曹芳). Cao Shuang gradually concentrated authority among allies that included Xiahou Xuan, He Yan (何晏), and Deng Yang (邓扬). Their personnel measures sought to strengthen the Ministry of Personnel's role in comparing and appointing candidates and to limit the autonomous weight of local appraisal. The reforms left the Nine-Rank System in place and created no standardized examination, yet their direction was plainly centralizing: status transmitted through local evaluators was to matter less independently of the court's personnel organs.

The reformers were themselves elite men, a fact that clarifies the conflict. The cleavage ran inside the elite: high-status actors were contesting the institutional basis of political advancement. Cao Shuang's circle attempted to reduce the automatic conversion of lineage standing into bureaucratic rank while increasing the leverage of central selectors.

The experiment was brief. In 249, while Cao Fang and the Cao Shuang brothers were away from the capital at the Gaopingling tomb, Sima Yi seized strategic positions and obtained authorization to move against them. Cao Shuang surrendered and was later executed with leading associates. The coup destroyed the coalition most closely associated with reform and began the Sima family's domination of Wei.

The coup cannot be reduced to an aristocratic counterrevolution. Both factions contained men from prominent families, and rivalry over regency power, military command, and personal survival was immediate and decisive. The narrower historical claim is more defensible: personnel reform

redistributed expected careers inside an elite order, and the reform coalition failed to secure the coercive and political support needed to preserve its institutional project. The case therefore links career redistribution to a broader episode of coalition change without reducing one to the other.

Based on the theoretical and historical analysis above, we contend that reforms initiated by rulers can effectively promote the de-aristocratization of the bureaucratic system, making it more difficult for aristocratic families to attain high positions after such reforms. Specifically, we propose the following hypotheses:

$H_1$ : The Zhengshi Reforms lowered the career ceiling for aristocratic families in official positions.

$H_2$ : The Zhengshi Reforms slowed the pace of promotion for aristocratic families.

## 4 Empirical Evidence

### 4.1 Data

This study rests on a purpose-built database that systematizes the collection, cleaning, and structuring of historical materials; it anchors the empirical analysis that follows. The discussion below outlines sources, variables, and measurement.

#### 4.1.1 Sources

Identifying political elites is the initial hurdle. [Tackett \(2014\)](#) treats individuals with extant epitaphs in the Tang as elites. Guided by these insights, we classify as political elites, for the period under study, (i) the vast majority of biographical subjects in the *Twenty-Four Histories* and (ii) individuals with extant epitaphs. The qualifier “vast majority” reflects the occasional inclusion of categories such as *fangshi* (ritual specialists), recluses, and chaste women, whose numbers are small; the remaining biographical subjects held official posts. Because excavated epigraphic materials for the Wei–Jin era are relatively scarce (in contrast to the Northern Dynasties and Sui–Tang), our principal sources are transmitted standard histories, with the *Records of the Three Kingdoms* (*Sanguozhi*, 三国志) and the *Book of Jin* (*Jinshu*, 晋书) at the core, supplemented by the *Book of the Later Han* (*Hou Hanshu*, 后汉书).

#### 4.1.2 Variables and Measurement

We combine line-by-line manual verification with AI-assisted text mining to build two complementary datasets on political elites: one is a cross-sectional dataset ( $n = 654$ ) in which the unit of observation is an elite affiliated with the state of Wei; variables include name, lineage background, native place (with coordinates), the site at which the ruler incorporated the elite (with coordinates), social ties, whether the individual held independent military command (indicator), offices held, noble rank, and ultimate fate; the other is a panel dataset ( $n = 4,578$ ), built on the cross section, in which the unit of observation is the highest office an elite held within a defined period. Appointment dates in transmitted histories are often imprecise (“regnal era + early/mid/late,”

or vague phrases such as “subsequently transferred/promoted”), which precludes event-time panels with exact dates of the sort used in modern cadre studies. Following [Chen et al. \(2025\)](#), we therefore index time by the reign of the sovereign (mutually exclusive), further refined by distinct regnal era names (also mutually exclusive); for each elite–period we record the initial office, terminal office, and peak office.

