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The More You Know, the Less You Learn: Information Monitoring and Decision-Making Bias

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Having credible information is crucial for improving politicians' decision-making. Existing research suggests that expanding the range of information and access to first-hand sources can enhance decision quality. However, quantitative evidence regarding the effect of information control, particularly on bureaucracies, remains scarce. Our study investigates an information monitoring reform within the Qing China bureaucracy in 1722. This reform enabled local officials in designated positions to report directly and confidentially to the emperor, thereby streamlining information flow and strengthening monitoring capabilities. Using a generalized difference-in-differences design, we find that the introduction of the information monitoring system surprisingly undermined the efficiency of governmental disaster relief allocation. Specifically, prefectures with more direct reporting positions were more likely to receive disaster relief programs, even in the absence of severe disasters. This bias arose from information overload caused by an expanded but uneven information supply, making the emperor more susceptible to being swayed by dominant information flows due to limited attention. Additionally, we identify a corrective mechanism for the emperor's misjudgment. The emperor placed greater weight on the reports of trusted officials who shared his ethnicity or were members of the ruling class, thereby mitigating the negative effects of information overload. This study contributes to improving the understanding of the unintended consequences of bureaucratic information control.

The More You Know, the Less You Learn: Information Monitoring and Decision-Making Bias*

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Abstract

Having credible information is crucial for improving politicians' decision-making. Existing research suggests that expanding the range of information and access to first-hand sources can enhance decision quality. However, quantitative evidence regarding the effect of information control, particularly on bureaucracies, remains scarce. Our study investigates an information monitoring reform within the Qing China bureaucracy in 1722. This reform enabled local officials in designated positions to report directly and confidentially to the emperor, thereby streamlining information flow and strengthening monitoring capabilities. Using a generalized difference-in-differences design, we find that the introduction of the information monitoring system surprisingly undermined the efficiency of governmental disaster relief allocation. Specifically, prefectures with more direct reporting positions were more likely to receive disaster relief programs, even in the absence of severe disasters. This bias arose from information overload caused by an expanded but uneven information supply, making the emperor more susceptible to being swayed by dominant information flows due to limited attention. Additionally, we identify a corrective mechanism for the emperor's misjudgment. The emperor placed greater weight on the reports of trusted officials who shared his ethnicity or were members of the ruling class, thereby mitigating the negative effects of information overload. This study contributes to improving the understanding of the unintended consequences of bureaucratic information control.

Keywords: Bureaucracy, Informational politics, Decision-making, Qing China

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1 Introduction

How states collect reliable information on societies is crucial to their survival, especially for authoritarian states (Wintrobe 1998, Zhuravskaya, Petrova and Enikolopov 2020). However, rulers around the world face formidable challenges not only in collecting information but also in transmitting it. This is mainly because their local agents responsible for gathering information are not always inclined to report the truth, especially when local news is against their own interests (Wallace 2016, Zhuang 2022, Honig, Lall and Parks 2023). For instance, citizen grievances that contain complaints of local corruption could be concealed by local officials (Pan and Chen 2018). To address the information-hiding problem, politicians in both democratic and non-democratic regimes establish independent agencies to monitor local agents, thereby preventing concealment and collusion (McCubbins, Noll and Weingast 1989, Banks and Weingast 1992, Anderson et al. 2019). In some cases, rulers even establish multiple monitoring agencies to spy on each other, allowing them to access different sources and punish those who lie (Moore 1950). Although information-monitoring strategies, such as access to multiple information sources and competitive reporting, are believed to be beneficial for decision-making, reliable empirical evidence on the effects of information control remains scarce. Using a reform conducted by the Qing Dynasty of ancient China, we demonstrate that, contrary to conventional wisdom, information expansion induced by direct and competitive reporting may lead to unintended consequences that reduce governance efficiency.

In 1722, the ruler of Qing China introduced a groundbreaking information monitoring reform. This reform established a secret reporting system that allowed local officials in designated posts who served as informants to communicate directly and confidentially with the emperor. This monumental shift significantly streamlined the flow of information and broadened the emperor’s pool of sources, potentially enhancing his decision-making capabilities. However, constrained by the emperor’s limited attention, only a select few positions

were allowed to report directly to him, resulting in a spatially uneven distribution of direct-reporting positions and a treated group (i.e., regions with direct-reporting positions). We explore this unique setting and examine whether accessing firsthand and competitive information sources is conducive to decision-making. More specifically, we focus on changes in the efficiency of public relief during disasters in Qing China, which was a source of political legitimacy and the most critical public goods the Qing government provided (Tanimoto and Wong 2019, He 2023).¹ To this end, we manually compile a comprehensive dataset that includes the frequency of disasters and government relief activities in each prefecture and each year of Qing China, as well as the distribution of direct-reporting positions and reports sent to the emperor. To measure the efficiency of public relief, we construct an index of resource misallocation as our primary dependent variable. This index primarily captures incidents of over-relief misallocation: situations in which a prefecture experienced low disaster impact yet received disproportionately high government aid.

To address concerns that the central authority intentionally allocated more resources to crucial regions, we employ a generalized difference-in-differences design. We compare the likelihood of resource misallocation in prefectures with direct-reporting positions to that in prefectures without such information advantages before and after the reform. Given that this reform only allowed pre-existing positions to report directly and did not change the bureaucratic structure, the post-reform resource misallocation can be attributed to changes in information flows rather than to other time-invariant factors, such as the regional importance.² Surprisingly, we find that expanding the ruler’s information sources undermined decision-making efficiency. Specifically, prefectures with more direct-reporting positions were more likely to experience resource misallocation, that is, low levels of disaster shocks cou-

¹ In agricultural societies, weather shocks are the primary threat to the survival of peasants, and public relief becomes the crucial function of governments. Given the highly centralized decision-making structure in authoritarian regimes, information is one of the most critical determinants of decision-making efficiency during disaster relief activities.

² The privileges of using the secret reporting system are tied to the designated positions instead of officials per se. The high turnover of local officials indicates that the changes in resource allocation after the reform cannot be attributed to specific features of local officials. More discussion, please refer to Section 6.5.4.

pled with disproportionately high relief. This result is robust to various specifications and alternative measures of misallocation. Importantly, we show that this result cannot be explained by informal connections of central or local senior officials (and the resulting political favoritism).³ We also consider other competing explanations, including governance difficulties, fiscal capacity, and the demand effect. To explain this pattern, we argue that while the direct reporting system reduced the concealment of information by local officials, it caused a different type of information distortion. Given the spatially uneven distribution of direct-reporting positions, treated prefectures enjoy significant advantages in providing a greater flow of information, increasing their chances of capturing the emperor's attention, and securing a higher allocation of public goods in return. Therefore, the very strength of the information monitoring system introduced a new informational distortion by creating incentives for over-reporting, thereby inducing bias in political decision-making. Our empirical evidence further shows that prefectures with more direct-reporting positions tend to supply more reports and receive more resources, regardless of local weather conditions.

Furthermore, to explore the strategies addressing such information distortions, we extend our argument by examining how Qing emperors employed a strategic adaptation to compensate for systemic reporting biases. While the secret reporting system broadens emperors' information sources, it also grants local informants a great privilege and encourages them to supply as much information as possible in the hope of receiving more resources. Given the overload of information, the Qing emperors adopted the strategy of placing greater weight on trustworthy informants. As a regime ruled by a minority ethnic group, the Manchu, Manchu elites, together with their allies, Mongolians, and a select few Han Chinese, constituted the so-called Bannerman System. The Bannerman officials earned greater trust in their interactions with the emperor than other local informants, such as ethnic Han people. This division led emperors to view Bannermen officials as more reliable sources, increasing

³ Political favoritism refers to the probability that central or local senior officials lobby the emperor to distribute resources to their hometown.

the likelihood of incorporating their insights into decision-making. Our empirical results show that the emperor indeed responded more quickly to the Bannerman officials' report. Furthermore, reports sent by Bannerman officials did not lead to resource misallocation. These results demonstrate how a trust-based corrective mechanism mitigated the adverse effects of information overload.

Although this paper explores a historical reform, it has general implications. Central authorities worldwide have been competing with local bureaucrats for information and resorting to different methods. Access to multiple first-hand sources is a common strategy that has been repeatedly put into practice. However, its potential adverse effect is largely overlooked by practitioners and scholars. The conundrum raised in this paper, that limited attention faced with oceans of information, is even more relevant in an age of artificial intelligence, which makes information more accessible. Lessons learned from history can be an important reminder for nowadays decision-makers. Furthermore, our study makes two theoretical contributions. First, over the last decade, a growing body of literature has documented how authoritarian states control and manipulate public media to strengthen legitimacy and promote local accountability (King, Pan and Roberts 2013, Lorentzen 2014, Guriev and Treisman 2019, Rosenfeld and Wallace 2024). However, this line of literature assumes that local agencies are coherent and loyal to the central authority, which is far from the truth (Pan and Chen 2018, Chen and Greitens 2022). The misalignment of preference between local and central authorities is prevalent in authoritarian regimes and results in systematic misreporting from local officials, such as falsification of official statistics, concealment of coal mine deaths, and pollution conditions (Wallace 2016, Jia and Nie 2017, He, Wang and Zhang 2020, Zhuang 2022). This paper opens the black box of authoritarian regimes and analyzes how rulers interact with local agents regarding information exchanges and their consequences.

Second, a strand of literature has examined various bureaucratic control strategies, such as promotion incentives, independent auditing, and the use of E-Governance (Li and Zhou

2005, Duflo et al. 2013, Bobonis, Cámara Fuertes and Schwabe 2016, Finan, Olken and Pande 2017, Barnwal 2024, Banerjee et al. 2020). In particular, Zhang (2025) finds that a direct information reporting system improved the government’s response to urgent matters in a similar setting. However, these strategies come with a price and can even have unwanted and unintended consequences (Kung 2014, Chen, Li and Lu 2018, Brierley 2020, He 2026).⁴ For example, Patty and Turner (2021) finds that ex-post review, a typical control mechanism, might encourage agents to make pathological policy choices. Acemoglu et al. (2020) find that the use of high-powered incentives in military service leads to systemic killings targeting innocent civilians as guerrillas. Our paper adds to this line of research and demonstrates that information source expansion within the state—an under-researched control mechanism—might also have unintended consequences when the ruler’s attention is limited.

The remainder of our paper is structured as follows. The next section proposes a theoretical framework for our study. Section 3 provides the historical background of our case. Section 4 introduces the data sources and variables measurement. Section 5 depicts the empirical motivation and a difference-in-differences design. Section 6 summarizes the empirical results and various robustness checks to rule out alternative explanations. Section 7 presents our discussion about the rectification mechanism based on ethnic trust. The final Section 8 concludes our study.

⁴ In Zhang (2025)’s paper, he fails to consider the potential adverse effects of a direct reporting system and merely focuses on the increase in public goods provision caused by the new system.

2 Bureaucratic Control Dilemma under Information Constraints

We propose a theoretical framework for the bureaucratic control dilemma under information constraints to explain how intensified information monitoring in centralized regimes paradoxically generates unintended decision distortions. This dilemma stems from a monitoring paradox: (1) As a crucial bureaucratic control strategy, top-down information monitoring by expanding the information sources improves bureaucratic compliance; (2) it simultaneously triggers over-reporting by bureaucrats as a means of demonstrating loyalty and currying favor in a centralized regime. As a result, it overwhelms decision-makers with competing signals, fostering cognitive biases.

2.1 Information Monitoring as Bureaucratic Control

In centralized regimes, rulers seek to expand their sources of information through extensive monitoring to ensure bureaucratic compliance. This structural necessity stems from the challenge of bureaucratic control inherent in such regimes. On the one hand, as administrative agents, bureaucrats control critical information necessary for policy implementation. However, a multi-level bureaucratic hierarchy significantly slows down information flows and leads to information loss (Blom-Hansen, Baekgaard and Serritzlew 2021). On the other hand, bureaucrats' strategic manipulation of information for their own interests may induce rulers to make biased policy choices, creating survival risks for the regime. (Gailmard and Patty 2012, Truex 2016). Therefore, rulers must ensure comprehensive oversight of bureaucratic affairs.

