Audit of God: Hometown Connections and Building Damage in the Sichuan Earthquake

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Abstract

This study documents how corruption can result in large-scale welfare consequences by exacerbating the damage from catastrophic events. Using an original dataset of 1,050 buildings from the 2008 Sichuan earthquake in China, I show that buildings constructed when local officials had hometown connections to their supervisors were 75% more likely to collapse than were those built when officials had no such connections. This increased risk may be attributable to higher corruption among connected officials. The findings reveal that the consequences of corruption extend far beyond allocative inefficiency and relatively modest welfare consequences. Moreover, the results demonstrate how the most destructive impacts of corruption are often hidden, becoming apparent only during significant adverse events.

Keywords: Corruption; Connection; Building; Earthquake; China

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1 Introduction

Corruption is frequently implicated in catastrophic events that result in extensive damage and significant loss of life. Notably, corruption scandals have been widely reported after disasters, such as the 2005 breach of New Orleans levees, the 2017 Grenfell Tower fire in London, the 2021 Surfside condominium collapse in Florida, and the extensive building collapses during the 2023 Turkey earthquake. These scandals are based predominantly on anecdotal evidence, and despite the profound human suffering and loss, systematic evidence of the contribution of corruption to such disasters is elusive, as corrupt activities are inherently covert, and their adverse effects during catastrophic events can appear to be caused solely by the events themselves.[1] Consequently, the literature focuses primarily on allocative inefficiency and relatively modest welfare losses as the costs of corruption (e.g., Schoenherr, 2019; Lehne et al., 2018; Cingano and Pinotti, 2013; Olken and Pande, 2012), potentially diminishing the perceived urgency to tackle corruption effectively.

In this paper, I examine the role of corruption in exacerbating the outcomes of catastrophic events, with a focus on the 2008 Sichuan earthquake in China. I demonstrate that buildings constructed under the authority of local officials with hometown connections to their superiors—a situation indicative of heightened corruption—suffered more extensive damage during the earthquake. The findings reveal that corruption can lead to significant welfare consequences, extending far beyond what the literature documents. Moreover, these consequences are not immediately manifested after corrupt activities occur. Instead, they remain latent for extended periods, creating hidden risks and vulnerabilities that undermine societal resilience to adverse events and amplify damage. Only when these adverse events occur do the full extent of the detrimental consequences of corruption become evident.

The earthquake occurred in Sichuan Province, China on May 12, 2008, claiming 87,587 lives, making it the third deadliest earthquake of the 21st century. The majority of these fatalities resulted from building collapses. In the wake of the disaster, numerous instances of substandard construction and corner-cutting were uncovered, which might have exacerbated the death toll. Moreover, there were cases of highly un-

[1] Even in cases in which corruption scandals surface after such events, whether corruption contributed to the catastrophic outcomes is unclear because there are no counterfactual scenarios without such corruption.

equal damages sustained by buildings in nearly identical locations.[2] Post-earthquake reconnaissance surveys further revealed that many of the collapsed buildings lacked essential reinforcing materials and exhibited poor seismic resistance, ductility, and redundancy (Miyamoto and Gilani, 2008; He et al., 2011a,b). Despite speculation about the role of corruption in these construction shortcomings, systematic evidence of this connection is lacking.

The disparity in building damage during the earthquake provides a setting conducive to examining the role of corruption in amplifying the effects of catastrophic events. To infer differences in corruption susceptibility, I examine hometown connections between officials at the county level (hereafter, junior officials) and their supervisors at the prefecture level (hereafter, senior officials).[3] In the Chinese context, such connections are often seen as patron-client relationships between officials and are widely associated with corruption and the deterioration of public institutions. Importantly, this ex-ante measure assesses corruption susceptibility, thereby circumventing the biases typically associated with endogenous corruption investigations that are common with ex-post measures, especially in investigations influenced by the outcomes themselves. [4]

I compile a dataset at the building level to examine the relationship between hometown connections and the extent of building damage. The dataset encompasses 1,050 buildings located in areas affected by the earthquake, all constructed between 1978 and 2007. The majority of these buildings, including schools, hospitals, government headquarters, firms, and other public-access facilities, served public functions. For each building, I gather two main pieces of information: the damage that each building sustained during the earthquake, as documented in official seismic surveys and rated on a 5-point scale (1 = intact, 5 = fully collapsed), and the hometown of the county officials at the time each building was constructed, which I retrieve from county gazetteers of local information and events. I determine the presence of home-

[2]For instance, a photo featured in the *New York Times* shows a destroyed primary school with two adjacent buildings that remained relatively intact (Yardley, 2008).

[3]In China's administrative system, counties are lower administrative divisions, and prefectures are higher divisions that oversee multiple counties. Above the prefecture level is the province.

[4]A limitation of using hometown connections as a proxy for corruption is that these connections could capture other aspects of patron-client relationships, such as soft information transfer and resource allocation. Nonetheless, the influence of these factors on building damage is likely to be in the opposite direction (e.g., additional resources that improve building quality), suggesting that the estimated effects present a conservative estimate of the impact of corruption.

town connections at the county-year level based on whether county officials and their prefectural supervisors at the time of a building's construction were born in the same city. As a balance check, I demonstrate that these connections do not influence the number or type of buildings constructed, the geographic or physical characteristics of the buildings, or the likelihood of their damage being reported in earthquake surveys.

My identification strategy is based on a generalized difference-in-differences framework. Specifically, I compare buildings constructed under administrations in which county officials had hometown connections to their supervisors with those constructed under administrations where such connections were absent. This approach leverages two dimensions of variation. First, within a single county, where buildings are subject to comparable seismic intensity, the variation in the existence of connections is determined by the building's construction year. Second, buildings constructed in the same year, and hence of the same age, exhibit spatial variation in hometown connections. I control for each building's type, location (including seismic intensity, terrain ruggedness, and polynomials of latitude and longitude), size, and height, as well as the profiles of the county officials (including gender, age, education, ethnicity, and tenure). The underlying identification assumption is that in the absence of connections, the difference between buildings overseen by connected and unconnected county officials should remain stable over time.

The results reveal a strong association between county official hometown connections during building construction and the severity of building damage during the earthquake. Specifically, buildings overseen by connected officials show a 12-percentage-point (or 75%) greater likelihood of partial or complete collapse than those constructed under the oversight of unconnected officials. A back-of-the-envelope calculation indicates that for a sample building that experiences average seismic intensity, the effect of being constructed under a connected official is equivalent to relocating the building approximately 30 kilometers closer to the earthquake's epicenter. I evaluate the identification assumption by using event study analysis, which shows no differential effects for buildings constructed before the establishment of hometown connections. The results are robust to a wide range of robustness checks.

I present evidence that the observed relationship between hometown connections and building damage likely stems from the high corruption among officials with such connections. First, I show that buildings constructed under connected officials collapsed due to non-compliance with building codes, as the excess damage in connected buildings occurred predominantly in structures that, per building codes, should have withstood the seismic intensity that they experienced during the earthquake. Second, I find larger effects in cases in which officials had greater involvement in the construction process, such as when they held more direct administrative roles or when there were no counterbalancing influences from private stakeholders. Third, officials appeared to be aware of the potential consequences of their actions, as they could mitigate such damage in scenarios that directly involved their own safety and well-being. Finally, connected officials who oversaw the construction of buildings that later collapsed were indeed more likely to face prosecution for corruption after the earthquake. Although no single piece of evidence is dispositive, together, the evidence forms a cohesive narrative that suggests that the detrimental outcomes of hometown connections stem from corruption among connected officials.

I explore two theoretical mechanisms to understand how connections contribute to greater corruption and the eventual consequences. The first is negative political selection, which highlights the differences between officials selected with connections and those selected without. The second, moral hazard, emphasizes that the same officials may exhibit different behaviors when connected versus not connected due to a distortion of their incentives. To distinguish between these mechanisms, I compare the variation in connections that result from the rotation of senior officials with those that arise from the rotation of junior officials. My analysis reveals that with junior officials unchanged, the variation in hometown connections that results from the rotation of senior officials does not have a significant impact on the building damage. This observation suggests that moral hazard is not a critical factor in the observed effects. Instead, the effects stem mainly from variations caused by the same senior official's appointing different junior officials, suggesting that negative political selection is the more likely explanation. This finding implies that curbing favoritism in the selection of officials may be more effective than merely monitoring the actions of incumbent officials in mitigating adverse outcomes.

This paper contributes most directly to the literature on the consequences of corruption (e.g., Schoenherr, 2019; Lehne et al., 2018; Cingano and Pinotti, 2013; Olken and Pande, 2012). Notably, there is a stark gap between the well-identified costs of corruption — typically seen as allocative inefficiency and welfare loss in relatively modest settings — and the more profound, yet largely anecdotal, consequences of corruption observed in the real world. This gap has led to an omission of the more severe consequences of corruption that overshadow the classic "grease" versus "sand" the wheels debate. Consequently, the perceived urgency to combat corruption might have been significantly diminished by this failure to recognize its more destructive effects. I bridge this gap by highlighting that corruption can lead to large-scale welfare consequences in the form of human suffering, extending far beyond the commonly perceived efficiency losses. Further, in this study, I emphasize that the detrimental effects of corruption are not limited to the immediate aftermath of corrupt activities but can remain hidden for extended periods, to be revealed only when adverse events occur. Thus, the costs that we can observe may represent only the tip of the iceberg, and the full extent of the destructive potential of corruption may be largely underestimated. This study expands upon those by Fisman and Wang (2015) and Jia and Nie (2017), who explore the link between government-firm collusion and workplace fatalities in China by shifting the focus from safety regulation evasion by connected firms to corruption among government officials related to patron-client relationships. In addition, this study stands in contrast to these works by highlighting the more severe consequences of building collapses caused by shoddy construction practices rather than those of individual workplace accidents. Although my focus is a specific earthquake in China, the broader issue of compromised infrastructure integrity leading to catastrophic failures and loss of life is a widespread problem globally. News reports from a wide range of countries, including low- and middle-income countries, such as Mexico (Lin, 2017), Iran (Pejhan, 2003), and Turkey (Kinzer, 1999), as well as high-income countries, such as the United States (Putzier et al., 2021; Swaine et al., 2021; Fitz-Gibbon, 2021), the United Kingdom (Smout, 2023), and Italy (Scaglia, 2010), point to the worldwide ubiquity of these concerns.