### 4.1.3 Aristocracy

Because reforms to bureaucratic selection affect state building primarily through the aristocracy, we code whether an elite belongs to an aristocratic lineage using four integrated criteria: first, if the biography or its annotations apply labels such as “*guan zu*, 冠族” (leading lineage), “*guang ai*, 冠盖” (eminent “carriage-canopy” families), or “*you xing*, 右姓” (patrician surnames), we code the individual as aristocratic; second, if the biography records birthplace, we combine place and surname to form a prior (e.g., the Wang of Langya; the Wang of Taiyuan; the Cui of Qinghe) and then cross-check against the other criteria; third, we revise Mao Hanguang’s rule—which requires two of three generations within a three-generation window to have held rank five or above but leaves ambiguous whether the subject’s own generation is counted and faces internal-consistency issues ([Mao, 2002](#); [Wang, 2025](#))—by coding aristocratic origin if, counting upward *including* the subject, two of three generations held rank five or above, *or* three of five generations did so; and fourth, if none of the above applies but the lineage is widely recognized by historians as aristocratic—for example, the four great surnames of Jiangdong (Zhu, Zhang, Gu, and Lu) ([Fang, 1991](#)) or the “pure-stream” notables who commanded cultural capital without necessarily holding high office ([Yang, 1936](#))—we also code the individual as belonging to an aristocratic lineage.

### 4.1.4 Office ranks

We assign office ranks primarily on the basis of *Wei Guanpin* (魏官品) as preserved in Du You’s *Tongdian*. Although the precise date of *Wei Guanpin* remains debated ([Zhu, 1998](#); [Yan, 2023](#); [Zhang, 2006](#)), it provides an authoritative contemporaneous ordering and thus serves as a principled basis for scaling offices in the database. Moreover, while the relationship between the “official rank” (*guanpin*) and the “local rank” (*xiangpin*) under the Nine Ranks System has not been definitively established, scholars such as Miyazaki Ichisada and Chen Changqi argue that, in the Wei–Jin period, an official’s initial appointment rank generally corresponded to his local rank, with an average discrepancy of four grades between the two ([Miyazaki, 2008](#); [Chen, 2016](#)). For robustness checks, we also employ the salary grades (*zhi*) in the “Treatise on the Hundred Officials” (*Baiguan zhi*) of the *Hou Hanshu* as an alternative measure.

### 4.1.5 Strongholds

Drawing primarily on the *Commentary on the Water Classic* (*Shuijing zhu*), and secondarily on the *Book of Wei* (*Weishu*), the *Book of Zhou* (*Zhoushu*), and the *History of the Northern Dynasties* (*Beishi*), we compile a register of strongholds (*wubi*) extant during the Han–Wei periods. The

database records whether such strongholds existed at an elite’s native place and at the site of incorporation, together with their locations.

## 4.2 Empirical Strategies

### 4.2.1 Cross-Sectional Design: Career Ceilings

To test Hypothesis 1, we estimate a cross-sectional model at the level of the individual elite affiliated with Wei. The dependent variable is the highest office rank attained during an individual’s Wei career (MaxRank), scaled by the Nine Ranks system so that larger values indicate more senior positions. Treatment is defined as the interaction between aristocratic lineage and entry into office during or after Cao Shuang’s regency, the period in which the reform was implemented. Formally, let  $\text{Aristocrat}_i \in \{0, 1\}$  indicate aristocratic lineage and  $\text{ReformCohort}_i \in \{0, 1\}$  indicate first appointment during/after the regency. Our baseline specification is

$$\text{MaxRank}_i = \alpha + \beta_1 (\text{Aristocrat}_i \times \text{ReformCohort}_i) + X_i' \gamma + \varphi_i + \varepsilon_i.$$

The vector  $X_i$  collects pre-determined characteristics, including indicators for independent military command, and a dummy equal to 1 if one was killed by the ruler.  $\varphi_i$  includes birthplace fixed effects and cohort controls in the form of first-appointment reign fixed effects.