Internal information monitoring in centralized regimes typically consists of a combination of vertical monitoring systems and horizontal information-isolation strategies. In the vertical dimension, rulers often establish a point-to-point communication system to simplify information transmission mechanisms (Thomson 2024). A flattened information structure reduces information filtering within hierarchies, ensuring information authenticity and maintaining

the ruler’s monopoly over information. In the horizontal dimension, rulers manage to prevent bureaucratic collusion through information-isolation strategies. Through segregated parallel reporting streams, this system maintains a compartmentalized communication structure in which individual submissions remain confidential between departments. This isolated communication structure can create a prisoner’s dilemma situation and trigger distrust among local bureaucrats, effectively suppressing potential collusion. At the same time, the ruler can compare multiple information sources to identify potential information manipulation by officials.

2.2 Perverse Incentive, Information Overload and Policy Distortion

However, establishing a direct communication structure for information monitoring may generate counterproductive incentives. In the new system, informants who directly report to the ruler face two competing pressures: the need to maintain credibility by reporting accurately while avoiding accusations of withholding information. This forces them to strategically balance timeliness and precision, often adopting tactics like bundling trivial updates with substantive reports to signal diligence. Simultaneously, ritualized communication (e.g., routine status updates) emerges as a low-risk strategy to maintain visibility. The intended control mechanism thus creates a paradox: privileged actors produce redundant information to signal loyalty, ultimately overwhelming the very oversight capacity the system sought to strengthen (Chan and Lam 2018).

Information overload induced by over-reporting creates several challenges for the ruler. Previous research has assumed that policymakers can process all the information they receive. However, politicians, constrained by cognitive structures, find it challenging to achieve complete rationality and a reasonable allocation of attention (Jones and Thomas 2012). Thus, political leaders must allocate attention reasonably to discern various environmental signals (Workman, Jones and Jochim 2009, Chan and Lam 2018). Especially in authoritarian regimes, political leaders retain exclusive authority over decision-making and are reluctant

to share power (Chan and Fan 2021, Peng et al. 2024). They must resolve the dilemma caused by an excessive supply of information and limited attention, ensuring the selection of the most relevant information (Workman, Jones and Jochim 2009, Walgrave and Dejaeghere 2017).

The cognitive limitations of rulers, coupled with an environment of excessive policy signal supply, make attention a scarce resource, thereby rendering the impact of a single signal on rulers indiscernible (Boydston, Bevan and Thomas III 2014, Cross and Greene 2020). Thus, to send discernible signals, they must maintain a sufficient information strength, which can effectively outperform other competing information that influences the policy agenda (Chan and Lam 2018). This dynamic of strong information flows and the struggle for attention introduces the risk of misjudgments and policy bias. Decision-makers may prioritize specific signals over others, not necessarily based on their accuracy or relevance, but rather due to the signal's strength (for instance, frequency of signals) or the sender's credibility (Katagiri and Min 2019). This introduces a potential source of bias and can lead to policy decisions that are not necessarily aligned with the actual state of affairs.

This theoretical framework reveals two core dynamics through which information monitoring backfires. First, the structural imperative for bureaucratic control creates self-undermining incentives. While vertical monitoring systems and horizontal information isolation successfully prevent bureaucratic collusion, they inadvertently incentivize competitive over-reporting as officials seek to demonstrate loyalty by supplying information. This transforms the abundance of information from an asset into a cognitive liability. Second, attention scarcity under a centralized decision-making structure systematically distorts policy prioritization. Under conditions of information overload, rulers constrained by cognitive limitations have to rely on heuristic processing. This leads them to prioritize signals based on the intensity of information flow rather than their objective urgency, as they cannot identify urgent news from the ocean of information. This institutionalizes a perverse selection mechanism where policy attention becomes decoupled from factual need.

In our article, we provide empirical validation of this theoretical framework through the Qing Empire’s 1722 communication reform. The reform’s paradoxical outcome, that is, systematic misallocation of disaster relief despite improved information access, epitomizes the ruler’s bureaucratic control dilemma under cognitive constraints.

3 Historical Background

To approximate our theoretical framework, we use the communication reform of Emperor Yongzheng in the Qing Dynasty in 1722 as an exogenous shock to the central government’s disaster relief decision-making. The 1722 communication reform established an information-monitoring system that enabled officials in designated positions to report directly and independently to the emperor, allowing for vertical oversight from the throne to local administrations. However, the selected positions in each administrative zone were unevenly distributed. The geographically uneven distribution of surveillance capacity generated treatment variation in bureaucratic incentives for information reporting. Regions with high informant density showed stronger reporting signals due to intensified mutual monitoring, whereas low-coverage areas experienced systematic informational marginalization from information competition with other high-advantage regions. This reform fundamentally reshaped the incentive structure of public goods provisions, with particularly profound impacts on disaster relief governance—a crucial function of imperial administration. The mutual surveillance mechanism among imperial informants compelled local officials to provide detailed documentation of disaster conditions when petitioning the throne for relief resources. Consequently, our institutional context enables examinations of how information monitoring mechanisms shape final policy decisions, thereby testing our theoretical proposition regarding bureaucratic control and political decision-making bias.

3.1 Communication Reform and Bureaucratic Incentive Restructuring in Qing China

In the Qing Dynasty, the emperor had two channels of communication with local officials. The first was the formal and routine reporting channel, where officials at various levels were required to regularly submit reports on governance issues through hierarchical channels (Wu 1967). Starting from the early Qing Dynasty, however, some local officials gradually gained the privilege to communicate directly with the emperor on a one-to-one basis, a process that remained free from external interference, with the emperor personally handling the information. This form of communication evolved into the secret memorial system, which granted officials in designated positions privileged access to bypass hierarchical channels and communicate directly with the emperor.

In the early Qing Dynasty, the routine reporting channels predominated within the administrative system, while the secret reporting system primarily served as a supplement to the conventional channels. The core features of the routine channel included: (1) Information was passed up hierarchically, and cross-level reporting was prohibited. These reports were initially submitted to the provincial government, underwent thorough reviews at the provincial level, and were subsequently forwarded to the Transmission Office in the capital to ensure compliance with prescribed formats and content. (2) After a meticulous review, routine reports were handed over to the emperor's private secretariat, which consisted of senior central officials trusted by the emperor. These secretaries deliberated on the issues contained in routine reports and drafted resolutions. Finally, these routine reports, along with draft resolutions, were submitted to the emperor for the ultimate decision.

In a hierarchy system, multi-tiered information reporting channels systematically incentivized local officials to manipulate sensitive information during upward transmission. Firstly, the reporting behaviors of lower-level local officials were heavily influenced by the provincial-level bureaucracy, as they lacked the qualifications to directly report routine infor-

mation to the central government and the emperor. Provincial governments could selectively transmit reports from subordinates or even intercept communications between local officials and the central government, significantly suppressing grassroots information. Secondly, information manipulation at the central level also considerably impacted the efficiency of decision-related information reporting. The *Transmission Office* and the emperor’s private secretariat monopolize the norms of information delivery. Central government bureaucrats could essentially determine which agendas and issues reached the emperor, significantly undermining the emperor’s decision-making authority (Aghion and Tirole 1997).

The following disaster concealment case highlights the potential limitations of such conventional channels.⁵

In 1738, Peng Tiren, Xiong County Magistrate in Zhili Province in the Qianlong era, reported a minor flood through a regular communication channel, claiming that submerged farmlands had quickly recovered and resumed cultivation. His assessment was verified through a formal review process: Xincheng County Magistrate Feng Jing conducted a field inspection, and former Zhili Governor Li Wei endorsed the findings, completing a seemingly rigorous routine information chain of the Qing bureaucracy. However, this official narrative was disrupted when Censor-in-Chief Suozhu accidentally passed through Xiong County and witnessed extensive flooding across dozens of miles in the southeastern region, with villages submerged and peasants protesting the lack of relief. His investigation revealed that only a small proportion of land remained arable, contradicting the government’s “no significant disaster” conclusion. Suozhu reported what he saw to the emperor through secret reporting channels, accusing Peng of “fraudulent reporting and neglecting famine victims.” Ultimately, with the emperor’s personal intervention, Peng Tiren was held accountable. This case epitomized the

⁵ The case details sourced from Huang (2024).

information dilemma within imperial bureaucracy as routine systems prioritized stability over truth to avoid career penalties.

To mitigate bureaucratic risks within regular reporting channels, Emperor Yongzheng institutionalized a secret reporting system as a parallel information channel to support decision-making (Bartlett 1991, Wu 1967, Zhuang 2016). Before the Yongzheng reign in 1722, the secret reporting system had already existed as an informal institution in Qing governance, with its use significantly expanded during the Kangxi era (the former emperor, Yongzheng's father), though it remained arbitrary in its implementation. Prefectural informant arrangements during this period lacked standardization, with informant selection reflecting temporary needs rather than systematic design. Recognizing the system's potential for circumventing bureaucratic distortions, Yongzheng formally institutionalized it in 1722 as a parallel decision-making channel. More specifically, he granted local officials in designated positions the privilege of reporting directly to the emperor, serving as his personal informants. Notably, this privilege was attached to the positions rather than the officials themselves. That means that when an official is removed from the position, they lose this communication privilege. This reform involved 237 positions (87 provincial, 149 sub-provincial) across 111 prefectures. The choice of positions was based on the official rank. Typically, all positions ranked above 4 in the imperial hierarchical system were selected regardless of whether they were civil or military. This reform, therefore, established an alternative monitoring network within the bureaucratic system. It was noteworthy that although the designated positions were selected by rank, they were not evenly distributed across the different administrative zones. Instead, first, not every administrative zone, for instance, a prefecture, is assigned such positions. Second, even in those regions with such positions, the number of positions differed markedly. This difference stemmed from the socio-economic complexity of local circumstances, which was predetermined before the reform.

The secret reporting system established a direct, exclusive communication channel be-

tween local officials and the emperor. By eliminating external interference, it guaranteed both the independence of informants and the confidentiality of transmitted information. While a specialized institution processed secret reports, no staff member at the *Chancery of Memorials* was permitted to open them (Bartlett 1991). Reading secret reports was a unique prerogative of the emperor, and the responsibility of *Chancery of Memorials* was limited to receiving the documents and categorizing them. After reading each secret report, the emperor typically annotated it with a red pen and then returned copies, along with his confidential instructions, to the senders. Furthermore, to prevent leaks, all secret memorials were required to be returned to the court by the sender upon receipt of the emperor's remarks, thereby avoiding the disclosure of sensitive information.

The secret reporting system reshaped bureaucratic incentives by stimulating information reporting behaviors for political advancement and survival. The routine reporting system structurally incentivized local officials to conceal or manipulate critical information when disclosure threatened their career advancement or administrative performance metrics. Compared to the conventional reporting structure, the secret reporting system compelled local officials to report information promptly and accurately through two mechanisms. Firstly, the strategic placement of multiple informants across adjacent regions or within the same region created a mutual surveillance effect. Due to credible threats of peer reporting for delayed or inaccurate disclosures and to emperors' intersectional information verification, local officials had to appease emperors' information-symmetrical anxiety by actively reporting governance information to showcase their loyalty, rather than responding passively. Secondly, as a privilege enjoyed by a select few, this system offered local officials a channel to establish a personal connection with the emperor. Thus, local officials painstakingly exhibited their competence through information competition with their peers to better influence the decision-making agenda and gain the emperor's attention.

However, this secret reporting system created perverse incentives, generating informational overload that ultimately impaired imperial decision-making. While this information

monitoring system enhanced bureaucratic compliance, officials had to compete to report suspected cases to signal vigilance, even without evidence. Consequently, the emperor became inundated with trivial and conflicting claims, paralyzing effective response. Specifically, the 1768 sorcery panic case epitomized the systemic risks inherent in this monitoring system.⁶

The 1768 Soulstealers Scare, triggered by rumors of hair-cutting sorcery in Zhejiang, revealed how imperial pressure resulted in perverse incentives to local officials and their adaptive strategies by manipulating information flows. During this crisis, Deqing County rumors alleged individuals could employ occult rituals to call away souls, triggering nationwide panic that mobilized administrations across provinces. Initially, local officials suppressed reports through collusive networks, dismissing incidents as isolated anomalies. When Emperor Qianlong’s secret channels uncovered the truth, the emperor interpreted concealment as evidence of conspiracy, imposing intense political pressure on governors. Trapped between investigative incapacity and imperial oversight, officials produced exhaustive yet substantively negligible results and offered numerous superficial solutions. The emperor was increasingly frustrated by such procedurally cogent but functionally vacuous responses of local officials. For instance, Qianlong dismissed Zhejiang Governor Yongde’s investigation report with “Never imagined you’d prove so useless.” However, the emperor’s increasingly critical re-scripts inadvertently incentivized performative compliance among local officials, compelling them to manufacture evidence further and cater to the emperor’s conspiracy narratives, despite lacking substantive proof. Ultimately, the emperor’s resolve collapsed under trivialities, leading to the termination of the nationwide investigation. This outcome exposed the perverse incentives of intensified bu-

⁶ The case details sourced from Kuhn (2009).

reaucratic control, in which the political survival logic of bureaucrats turned information channels from governance tools into vectors of decision paralysis.