This paper introduces a novel approach for uncovering corruption. Traditional methods utilize primarily surveys or field experiments to detect evidence of corruption (Olken, 2006, 2007; Bertrand et al., 2007; Weaver, 2021). Although these methods are effective in various contexts, they have limitations such as reliance on subjective assessments in surveys and the need for substantial resources for conducting experiments (Bertrand and Mullainathan, 2001). My approach involves identifying unusual disparities in disaster damage as a form of natural audit and relating these disparities with conditions that are associated with greater or lesser susceptibility to corruption. Thus, this study falls within the scope of forensic economics, which leverages economic analysis to reveal hidden behaviors, such as fraud, corruption, and discrimination, in a range of contexts (Zitzewitz, 2012). Specifically, the methodology of the study aligns with the approaches exemplified by Bandiera et al. (2009), Krueger and Mas (2004), and Lin et al. (2014), as it uncovers hidden behaviors by correlating variations in the feasibility of or incentives for such behaviors with their outcomes. What sets this approach apart is that, in the study's setting, not only is the target behavior hidden, but also the outcomes used to uncover that behavior are normally unobservable. A natural shock is essential for exposing these outcomes, thus enabling the identification and analysis of previously concealed behaviors.[5]

This study establishes connections between the fields of political economy and natural hazards and disasters, highlighting a promising yet underexplored avenue for interdisciplinary research.[6] Natural scientists increasingly recognize that disasters are not merely acts of God but, rather, result from the interplay of naturally occurring hazards and vulnerabilities caused by socioeconomic and institutional conditions. Despite repeated calls for greater focus on the influence of institutional factors on disaster outcomes (as initially proposed by O'Keefe et al. (1976) and reiterated by Adger et al. (2005) and Eakin et al. (2017)), empirical investigations of this hypothesis are limited to cross-country correlations between institutional indices, such as democracy and corruption perceptions, and disaster-related deaths (Kahn, 2005; Escaleras et al., 2007; Ambraseys and Bilham, 2011). Moreover, although the influence of institutions on infrastructure provision may be a key mechanism behind observed correlations and has been theoretically explored (Ashraf et al., 2016), empirical support for this notion is still limited. My research fills this gap by providing concrete micro-level evidence that illustrates how institutional failures result in substandard infrastructure provision and increase the severity of damage caused by natural shocks. Importantly, the institutional factors that I explore were established long before any hazardous events occurred, indicating that vulnerabilities can accumulate and remain hidden over time, to be revealed only by an exogenous shock. This aspect sets this study apart from research on distributive politics in post-disaster relief (Tarquinio, 2021). In addition, although this study relates to research on the institutional causes of famines, such studies typically focus on food inequality that results from inappropriate procure-

[5]The essence of this methodology echoes the theme of Warren Buffet's famous quote: "It's only when the tide goes out that you discover who's been swimming naked" (Buffett and Cunningham, 2015).

[6]See Mcnutt (2015) for an editorial advocating the formation of a disaster science community that integrates natural and social science disciplines.

ment (Sen, 1981; Lin and Yang, 2000; Kung and Chen, 2011; Meng et al., 2015), whereas this work concentrates on the inadequate provision of key infrastructures due to corner-cutting practices.

Given this study's focus on hometown connections, a specific form of patron-client relations in China, it contributes to the expanding literature on patronage by shedding light on its societal costs. Recent empirical research highlights the prevalence of favoritism linked to patron-client dynamics in various institutional and cultural settings, especially in the allocation of public offices and resources (see, e.g., Colonnelli et al., 2020; Jia et al., 2015; Shih, 2012; Xu, 2018; Voth and Xu, 2020; Fisman et al., 2020; Jiang and Zhang, 2020). Although some of these studies also examine the costs and benefits of such favoritism, they focus primarily on the trade-offs within the principal-agent framework, often without explicitly addressing the broader societal impacts, which might not align with the principals' benefits.[7] A related exploration by Jia (forthcoming) reveals that politically connected individuals tend to support technologies that, although boosting economic growth, cause pollution. In contrast, this research, by focusing on earthquake damage likely to result from compromised construction standards, highlights accountability issues rather than promotion incentives for multi-task agents.

The structure of this paper is as follows: Section 2 offers background information on the 2008 Sichuan earthquake and an exploration of the significance of hometown connections in perpetuating corruption. Section 3 provides the data construction process, an overview of the buildings included in the sample, and data limitations. Section 4 contains the empirical design and the results that link hometown connections to building damage. Section 5 presents the underlying mechanisms of these findings, including evidence of corruption, and an examination of the channels of political selection and moral hazard. Finally, Section 6 offers concluding remarks.

[7]For instance, in a study on the British Empire's Colonial Office, Xu (2018) provides evidence that connected colonial governors generated less revenue for the empire. The results of reduced taxation for the colonized populations, however, are less clear.

2 Background

2.1 The 2008 Sichuan Earthquake

The 2008 Sichuan earthquake occurred on May 12, with a moment magnitude of $7.9M_W$. The epicenter was Yingxiu Town, Wenchuan County, 80 kilometers northwest of Chengdu, the capital city of Sichuan Province. The earthquake killed 87,587 people, injured another 374,643, and incurred a direct economic loss of 845 billion RMB (80% of Sichuan's 2007 GDP), which makes it one of the costliest earthquakes in human history. Most of the deaths resulted from the destruction of buildings; of these, public buildings were among the most vulnerable and deadly ones.[8]

Although the official narrative attributes the collapse of buildings solely to the earthquake's magnitude, there is widespread belief that poor construction quality also played a significant role. The scandal was marked by the observation that some buildings disintegrated instantly during the earthquake, collapsing without any visible shaking, while neighboring structures remained largely undamaged. This stark contrast raised serious concerns about the quality and integrity of the construction involved. Investigative reporters discovered the use of low-grade cement and inadequate steel reinforcements in some destroyed buildings as well as probed a few dubious construction practices that may be associated, either directly or indirectly, with the neglect of building safety. Although there are widespread anecdotes and speculation, there is no formal evidence that can be used to examine quantitatively the potential link between possible corruption and its associated damage.

2.2 Corruption in Building Construction

The construction sector, particularly in the realm of public projects, ranks among the most corruption-susceptible areas globally. A survey that targeted business executives and professionals across 19 prominent emerging markets identified public works contracting and construction as the top sector plagued by corruption within their home countries (Transparency International, 2011). In the context of China, a significant proportion of corruption prosecutions are linked to construction. Specif-

[8] In a survey of 484 buildings, 57% of the schools were no longer usable or had to be removed immediately, more than twice as much as the share of residential houses (Ye and Lu, 2008). It is also striking that 87% of the government headquarters in their sample remained safe, aside from some repair requirements.

ically, over half of the 12,759 bribery cases brought to the court between 2014 and 2017 were related to construction projects (Chen, 2017), underscoring the sector's vulnerability to corrupt practices.

Local government officials who manage public construction projects are particularly vulnerable to engaging in corrupt activities. Yu et al. (2019) examined 83 fully documented cases of construction-related corruption archived by the Chinese National Bureau of Corruption Prevention and discovered that half of these cases implicated government entities responsible for planning, licensing, inspections, and final project approvals. Further investigations, including interviews and case studies, have uncovered questionable conduct at nearly every stage of construction processes. Such malpractice runs from poor project selection and fund misappropriation to falsified licensing, fake bidding processes, illicit subcontracting, unauthorized modifications, compromised construction quality, lax site supervision, inflated costs, and issuance of completion certificates to substandard projects (Shan et al., 2017, 2019; Le et al., 2014). High-ranking officials, often far removed from the specifics of projects, also may have direct involvement in corrupt practices. Indeed, they tend to extract significantly more than their lower-level counterparts actively engaged on the ground (Yu et al., 2019). These high-ranking officials commonly accept bribes from contractors and help them to secure public contracts or to gain preferential treatment during the bidding process. Between 2009 and 2011, disciplinary measures were enacted against 1,671 officials at the county level or above for their roles in construction-related corruption, representing 10% of all disciplined bureaucrats (Zhou, 2011).

2.3 Hometown Connections

To examine potential variations in corruption levels, I utilize the existence of hometown connections between county officials and their supervisors at the prefectural level.[9] These connections, known in Chinese as *laoxiang guanxi*, are deeply embedded in and integral to how social and political interactions are structured and operate within China. Since the 16th century, sharing a common hometown has been a catalyst for building social networks, engendering emotional bonds, and facilitating the exchange of mutual favors among individuals from diverse occupational and social backgrounds (Moll-murata, 2008). In the past few decades, social networks

[9] In China's hierarchical political system, a province manages its prefectures, and a prefecture manages its counties.

organized around the hometown also have played a crucial role in sustaining China's historically unprecedented rural-urban migration and the growth of private enterprise (Zhao, 2003; Hu, 2008; Dai et al., 2020).