Identification follows a difference-in-differences logic. The coefficient  $\beta_1$  compares aristocrats with non-aristocrats across pre-reform versus reform-and-after cohorts. A negative  $\beta_1$  supports H1 by indicating that the reform reduced the career ceiling of aristocratic elites.

### 4.2.2 Panel Design: Promotion Dynamics

To further investigate the impact of the reform on the promotion dynamics of aristocratic elites, we construct a panel dataset in which the unit of analysis is the elite–period, with each period indexed by the reign of the sovereign and further refined by regnal era. For each elite–period observation, we record the highest office held during that period, enabling us to trace within-career trajectories of rank accumulation.

The outcomes of interest are two complementary measures: the first is the level of rank attained in a given period, denoted as  $\text{Rank}_{it}$ , which reflects the highest office held by an individual during period  $t$ . The second is the change in rank, calculated as  $\Delta \text{Rank}_{it} = \text{Rank}_{it} - \text{Rank}_{i,t-1}$ , representing the step-change in promotion from the previous period.

Our baseline specification employs a difference-in-differences approach with group fixed effects. Instead of using individual fixed effects, we control for fixed effects related to the individual’s birthplace, which captures regional or clan-based influences that could be correlated with both the individual’s promotion and their family background. The regression model is as follows:

$$\text{Rank}_{it} = \gamma_{j(i)} + \delta_t + \beta (\text{Aristocrat}_i \times \text{Post}_t) + X_{it}' \theta + u_{it}$$

where  $\gamma_{j(i)}$  represents the birthplace fixed effects, indexed by  $j(i)$ , which absorbs any time-invariant factors related to the individual’s region of origin. These fixed effects account for system-

atic differences in political, economic, or cultural factors across different regions that might influence an individual’s access to resources or opportunities for promotion.  $\delta_t$  are time fixed effects at the reign or regnal era level, capturing any common shocks to the bureaucracy that affect all elites.  $Post_t$  is a binary indicator for periods during or after the reform, while  $X_{it}$  includes time-varying covariates such as current military command, changes in noble titles, and any period-specific assignments derived from biographical records. The coefficient  $\beta$  identifies the differential change in aristocrats’ rank trajectories relative to their non-aristocratic counterparts after the reform.

By using birthplace fixed effects, we allow for the possibility that individuals from the same region or family background share certain advantages or barriers that affect their promotion opportunities, while still isolating the effect of the reform. This approach prevents the over-control of variables that are inherent to the family or regional identity of the individual, while enabling a clearer identification of the reform’s impact on promotion dynamics.

To facilitate interpretation, we also present parallel estimates with  $\Delta Rank_{it}$  as the dependent variable, where  $\beta$  can be interpreted as the intensity of promotion change for aristocrats relative to non-aristocrats.

## 5 Findings

### 5.1 Cross-Section Regression

To examine pre-existing trends and assess the dynamics of the reform’s impact, we perform an event study (See Appendix: B). Table 1 reports cross-section estimates of the reform’s effect on aristocrats’ career ceilings, measured by the highest office reached. Before the reform, aristocratic lineages enjoyed a clear premium in ultimate rank, consistent with entrenched lineage advantage. The coefficient on the interaction between aristocratic status and the reform cohort is negative and statistically precise across all specifications, indicating that, relative to non-aristocrats, aristocrats who entered during or after Cao Shuang’s regency ultimately topped out at lower ranks. The main effect for the reform cohort itself is small and imprecise, implying no broad secular compression of career ceilings among non-aristocrats across cohorts. Together, these patterns point to a closing of the aristocratic advantage driven by a downward shift in aristocrats’ career maxima rather than an across-the-board reshuffling of the rank ladder.

The result is robust to progressively stringent controls and fixed effects. Adding individual covariates does not overturn the finding, and absorbing birthplace and first-appointment reign effects—thereby conditioning out regional milieus and cohort composition—attenuates but does not eliminate the estimated penalty. In substantive terms, the estimates are large enough to be meaningful in the Nine Ranks metric and remain stable across alternative model choices and sample definitions. These findings align squarely with *H1*: the reform curtailed aristocratic privilege by lowering the career ceiling available to members of powerful lineages.