3.2 Disaster Reporting and Relief Decision-Making within Qing Bureaucracy

Government disaster relief stood out as a priority on the public agenda within the Qing bureaucracy. Extreme weather conditions often led to famines and other societal shocks, which could trigger social conflicts within the imperial governance system. To maintain political stability, the Qing Dynasty government frequently provided timely assistance to the population following severe disasters.

In the realm of government disaster relief, the personal decisions of the emperor dominated. While local governments were allowed to provide relief independently in certain extreme circumstances, most public relief activities required the emperor's direct approval. This was primarily due to periodic accusations against local officials in the Qing Dynasty for embezzling public funds for personal gain. Centralized decision-making could mitigate corruption by limiting the discretion of local officials. As the emperor held ultimate decision-making authority over disaster relief, the complex hierarchical bureaucratic structure hindered his access to grassroots information. The establishment of the secret report system effectively addressed this issue. This reform enabled the emperor to gain a more direct understanding of the actual disaster situations through timely reporting of disaster information and relatively precise resource allocation.

The Qing Empire developed an integrated disaster relief framework deeply embedded within its information monitoring structure. Local officials' disaster reporting behaviors and the emperor's decision-making authority were institutionally interlocked through secret reporting channels. The main processes of the Qing government's disaster relief included (Li 2007): (1) Disaster reporting. Initially, the lowest-ranking officials in the government hierarchy had to report the event to their immediate superiors, the county magistrates. Subsequently, this report would be passed up the chain of government command, eventually

reaching the central government through higher-ranking local officials with the right to report to the court. (2) Disaster assessment. Upon receiving reports of natural disasters, the central government would request that local officials investigate and assess the severity of the disaster, including the extent of its impact, particularly its effect on crops, as well as the affected land area. (3) Disaster determination. The central government would then decide who was eligible for relief based on the assessment results, primarily considering the victims' wealth and the extent of damage. (4) Relief distribution. After careful evaluation, the central government would decide how to address the disaster and subsequently redistribute resources accordingly. The Qing Empire often implemented relief measures such as tax incentives (deferred taxes and partial or complete exemptions) and direct aid (reassigning grain or funds to the affected areas) (Will 1990, Li 1995, 2007).

However, even standardized disaster relief processes might fail to mitigate perverse incentives arising from heightened information monitoring, which can distort decision-making and exacerbate systemic risks. As discussed earlier, the intensified monitoring of information gradually evolved into a critical path for local officials to capture imperial attention and demonstrate their loyalty and competence. Such perverse incentives are particularly pronounced in disaster relief contexts. By petitioning the throne for aid, bureaucrats could simultaneously showcase paternalistic concern for subjects and secure additional resources to enhance local governance performance. A striking example emerges from Zhili Governor Yang Tingzhang's record in 1770. In that year, Yang's 32 relief reports significantly exceeded the next-highest submission count of 12, revealing how resource competition incentivized documentary inflation.

To better showcase the potential adverse effect of enhanced information monitoring on disaster relief decision-making, we utilize the Gansu Relief Fraud Scandal as an illustrative case to uncover the systemic vulnerabilities of Qing disaster governance.⁷

⁷ The case details sourced from *Veritable Records of the Qing Dynasty*.

The Gansu Relief Fraud Scandal (1774-1781) involved provincial officials systematically falsifying disaster reports in a coordinated scheme. Between 1774 and 1777, led by Provincial Administrator Wang Danwang, they submitted repeated petitions falsely claiming a “perennial drought” across the region to apply for relief resources. Secret reporting records reveal egregious patterns: in 1776, Wang Danwang’s secret report declared “insufficient rainfall and widespread crop failure” in Gansu province, while in 1777, petitions exaggerated drought conditions in Gaolan and Jingyuan counties. In 1777, his demonstrated efficacy in disaster relief operations secured his promotion to the governorship of Zhejiang Province. Furthermore, this systemic fraud was facilitated by entrenched collusion within local bureaucracies, as evidenced by Gansu Governor Lergiyen’s anomalous reporting patterns, submitting 10 and 14 disaster relief reports in 1776 and 1777 respectively (the highest provincial totals nationwide), followed by 11 reports in 1778 (ranking second).

Under intense disaster relief signaling from local officials, the emperor relaxed disaster relief procedures for aid requests from Gansu. The fraud exploited the “monetary substitution of grain contributions” system, where local officials converted grain reserves into silver for relief operations. Wang Danwang’s 1776 report formally requested “using donated grain to supplement relief budgets for the 40th year,” utilizing a legal confirmation to belie their appropriation behaviors. Officials then invented phantom relief projects: Lergiyen’s 1779 claim of distributing aid to “nine disaster-stricken counties” and his 1776 proposal to “provide seeds for disaster victims” were entirely fictitious. These fabricated projects created large-scale corruption.

The scheme unraveled when multi-source verification exposed irreconcilable inconsistencies. The exposure of the Gansu relief fraud scandal began with the 1781 Su Sishisan uprising. During this war, Provincial Administrator Wang

Tingzan, attempted self-preservation by donating 40,000 taels of silver for military supplies. Emperor Qianlong started to question the source of unexplained wealth in a poor province. Simultaneously, imperial general Agui reported “continuous heavy rains delaying troop movements,” shattering officials’ seven-year lie of “persistent drought.” Finally, the scandal implicated about 113 officials, with over 2.81 million taels of embezzled silver recovered, and Gansu’s bureaucracy virtually paralyzed. This case demonstrated that even under stringent information monitoring, local officials could exert regional information advantages to monopolize data flows, ultimately inducing systemic decision-making distortions.

4 Data and Variables

Our study examines the impact of information supply at the prefectural level on the probability of misallocation of disaster relief resources following the communication reform during the Yongzheng era. Firstly, using spatial distribution data on Qing Dynasty prefectural positions with the right to report to the emperor, we construct a continuous measure of the spatial disparities in information supply resulting from the communication reform. Concurrently, drawing on historical records of natural disasters and the distribution of government disaster relief materials during the Qing Dynasty, we propose a measurement criterion to determine whether relief materials were misallocated in a given year. Additionally, recognizing that the distribution of privileged informants across prefectures could be influenced by pre-reform administrative conditions and by differences in socio-economic development levels, our research introduces several control variables based on prefectural characteristics to make the comparison more meaningful.

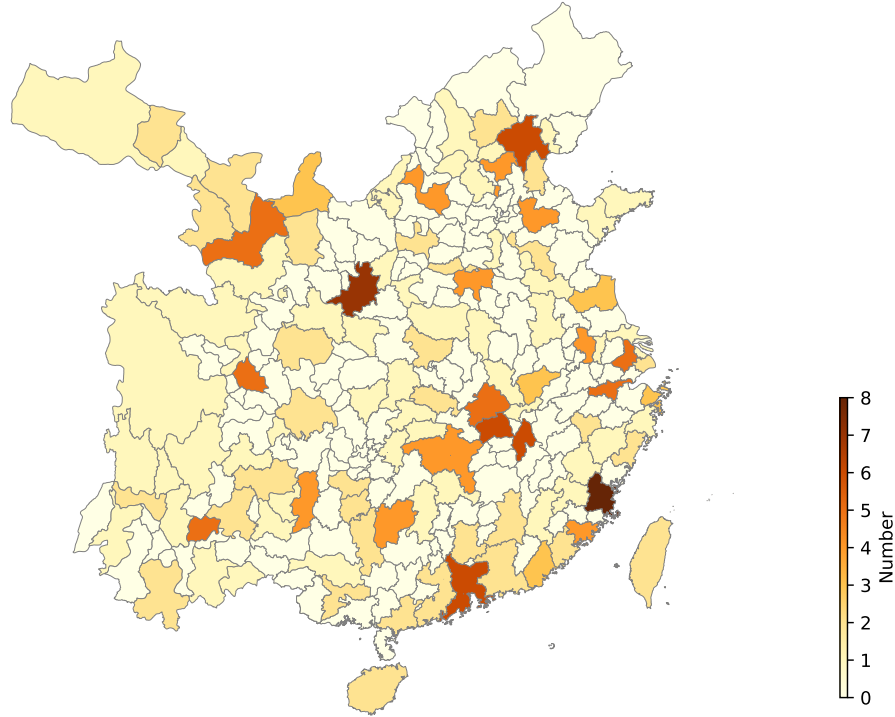


Figure 1: Spatial Distribution of Direct Reporting Positions in Qing China

Note: This map depicts the spatial distribution of direct reporting positions during the Qing Dynasty, covering all eighteen core provinces of Qing China. Our base map is adapted from *The Historical Map of China in the Qing Dynasty in 1820* (CHGIS, Harvard Yenching Institute).

4.1 Direct Reporting Positions Distribution

We measure the spatial disparities in information reporting advantages between prefectures using the density of prefectural positions with the right to report to the emperor. Our information on the number of direct reporting positions for each prefecture is sourced from the *General History of Chinese Administrative Division: The Qing Dynasty* (*Zhongguo Xiangdaihua Tongshi: Qingdai Juan*) edited by Zhou et al. (2016) and the *Research on Local Bureaucratic Institutions of the Qing Dynasty* (*Qingdai Difang Guanzhi Kao*) authored by Liu (2014). The distribution of informants is shown in Figure 1.

4.2 Information Supply

To more accurately identify the impact of the distribution of privileged informants across prefectures on regional information supply, we quantify the flow of information from local officials to the emperor using existing secret reports. Our data regarding these secret reports primarily originates from the First Historical Archives of China and the Palace Museum. The secret reports archived by these two institutions essentially cover the reporters' basic information, the reporting date, and the main content.

As we aim to compare changes in information supply at the prefectural level, we decided to convert the annual report counts from each prefecture into a prefecture-year panel dataset, covering all 267 prefectures. To ensure that such comparisons are based on a consistent administrative framework, our selected report samples are geographically limited to the eighteen provinces of Qing China,⁸ where the Qing Dynasty had established a uniform and well-structured provincial governance system.⁹ Furthermore, to trace the temporal variations in the flow of information, our sample spans the entire duration from the early to mid-late Qing Dynasty (1644-1820).¹⁰ After the above selection process, we obtained a total of 61,276 secret report samples, of which 3,126 pertain to disaster relief requests from prefectural and sub-prefectural jurisdictions.

4.3 Resource Misallocation

We operationalize resource misallocation as our dependent variable, measured by the probability of a Qing Dynasty prefecture receiving disproportionately more disaster relief resources despite experiencing minimal or no actual disaster impact. Given the absence of compara-

⁸ These eighteen provinces historically denoted the core territories of China during the Qing Dynasty, including: Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Shandong, Shanxi, Sichuan, Yunnan, Zhejiang, and Zhili (present-day Hebei).

⁹ As our study primarily focuses on interactions between local elites and the emperor, secret reports from capital officials are excluded from our discussions.

¹⁰ The sample ends in 1820 mainly because, until this time, the central Qing Dynasty was able to control its core ruling regions effectively, and the state's administrative system had not yet collapsed.

ble measures of resource misallocation, we introduce an innovative measurement criterion. Specifically, if a prefecture ranks in the bottom 20% in terms of disaster impact in a given year but ranks in the top 20% in terms of governmental relief received, we identify this as a case of resource misallocation.

To measure the probability of misallocation across prefectures, our methodology involves: (1) coding annual disaster impacts and corresponding relief levels, (2) computing weighted disaster impact and government relief indices (Cao 2023), and (3) applying quantile classification to rank prefectures annually by these metrics, thereby identifying misallocations.