Within China's political hierarchy, hometown connections are a prevalent and notable foundation for forming patron-client relationships among political elites.[10] In these relationships, higher-ranking officials (patrons) provide a range of benefits, including resources, insider information, career opportunities, and protection against accountability measures, in return for loyalty, obedience, and political support from their subordinate officials (clients) (Hillman, 2014). As a result, county officials who have hometown ties with their supervisors may receive preferential treatment in their selection process, assignment of duties and resources, and how their performance is monitored and assessed, as opposed to their counterparts who have no such connections (Shih, 2012; Jia et al., 2015; Fisman et al., 2017; Shen et al., 2019; Chu et al., 2020; Fisman et al., 2020).

The existence of hometown connections does not inherently equate to corruption, yet they can signal an environment in which corrupt practices are more likely to occur. Such connections often underpin an informal network of favor exchange, circumventing established bureaucratic channels and undermining accountability measures, potentially fostering conditions conducive to corruption. In the appointment of junior officials, those within the patronage network of senior officials may benefit from preferential treatment, potentially compromising the meritocracy of the selection process. These officials might be less qualified, in terms of either competency or ethical standards, which can correlate with a greater propensity for corrupt behavior. Further, the shield provided by their patrons can impede proper scrutiny of and accountability for these officials' actions. Cases of nexus corruption clusters, such as the collective corruption among senior officials that originate from Shanxi Province, as documented by Guo (2019), and another localized instance reported by China Comment (2017), exemplify this phenomenon. The central government's prohibition of officials' participation in hometown-based associations in 2015 highlights the recognition of the risks that such connections pose in terms of favoritism and the entrenchment of corrupt practices (Huang, 2015).

[10] Patron-client dynamics, as defined by Hicken (2011), involve an exchange of favors through informal personal connections between actors of unequal political stature.

3 Data

I constructed a building-level dataset, which includes 1,065 buildings located in 37 counties at the heart of the earthquake zone.[11] I restricted the sample to buildings constructed during the 1978 – 2007 period.[12] I linked each building to the county officials in charge at the time of its construction. The study focuses on the variation in hometown connections between these county officials and their supervisors. In addition, I gathered information on the characteristics of the buildings, geographic features, and individual profiles of those junior officials.

3.1 Sources and Compilation

Sample Construction I constructed the building-level dataset by synthesizing information from two distinct local gazetteer collections. The first, *County Gazetteers* (*Xian Zhi*), is a comprehensive collection of local information and events that provided the construction year of a range of buildings.[13] The second source, *Earthquake Relief Reports* (*Kangzhen Jiuzai Zhi*), is a collection of gazetteers that detail the damage and relief efforts associated with the 2008 earthquake, providing information on the extent of damage to a selection of buildings. By manually comparing these two lists of buildings, based on documented names and locations, I identified 1,050 buildings that were documented in both sources. For buildings in this linked sample, I can observe both their construction history and the extent of earthquake damage. The dataset encompasses five types of buildings: schools, hospitals, government headquarters, public facilities (e.g., libraries), and firms (most likely SOEs). These buildings are predominantly public projects because public buildings are more likely to be mentioned in the gazetteers and earthquake reports.

Building Damage The damage levels of the sampled buildings are coded on a 5-point scale, following official guidelines.[14] The key features that determine a building's

[11] The majority of these counties are officially classified as either "extremely affected" or "severely affected" by the earthquake. Within these areas, a significant proportion of buildings sustained some level of damage. For example, county-level data on aggregate damage indicate that over 80% of school buildings in these counties experienced varying degrees of damage (Zhang, 2008).

[12] I chose this timeframe to avoid the disruption of local governance during the Cultural Revolution (1966–1976) and the absence of formal building codes before 1978.

[13] Occasionally, the gazetteers also mention the size, height, and funding sources of the buildings.

[14] Appendix C.1 provides more details about the coding process.

damage level are the extent to which the load-bearing components were affected, and whether the building could be used with or without repairing, or had to be removed immediately. The detailed definitions and indexes of the damage levels are summarized as follows:

1. **Intact or slight damage:** Load-bearing components are intact or have minor (less than 5%) cracks; non-load-bearing components and attachments have various levels of damage; safe to use with no or minor repairs.

2. **Moderate damage:** Load-bearing components have some major cracks; non-load-bearing components and attachments have visible damage that must be repaired before use.

3. **Severe damage:** Load-bearing components have many severe cracks and minor areas of collapse; some non-load-bearing components and attachments have fallen and are no longer serviceable.

4. **Partial collapse:** Load-bearing components have deteriorated significantly and must be removed immediately.

5. **Full collapse:** The entire building has collapsed or fallen apart; nothing remains of the basic structure.

Hometown Connections The main variable of interest is the hometown connections between county officials and their supervisors.[15] Specifically, I examine the connections between the top two county officials, namely the county party secretary and governor (or government head), and the top two prefectural officials, which are the prefectural party secretary and government head. Because prefectures are the administrative units directly above counties, the prefectural officials are the immediate supervisors of the county officials. To compile this information, I constructed a comprehensive list of county- and prefecture-level officials, along with their cities of origin, drawing from various sources. These include county gazetteers, *Information on the Organizational History of the CCP in Sichuan Province* (*Zhongguo Gongchandang Sichuan Sheng Zuzhishi Ziliao*), *Sichuan Year Book* (*Sichuan Nianjian*), Chen

[15] The political connection literature in China's context also highlights college ties (*xiaoyou guanxi*) and workplace ties (*tongshi guanxi*) as significant in forming patron-client networks. Data on county officials' education and working experience before 2000, however, are scarce, limiting the feasibility of examining these alternative ties in this study.

et al. (2019), and the online biographies of the officials. In addition, I collected details on their gender, year of birth, education, and ethnicity, as available.

For each county in a given year, I identify a county as having a connected official if one of the county officials has the same hometown as any of their supervisors.[16] I establish the link between the connectedness status of county officials and the buildings in my sample by basing this association on the construction year of each building.

The variation in hometown connections within a county can stem from two sources: the rotation of senior officials and the rotation of junior officials. In the main analyses, I focus on assessing the overall impact of connections from both sources. In Section 5.2, I examine the distinctions between the two sources of variation to investigate the underlying mechanisms that drive the impact of hometown connections.

Covariates I constructed additional variables to account for other factors that might determine the damage to a building from the earthquake. These covariates include: (i) building characteristics (e.g., size, height), geographic features (seismic motion intensity, terrain ruggedness, and polynomials of coordinates), and individual profiles of the officials (gender, ethnicity, age, education, and term). The definitions and construction of these variables are explained in more detail in Section C.2.

3.2 Portrait of Sampled Buildings

Before proceeding to the main analysis, I offer an overview of the buildings included in my sample. First, I describe the characteristics across different building types, as recorded in the *County Gazetteers*, and those linked to the earthquake reports. I then investigate, as a balance check, how hometown connections might influence various aspects of these buildings, including their construction, structure, and location, as well as their probability of being included in the earthquake reports. Finally, I present summary statistics of the linked sample, which is the dataset utilized for the main analysis.

Building Characteristics I start by illustrating the characteristics across different building types in Figure A1. In this figure, blue markers denote the characteristics

[16] During transition years with multiple county secretaries or governors, I consider those who occupied their positions for the longest duration within that year.

of all buildings listed in the *County Gazetteers*, whereas red markers represent those linked to the earthquake reports, for which the extent of earthquake damage is observed. This visual comparison indicates that the buildings in the linked sample closely resemble those in the broader population, suggesting that the linked sample is plausibly representative of the broader building population in the earthquake zone.

The figure also shows the differences among various building types across multiple dimensions. In terms of construction date, government headquarters and public facilities were typically constructed earlier. Regarding physical characteristics, firms and public facilities tend to be larger and taller, often situated in areas of less rugged terrain. A key observation is that seismic intensity, measured by peak ground acceleration (PGA), is similar across these building types, suggesting that the earthquake's impact was evenly distributed and did not disproportionately affect any specific type of building.

Hometown Connection and Building Construction I then examine the potential impact of hometown connections on building construction, focusing on two key issues: (i) whether officials with hometown connections constructed a different number of buildings compared to their unconnected counterparts, and (ii) whether there is a noticeable difference in the characteristics of buildings constructed by connected officials versus those constructed by unconnected officials.

To address the first issue, I constructed a balanced county-year panel that consisted of 65 counties in the earthquake zone, each documented with building construction records in the *County Gazetteers*, spanning 1978 to 2007. The analysis concerns the correlation between the presence of hometown connections and the annual construction of various types of buildings in each county. The results are presented in Table A1. The dependent variables are the number of buildings constructed annually in each county. The first three columns estimate the effect of hometown connections on the construction of all building types, progressively incorporating county and year fixed effects and individual-level controls for officials. Columns (4) to (8) contain data on the construction of each building type separately. Across all of these analyses, there is no evidence to suggest that connected officials constructed a different number of buildings compared to their unconnected counterparts, based on the records in *County Gazetteers*.