We also assess timing via placebo windows that shift the reform one reign earlier and one reign, and verify that the effect is tied to specifically to Cao Shuang’s reform (see Appendix, Table A1).

Table 1: Baseline Models

Dependent Variable: Model:	(1)	(2)	MaxRank	
			(3)	(4)
<i>Variables</i>				
ReformCohort × Aristocrat	-1.452*** (0.5557)	-1.440** (0.5782)	-1.051** (0.3794)	-0.9976** (0.4257)
Controls		Yes		Yes
<i>Fixed-effects</i>				
Birthplace			Yes	Yes
emperor1_id			Yes	Yes
<i>Fit statistics</i>				
Observations	316	286	220	201
R <sup>2</sup>	0.08002	0.10046	0.13551	0.19507
Within R <sup>2</sup>			0.03309	0.10041

*Signif. Codes: \*\*\*: 0.01, \*\*: 0.05, \*: 0.1*

*Note: Sample used in model (2) and (4) excludes individuals executed by the emperor to avoid post-treatment bias.*

## 5.2 Promotion Dynamics

Table 2: Panel Regression

Dependent Variables: Model:	Rank (in one reign)		ΔRank	
	(1)	(2)	(3)	(4)
<i>Variables</i>				
Aristocrat × Post	-0.5159** (0.1968)	-0.6326** (0.2294)	-1.334*** (0.3623)	-1.486*** (0.3779)
Controls		Yes		Yes
<i>Fixed-effects</i>				
prov_id	Yes	Yes	Yes	Yes
emperor_id	Yes	Yes	Yes	Yes
<i>Fit statistics</i>				
Observations	987	987	773	773
R <sup>2</sup>	0.07267	0.09845	0.05914	0.07301
Within R <sup>2</sup>	0.00643	0.03406	0.01167	0.02624

*Clustered (prov\_id) standard-errors in parentheses*

*Signif. Codes: \*\*\*: 0.01, \*\*: 0.05, \*: 0.1*

Table 2 examines how the reform altered promotion dynamics within careers. Focusing on the interaction between aristocratic status and the post-reform period, the estimates consistently indicate a deterioration in aristocrats' advancement relative to non-aristocrats. In the level specifications, aristocrats appear to hold a modest advantage before the reform, but the interaction turns negative and statistically precise once the reform is in place, implying that, conditional on remaining in office, aristocrats occupy lower ranks per reign after the policy change than comparable non-aristocrats. The change-in-rank specifications tell the same story from a dynamic angle: the interaction is again negative and precise across models, indicating smaller promotion increments for aristocrats in the post-reform years. Adding covariates does not overturn these patterns, and

absorbing birthplace and reign fixed effects while clustering by birthplace leaves inference intact. Taken together, the panel results align with *H2*: the reform dampened aristocrats' promotion intensity and, cumulatively, pushed their period-by-period rank profiles below those of non-aristocrats.

### 5.3 Alternative Explanation

To address selective entry as a competing explanation and strengthen identification, we re-estimate the *H<sub>2</sub>* specification on a restricted panel that includes only officials who had already entered the Wei bureaucracy prior to the reform, excluding all post-reform entrants (See Appendix, Table A2). We employed this test to rule out confounding factors between Hypotheses 1 and 2.

Furthermore, it is noteworthy that certain officials from distinguished aristocratic lineages expressed support for Cao Shuang's reform initiatives. Conversely, not all officials who endorsed the Gaopingling coup led by Sima Yi hailed from such high-ranking families. In order to eliminate the potential confounders, the individuals related to these two events were removed from the dataset, and the tests were conducted once more. The results did not modify our initial findings (See Appendix, Table A3 & Table A4).

### 5.4 Bureaucracy Quality and State Building

To further assess whether Cao Shuang's reform contributed not only to the redistribution of offices away from aristocratic families but also to the qualitative improvement of the bureaucracy, we incorporate additional measures of individual ability and moral character. These variables are hand-coded directly from standard dynastic histories. Specifically, one is coded as having talent if his biography or annotated sources contain explicit descriptions, and as having virtue if he is described with moral terms. Each variable takes the value of one when such an appraisal is present and zero otherwise.