Natural Shocks Index: We construct a prefecture-year panel dataset using data from 33,811 natural shocks that occurred between 1644-1820. Our data is sourced from *Zhongguo sanqiannian qixiang jilu zongji* (*A compendium of Chinese meteorological records of the last 3,000 years*) compiled by Zhang (2004). This compilation documents various meteorological disasters, including droughts, floods, plagues, locust infestations, hurricanes, earthquakes, low temperatures, and freezing disasters, along with the dates, types, and extents of damage and the consequences of these natural shocks. Our study evaluates the loss caused by annual disasters at the prefectural level based on historical records of the extent of disasters in various regions.¹¹ Hence, our research assesses the impact of each disaster across four dimensions and assigns a value based on the most severe impact. Specifically, the dimensions include: (1) collapse of houses (assigned value of 1); (2) damage to public facilities (assigned value of 2); (3) damage to staple crops and animals (assigned value of 3); (4) civilian casualties (assigned value of 4). For instance, if a prefecture experienced three natural disasters in a year, one resulting in damage to public facilities, one causing damage to staple crops and animals, and another leading to civilian casualties, the weighted disaster impact would be 9 ($=2+3+4$).

¹¹ We do not use the frequency of disasters as a proxy variable because the frequency does not capture the differential impact of the disasters themselves.

Disaster Assistance Index: Similarly, based on 36,794 government disaster relief records from 1644 to 1820, we construct a county-year panel dataset. Our primary data source is the chronicle *Veritable Records of the Qing Dynasty* (hereafter abbreviated as VRQ), which offers detailed accounts of relief activities carried out by Qing rulers at the county level. Building on the work of historical scholars (Chen, Xiao and Xiong 2012), our study further manually codes every disaster assistance case recorded in the VRQ, detailing the number of counties receiving government assistance and the modes and frequency of the aid. To more accurately assess the intensity of assistance, we compute a weighted index of government disaster relief strength. Similarly, we defined government relief across five dimensions, each with distinct assigned values: (1) Tax deferral (value of 1); (2) Partial tax exemption (value of 2); (3) Full tax exemption (value of 3); (4) Provision of direct relief through credit (value of 4); 5) Allocation of food or monetary direct relief (value of 5). To focus the discussion at the prefectural level, we aggregated the annual county-level indices of government disaster relief to the prefectural level, yielding a weighted index of government assistance for that prefecture. For instance, if a prefecture has two counties and one of them receives government aid in the form of a full tax exemption and direct food assistance, the weighted government aid would be 8 ($=3+5$). If the other county receives aid in the form of tax deferral and food allocation, the aid value would be 6 ($=1+5$), making the prefecture’s annual government aid index 14.

4.4 Control Variables

One may be concerned that although the designated positions allowed to report to the emperor were determined by the bureaucratic rank and thus unrelated to public goods provision, the density of informants might still reflect a region’s political-military significance. According to this alternative interpretation, strategically important areas would receive more resources, regardless of the introduction of new information channels.

To address this potential confounding factor, we accounted for fundamental differences between administrative regions before the reform—particularly those affecting the distribution of high-ranking positions. As Table A4 demonstrates, prefectures with and without imperial informants show no significant differences in core socioeconomic characteristics, but exhibit substantial disparities in disaster relief outcomes. Particularly, prefectures with informants receive significantly more government assistance ($p < 0.01$) and experience higher resource misallocation ($p < 0.01$), providing suggestive evidence for our empirical arguments.

Administrative Burden: A pivotal element dictating the allocation of senior local officials is the *Administrative Burden*, gauged by the count of counties a prefecture oversees. Logically, regions presiding over more sub-jurisdictions encountered heightened governance pressures, meriting the assignment of additional high-ranking officials. Data detailing county counts for each prefecture is sourced from Harvard University’s China Historical Geographic Information System (CHGIS).¹²

Population Density: The economic condition of a region invariably steers its political and societal rhythms. Notably, affluent zones were of paramount importance for taxation, prompting the Qing dynasty to assign additional senior officials to them. In line with historical comparative development studies, we use population density figures from before 1722 (the beginning of the reform) as a gauge of economic vigor. Population-related statistics are derived from Cao (2001), which provides detailed estimations of past prefecture populations using local records.

Clan System: The empire, although a formidable and structured entity that offered public services, was complemented by community organizations. Grassroots-born associations, like clans, supplemented the state’s efforts to assist the people, particularly given the fiscal constraints typical of earlier governments. The number of genealogies

¹² <https://dataverse.harvard.edu/dataverse/chgis> (accessed 2023/10/01)

is a reliable indicator of clan unity, and we’ve summarized social strength by integrating genealogical data (Chen, Lin and Zhang 2024). The genealogical information is sourced from the comprehensive *General Catalogue of Chinese Genealogy* compiled by the Shanghai Library (2009). This collection offers an overview of China’s genealogical records, spotlighting all genealogies drafted within a county before 1722.

Territorial Features: Additional control variables include specific geographical attributes, potentially influencing senior official placements and public aid initiatives. Firstly, we consider the compatibility scores of four primary foods (rice, wheat, maize, and sweet potato) to represent potential agricultural outputs in the absence of precise historical yield data.¹³ Additional considerations encompass the terrain’s ruggedness index¹⁴ and river density,¹⁵ both offering insights into transportation challenges and market access.

5 Research Design

To examine the effect of the information control strategy, we compare changes in resource allocation between regions with more direct-reporting positions and those with fewer or no direct-reporting positions, before and after the reform. To this end, we employ a generalized difference-in-differences estimation strategy. The model specification is as follows:

$$MisMore_{it} = \beta_0 + \beta_1 DirectReportingPositions_i \times Post_t + \beta_2 Control_i \times Post_t + \theta_i + \rho_t + \varepsilon_{it} \quad (1)$$

¹³ Sources: The Food and Agriculture Organization (FAO). The index ranges from 0 to 10,000, with higher values indicating greater suitability. For an in-depth discussion on this index, refer to Nunn and Qian (2011).

¹⁴ The approach we adopt to calculate this index involves evaluating the elevation variance between neighboring cells on a digital elevation grid, with data sourced from the United States Geographic Services (USGS). For comprehensive details, consult Nunn and Puga (2012).

¹⁵ Sources: The CHGIS database.

Where i indexes prefecture and t indexes year; $MisMore_{it}$ is our dependent variable, which is a dummy variable indicating whether or not prefecture i experienced resource misallocation at year t . Notably, given the disincentive effect on underreporting after the reform, the resource misallocation we mention here refers to situations in which areas with minor disasters receive excessive relief resources.

$DirectReportingPositions_i$ captures the logarithm of the number of direct reporting positions in prefecture i . $Post_t$ denotes a binary indicator for prefecture i , which is defined by whether the communication reform was instituted here in 1722. The coefficient β_1 , therefore, estimates the causal effect of the reform on resource misallocation.

In addition to our primary predictors, we also control for several covariates. $Control_i$ encompasses the prefecture-level characteristics previously mentioned, including administrative burden, population density, clan strength, crops suitability index, terrain ruggedness index, and river density. θ_i is the prefecture fixed effect; ρ_t is the year fixed effect parameter; and ε_{it} is the error term. By controlling for prefecture and year fixed effects, respectively, we can account for unobservable factors that are constant across prefectures but vary over time or are constant over time but vary across prefectures. The baseline regression also controls for prefecture-specific linear trends, allowing for unique linear trends in each prefecture, such as a gradual increase in relief activities over time. Standard errors are grouped at prefectural level, our primary unit of analysis, to account for possible heteroscedasticity and serial correlation.

6 Estimation Results

6.1 Communication Reform and Resource Misallocation

Table 1 shows the effect of the reporting system arrangement on the probability of relief resource misallocation. We find that the number of direct reporting positions across prefectures significantly increased the likelihood that relief resources would be misallocated within

each prefecture. The results in column (1) show that a one percent increase in the number of direct reporting positions raised the probability of disaster relief resource misallocation in that prefecture by 0.04 percentage points in that year.

Table 1: Communication Reform and Resource Misallocation

	<i>Dependent Variable: Misallocation</i>			
	(1)	(2)	(3)	(4)
Direct Reporting Positions $\times$ post	0.040*** (0.013)	0.025* (0.013)	0.037** (0.016)	0.047** (0.019)
Controls	N	Y	Y	Y
Year FE	Y	Y	Y	Y
Prefecture FE	Y	Y	Y	Y
Prefecture-specific time trends	N	N	Y	Y
Excluding Provincial capital	N	N	N	Y
R^2	0.055	0.066	0.083	0.081
Observations	47,259	47,259	47,259	44,073

Note: This table presents the baseline results. The unit of observation is prefecture-year. Resource misallocation specifically refers to a situation where the disaster status of the prefecture for that year ranked in the bottom 20% nationwide, but the allocation of government disaster relief resources to it ranked in the top 20% nationwide. If this situation occurred in the prefecture for that year, it is assigned a value of 1; otherwise, it is 0. Direct reporting positions denotes the logarithm of the quota of personnel in the prefecture who were qualified to report, while ‘post’ is a binary variable that takes the value of 1 if a communication reform had been implemented and 0 otherwise. Controls include Administrative burden, population density, clan system, wheat suitability index, rice suitability index, sweet suitability index, maize suitability index, terrain ruggedness index and river density. Complete regression results with control variables are presented in Appendix Table A1. Robust standard errors in parentheses are clustered at the prefecture level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

To take into account the confounding effect of prefectural administrative characteristics and socioeconomic conditions, we include several covariates calculated before the reform. Column (2) of Table 1 shows that, after controlling prefectural administrative attributes and socioeconomic factors, our results stand firm (an increase in the number of direct reporting positions by one percent increased the probability of disaster relief resource misallocation by 0.025 percentage points in that year). We also include prefecture-specific linear time trends

to control for the differences in time trends between the treatment and control prefectures. As shown in column (3), a one percent increase in direct reporting positions was associated with an increase in the probability of resource misallocation by 0.037 percentage points.

Furthermore, considering the special advantage of provincial capitals as regional political centers in obtaining public goods investment, we further exclude provincial capitals from the sample. The regression results for the sub-sample of non-provincial capitals in column (4) show that under proximate political and economic conditions, the effect is even more pronounced. An increase in the number of direct reporting positions by one percent resulted in an increase in the misallocation probability by 0.047 percentage points, which was considerably higher than in the scenario that included provincial capitals.

One may be interested in the alternative scenario of resource misallocation, wherein severely affected regions systematically receive inadequate disaster relief, referred to as under-relief. Given that the secret reporting system was designed to discourage information concealment and distortion within the bureaucracy during times of crisis, we expect that the communication reform should reduce this misallocation. Surprisingly, we find a negative, but statistically insignificant, relationship between the number of direct reporting positions and the probability of under-relief to disaster-stricken prefectures in the post-reform period, after controlling for fixed effects (see Appendix Table A5 for detailed results).¹⁶

¹⁶ There can be several explanations to account for the null effect on under-relief. First, the spatially uneven distribution of direct reporting positions completely worsened public resource allocation, making rich regions richer and the poor more poor. Specifically, it led to resources being allocated to treated prefectures at the expense of the other. Second, the direct reporting system and resulting competition pressure made local informants more conservative, leading them to report any abnormal situations even beyond their jurisdiction. For instance, they might report disaster occurrences in the prefectures that are not treated. If this were the case, then the differences between treated and untreated prefectures would be diminished. To see this, Figure A1 in the Appendix presents the distribution of under-relief over time and shows that under-relief decreased in both treated and untreated prefectures, indicating a positive spillover from treated to untreated prefectures in disaster reporting.

6.2 Pre-reform Parallel Trends

According to the parallel trends assumption of the Difference-in-Differences model, in the absence of reform shocks, prefectures with more direct reporting positions should not experience more misallocation of disaster relief resources than prefectures without reform shocks. To verify this, we employ an event study method (see Equation (2)) to test the parallel trends in our study.

$$MisMore_{it} = \beta_0 + \beta_1 DirectReportingPositions_i \times Period_t + \beta_2 Control_i \times Post_t + \theta_i + \rho_t + \varepsilon_{it} \quad (2)$$

where $Period_t$ represents a 5-year bin dummy cohort, signifying the number of years a treatment prefecture has undergone either before or after the communication reform. The coefficients β_1 and their confidence intervals are plotted for each time period as follows, Figure 2. The graph shows that, before the reform, prefectures with more direct reporting positions and those with fewer did not differ significantly in the probability of resource misallocation, supporting the parallel trends assumption (see Appendix Table A6 for detailed results).