Regarding the second issue, I analyze the specifics of buildings constructed by connected officials compared to those by unconnected officials, using the dataset of all buildings documented in the *County Gazetteers*.[17] The results are presented in Table A2. The first two columns contain data on the geographic locations of the buildings, examining the earthquake's seismic intensity (measured by PGA) and terrain ruggedness at the construction sites. The next two columns contain information on the physical characteristics of the buildings, including their size and number of floors. For all of these aspects, the analysis includes controls for county and year fixed effects, building type $\times$ year fixed effects, and individual-level controls for county officials. The findings indicate that buildings associated with connected officials are lower in height, although this difference is not statistically significant. In addition, no notable differences are found in size, seismic intensity, or terrain ruggedness.

Hometown Connection and Damage Reporting I also investigate whether the connectedness of county officials is associated with the inclusion of a building in the earthquake reports. For this, I analyze all buildings with available construction dates from the *County Gazetteers* and determine whether a building's selection into the linked sample (i.e., its damage appearing in the *Earthquake Relief Reports*) is influenced by the hometown connections of county officials during its construction. The results, presented in Table A3, follow the specifications that parallel the baseline analyses. The dependent variable is a binary indicator of whether a building's damage is observed. Columns (1) to (5) provide OLS estimates with varying sets of controls, and Column (6) contains an estimate of a probit model to consider potential nonlinear effects. Across all specifications, the estimated coefficients are small and not statistically significant, suggesting that the connectedness of officials at the time of construction does not significantly affect whether a building's damage was subsequently recorded in the earthquake reports. Therefore, the selection of buildings into the sample appears independent of the connectedness of county officials at the time of building construction.

Summary Statistics of Linked Sample For the main analysis, I focus on the linked sample, which includes buildings with both documented construction dates and

[17]The findings are consistent when the analysis is restricted to the linked sample, whereby both construction and damage are observed.

observed damage levels. Table A4 presents the summary statistics for this sample.[18] The sample encompasses 1,050 matched buildings, with damage levels coded on a 5-point scale and a mean score of 2.86. Approximately 16% of these buildings were constructed under the authority of connected county officials.

Figure A2 shows the probability distribution of building damage by the connectedness of county officials. The data indicate a predominance of severe damage (coded as 3) in the sample, characterized by substantial cracks in load-bearing components, rendering these buildings unserviceable. Notably, the damage distribution for buildings associated with connected officials skews more toward severe damage compared to those without such connections. Specifically, the rate of partial or full collapse (coded as 4 or 5) is 2.5 times higher in buildings associated with connected officials. Interestingly, although only approximately 16% of the buildings had connections at the time of construction, 50% of the fully collapsed buildings exhibit this connectedness.

3.3 Discussion of Limitations

It is crucial to acknowledge that the sample in this study does not represent the entire universe of buildings affected by the earthquake. The inclusion of buildings in the analysis is based on their documentation in the *County Gazetteers* and the *Earthquake Relief Reports*. The criteria used for including buildings in these reports, however, are not explicitly stated and are likely to be non-random. This aspect of the data sources introduces a potential limitation that needs to be considered when interpreting and considering the generalizability of the study's findings.

The primary concern is the possibility of selection bias within the sample. It is plausible that a county may have recorded only buildings with particularly notable damage in the earthquake reports, potentially skewing the sample toward structures that are either exceptionally resilient or exceptionally vulnerable. Moreover, because earthquake reports are independently compiled by each county, the criteria for selecting buildings might vary across counties. Such variation could lead to challenges in comparing buildings from different counties in the analysis, potentially affecting the study's overall findings.

[18] Of note is the significant number of missing values for various control variables, especially those related to building features. To effectively utilize the available data, these missing values have been coded as 0, with dummy indicators included to denote each missing variable.

To mitigate potential selection biases in the sample, I incorporate county fixed effects into the analysis, thereby focusing solely on within-county comparisons. This approach is expected to mitigate selection biases, particularly if the criteria for building selection are consistent within each county. However, there is still a chance that these criteria might vary within individual counties. Under such circumstances, the identification of this study relies on the assumption that any selection bias present does not correlate with the connectedness of county officials at the time of building construction. This assumption seems plausible, considering that most officials who were in charge during the construction periods were no longer in office by 2008, with some having retired, presumably diminishing their influence on the post-earthquake damage report compilation. I also have empirically examined this assumption in Section 3.2, where the results indicate no significant association between official connectedness during the construction periods and the likelihood of a building's being included in the earthquake reports.

Another limitation of the sample is its lack of representativeness of the full spectrum of buildings in the earthquake zone. Because the sample is derived from *County Gazetteers* and official earthquake reports, there is an inherent bias toward buildings that are more prominently recognized within a county, particularly public projects, which are more commonly mentioned in these sources. Despite this limitation, the focus on public buildings is relevant and valuable for two main reasons. First, public buildings were some of the most heavily affected and were responsible for the highest number of casualties during the earthquake, as detailed by Ye and Lu (2008), indicating the importance of their analysis in this context. Second, the involvement of county officials in the construction of public buildings is typically more direct and influential than in private construction projects. They likely play a central role in the selection of contractors, allocation of funding, and supervision of construction processes. Therefore, an examination of public buildings potentially provides a more revealing perspective on the catastrophic consequences of bureaucratic corruption, as such impacts are more likely to manifest in the public infrastructure than in private buildings.

4 Empirical Strategy and Results

4.1 Research Design and Model Specification

The research design employed in this study adopts a framework akin to a generalized difference-in-differences approach. Using this framework, I compare buildings constructed under the authority of county officials who have hometown connections with those built under officials without such connections. The analysis leverages two key sources of variation, as depicted in Figure 1. The first source is the variation among buildings within the same county, differentiated by the year they were constructed and their exposure to connected officials. The second source is the variation among buildings constructed in the same year, for which the connection status of the incumbent officials varies across different counties. This design is implemented by estimating the following equation:

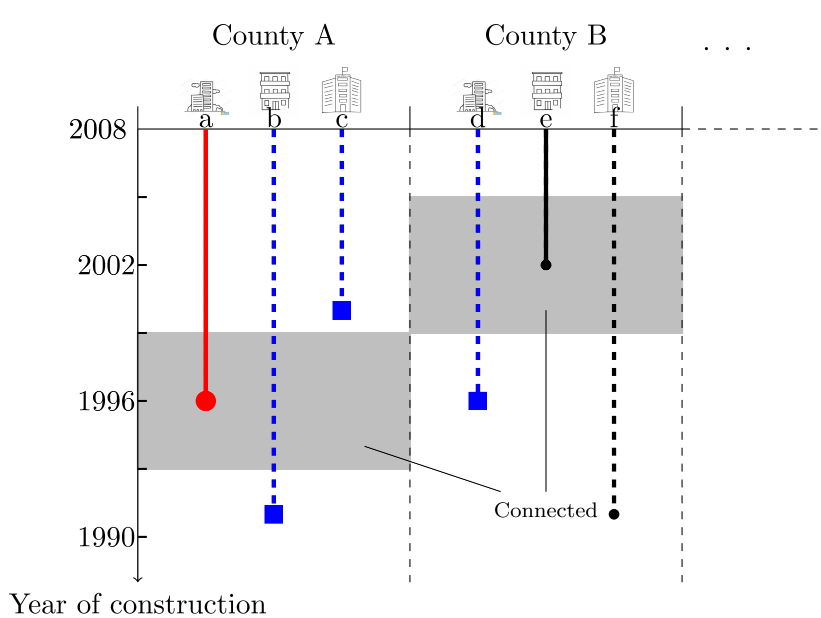
$$Damage_{ict} = \beta HometownTie_{ct} + \delta_c + \sigma_t + \mathbf{X'_{ict}}\mathbf{\Gamma} + \varepsilon_{ict} \tag{1}$$

In this equation, i indexes buildings, c represents counties, and t denotes building cohorts, defined by their year of construction. The dependent variable, $Damage_{ict}$, refers to the damage level, measured on a 5-point scale, for building i in county c, constructed in year t. The key independent variable, $HometownTie_{ct}$, is a binary indicator of whether county officials in county c during year t have a hometown connection with their supervisors. The model incorporates county fixed effects, δ_c, and year fixed effects, σ_t. $\mathbf{X'_{ict}}$ represents a vector of other time-varying building or county-level covariates, and ε_{ict} is the error term. Standard errors are computed to allow for clustering by county, on the rationale that the buildings have been sampled by individual counties. The primary coefficient of interest in this analysis, β, represents the differential in damage levels between buildings constructed under connected officials and those under unconnected officials during the 2008 earthquake. A positive β value would indicate that buildings associated with connected officials suffered greater damage.

The estimation strategy inherits all the advantages and potential limitations of the classical difference-in-differences estimators. In the model, the county fixed effects account for time-invariant differences between counties, including geographic location, average earthquake intensity, the criteria used by each county to include buildings in earthquake reports, and the average likelihood of having connected officials across different counties. The year fixed effects capture any consistent patterns of earthquake damage that uniformly affect all buildings within the same cohort, such as the difference in building age or the construction technology prevalent at that time. In addition, the model accounts for a range of other variables that may vary within a county. This includes the physical features of each building, such as its type of use, size, and the number of floors. It also accounts for within-county geographic variation at the building's location, such as seismic motion indicated by PGA, the ruggedness of the terrain, and the precise geographic coordinates represented by second-order polynomials of longitude and latitude. Further, the analysis includes the profiles of county officials, incorporating variables that include their gender, age, education, ethnicity, and term lengths.

The identification in this study hinges on the assumption that, conditional on the controlled factors, buildings constructed under both connected and unconnected regimes would exhibit similar damage levels in the absence of official connections. Importantly, this assumption does not require the random assignment of officials with hometown connections, as long as the aforementioned condition is satisfied.