To address the concern that biographical records may systematically privilege the documentation of talent among aristocratic elites – since individuals from prominent lineages were more likely to be commemorated and their abilities noted – we conduct an additional analysis focusing exclusively on members of aristocratic families. This restriction mitigates selection bias arising from uneven historical visibility between aristocrats and commoners. Within this subsample, we further narrow the focus to individuals who entered office after the establishment of the Nine Ranks System but before the Gaopingling coup, thereby holding institutional and political context constant. The specification includes controls for moral character as well as fixed effects for entry cohort and provincial origin, ensuring that comparisons are drawn among contemporaneous elites of similar geographic and temporal backgrounds.

The results (Table 3) reveal that, among aristocrats, those described as talented and who began their official careers following Cao Shuang's reform achieved higher terminal ranks over their lifetimes. Although the coefficient is only marginally significant, the direction and magnitude of the effect are consistent with the interpretation that the reform elevated the role of merit in shaping bureaucratic outcomes. This pattern suggests that, even within the entrenched aristocracy, the Zhengshi reform modestly enhanced the selection of more capable officials, providing supplement-

tary evidence that the bureaucratic rationalization pursued during this period was associated with an improvement in administrative quality rather than merely a redistribution of offices among elite families.

Table 3: Evidence of State Building: Bureaucratic Quality

Dependent Variable: Model:	MaxRank (1)
<i>Variables</i>	
Talent	-0.0550 (0.6836)
Virtue	1.412*** (0.3082)
Talent $\times$ ReformCohort	1.276* (0.6413)
<i>Fixed-effects</i>	
Birthplace	Yes
EntryCohort	Yes
<i>Fit statistics</i>	
Observations	69
R <sup>2</sup>	0.17095
Within R <sup>2</sup>	0.10605
<i>Clustered (Birthplace) standard-errors in parentheses</i>	
<i>Signif. Codes: ***: 0.01, **: 0.05, *: 0.1</i>	

## 6 Conclusion

Rulers have long pursued strong states, with bureaucracy as the principal instrument. Bureaucratization expands state capacity by displacing kinship, locality, and birth as criteria for officeholding and by concentrating authority at the center.

Bellicist accounts typically portray state building and state formation as tightly coupled and largely linear, yet this framework travels poorly beyond Europe. China—often regarded as an early mover in bureaucratization—followed a more tortuous path, including episodes of political fragmentation and weakening central authority in the early medieval era. We examine a major bureaucratic reform from this period using textual and prosopographical evidence, complemented by robustness checks, to estimate its effect on the probability that great aristocratic clans secured high office. The reform initially curtailed their access, but by threatening entrenched interests it spurred elite counter-mobilization; the institution was ultimately captured, re-hereditizing office and undermining central control. In the long run, this capture produced a three-century setback in state building. From the Eastern Jin onward—signaled by the dictum that “Wang and Ma shared the realm” (Fang, 1974, juan 98, “Wang Dun zhuan”)—the polity operated as a condominium between the throne and the great aristocratic houses, and an aristocratic social order crystallized. Thereafter, Chinese state building unfolded as a prolonged tug-of-war between the monarch and hereditary clans, until reunification under the Sui–Tang and the advent of the civil service examinations reconstituted a centralized monarchical-bureaucratic state.

In this study, the metaphor of an “eve” does not suggest that a fully developed bureaucratic Leviathan was about to emerge in the Wei–Jin period, but rather highlights a brief moment in which the institutional foundations for such a state momentarily became possible. Although short-lived, the Zhengshi reforms constituted a rare attempt to centralize personnel evaluation, weaken the authority of local zhongzheng officials, and constrain aristocratic career trajectories—changes substantial enough to provoke the Gaopingling Coup that reversed them. This episode therefore represents an early but consequential window of bureaucratic rationalization whose institutional logic, though interrupted, foreshadows developments that would only be realized centuries later in the Sui–Tang transformation of the civil service.

Beyond this case, the analysis indicates that using bureaucratization to strengthen central authority is not a steady march forward but a contingent, reversible process vulnerable to elite capture across times and places.