6.3 Robust Checks

To ensure the robustness of our findings, we conduct several empirical validations. First, we replace the treatment intensity with a treatment dummy indicating whether a prefecture assigned a direct reporting position. This allows us to estimate the extensive margin of the result. We find the results are in line with our baseline regression (Column (1) of Appendix Table A7). We also reconstruct an alternative index to measure the misallocation. In the new index, we define over-relief as a county that didn't experience a disastrous shock but still received government relief. Then we compute the proportion of counties that experienced over-relief in a prefecture as the outcome variable. This measurement is relatively more

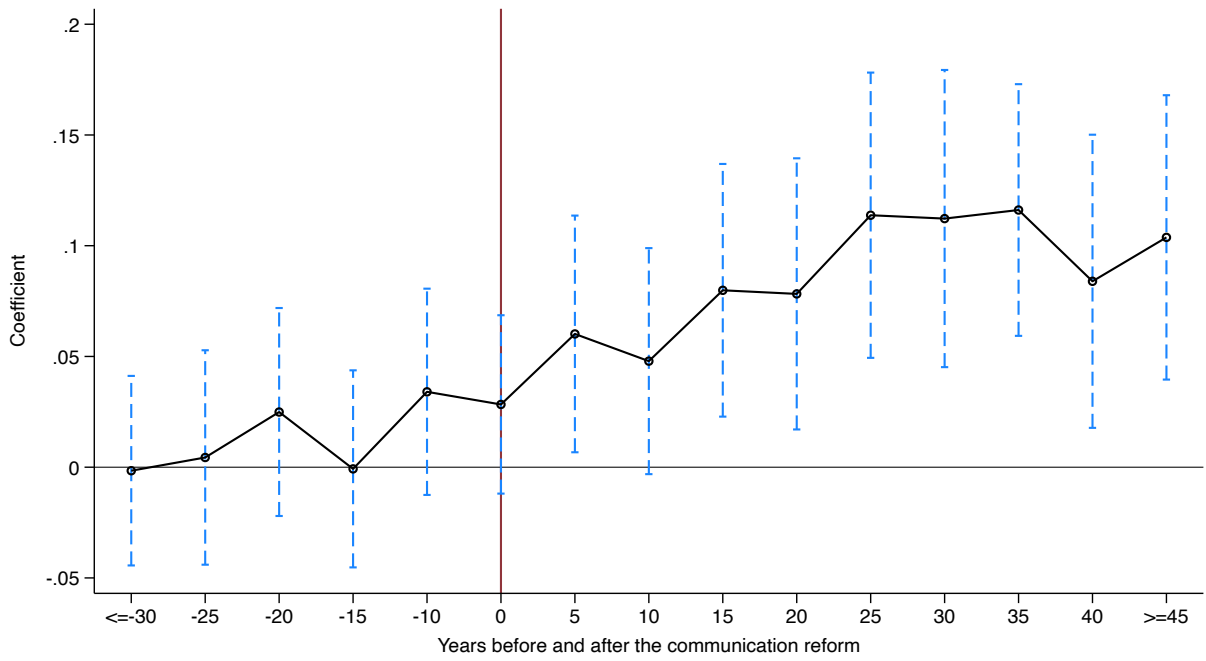


Figure 2: Pre-reform Parallel Trends Test

objective because it does not rely on arbitrary thresholds, though it fails to account for shock intensity and heterogeneous relief efforts. The results based on the new measure of misallocation yield consistent results with the baseline regression (Column (2) of Appendix Table A7).

We also estimate a logit model as a nonlinear alternative to the baseline linear probability model, given that the outcome variable is binary. The resulting average partial effects (Column (3) of Appendix Table A7) align qualitatively with the baseline estimates. Moreover, we test the sensitivity of our resource misallocation metric, defined as prefectures receiving top-20% disaster relief despite experiencing bottom-20% natural shocks. Alternative thresholds (5%, 10%, and 25%) yield statistically consistent estimates (Columns (1)-(3) of Appendix Table A8).

Further, we estimate our model using Conley spatial standard errors (Conley 1999), which explicitly account for potential spatial spillover effects. In our case, the reporting scope for informants was not geographically restricted, allowing them to report on disaster conditions

from any region, including areas beyond their designated jurisdictions. This flexibility may generate spatial spillovers, as information advantages in certain regions could influence disaster reporting in neighboring areas, potentially biasing estimates. For this reason, we employ the Conley spatial standard errors to address potential spatial dependence. The results (Column (4) of Appendix Table A8) remain consistent with our baseline estimates in both magnitude and statistical significance. This robustness confirms that spatial spillovers do not systematically distort our main result.

6.4 The Emperor’s Dilemma: Overwhelmed by Information Overload

Why does the communication reform bring about such unintended consequences? Our explanation posits that the uneven distribution of direct reporting positions across prefectures during the communication reform leads to spatial disparities in information flow intensity. A strong flow of information can capture the emperor’s attention during decision-making, leading to the allocation of limited public goods to areas that do not match actual needs.

To validate this, we use the logarithm of the annual disaster report count at the prefectural level as an indicator of the strength of the information flow for that year. The results in column (1) and (2) of Table 2 show that prefectures with more distribution of direct reporting positions were more likely to provide a stronger flow of information after the reform (as seen in column(2), an increase in the number of by one percent results in a 0.042% increase in the annual disaster report count for that prefecture with all controls). Further, the results in columns (3) and (4) validate the impact of information flow intensity on the probability of resource misallocation in the prefecture, indicating that for one percent increase in the number of disaster relief reports, the probability of misallocation of disaster relief resources in that prefecture will increase by 0.026 percentage points with all controls. This empirical evidence supports the existing theoretical view that information overload can negatively impact individual decision-making.

To substantiate the hypothesis of this study, we include both the disaster relief reports

and the number of prefectural direct reporting positions after the reform in the model. The results, as shown in column (5), indicate that disaster relief reports still significantly and positively affect the probability of misallocation of relief resources (an increase of one percent in the number of disaster relief reports results in an increase in the probability of misallocation of relief resources by 0.024 percentage points). At the same time, the impact of the number of direct after the reform on the probability of misallocation of relief resources becomes less significant (p-value < 0.1), implying that the impact of informant distribution on disaster relief decisions operates mainly through the mediating effect of generating larger information flows. Thus, the empirical evidence demonstrates that information oversupply triggers a shift in decision-making attention, culminating in the emperors' erroneous judgments.

Table 2: Effects of Information Overload on Resource Misallocation

	Relief Reports		Misallocation		
	(1)	(2)	(3)	(4)	(5)
Relief reports			0.047*** (0.011)	0.026*** (0.010)	0.024*** (0.009)
Direct Reporting Positions	0.070*** (0.021)	0.042*** (0.012)			0.010* (0.005)
Controls	Y	Y	N	Y	Y
Post-1722	Y	Y	Y	Y	Y
R^2	0.023	0.052	0.008	0.059	0.060
Observations	26,433	26,433	26,433	26,433	26,433

Note: This table validates the mechanism by which the concentration of direct reporting positions led to a strong flow of information, resulting in misjudgments in the emperor's decision-making. The unit of observation is prefecture-year. Relief reports denotes the logarithm of the secret disaster relief reports after the reform. Controls include Administrative burden, population density, clan system, wheat suitability index, rice suitability index, sweet suitability index, maize suitability index, terrain ruggedness index and river density. Complete regression results with control variables are presented in Appendix Table A2. Robust standard errors in parentheses are clustered at the prefecture level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

6.5 Alternative Explanations

Our empirical evidence documented a positive effect of a direct but spatially uneven reporting system on the misallocation of government resources. We also validate the mechanistic role of information oversupply therein. However, a key challenge our study faces is discerning whether the misallocation of government resources is attributable solely to the spatial informational advantage or to other factors as well. In this subsection, we address several potential alternative explanations.

6.5.1 Local Favoritism

Although the information reform didn't change the bureaucratic structure, one may still be concerned that misallocations could be attributed to personnel factors rather than to information flows. For instance, Chai, Hao and Xi (2025) finds that there was local favoritism that regions connected to incumbent officials were more likely to receive famine relief. The mechanism highlighted in their paper is that local senior officials can lobby the emperor and provide more information about local conditions to secure more resources. Their findings are in line with ours that information leads to resource allocation, but emphasize a different mechanism, that of informal political connections in their paper, and spatially uneven distribution of information sources in our paper. To control for local favoritism, we include the number of incumbent senior officials who were born in a prefecture in our specification. Results shown in Appendix Table A9 show that our results remain, although local favoritism also plays a role.

6.5.2 Socio-Economic Importance

In our empirical analysis, we aim to control for the confounding effect that inherent administrative characteristics or socio-economic conditions of a region make it more likely to receive a skewed allocation of public resources. As displayed in Table 1, columns (1) and

(2), even after accounting for various administrative features (especially provincial capital status) and socio-economic conditions, our conclusions remain intact. One may still be concerned about this issue. To further address this concern, we introduce a new measure of local socio-economic importance based on a special Qing dynasty institution: the administrative zone importance rating system. In the early Qing Dynasty, the central government lacked standardized criteria for determining the importance of different prefectures, a situation that persisted until the accession of Emperor Yongzheng. It was not until the sixth year of Yongzheng’s reign (1728) that the Qing Dynasty formally established an administrative hierarchy system to streamline its governance strategy. He implemented a grading mechanism that assessed each prefecture’s (and other related subdivisions) governance challenges in four specific criteria: *Chong*, *Fan*, *Pi*, and *Nan* (Koss 2017). *Chong* designated areas along bustling routes, highlighting either their strategic transportation or military value (Koss 2017, Liu and Zhang 2025). *Fan* characterized regions grappling with substantial administrative responsibilities. *Pi* pinpointed areas where tax collection posed challenges. Lastly, *Nan* identified locales marked by heightened criminal activity or violence. Among the criteria *Chong*, *Fan*, *Pi*, and *Nan*, those meeting all four are considered ‘most essential’, those meeting three are ‘essential with minor omissions’, those with two are ‘moderately essential’, and the rest are ‘minimally essential’.

Taking advantage of this system, we see an opportunity to isolate further the influence of informants’ spatial informational advantage from regional characteristics. We, therefore, introduce the importance rating of each prefecture (i.e., the number of criteria a prefecture was labeled) into our regression. Results shown in Appendix Table A10, corroborate our initial findings. After considering local governance challenges and socio-economic importance, our results remain valid.

6.5.3 Fiscal Capacity

Another potential confounding factor is provincial fiscal capacity and its impact on local disaster relief. To curb corruption in tax collection by local officials, the Qing government allowed provincial administrations to retain a portion of the tax revenues initially collected for the central government, aiming to provide stable funding for local public affairs and the living expenses of local officials (Hao and Liu 2020). Theoretically, enhancement of provincial fiscal capacity could alter the underlying logic of resource allocation. For instance, the central government might reduce top-down resource distribution if it perceived local governments as having some capacity for autonomous relief. However, the Qing disaster relief system was highly centralized in practice, with minimal local autonomy in resource allocation. Even the use of local resources required approval from the central government, meaning that provincial fiscal capacity had minimal influence on decisions made by the emperor and the central administration.

To address potential confounding, we controlled for total provincial fiscal revenue and the proportions of discretionary resources in our baseline regression. Empirical results (Appendix Table A11) show that provincial fiscal revenue exhibits weak correlation with misallocation, and fiscal autonomy is not significantly correlated with relief decisions—indicating no systematic effect of provincial fiscal capacity on resource misallocation. More importantly, after including these controls, the estimated impact of post-reform information advantages remains stable and significant, with no substantive change in magnitude or direction. This suggests the information mechanism operates independently of provincial fiscal institutions.

6.5.4 Demand Effect

In Qing China, the disaster relief system was designed to allocate resources according to the severity of calamities. This has led to an alternative interpretation: the disproportionate allocation of resources might be solely attributable to a region’s inherent disaster vulnerability,

driven by demand. In other words, regions with superior access to information might also have been more prone to disasters due to local environmental or socioeconomic conditions (such as frequent flooding or low-quality infrastructure), making them natural recipients of greater aid, regardless of informational mechanisms. To evaluate this competing hypothesis, we empirically examine whether the distribution of informants was correlated with disaster severity. As shown in Appendix Tables A12 and A13, we find no systematic relationship between informational advantage and disaster intensity, suggesting that information networks were not concentrated in areas of high inherent vulnerability. Thus, misallocation appears to stem primarily from the structure of information flows, not from pre-existing disaster sensitivity in regions with information advantages. Another concern is whether more frequent relief activities in the treated prefecture would reduce the probability of disaster occurrences, thereby increasing the likelihood of misallocation (i.e., few disasters, many relief) in the years to come. We, therefore, include the lagged relief index in the regression to control for this effect. The results still hold (see Appendix Table A14).