Figure 1: Research design



4.2 Main Results

Baseline I start by estimating the effect of bureaucrats' hometown connections on the earthquake damage to buildings, using the linear and ordered-probit versions of Equation (1). The results are reported in Table 1. Column (1) shows the linear estimate of Equation (1), including only $HometownTie$ without covariates. The estimated raw coefficient is 0.446, significant at the 1 % level. The magnitude is about 15 % of the mean damage index, or 56 % of its standard deviation.

In Column (2), I include the sets of county and year fixed effects in the equation. This specification reduces the estimated coefficient by 30 % to 0.31, significant at the 5 % level. The reduction in magnitude suggests that time-invariant county characteristics (e.g., location) and cohort effects (e.g., age) might explain a large portion of the effects. The association between hometown connections and building damage, however, remains significant, both statistically and economically, for within-county and within-cohort comparisons.

In Column (3), I include building type × year fixed effects, which capture, for example, the evolution of technology and safety requirements that may vary across different types of buildings. In doing so, I rule out the comparison between different types of buildings and exploit only the variations among simultaneously constructed buildings identical in type. The coefficient on $HometownTie$ is almost unchanged, although the level of significance improves from 5% to 1%.

The results in Columns (4) and (5) take into consideration additional building-specific characteristics that might influence the earthquake damage. The results in Column (4) take into consideration the geography of the building's location, controlling for the second-order polynomials of longitude and latitude.[19] I also control for geographic features particularly relevant to earthquake damage, including PGA — the seismic ground motion parameter — and terrain ruggedness, both measured at the building's specific geographic location. The results are nearly the same. For the results in Column (5), I control for a building's physical features, including size and number of floors. Because these variables are available for only a very small subset of buildings in the sample, I also include a set of dummies that indicate those that are missing. The coefficient and level of significance on $HometownTie$ remain constant. Finally, in Column (6), I include the personal profiles of the county officials, includ-

[19]The results are robust to using higher-level polynomials.

Table 1: Hometown connections and building damage: Baseline estimates

	Dependent Variable: Damage Scale (1–5)						
	OLS						Ordered Probit
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
HometownTie	0.446***	0.309**	0.311***	0.325***	0.320***	0.275***	0.611***
	(0.157)	(0.113)	(0.100)	(0.103)	(0.106)	(0.094)	(0.172)
Geographic Controls:							
ln(PGA)				0.302**	0.300**	0.302**	0.607***
				(0.138)	(0.134)	(0.129)	(0.226)
Ruggedness				-0.068	-0.113	-0.138	-0.340
				(0.251)	(0.264)	(0.265)	(0.528)
Longitude				-1.796**	-1.751**	-1.599**	-3.274**
				(0.752)	(0.753)	(0.716)	(1.364)
Longitude^2				0.355**	0.345**	0.331**	0.683***
				(0.136)	(0.130)	(0.124)	(0.221)
Latitude				-0.214	-0.312	-0.264	-0.539
				(0.729)	(0.712)	(0.733)	(1.469)
Latitude^2				0.057	0.071	0.064	0.141
				(0.130)	(0.127)	(0.134)	(0.268)
Building Controls:							
Floors					0.042	0.044*	0.102**
					(0.027)	(0.026)	(0.049)
ln(Size)					-0.039	-0.055*	-0.128**
					(0.033)	(0.030)	(0.058)
Individual Controls:							
Female						0.144	0.361
						(0.120)	(0.259)
Age						-0.019	-0.041*
						(0.011)	(0.023)
Education						-0.067	-0.146*
						(0.042)	(0.082)
EthnicMinority						-0.366**	-0.796***
						(0.137)	(0.280)
Term						0.026	0.061
						(0.027)	(0.057)
BuildingType × Year FE			Y	Y	Y	Y	Y
County FE		Y	Y	Y	Y	Y	Y
Year FE		Y	Y	Y	Y	Y	Y
Marginal effect							0.280
Wild cluster p-value	0.014	0.006	0.016	0.016	0.018	0.034	
Mean(Dep.var)	2.861	2.862	2.866	2.866	2.866	2.866	2.866
# Counties	37	35	35	35	35	35	35
# Observations	1050	1047	1033	1033	1033	1033	1033
Adjusted R^2	0.043	0.342	0.418	0.426	0.427	0.434	
Pseudo R^2							0.321

Note. The dependent variable in all specifications is the level of damage on the 1(intact or slight damage)–5(full collapse) scale. *HometownTie* is an indicator variable that the county has a connected official (either the party secretary or the governor) via hometown connection when the building was constructed. BuildingType includes a set of indicators of schools, hospitals, government headquarters, firms, and other public facilities. Missing values of control variables are recoded as 0, with indicators of missing values included in the regressions. The marginal effect in column (7) is calculated as a linear combination of the marginal effects for each outcome value. Standard errors are clustered by county. Significance: * 10%; ** 5%; *** 1%.

ing their gender, ethnicity, age, education, and term length, taking an average of the party secretary and the governor. Again, the estimates are unchanged.

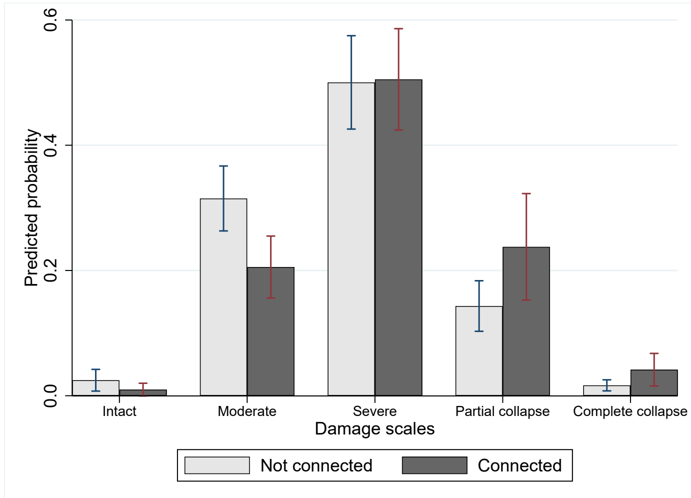
For the results in Column (7), I estimate, with the complete set of controls, the ordered-probit model of Equation (1) to accommodate the ordinal nature of the dependent variable. The estimated coefficient of $HometownTie$ on the latent outcome variable is 0.61, significant at the 1 % level. The overall marginal effect, calculated as the linear combination of the marginal effects for each outcome value, is 0.280, which is comparable to the estimated coefficients in linear models. Thus, my estimates are robust to the potential nonlinearity of ordinal damage measures.

Magnitude To illustrate the estimated effect of $HometownTie$, I calculate the predictive margins, specifically, the predicted probability of a building's falling within each of the five damage categories based on connectedness. These results are displayed in Figure 2, with 95% confidence intervals. The figure provides support for the pattern observed in previous results: Buildings constructed under the authority of connected county officials suffered greater damage compared to those constructed under unconnected officials. Notably, the presence of a $HometownTie$ increases the likelihood of partial or full collapse (Categories 4 and 5) by 12 percentage points (or a 75% increase) from 16% to 28%.

An alternative interpretation of the estimated effect's magnitude involves a comparison of the impact of having a connected county official to that of seismic intensity. According to the results in Columns (4) to (6), the coefficient of the seismic intensity measure, $ln(PGA)$, is approximately equivalent to that of $HometownTie$. This equivalency implies that the effect of having a connected county official on building damage is comparable to an increase of 1.0 in the logarithm of the PGA, which translates to multiplying the PGA by approximately $e = 2.7$. On average, this change is analogous to moving a building from an area with a PGA of 0.25g (the mean PGA in the sample) to a location with a PGA of 0.68g. This shift in PGA is comparable to the difference between the epicenters of a magnitude $5.0 M_w$ earthquake and a magnitude 6.0 M_w earthquake. In the context of this particular earthquake, such a change in PGA would be equivalent to relocating a building about 30 kilometers nearer to the epicenter, for example, from Chongzhou City to Dujiangyan City.[20]

[20] This figure is derived from the average distance between locations with PGAs of 0.25g and 0.68g on the intensity map (U.S. Geological Survey, 2017). Locations with PGAs of 0.25g are approximately 45 kilometers from the fracture zone.

Figure 2: Predicted damage distributions by hometown connections



Note. The figure depicts the predictive margins of hometown ties derived from the ordinal-probit estimation in Column (7), Table 1. Each bar represents the predicted probability for each of the damage scales that a building would have experienced with and without a connected official when constructed, along with the 95% confidence interval. The regression accounts for county fixed effects, year fixed effects, building type × year fixed effects, the sets of building characteristics (size, number of floors, indicators of missing values), geographic characteristics (second polynomials of latitude and longitude, PGA, and terrain ruggedness), and official characteristics (any female, any ethnic minority, average age, average education, and average term of the party secretary and the governor). Standard errors are clustered by county.

Robustness and Placebo I conducted various robustness checks to address potential concerns about the data quality, outcome, treatment, confounders, and estimation method. The results are presented in Tables A6 to A14. Table 2 provides a summary of issues of concern, the approaches taken, and the findings of the robustness checks. Moreover, I perform a placebo test to examine the effects of having hometown connections to senior officials in a different but neighboring prefecture. The results, presented in Table A15, show close-to-zero effects of this non-supervisor connection. This test suggests that the effect is not driven by having a hometown connection per se, but rather by the specific connection to a direct supervisor. Thus, the exercise helps to alleviate concerns about other systematic differences between officials with and without upward connections.