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## Appendix A. Placebo Test

We assess timing via placebo windows that shift the reform one reign earlier and one reign. In these placebo specifications the interaction term is statistically null, consistent with the effect being tied specifically to Cao Shuang’s reform rather than to secular changes in the appointment market. Finally, to mitigate right-censoring of careers that begin close to the dynasty’s end, we include cohort fixed effects, show robustness to excluding late-entry cohorts whose career maxima are least likely to be observed, and verify that the distribution of ranks across entry cohorts remains stable among non-aristocrats as a composition check.

Table A1: Placebo Test by Adjusting the Observation Window

Dependent Variable: Model:	(1)	(2)	(3)	MaxRank		(6)	(7)	(8)
				(4)	(5)			
<i>Variables</i>								
ReformCohort (1 period ahead) × Aristocrat	-0.1995 (0.5610)	-0.1345 (0.5631)			-0.1439 (0.5980)	0.0283 (0.5860)		
ReformCohort (1 period lag) × Aristocrat			-0.6788 (0.6743)	-0.5110 (0.6825)			-0.2105 (0.9826)	-0.2574 (0.9883)
<i>Fixed-effects</i>								
Birthplace					Yes	Yes	Yes	Yes
<i>Fit statistics</i>								
Observations	302	302	222	222	219	219	151	151
R <sup>2</sup>	0.06795	0.07381	0.08313	0.09445	0.06272	0.12146	0.15106	0.18020
Within R <sup>2</sup>					0.03646	0.09686	0.10015	0.13104

Signif. Codes: \*\*\*: 0.01, \*\*: 0.05, \*: 0.1

## B. Pre-trends

The main identifying assumption is that, absent the Zhengshi-era political sequence, the elite–non-elite difference in high-office attainment would have changed smoothly between the earlier and later entry cohorts. In the preferred window, there are two pre cohorts. The difference in the elite gap between cohorts 3 and 4 is small and statistically imprecise, so the pre-period evidence is best read as a diagnostic rather than a full parallel-trends record. Figure A1 makes that pattern visible: the lone pre-period comparison is close to zero for all three elite definitions, whereas the later-cohort contrasts are negative and largest in cohort 6.

## C. Confounding Factors Exclusion

### C.1 Selective Entry

To address selective entry as a competing explanation and strengthen identification, we re-estimate the  $H_2$  specification on a restricted panel that includes only officials who had already entered the Wei bureaucracy prior to the reform, excluding all post-reform entrants. This restriction aligns the risk set across aristocrats and non-aristocrats, ensuring that treatment varies solely over time rather than through differential timing of entry that could itself be correlated with lineage networks or patronage.