7 Escaping the Dilemma: Co-Ethnic Trust as an Autocratic Solution

Although the secret reporting system facilitated the transfer of information, it also imposed a substantial burden on the emperor’s information processing. Following the reform, the surge in secret reports from localities presented a significant challenge to the emperor’s administrative capabilities. According to our estimate, the Qing emperors, after completing dozens of routine reports and court meetings, had to read and annotate more than 15 secret reports each day. However, in a highly centralized decision-making structure, information oversupply could divert the emperor’s attention, thereby dulling his responsiveness to disasters (Eisensee and Strömberg 2007). Our empirical evidence suggests that because the emperor’s attentional resources were scarce, when a specific region’s informational advan-

tage was unexpectedly amplified, regions with this informational edge might attract a disproportionate amount of the emperor’s attention during natural shocks, potentially leading to decision-making errors (Strömberg 2004, Keefer and Khemani 2005).

An intriguing question then arises: How did the emperor cope with this unforeseen challenge of informational inflation? Previous research suggests that, to protect themselves from the influence of vast raw information, politicians first outsource some information to other organizational procedures and employ their own heuristic methods for quick decision-making when a final judgment is required. In the presence of residual uncertainty after implementing organizational procedures and heuristics, decision-makers often resort to specific beliefs (Walgrave and Dejaeghere 2017).

Historical records of the Qing Dynasty’s decision-making processes somewhat corroborate the above deduction. Faced with a growing number of reports, the Qing emperors established two institutions specifically to handle the rising volume of information (see Section 3). However, unlike discussions grounded in democratic regimes, emperors were reluctant to share their power with other bureaucrats. The newly established institutions’ responsibilities were confined to categorizing and transmitting secret reports, making the emperor’s role in reading and annotating them irreplaceable. Hence, the challenges brought about by information inflation were not addressed through decentralized decision-making, but instead were adjusted through the emperor’s individual decision-making beliefs.

For rulers, the loyalty of the bureaucratic apparatus is vital to maintaining control and stability of the regime; they heavily rely on the political loyalty of bureaucrats for decision-making (Magaloni and Kricheli 2010). In principal-agent relationships, where bureaucrats, as the monitored, do not always align with the interests of the monitoring emperor, the latter often values information from senders whose interests are more aligned, especially information from groups with high political loyalty (Crawford and Sobel 1982). Specifically, the upper echelons of the Qing imperial hierarchy were dominated by Manchu elites who established the Qing Dynasty, with Mongols and a minority of Han Chinese who assisted the

Manchus in establishing and governing the empire occupying the middle, and the majority Han populace at the bottom. The Manchu, Mongols, and a select few Han Chinese constitute the so-called Bannerman system, that is, a ruling coalition of the Qing Dynasty. While the Han were generally considered more capable (Xi 2019), the Bannerman, due to their ethnic identity and status as members of the ruling class, were more trusted in political interactions with the emperor. This identity-based division led the emperor to view Bannerman officials as more reliable sources of information, thereby increasing his likelihood of adopting their insights in decision-making.

Table 3: The Corrective Mechanism of Political Trust

	Misallocation			
	(1)	(2)	(3)	(4)
Relief Reports sent by bannerman $\times$ post	0.116 (0.181)	0.120 (0.184)		
Relief Reports sent by non-bannerman $\times$ post			0.079*** (0.016)	0.054*** (0.015)
Controls	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Prefecture FE	Y	Y	Y	Y
Prefecture-specific time trends	N	Y	N	Y
R^2	0.066	0.083	0.067	0.083
Observations	47,259	47,259	47,259	47,259

Note: This table explores a mechanism by which the emperor leverages trusted officials to correct the information distortion caused by strong information flows. Relief reports from bannermen refers to the logarithm of the number of secret reports about disaster relief from Manchu officials after the reform. Controls include Administrative burden, population density, clan system, wheat suitability index, rice suitability index, sweet suitability index, maize suitability index, terrain ruggedness index and river density. Complete regression results with control variables are presented in Appendix Table A3. Robust standard errors in parentheses are clustered at the prefecture level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

To investigate whether this belief, rooted in ethnic-based political trust, influenced the emperor's attention distribution, and subsequently, allocation decisions, we first provide suggestive evidence to show that reports from more trusted senders indeed attracted more attention. In the Appendix Table A15, we find the emperor made a quick response to reports

sent by bannerman, even if we control for the personal background or position characteristics, location fixed effect, and time fixed effect.¹⁷

Furthermore, we compare the impact of post-reform reports submitted by Bannerman and non-Bannerman officials on the emperor’s misallocation of disaster relief resources. The results are presented in Table 3. Columns (1) and (2) reveal no statistically significant relationship between the volume of reports from Bannerman officials and subsequent disaster relief misallocation, suggesting that when the authenticity of reported information could be reasonably assured, the emperor was more likely to allocate deliberative attention to these reports based on political trust. This selective engagement mitigated the distortionary effects of irrelevant information on decision-making quality, as the emperor’s reliance on trusted channels reduced noise in the policy process. This interpretation is further corroborated by evidence from non-Bannerman elites. Columns (3) and (4) demonstrate a significant positive association between reports from non-Bannerman officials and resource misallocation, indicating that in routine scenarios lacking privileged information sources, the emperor’s decision-making efficacy was substantially influenced by the intensity of information flows. Without the filtering mechanism of pre-established political trust, the emperor’s attention was more susceptible to dispersion, leading to suboptimal decisions. These findings highlight the dual role of institutionalized trust. It not only enhances the credibility of information but also functions as a cognitive safeguard against the overload of superfluous inputs, thereby shaping the efficiency of imperial governance.

8 Conclusion

This paper explores a unique historical reform in Qing China that introduced a direct and competitive information transmission system. This system was intended to streamline the information flow and strengthen bureaucratic control within the state. However, we find

¹⁷ Unfortunately, we are not able to access all the secret reports that have both the sending time and receiving time. Our analysis is based on the data we have, which involves 34,086 pieces of secret reports.

that introducing direct reporting undermines the efficiency of public resource allocation. Specifically, regions with more direct reporting positions would receive disproportionately more public relief even if they experienced relatively moderate disasters. This pattern was robust to a series of checks and alternative explanations. We argue that this unintended consequence was attributed to the spatially uneven distribution of direct reporting positions and the rulers' limited attention. Under these circumstances, the ruler was overfed by regions with information advantages and therefore made biased decisions in their favor. We also find a coping strategy employed by the emperor: trust-based information use. In that case, the emperor placed greater weight on and responded quickly to information from trusted officials who shared the same ethnicity or membership in the ruling class. Moreover, information sent by these officials did not lead to public resource misallocation, indicating the potential of this strategy in addressing the challenge of information inflation and limited attention.

The dynamic interplay between bureaucratic control, information overload, and political decision-making in historical settings offers invaluable insights into today's administrative challenges. While broadening information channels and enhancing bureaucratic control may seem like steps towards more efficient governance, balancing the vast inflow of information with the capacity to process it remains a timeless challenge, especially in centralized decision-making structures. This becomes even more salient when the cost of information collection is increasingly minimized, and our attention is still limited. The unintended consequences, beyond resource misallocation uncovered in this paper, warrant further consideration.

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Appendices

Additional Figure

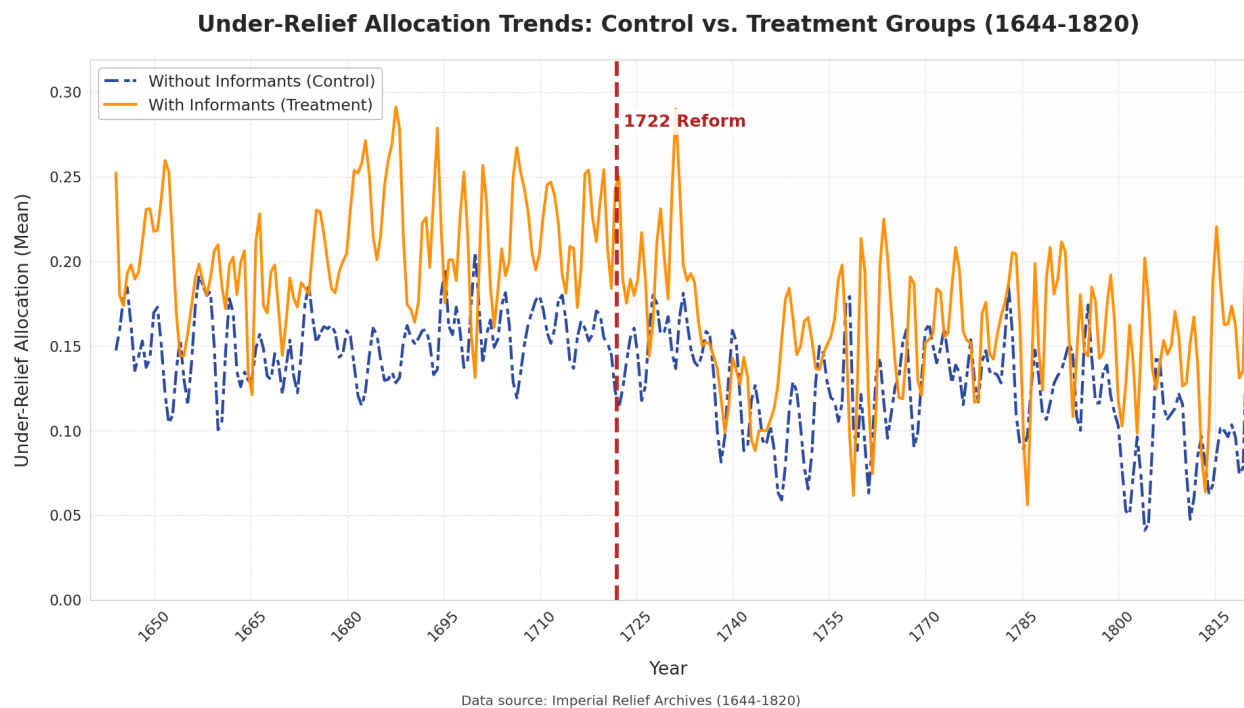


Figure A1: Distribution of Under-relief

Additional Tables

Table A1: Communication Reform and Resource Misallocation (complete results)

	<i>Dependent Variable: Misallocation</i>			
	(1)	(2)	(3)	(4)
Direct Reporting Positions $\times$ post	0.040*** (0.013)	0.025* (0.013)	0.037** (0.016)	0.047** (0.019)
Administrative burden $\times$ post		0.002 (0.002)	-0.002 (0.003)	-0.002 (0.003)
Population density $\times$ post		-0.087 (0.146)	0.010 (0.158)	0.050 (0.164)
Clan system $\times$ post		0.000 (0.000)	0.002* (0.001)	0.003* (0.001)
Wheat suitability index $\times$ post		0.003* (0.002)	0.004** (0.002)	0.004** (0.002)
Rice suitability index $\times$ post		-0.000 (0.001)	-0.001 (0.001)	0.000 (0.001)
Sweet suitability index $\times$ post		-0.006*** (0.001)	-0.003** (0.001)	-0.003** (0.001)
Maize suitability index $\times$ post		-0.004** (0.002)	-0.005*** (0.002)	-0.004** (0.002)
Terrain ruggedness index $\times$ post		-0.000*** (0.000)	-0.000** (0.000)	-0.000** (0.000)
River density $\times$ post		0.000 (0.000)	-0.001* (0.000)	-0.001 (0.000)
Year FE	Y	Y	Y	Y
Prefecture FE	Y	Y	Y	Y
Prefecture-specific time trends	N	N	Y	Y
Excluding Provincial capital	N	N	N	Y
R^2	0.055	0.066	0.083	0.081
Observations	47,259	47,259	47,259	44,073

Note: This table presents the complete baseline regression results with control variables. The unit of observation is prefecture-year. Resource misallocation specifically refers to a situation where the disaster status of the prefecture for that year ranked in the bottom 20% nationwide, but the allocation of government disaster relief resources to it ranked in the top 20% nationwide. If this situation occurred in the prefecture for that year, it is assigned a value of 1; otherwise, it is 0. Direct reporting positions denote the logarithm of the quota of personnel in the prefecture who were qualified to report, while ‘post’ is a binary variable that takes the value of 1 if a communication reform had been implemented and 0 otherwise. Robust standard errors in parentheses are clustered at the prefecture level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table A2: Effects of Information Overload on Resource Misallocation (complete results)