Table 2: Summary of Robustness Checks

Issue	Approach	Exhibition	Coefficient	95% CI
Data quality	Subsamples with more precise data	Table A5	0.411	[0.063, 0.758]
Measurement: Outcome	Binary outcome: collapse vs. not	Table A6	0.114	[-0.011, 0.239]
Measurement: Outcome	Alternative 4-point damage encoding	Table A7	0.252	[0.072, 0.432]
Measurement: Treatment	Number of connections	Table A8	0.121	[0.033, 0.209]
Measurement: Treatment	Duration of connections	Table A9	0.020	[0.009, 0.031]
Confounders: Economic development	GDP per capita and population controls	Table A10	0.209	[0.004, 0.414]
Confounders: Location-specific factors	Grid cell fixed effects	Table A11	0.231	[0.061, 0.401]
Confounders: Hometown-specific factors	Hometown fixed effects	Table A12	0.200	[0.032, 0.367]
Confounders: Prefecture-specific shocks	Prefecture × year fixed effects	Table A13	0.526	[0.102, 0.950]
Method	Two-stage DID (Gardner, 2021)	Table A14	0.334	[0.095, 0.573]

Note. The table provides a summary of the various robustness checks on hometown connections and building damage in the 2008 Sichuan Earthquake. The coefficients and 95% confidence intervals are derived from specifications that control for the full set of baseline controls, including county and year fixed effects, building type × year fixed effects, building characteristics, geographic features, and county officials' individual profiles. Standard errors are clustered by county.

Event Studies I examine the dynamic effects of hometown connections using an event study framework. Specifically, I estimate the following flexible specification:

$$Damage_{ict} = \sum_{j=-3}^{3} \beta_j HometownTie_{ct}^{j} + \delta_c + \sigma_t + \mathbf{X}'_{\mathbf{ict}}\mathbf{\Gamma} + \varepsilon_{ict} \quad (2)$$

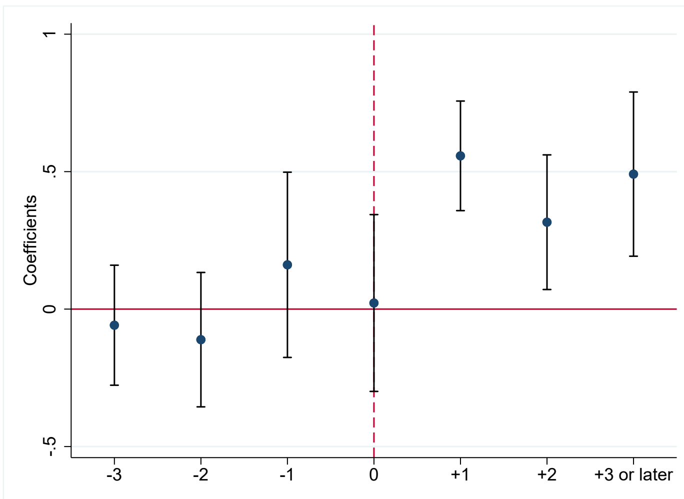
In this equation, $HometownTie_{ct}^{j}$ represents a set of dummies that indicate the normalized year j relative to when a county c enters a connected regime. Buildings constructed more than 3 years prior to the onset of a connected regime are considered the comparison group. The coefficients of these dummy variables illustrate the evolving impact of hometown connections over time and provide a diagnostic tool to evaluate the plausibility of assumptions about the counterfactual scenario in this study. If the identification assumption holds, we should expect a consistently positive effect for buildings constructed within a connected regime and no differences before the county begins to be managed by connected officials.

I estimate Equation (2) with the comprehensive set of controls.[21] The results are illustrated in Figure 3, in which the estimated coefficients and their 95% confidence intervals are displayed. The horizontal axis in the figure is normalized to the year when a county enters a connected regime, with a baseline comparison made against buildings constructed more than 3 years prior to establishing connections. The figure indicates that buildings constructed before the onset of a connected regime do not show a pronounced trend toward increased damage. This observation is in line with

[21] In event studies, I focus on the subset of buildings with precisely reported construction years, as represented in Column (1) of Table A5 (see Appendix C.1 for instances of imprecise reporting). Figure A3 demonstrates that the findings are robust to using the complete set of buildings.

the generalized common trends assumption. Notably, there is a sharp increase in earthquake damage in buildings constructed after establishing hometown ties. These findings indicate that there is no anticipatory effect related to the establishment of hometown connections. The findings further suggest that factors that might influence the allocation of connected officials do not have a direct impact on building damage in the absence of such connections.[22]

Figure 3: Effects of gaining connections on building damage



Note. The figures depict the effects of gaining a connected official on building damage. The markers and capped spikes represent the OLS estimators and 95% confidence intervals. Construction year is normalized to the year when the county gains a connected official (year 0), with buildings constructed more than 3 years earlier as the comparison. The sample contains the subset of buildings for which the year of construction was reported with precision. The dependent variables are the level of damage on a 1–5 scale. The regression accounts for county fixed effects, year fixed effects, building type × year fixed effects, the sets of building characteristics (size, number of floors, and indicators of missing values), geographic characteristics (second polynomials of latitude and longitude, PGA, and terrain ruggedness), and official characteristics (any female, any ethnic minority, average age, average education, and average term of the party secretary and the governor). Standard errors are clustered by county.

Taken together, the results in this section demonstrate that buildings constructed under the authority of county officials with hometown connections tended to be more severely damaged in the 2008 Sichuan Earthquake. The effect is significant both statistically and economically. The results are robust to a wide range of alternative specifications and methodologies.

[22] The dynamics of the effects of losing connections are much noisier. I present the results and discuss the sources of the noise and their implications in Appendix D.

5 Mechanisms

The results presented thus far indicate that buildings constructed under the administration of connected officials sustained more severe damage during the 2008 Sichuan Earthquake. In this section, I examine the potential mechanisms behind this outcome by addressing two critical questions. First, does the observed effect stem from a heightened level of corruption associated with connected officials, or are there other channels, possibly unintended, related to having such connections? Second, is the effect attributable to the selection of a different type of official, possibly less capable or more corrupt, or does it arise from a distortion of incentives among the same group of officials? Given the lack of direct observability of the corrupt activities, pool of candidates, and the incentives of officials, answering these questions is challenging. Therefore, I leverage various heterogeneous analyses to help address these questions.

5.1 Corruption or Unintended Consequences?

I begin by exploring the possibility that the observed effect might stem from corruption-related activities among connected officials. This hypothesis is particularly plausible given the abundance of anecdotal evidence, rumors, and scandals related to poorly constructed buildings. The empirical analyses, which focus on the hometown connections of county officials, do not, however, offer direct evidence of corruption. That is, the mere presence of such connections does not inherently indicate corrupt behavior. Consequently, it remains unclear whether the impact of hometown connections is a direct result of officials' corrupt activities or arises from other, possibly unintended, consequences.

In this section, I bring together a series of findings that collectively suggest that corruption appears to be the key mechanism that explains the greater damage to buildings constructed by connected officials. First, I present evidence that the excess damage in connected buildings is likely due to corner-cutting practices and violations of building codes. Second, I find a more pronounced impact of hometown connections in scenarios in which county officials can more easily influence construction projects. Third, the analysis suggests that officials are likely aware of the potential consequences of their actions, and can mitigate the risks when their own safety and well-being are affected. Fourth, an examination of actual corruption cases reveals that connected officials who are possibly responsible for building collapses were more commonly subjected to corruption prosecutions post-earthquake.

Violations of Building Codes I examine whether the observed excess damage in buildings constructed under connected regimes reflects violations of relevant building codes during the construction process. This question cannot be directly answered by the baseline estimation, which essentially quantifies the relative difference in seismic resistance between connected and unconnected buildings. A conceivable scenario is that buildings associated with connected officials were not inherently defective, but seemed inferior in comparison to unconnected buildings that might have had exceptionally high seismic resistance. Considering the earthquake's severe magnitude, it is possible that only buildings with extraordinary resistance withstood the tremors.[23] Moreover, the high level of resistance in the surviving buildings may not have been economically efficient, especially if the (ex ante) seismic hazard was perceived to be low, given that an earthquake of such magnitude is essentially a rare event.

To gain a clearer understanding of the nature of the damage differences observed, I utilize additional data on seismic resistance requirements specified in the building codes. These codes provide a legal and ethical benchmark for what is considered "acceptable."[24] As detailed in Section 2, the building codes specify the level of ground motion a building should withstand without collapsing.[25] I then assess the buildings' compliance with these codes by comparing their required resistance to the actual ground motion experienced during the earthquake. Based on this comparison, I categorize the buildings into three groups: those for which the perceived motion was weaker than ("mildly affected"), equivalent to ("moderately affected"), or stronger than ("severely affected") the resistance requirements. A building that adheres to the codes should not collapse under ground motion that is weaker than or equal to its re-

[23] As mentioned, the government officially attributed the widespread collapse of buildings and the high mortality rate to the "unusually severe extent" of the earthquake (Caixin, 2009).

[24] It is noteworthy that legal or ethical acceptability does not necessarily equate to economic efficiency. Building codes might be inefficiently specified, for instance, having excessively stringent requirements in areas of low hazard. Although the efficient level of resistance is a subject of debate, it is improbable that the required resistance was overly high, especially given the region's high earthquake risks, as discussed in Section 2. Post-2008, the government significantly heightened the resistance standards in the building codes (National Codes of P.R.C., 2015), suggesting that the earlier requirements may have been insufficient.