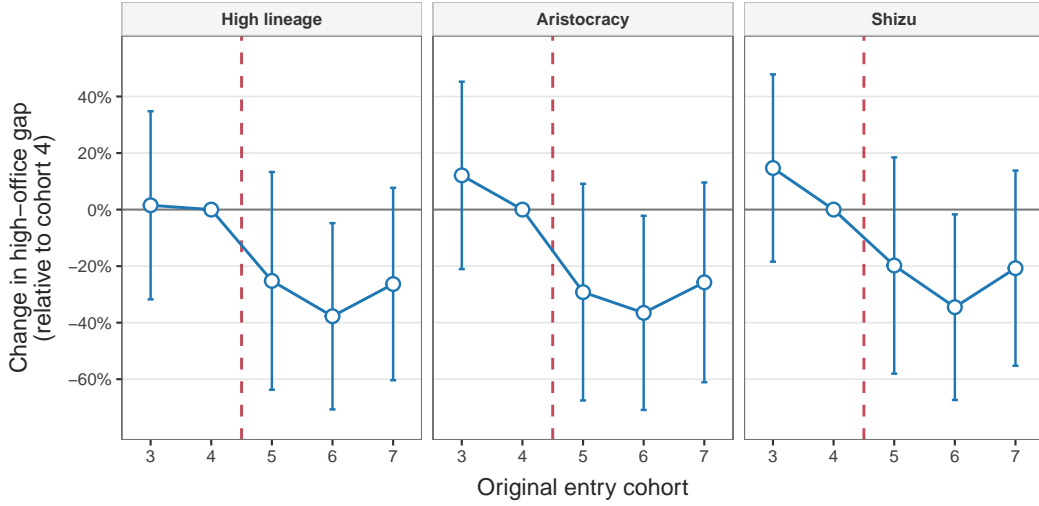


Figure A1: Cohort Profile of the Elite High-Office Gap

In this incumbents-only sample, the interaction between aristocratic status and the post-reform period remains negative and statistically precise in both outcome formulations—rank levels within a reign and period-to-period changes—indicating that aristocrats promoted more slowly and occupied lower per-period ranks even when all individuals were already in office before the policy shock. The stability of the estimates under birthplace and reign fixed effects, together with inference based on clustered standard errors at the birthplace level, suggests that the attenuation of aristocratic advancement reflects the reform’s impact rather than compositional shifts in who entered the bureaucracy.

Table A2: Confounding Factors Exclusion I (Selective Entry)

Dependent Variables: Model:	Rank (in one reign) (1)	$\Delta$ Rank (2)
<i>Variables</i>		
Aristocrat $\times$ Post	-0.7265** (0.2681)	-1.622*** (0.4004)
<i>Fixed-effects</i>		
Birthplace	Yes	Yes
RegnalYear	Yes	Yes
<i>Fit statistics</i>		
Observations	985	771
R <sup>2</sup>	0.10437	0.07647
Within R <sup>2</sup>	0.03777	0.02980

Clustered (*prov\_id*) standard-errors in parentheses  
 Signif. Codes: \*\*\*: 0.01, \*\*: 0.05, \*: 0.1

## C.2 Confounding Characters Participating in the Reform and the Coup

Furthermore, it is noteworthy that certain officials from distinguished aristocratic lineages expressed support for Cao Shuang’s reform initiatives. Conversely, not all officials who endorsed the Gaopingling coup led by Sima Yi hailed from such high-ranking families. In order to eliminate the

potential confounders, the individuals related to these two events were removed from the dataset, and both cross-sectional and panel tests were conducted once more.

Table A3: Confounding Characters Exclusion (Cross Sectional)

Dependent Variable:	MaxRank					
Model:	(1)	(2)	(3)	(4)	(5)	(6)
<i>Variables</i>						
ReformCohort × Aristocrat	-1.429** (0.5741)	-1.357** (0.5648)	-1.314** (0.5848)	-1.031** (0.3687)	-0.9228** (0.4094)	-0.8873* (0.4057)
<i>Fixed-effects</i>						
Birthplace				Yes	Yes	Yes
EntryCohort				Yes	Yes	Yes
<i>Fit statistics</i>						
Observations	307	311	302	212	215	207
R <sup>2</sup>	0.07024	0.06811	0.05779	0.12720	0.12511	0.11671
Within R <sup>2</sup>				0.03103	0.02673	0.02447

Signif. Codes: \*\*\*: 0.01, \*\*: 0.05, \*: 0.1

Table A4: Confounding Characters Exclusion (Panel)

Dependent Variables:	Rank (in one reign)				ΔRank	
Model:	(1)	(2)	(3)	(4)	(5)	(6)
<i>Variables</i>						
Aristocrat × Post	-0.5265** (0.1907)	-0.5852** (0.2396)	-0.5810** (0.2400)	-1.403*** (0.3840)	-1.295*** (0.3885)	-1.362*** (0.4034)
<i>Fixed-effects</i>						
Birthplace	Yes	Yes	Yes	Yes	Yes	Yes
RegnalYear	Yes	Yes	Yes	Yes	Yes	Yes
<i>Fit statistics</i>						
Observations	963	924	904	750	717	698
R <sup>2</sup>	0.07118	0.06088	0.05860	0.06197	0.06178	0.06385
Within R <sup>2</sup>	0.00625	0.00670	0.00648	0.01169	0.01388	0.01388

Clustered (prov\_id) standard-errors in parentheses

Signif. Codes: \*\*\*: 0.01, \*\*: 0.05, \*: 0.1