	Relief Reports		Misallocation		
	(1)	(2)	(3)	(4)	(5)
Relief reports			0.047*** (0.011)	0.026*** (0.010)	0.024*** (0.009)
Direct Reporting Positions	0.070*** (0.021)	0.042*** (0.012)			0.010* (0.005)
Administrative burden		0.015 (0.009)		0.003* (0.002)	0.001 (0.002)
Population density		-0.431** (0.205)		-0.236 (0.147)	-0.272* (0.149)
Clan system		0.000 (0.001)		-0.000 (0.001)	0.000 (0.001)
Wheat suitability index		0.000 (0.002)		0.002 (0.002)	0.002 (0.002)
Rice suitability index		-0.001 (0.002)		0.000 (0.001)	0.000 (0.001)
Sweet suitability index		-0.008*** (0.002)		-0.007*** (0.001)	-0.007*** (0.001)
Maize suitability index		-0.004** (0.002)		-0.004** (0.002)	-0.003** (0.002)
Terrain ruggedness index		-0.000*** (0.000)		-0.000*** (0.000)	-0.000*** (0.000)
River density		0.002** (0.001)		0.001* (0.000)	0.001 (0.000)
Post-1722	Y	Y	Y	Y	Y
R^2	0.023	0.052	0.008	0.059	0.060
Observations	26,433	26,433	26,433	26,433	26,433

Note: This table presents the complete mechanism test results with control variables. The unit of observation is prefecture-year. Relief reports donate the logarithm of the secret disaster relief reports after the reform. Robust standard errors in parentheses are clustered at the prefecture level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table A3: The Corrective Mechanism of Political Trust (complete results)

	<i>Dependent Variable: Misallocation</i>			
	(1)	(2)	(3)	(4)
Relief Reports sent by bannerman $\times$ post	0.116 (0.181)	0.120 (0.184)		
Relief Reports sent by non-bannerman $\times$ post			0.079*** (0.016)	0.054*** (0.015)
Administrative burden $\times$ post	0.004** (0.002)	0.002 (0.002)	0.004** (0.002)	0.001 (0.002)
Population density $\times$ post	-0.059 (0.144)	0.050 (0.159)	-0.056 (0.142)	0.046 (0.159)
Clan system $\times$ post	0.000 (0.000)	0.002* (0.001)	0.000 (0.000)	0.002 (0.001)
Wheat suitability index $\times$ post	0.003* (0.002)	0.004** (0.002)	0.003* (0.001)	0.004** (0.002)
Rice suitability index $\times$ post	-0.000 (0.001)	-0.001 (0.001)	-0.000 (0.001)	-0.001 (0.001)
Sweet suitability index $\times$ post	-0.006*** (0.001)	-0.003** (0.001)	-0.006*** (0.001)	-0.003** (0.001)
Maize suitability index $\times$ post	-0.004** (0.002)	-0.005*** (0.002)	-0.004** (0.002)	-0.005*** (0.002)
Terrain ruggedness index $\times$ post	-0.000*** (0.000)	-0.000** (0.000)	-0.000*** (0.000)	-0.000** (0.000)
River density $\times$ post	0.000 (0.000)	-0.001* (0.000)	0.000 (0.000)	-0.001* (0.000)
Year FE	Y	Y	Y	Y
Prefecture FE	Y	Y	Y	Y
Prefecture-specific time trends	N	Y	N	Y
R^2	0.066	0.083	0.067	0.083
Observations	47,259	47,259	47,259	47,259

Note: This table presents the complete regression results of the corrective mechanism of political trust with all control variables. Relief reports from bannermen refer to the logarithm of the number of secret reports about disaster relief from Manchu officials after the reform. Robust standard errors in parentheses are clustered at the prefecture level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table A4: Descriptive Statistics

	Regions with direct-reporting positions			Regions without direct-reporting positions			Group Comparison	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Prefecture-year variables:</i>	N	Mean	SD	N	Mean	SD	Diff.	p-value
Resource misallocation	19647	0.159	0.366	27612	0.135	0.342	0.024	0.000
Government assistance(weighted)	19647	3.354	14.911	27612	1.507	7.620	1.847	0.000
Disaster(weighted)	19647	1.380	5.191	27612	0.748	2.980	0.632	0.000
Disaster relief reports	19647	0.123	0.677	27612	0.042	0.297	0.081	0.000
<i>Prefecture variables:</i>	N	Mean	SD	N	Mean	SD	Diff.	p-value
Number of direct reporting positions	111	2.090	1.529	156	0.000	0.000	2.090	0.000
Administrative burden	111	7.730	3.795	156	4.750	2.706	2.980	0.000
Population density	111	0.072	0.090	156	0.063	0.071	0.009	0.406
Clan system	111	1.279	2.660	156	1.564	7.682	-0.285	0.677
Wheat suitability index	111	21.825	11.190	156	24.861	11.116	-3.036	0.044
Rice suitability index	111	10.174	10.716	156	10.934	10.570	-0.760	0.592
Sweet suitability index	111	8.104	8.872	156	9.605	10.147	-1.501	0.263
Maize suitability index	111	20.251	11.869	156	23.426	11.127	-3.175	0.037
Terrain ruggedness index	111	244.790	195.758	156	226.282	173.093	18.508	0.430
River density	111	52.515	26.839	156	50.264	20.337	2.251	0.470
Chong	111	0.811	0.393	156	0.600	0.778	0.211	0.006
Fan	111	0.964	0.187	156	0.948	0.645	0.016	0.814
Pi	111	0.405	0.493	156	0.413	0.780	-0.008	0.930
Nan	111	0.883	0.323	156	0.813	0.719	0.070	0.290

Note: For the data sources, please refer to Section 4.

Table A5: Reverse Misallocation Test: Scarce Aid in Severe Disasters

	<i>Dependent Variable:</i> Reverse Misallocation		
	(1)	(2)	(3)
Direct Reporting Positions $\times$ post	0.000 (0.011)	-0.029 (0.018)	-0.035 (0.021)
Administrative burden $\times$ post	-0.004* (0.002)	0.000 (0.003)	-0.000 (0.003)
Population density $\times$ post	-0.357*** (0.117)	0.023 (0.147)	0.018 (0.154)
Clan system $\times$ post	-0.000 (0.001)	-0.002* (0.001)	-0.002 (0.001)
Wheat suitability index $\times$ post	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)
Rice suitability index $\times$ post	0.001 (0.001)	-0.000 (0.001)	-0.000 (0.001)
Sweet suitability index $\times$ post	0.003*** (0.001)	0.001 (0.001)	0.001 (0.001)
Maize suitability index $\times$ post	0.001 (0.001)	-0.000 (0.001)	-0.000 (0.001)
Terrain ruggedness index $\times$ post	0.000*** (0.000)	-0.000 (0.000)	-0.000 (0.000)
River density $\times$ post	-0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Year FE	Y	Y	Y
Prefecture FE	Y	Y	Y
Prefecture-specific time trends	N	Y	Y
Excluding Provincial capital	N	N	Y
R^2	0.084	0.098	0.097
Observations	47,259	47,259	44,073

Note: This table examines the effect of the 1722 communication reform on the probability of relief under-allocation to disaster-stricken prefectures. The unit of observation is prefecture-year. In this table, resource misallocation refers to an opposite situation where the disaster status of the prefecture for that year ranked in the top 20% nationwide, but the allocation of government disaster relief resources to it ranked in the bottle 20% nationwide. If this situation occurs in the prefecture for that year, it is assigned a value of 1; otherwise, it is 0. Robust standard errors in parentheses are clustered at the prefecture level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table A6: Pre-reform Parallel Trends Test

	<i>Dependent Variable:</i> Misallocation
	(1)
Pre-reform (≥ 30 years) $\times$ DR Positions	-0.002 (0.022)
Pre-reform (25-30 years) $\times$ DR Positions	0.004 (0.025)
Pre-reform (20-25 years) $\times$ DR Positions	0.025 (0.025)
Pre-reform (15-20 years) $\times$ DR Positions	-0.001 (0.023)
Pre-reform (5-10 years) $\times$ DR Positions	0.034 (0.024)
Post-reform (0-5 years) $\times$ DR Positions	0.028 (0.020)
Post-reform (5-10 years) $\times$ DR Positions	0.060** (0.027)
Post-reform (10-15 years) $\times$ DR Positions	0.048* (0.026)
Post-reform (15-20 years) $\times$ DR Positions	0.080*** (0.029)
Post-reform (20-25 years) $\times$ DR Positions	0.078** (0.031)
Post-reform (25-30 years) $\times$ DR Positions	0.114*** (0.033)
Post-reform (30-35 years) $\times$ DR Positions	0.112*** (0.034)
Post-reform (35-40 years) $\times$ DR Positions	0.116*** (0.029)
Post-reform (40-45 years) $\times$ DR Positions	0.084** (0.034)
Post-reform (≥ 45 years) $\times$ DR Positions	0.104*** (0.033)
Controls	Y
Year FE	Y
Prefecture FE	Y
Prefecture-specific time trends	Y
R^2	0.083
Observations	47,259

Note: This table presents dynamic effects of the 1722 communication reform using event-study interactions. DR Positions refers to Direct Reporting Positions. The coefficients show the effects of informants in 5-year bins relative to the omitted baseline bin (0-5 years pre-reform). Controls include administrative burden, population density, clan system, wheat suitability index, rice suitability index, sweet suitability index, maize suitability index, terrain ruggedness index and river density. All specifications include prefecture fixed effects, year fixed effects, and prefecture-specific linear time trends. Robust standard errors in parentheses are clustered at the prefecture level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table A7: Robust Check Results (part 1)

	<i>Dependent Variable: Misallocation</i>		
	(1) Treatment (dummy)	(2) Outcome (county share)	(3) Model (logit)
Direct Reporting Position (dummy) $\times$ post	0.034* (0.018)		
Direct Reporting $\times$ post		0.005*** (0.002)	0.023*** (0.007)
Administrative burden $\times$ post	-0.001 (0.003)	-0.000 (0.000)	0.002 (0.001)
Population density $\times$ post	0.035 (0.158)	0.009 (0.027)	-0.035 (0.064)
Clan system $\times$ post	0.002* (0.001)	-0.000 (0.000)	0.001 (0.001)
Wheat suitability index $\times$ post	0.004** (0.002)	0.000*** (0.000)	0.003*** (0.001)
Rice suitability index $\times$ post	-0.001 (0.001)	-0.000 (0.000)	0.000 (0.000)
Sweet suitability index $\times$ post	-0.003** (0.001)	-0.000 (0.000)	-0.007*** (0.001)
Maize suitability index $\times$ post	-0.005*** (0.002)	-0.000** (0.000)	-0.004*** (0.001)
Terrain ruggedness index $\times$ post	-0.000** (0.000)	-0.000** (0.000)	-0.000*** (0.000)
River density $\times$ post	-0.001* (0.000)	-0.000* (0.000)	-0.000 (0.000)
Year FE	Y	Y	Y
Prefecture FE	Y	Y	Y
Prefecture-specific time trends	Y	Y	N
Pseudo R^2			0.076
R^2	0.083	0.013	
Observations	47,259	47,259	47,259

Note: This table presents robustness checks for the main results. Column (1) uses a binary treatment variable indicating the presence of at least one designated reporting official within the prefecture; Column (2) employs outcome measure calculating the proportion of resource misallocation counties within each prefecture; Column (3) applies a logit model for our baseline specification. Robust standard errors, clustered at the prefecture level. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table A8: Robust Check Results (part 2)

	<i>Dependent Variable: Misallocation</i>			
	(1) Cutoff=5%	(2) Cutoff=10%	(3) Cutoff=25%	(4) Conley SE
Direct Reporting Positions $\times$ post	0.016* (0.009)	0.037*** (0.012)	0.040** (0.018)	0.025*** (0.007)
Administrative burden $\times$ post	-0.000 (0.001)	-0.004** (0.002)	0.002 (0.003)	0.002 (0.001)
Population density $\times$ post	0.074 (0.070)	0.114 (0.100)	0.125 (0.148)	-0.087 (0.072)
Clan system $\times$ post	0.000 (0.000)	0.001* (0.001)	0.002* (0.001)	0.000 (0.001)
Wheat suitability index $\times$ post	0.001** (0.001)	0.001 (0.001)	0.002 (0.002)	0.003*** (0.001)
Rice suitability index $\times$ post	-0.000 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.000 (0.001)
Sweet suitability index $\times$ post	-0.001* (0.001)	-0.003*** (0.001)	-0.004*** (0.001)	-0.006*** (0.001)
Maize suitability index $\times$ post	-0.001* (0.001)	-0.002 (0.001)	-0.003* (0.002)	-0.004*** (0.001)
Terrain ruggedness index $\times$ post	-0.000 (0.000)	-0.000** (0.000)	-0.000 (0.000)	-0.000*** (0.000)
River density $\times$ post	-0.001** (0.000)	-0.001 (0.000)	-0.000 (0.001)	0.000 (0.000)
Year FE	Y	Y	Y	Y
Prefecture FE	Y	Y	Y	Y
Prefecture-specific time trends	Y	Y	Y	N
R^2	0.066	0.076	0.077	0.056
Observations	47,259	47,259	47,259	47,529