[25] These requirements vary by location and were updated in 1990 and 2001, as documented in National Codes of P.R.C. (2001) and China Earthquake Administration (1990, 1977). I obtained the specific resistance standards for each building's location, applicable to its construction period, from `http://www.gb18306.net/`.

quired level of resistance. Conversely, the collapse of a building under such conditions is indicative of potential noncompliance with the codes.

I estimate the effects of having a connected official for each of the three groups by multiplying the $HometownTie$ indicator with the set of dummies that denote whether a building was mildly, moderately, or severely affected by the earthquake, relative to its required level of resistance.[26] The dependent variable in this analysis is an indicator of building collapse, whether partial or full.[27] I estimate a probit regression model and illustrate in Figure 4 the predictive margins of the probability of building collapse.

Focusing first on unconnected buildings (denoted by triangles), I observe that the probability of collapse does not significantly change when the experienced ground motion is within or below the required resistance, but increases markedly when it exceeds these levels. This pattern aligns with expectations for buildings compliant with the codes. For connected buildings (indicated by circles), the analysis reveals a substantial rise in collapse probability even when the seismic intensity experienced is within the range of the required resistance. Moreover, these buildings exhibit a collapse likelihood comparable to when they experience more intense seismic activity that surpasses the required resistance levels.

Turning to the differences between connected and unconnected buildings, although connected buildings are generally more prone to collapse compared to unconnected ones, a finding consistent with the baseline, the disparity is particularly pronounced for seismic intensity as matching the required resistance. Interestingly, there is no significant difference in collapse rates between connected and unconnected buildings when subjected to stronger, beyond-resistance seismic motions. This suggests that the observed effects predominantly reflect a failure of connected buildings to meet certain standards, rather than an exceptional performance by unconnected buildings.

To quantify the differences depicted in Figure 4, I present the corresponding regression analyses in Table A16, where the dependent variable is an indicator of partial or complete building collapse. The analysis shows that the disparity between buildings constructed by connected and unconnected officials is significantly positive only

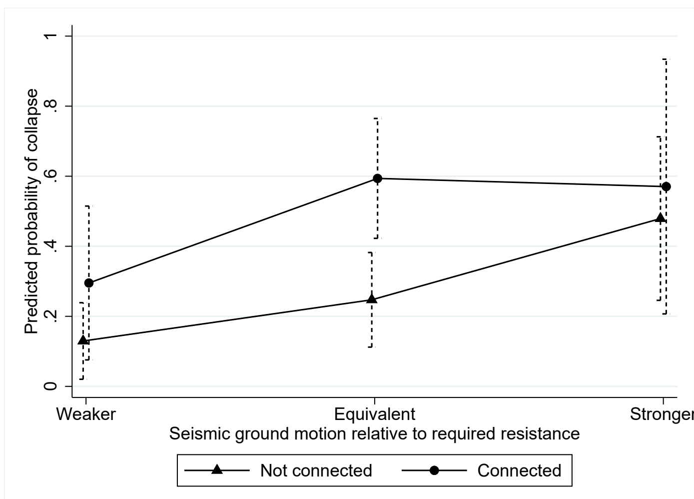
[26] The findings are robust to using absolute measures of earthquake intensity, independent of the required resistance.

[27] I choose the building collapse indicator as the dependent variable in this context to better interpret the results in terms of potential code violations. These estimates are consistent with those using the 5-point damage scale employed in the baseline analysis.

in scenarios in which seismic intensity is within the buildings' required range of resistance. Notably, for this group, the coefficient of 0.231 is nearly double the effect observed when comparing buildings in severe quake zones to those in moderate ones without connections. In addition, this coefficient is twice as large as the overall effect (0.114) of having a connected official on the likelihood of collapse, as shown in Table A6.[28]

Taken together, the observed patterns suggest that the differences between connected and unconnected buildings are likely due to the higher likelihood of corner cutting and code noncompliance when a building was constructed under the administration of connected county officials.

Figure 4: Required seismic resistance, hometown connections, and building damage



Note. The figure depicts the predictive margins of hometown connection, by seismic groups, derived from the probit estimation in Column (7), Table A16. The scattered and connected lines represent the predicted probability of collapse for buildings that each suffers from a ground motion weaker than, equivalent to, and stronger than the seismic resistance requirements. The regression accounts for county fixed effects, year fixed effects, building type $\times$ year fixed effects, the sets of building characteristics (size, number of floors, and indicators of missing values), geographic characteristics (second polynomials of latitude and longitude, PGA, and terrain ruggedness), and official characteristics (any female, any ethnic minority, average age, average education, and average term of the party secretary and the governor). Standard errors are clustered by county.

Involvement of Government Officials Next, I explore the extent of county officials' involvement in the building construction process and their potential influence

[28]This overall effect is essentially a weighted average across various seismic intensities — mild, moderate, and severe — based on the proportion of buildings in each category (approximately 0.41, 0.31, and 0.28, respectively).

on the observed differences in building damage. This investigation involves two exercises that leverage variations in the ease with which government officials can influence projects.

In the first exercise, I examine the varying degrees of involvement by county officials in public projects, based on their roles and responsibilities. Specifically, I differentiate between party secretaries and governors, each holding distinct positions with unique duties. Party secretaries hold formal political authority and wield greater political power. Their primary responsibilities include setting the overall policy direction and overseeing government operations. This role, although powerful, is more strategic and less involved in the minutiae of policy or project execution (Shirk, 1993). Governors, in contrast, are at the forefront of government agencies, focusing more on the formulation and implementation of specific policies and projects, thereby playing a more direct administrative role in public project contracting.

Motivated by this institutional structure, I examine the impacts of hometown connections linked to party secretaries and those associated with governors. I estimate their separate influences on building damage and present the findings in Table 3. The results reveal that connections to party secretaries and governors are associated with increased building damage. The influence of connected governors, however, is notably larger and statistically significant, whereas the impact of connected party secretaries, which is approximately half as substantial in many specifications, does not reach statistical significance at conventional levels. This pattern suggests a more pronounced effect of hometown connections in scenarios where officials can more easily influence construction projects.

The second exercise investigates scenarios in which private stakeholders are involved in the construction process. Although most buildings in the sample serve public functions, some are partially or fully financed by private funds, through fundraising, donations, or private investments. This private involvement often introduces additional stakeholders into the construction process, potentially curbing the influence of government officials.[29]

To quantify this effect, I create an interaction term between the $HometownTie$

[29] Private stakeholders typically have a vested interest in the buildings' quality and safety, potentially counteracting government officials' influence. They might, for instance, name buildings after their brands or themselves, tying the buildings' quality directly to their reputation. Such stakeholders often partake actively in managing and overseeing construction to avert corner-cutting practices, enacting a form of "market discipline." See Branigan (2008) for a notable example.

Table 3: Hometown connections and building damage: Party secretary vs governor

	Dependent Variable: Damage Scale (1–5)						
	OLS						Ordered Probit
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
HometownTie(secretary)	-0.0006	0.1591	0.1674	0.1492	0.1303	0.0593	0.1880
	(0.0837)	(0.1253)	(0.1420)	(0.1489)	(0.1445)	(0.1229)	(0.2451)
HometownTie(governor)	0.4695***	0.2893***	0.2799**	0.2976**	0.3190***	0.3056***	0.6199***
	(0.1657)	(0.1031)	(0.1108)	(0.1129)	(0.1014)	(0.1032)	(0.1939)
Individual Controls						Y	Y
Geographic Controls					Y	Y	Y
Building Controls				Y	Y	Y	Y
BuildingType × Year FE			Y	Y	Y	Y	Y
County FE		Y	Y	Y	Y	Y	Y
Year FE		Y	Y	Y	Y	Y	Y
Mean(Dep.var)	2.844	2.844	2.850	2.850	2.850	2.850	2.850
# Counties	37	35	35	35	35	35	35
# Observations	973	970	955	955	955	955	955
Adjusted R^2	0.033	0.342	0.417	0.420	0.427	0.436	
Pseudo R^2							0.325

Note. The dependent variable in all specifications is the level of damage on the 1(intact or slight damage)–5(full collapse) scale. $HometownTie(secretary)$ is an indicator that denotes that the county has a connected party secretary via hometown ties when the building was constructed. $HometownTie(governor)$ is an indicator that denotes that the county has a connected governor via hometown ties when the building was constructed. Individual controls include an indicator for any female, an indicator for any minority, average age, average education, and average term of the party secretary and the governor. Geographic controls include PGA, terrain ruggedness, and the second-order polynomials of longitude and latitude. Building controls include the building's size, number of floors, and a set of indicators for missing values in each of the variables. BuildingType includes a set of indicators of schools, hospitals, government headquarters, firms, and other public facilities. Standard errors are clustered by county. Significance: * 10%; ** 5%; *** 1%.

indicator and $PrivateFund$, a dummy variable that represents whether a project is at least partially privately funded. The findings, presented in Table 4, follow the same specifications as the baseline. The analysis reveals several patterns. First, the coefficients on $HometownTie$ are consistently larger and statistically significant at the 1% level when accounting for the funding source. This indicates a larger impact of $HometownTie$ on earthquake damage in projects devoid of private investment, whereby government officials' influence is presumably more pronounced. Second, the coefficients for the interaction term, $HometownTie \times PrivateFund$, are negative and reach statistical significance at the 5% level in specifications with comprehensive controls. Further, the magnitude of these coefficients is comparable to, if not greater than, those for $HometownTie$ alone. This indicates that the involvement of private capital not only mitigates but also may offset the negative impact of having a connected official.