Note: This table presents robustness checks for the main results. Columns (1)-(3) test different cutoff thresholds (5%, 10%, and 25% respectively); Column (4) reports Conley standard errors to address spatial correlation (Conley 1999). Robust standard errors, clustered at the prefecture level, are reported in parentheses for all specifications except Column (4). ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table A9: Alternative Explanations: Local Favoritism

	Over-relief Misallocation		Under-relief Misallocation	
	(1)	(2)	(3)	(4)
			7	
Direct Reporting Positions $\times$ post	0.036** (0.016)	0.036** (0.016)	-0.029 (0.018)	-0.029 (0.018)
High-Ranking Central Officials	0.003 (0.003)		0.002 (0.003)	
High-Ranking Local Officials		-0.012*** (0.003)		0.011*** (0.003)
Baseline controls	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Prefecture FE	Y	Y	Y	Y
Treatment trend	Y	Y	Y	Y
R^2	0.083	0.098	0.083	0.098
Observations	47,259	47,259	47,259	47,259

Note: Robust standard errors, clustered at the prefecture level, are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table A10: Alternative Mechanism: Administrative Importance Effect

	<i>Dependent Variable:</i> Misallocation	
	(1)	(2)
Direct Reporting Positions $\times$ post	0.023* (0.013)	0.036** (0.016)
Administrative rate $\times$ post	0.005 (0.006)	0.002 (0.009)
Administrative burden $\times$ post	0.002 (0.002)	-0.002 (0.003)
Population density $\times$ post	-0.089 (0.146)	0.009 (0.159)
Clan System $\times$ post	0.000 (0.001)	0.002* (0.001)
Wheat suitability index $\times$ post	0.003* (0.002)	0.004** (0.002)
Rice suitability index $\times$ post	-0.000 (0.001)	-0.001 (0.001)
Sweet suitability index $\times$ post	-0.006*** (0.001)	-0.003** (0.001)
Maize suitability index $\times$ post	-0.004** (0.002)	-0.005*** (0.002)
Terrain ruggedness index $\times$ post	-0.000*** (0.000)	-0.000** (0.000)
River density index $\times$ post	0.000 (0.000)	-0.001* (0.000)
Year FE	Y	Y
Prefecture FE	Y	Y
Prefecture-specific time trends	N	Y
Observations	47,259	47,259
R^2	0.066	0.083

Note: This table presents an alternative explanation based on administrative hierarchy. The unit of observation is prefecture-year. Administrative rate refers to the importance of the prefecture in the administrative system, and our assignment is determined by the official designation of the administrative level for that region. The official importance designation for the area was based on the four dimensions of “chong”, “fan”, “pi”, and “nan”. Among them, those that meet all four criteria were categorized as “most important”, those that meet three were “important with minor exceptions”, those that meet two were “moderately important”, and the rest were “least important”. Robust standard errors in parentheses are clustered at the prefecture level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table A11: Alternative Mechanism: Provincial Fiscal Effect

	<i>Dependent Variable:</i> Misallocation	
	(1)	(2)
Direct Reporting Positions $\times$ post	0.034** (0.016)	0.037** (0.016)
Provincial Fiscal Reservation $\times$ post	-0.000* (0.000)	
Provincial Huohao $\times$ post		0.000 (0.000)
Administrative burden $\times$ post	-0.002 (0.003)	-0.002 (0.003)
Population density $\times$ post	0.010 (0.157)	-0.001 (0.156)
Clan system $\times$ post	0.003** (0.001)	0.002* (0.001)
Wheat suitability index $\times$ post	0.004** (0.002)	0.004** (0.002)
Rice suitability index $\times$ post	-0.001 (0.001)	-0.000 (0.001)
Sweet suitability index $\times$ post	-0.003*** (0.001)	-0.003** (0.001)
Maize suitability index $\times$ post	-0.004** (0.002)	-0.005*** (0.002)
Terrain ruggedness index $\times$ post	-0.000*** (0.000)	-0.000** (0.000)
River density $\times$ post	-0.001* (0.000)	-0.001** (0.000)
Controls	Y	Y
Year FE	Y	Y
Prefecture FE	Y	Y
Prefecture-specific time trends	Y	Y
R^2	0.083	0.083
Observations	47,259	47,259

Note: This table presents an alternative explanation based on provincial fiscal capacity. The unit of observation is prefecture-year. Provincial fiscal reservation refers to total provincial fiscal revenue in a year. Provincial Huohao represents the proportion of discretionary fiscal resources in total revenue. Robust standard errors, clustered at the prefecture level, are reported in parentheses for Columns (1) to (4). ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table A12: Alternative Mechanism: The Demand Effect (Part 1)

	Flood	Drought	Locust	Snowstorm	Hurricane	Plague
	(1)	(2)	(3)	(4)	(5)	(6)
Direct Reporting Positions $\times$ post	-0.024 (0.019)	0.003 (0.013)	-0.002 (0.008)	0.002 (0.010)	-0.004 (0.010)	0.002 (0.006)
Administrative burden $\times$ post	0.003 (0.004)	-0.003 (0.002)	-0.001 (0.001)	-0.001 (0.002)	-0.002 (0.001)	-0.001 (0.001)
Population density $\times$ post	0.202 (0.134)	0.008 (0.157)	0.288*** (0.077)	0.178 (0.122)	0.240*** (0.091)	-0.001 (0.046)
Clan system $\times$ post	-0.002*** (0.001)	-0.002 (0.001)	-0.001*** (0.000)	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)
Wheat suitability index $\times$ post	0.001 (0.002)	0.002 (0.001)	0.000 (0.001)	0.001* (0.001)	0.001 (0.001)	0.000 (0.000)
Rice suitability index $\times$ post	-0.001 (0.001)	-0.002* (0.001)	0.000 (0.001)	0.000 (0.001)	-0.001* (0.001)	0.000 (0.000)
Sweet suitability index $\times$ post	-0.003*** (0.001)	0.001 (0.001)	-0.000 (0.000)	-0.001 (0.001)	0.000 (0.000)	0.000 (0.000)
Maize suitability index $\times$ post	-0.002 (0.002)	-0.003*** (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.002* (0.001)	-0.001* (0.000)
Terrain ruggedness index $\times$ post	-0.000*** (0.000)	-0.000 (0.000)	0.000 (0.000)	0.000* (0.000)	-0.000 (0.000)	0.000 (0.000)
River density $\times$ post	0.000 (0.001)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	0.001* (0.000)	0.000** (0.000)
Year FE	Y	Y	Y	Y	Y	Y
Prefecture FE	Y	Y	Y	Y	Y	Y
Treatment trend	Y	Y	Y	Y	Y	Y
Observations	47,259	47,259	47,259	47,259	47,259	47,259
R-squared	0.242	0.166	0.118	0.117	0.133	0.057

Note: This table validates the mechanism by which the concentration of informants led to a strong flow of information, resulting in misjudgments in the emperor's decision-making. The unit of observation is prefecture-year. Robust standard errors in parentheses are clustered at the prefecture level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table A13: Alternative Mechanism: The Demand Effect (Part 2)

	Disaster	Public asset damage	House damage	Crop live stock loss	Injury or death
	(1)	(2)	(3)	(4)	(5)
Direct Reporting Positions $\times$ post	-0.006 (0.020)	-0.005 (0.008)	-0.003 (0.008)	-0.011 (0.014)	-0.001 (0.007)
Administrative burden $\times$ post	0.001 (0.003)	0.001 (0.002)	-0.001 (0.001)	0.002 (0.002)	-0.001 (0.001)
Population density $\times$ post	0.266* (0.142)	0.116* (0.068)	0.151* (0.081)	0.178* (0.096)	0.075 (0.076)
Clan system $\times$ post	-0.002* (0.001)	-0.001** (0.001)	-0.000 (0.000)	-0.001 (0.001)	-0.001* (0.000)
Wheat Suitability $\times$ post	0.002 (0.002)	-0.001 (0.001)	0.000 (0.001)	0.001 (0.001)	-0.000 (0.000)
Rice Suitability $\times$ post	-0.001 (0.001)	-0.001* (0.001)	-0.001 (0.001)	0.000 (0.001)	-0.000 (0.000)
Sweet Suitability $\times$ post	-0.003*** (0.001)	-0.000 (0.001)	0.001 (0.001)	-0.001 (0.001)	0.001*** (0.000)
Maize Suitability $\times$ post	-0.005*** (0.002)	0.001 (0.001)	-0.000 (0.001)	-0.002** (0.001)	-0.000 (0.000)
Terrain Ruggedness $\times$ post	-0.000*** (0.000)	-0.000*** (0.000)	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)
River density $\times$ post	0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000** (0.000)
Year FE	Y	Y	Y	Y	Y
Prefecture FE	Y	Y	Y	Y	Y
Treatment trend	Y	Y	Y	Y	Y
Observations	47,259	47,259	47,259	47,259	47,259
R-squared	0.333	0.085	0.074	0.159	0.063

Note: This table validates the mechanism by which the concentration of informants led to a strong flow of information, resulting in misjudgments in the emperor's decision-making. The unit of observation is prefecture-year. Robust standard errors in parentheses are clustered at the prefecture level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table A14: Alternative Mechanism: The Demand Effect (Part 3)

	<i>Dependent Variable: Misallocation</i>			
	(1)	(2)	(3)	(4)
Direct Reporting Positions $\times$ post	0.031*** (0.011)	0.020* (0.011)	0.029** (0.015)	0.038** (0.018)
Relief Index (t-1)	0.075*** (0.005)	0.066*** (0.005)	0.059*** (0.005)	0.062*** (0.006)
Administrative burden $\times$ post		0.001 (0.002)	-0.002 (0.003)	-0.002 (0.003)
Population density $\times$ post		-0.088 (0.131)	0.000 (0.146)	-0.051 (0.151)
Clan system $\times$ post		0.000 (0.000)	0.002* (0.001)	0.002* (0.001)
Wheat suitability index $\times$ post		0.002 (0.001)	0.003** (0.002)	0.003** (0.002)
Rice suitability index $\times$ post		-0.000 (0.001)	-0.001 (0.001)	0.000 (0.001)
Sweet suitability index $\times$ post		-0.005*** (0.001)	-0.002* (0.001)	-0.002 (0.001)
Maize suitability index $\times$ post		-0.003** (0.001)	-0.004** (0.002)	-0.004** (0.002)
Terrain ruggedness index $\times$ post		-0.000*** (0.000)	-0.000** (0.000)	-0.000* (0.000)
River density $\times$ post		0.000 (0.000)	-0.001** (0.000)	-0.001* (0.000)
Year FE	Y	Y	Y	Y
Prefecture FE	Y	Y	Y	Y
Prefecture-specific time trends	N	N	Y	Y
Excluding Provincial capital	N	N	N	Y
R^2	0.055	0.066	0.083	0.081
Observations	47,259	47,259	47,259	44,073

Note: This table presents results controlling for the lagged quantity of disaster relief (t-1 period) to account for potential demand effects. Robust standard errors in parentheses are clustered at the prefecture level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table A15: Qing Emperors' Response Time to Disaster Reports across Different Groups

	Replytime (days)	
	Full sample	Disaster-related reports
	(1)	(2)
Bannerman	-0.527** (0.218)	-1.525*** (0.577)
Jinshi	-0.051 (0.236)	-0.139 (0.563)
Military officer	2.072*** (0.559)	0.283 (1.949)
Prefecture FE	Y	Y
Year FE	Y	Y
Observations	34,086	5,064
R-squared	0.279	0.366

Note: This table examines the emperors' response time of secret reports submitted by different official groups during the Qing Dynasty. Response time is measured in days from secret reports submission to imperial endorsement. Robust standard errors, clustered at the prefecture level, are reported in parentheses for Columns (1) to (4). ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.