An alternative interpretation of this mitigation effect could be that the presence of private funding implies more resources available for construction, which, logically, would enhance the quality and seismic resistance of buildings. If this were the case, we also would expect to see improved seismic resistance in buildings not associated

Table 4: Hometown connections and building damage: Private funding

	Dependent Variable: Damage Scale (1–5)						
	OLS						Ordered Probit
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
HometownTie	0.4532***	0.3424***	0.3752***	0.3711***	0.3837***	0.3420***	0.7592***
	(0.1631)	(0.1106)	(0.0901)	(0.0925)	(0.0995)	(0.0814)	(0.1538)
PrivateFund	-0.0198	0.0551	0.0406	0.0240	0.0190	0.0105	0.0080
	(0.1490)	(0.1401)	(0.1398)	(0.1408)	(0.1386)	(0.1327)	(0.2735)
HometownTie × PrivateFund	-0.0495	-0.2720	-0.5102**	-0.4941**	-0.4952**	-0.4881**	-1.0308**
	(0.1861)	(0.1614)	(0.1981)	(0.2065)	(0.2209)	(0.2239)	(0.4674)
Individual Controls						Y	Y
Geographic Controls					Y	Y	Y
Building Controls				Y	Y	Y	Y
BuildingType × Year FE			Y	Y	Y	Y	Y
County FE		Y	Y	Y	Y	Y	Y
Year FE		Y	Y	Y	Y	Y	Y
Mean(Dep.var)	2.861	2.862	2.866	2.866	2.866	2.866	2.866
# Counties	37	35	35	35	35	35	35
# Observations	1050	1047	1033	1033	1033	1033	1033
Adjusted R^2	0.041	0.342	0.423	0.424	0.432	0.439	
Pseudo R^2							0.325

Note. The dependent variable in all specifications is the level of damage on the 1(intact or slight damage)–5(full collapse) scale. $HometownTie$ is an indicator variable that the county has a connected official (either the party secretary or the governor) via hometown connection when the building was constructed. $PrivateFund$ is an indicator that private funding has participated in the building's construction. Individual controls include an indicator for any female, an indicator for any minority, average age, average education, and average term of the party secretary and the governor. Geographic controls include PGA, terrain ruggedness, and the second-order polynomials of longitude and latitude. Building controls include the building's size, number of floors, and a set of indicators for missing values in each of the variables. BuildingType includes a set of indicators of schools, hospitals, government headquarters, firms, and other public facilities. Standard errors are clustered by county. Significance: * 10%; ** 5%; *** 1%.

with connected officials. The coefficient for $PrivateFund$, which represents the influence of private funds on buildings in scenarios without a connected county official, is negligible, however, and not statistically significant. This indicates that private funding, on its own, does not universally enhance building safety. Rather, the role of private involvement appears to specifically counteract or neutralize the negative impacts typically associated with the presence of connected county officials.

Awareness of the Consequences I then investigate whether the officials were aware of the potential consequences of their actions and willing to take such risks, perhaps to divert funds for other purposes, or if they were simply unaware of the implications of their decisions. To this end, I examine whether the effects of hometown connections diminish in situations in which officials are more likely to bear the costs of inferior construction. I focus on two specific scenarios that might offer insight into this variation.

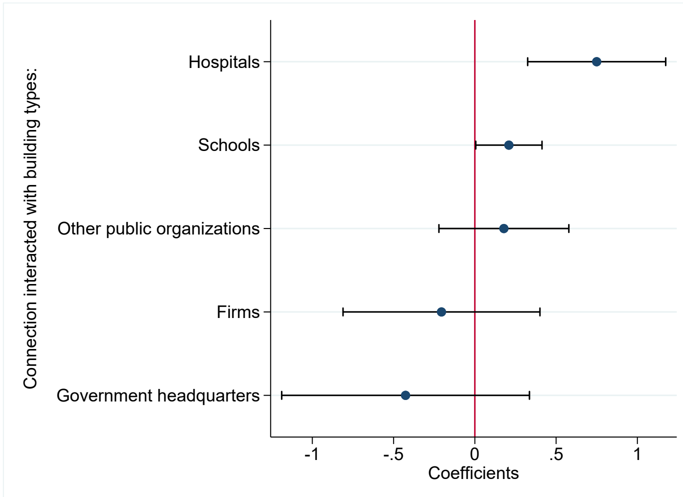
In the first scenario, I explore how the impact of county officials' hometown connections varies across different types of buildings, considering that officials' personal stakes might differ among these categories. For example, government headquarters, where officials frequently work and may even reside, are intrinsically linked to their personal safety and well-being. In contrast, buildings used primarily by the public, such as schools, hospitals, and libraries, might be considered less directly relevant to the officials, leading them to act more recklessly in these projects. If the observed effects were uniformly distributed across all building types, it might suggest that the officials were unaware of the consequences of their actions. Conversely, if the effects are less pronounced in buildings with greater personal stakes for the officials, it would suggest that the officials were aware of the potential consequences.

Figure 5 provides an illustration of the results, obtained by interacting the $HometownTie$ indicator with dummies for various building types in my sample, including hospitals, schools, public-access facilities, firms, and government headquarters. The figure displays the estimated coefficients for each building type alongside their 95% confidence intervals, showing that the influence of county officials' hometown connections is particularly pronounced in schools, hospitals, and public facilities, although the precision of estimates for public facilities is lower. Interestingly, there is no discernible impact on firms, possibly because construction decisions for these buildings are less often influenced by county officials, aligning with the previously documented importance of officials' involvement. Most notably, the effect of $HometownTie$ on government headquarters is negative, albeit with a large standard error. This pattern indicates that county officials were likely aware of the potential consequences of their actions, as they seem to have internalized the costs associated with substandard construction of buildings that had a direct impact on them.

In the second scenario, I explore whether the impacts of officials' connections are mitigated when they serve in their home county. This situation might invoke a sense of hometown attachment, leading officials to more conscientiously internalize the costs of substandard building construction. Their emotional and social ties, coupled with a concern for their own reputation and a commitment to the welfare of their fellow townspeople, could lead to more diligent and responsible decision-making in matters that could directly impact the safety and prosperity of their local community.

In Table 5, I present the estimates for connected officials who work within their home county (local) and those outside of it (non-local). The results reveal a negative, albeit statistically non-significant, coefficient for local connected officials. In contrast, the coefficient for non-local connected officials is both positive and statistically signif-

Figure 5: Hometown connections and building damage by building type



Note. The figure depicts the effect of hometown connections on building damage across different types of buildings. The markers with capped spikes represent the OLS estimators and 95% confidence intervals of the interaction terms between hometown connections and each of the building types. The dependent variable is the level of damages on a 1–5 scale. The regression accounts for county fixed effects, year fixed effects, building type × year fixed effects, the sets of building characteristics (size, number of floors, and indicators of missing values), geographic characteristics (second polynomials of latitude and longitude, PGA, and terrain ruggedness), and official characteristics (any female, any ethnic minority, average age, average education, and average term of the party secretary and the governor). Standard errors are clustered by county.

icant. This suggests that officials are likely aware of the consequences of their actions, as they appear to mitigate these consequences in situations in which they might be more concerned about the well-being of potential victims.

Corruption Prosecution

In this final analysis, I assess the extent to which the observed effects may stem from corruption among connected officials by directly examining instances of corruption prosecution. Specifically, I investigate whether connected officials were more likely to face corruption prosecution and whether this prosecution was influenced by their association with building collapses during the earthquake. I categorize the sample of officials into four groups based on two factors: whether they had any connections during their career (connected or unconnected) and whether any buildings constructed under their administration collapsed in the earthquake (collapse or no collapse). I then regress the occurrence of corruption charges against these categories: unconnected officials with no building collapses, unconnected officials with building collapses, connected officials with no building collapses, and connected officials with

Table 5: Hometown connections and building damage: Local vs non-local officials

	Dependent Variable: Damage Scale (1–5)						
	OLS						Ordered Probit
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
HometownTie (local)	-0.7699***	-0.2071	-0.1735	-0.1846	-0.2000	-0.2047	-0.3525
	(0.2419)	(0.2302)	(0.2180)	(0.2182)	(0.2049)	(0.1927)	(0.3901)
HometownTie (non-local)	0.4815***	0.3222**	0.3222***	0.3203***	0.3330***	0.2898***	0.6368***
	(0.1597)	(0.1183)	(0.1038)	(0.1064)	(0.1101)	(0.1005)	(0.1806)
Individual Controls						Y	Y
Geographic Controls					Y	Y	Y
Building Controls				Y	Y	Y	Y
BuildingType × Year FE			Y	Y	Y	Y	Y
County FE		Y	Y	Y	Y	Y	Y
Year FE		Y	Y	Y	Y	Y	Y
Mean(Dep.var)	2.861	2.862	2.866	2.866	2.866	2.866	2.866
# Counties	37	35	35	35	35	35	35
# Observations	1050	1047	1033	1033	1033	1033	1033
Adjusted R^2	0.049	0.342	0.418	0.419	0.427	0.434	
Pseudo R^2							0.321

Note. The dependent variable in all specifications is the level of damage on the 1(intact or slight damage)–5(full collapse) scale. $HometownTie(local)$ is an indicator of the presence of a connected local official when the building was constructed. $HometownTie(non-local)$ is an indicator of the presence of a connected non-local official when the building was constructed. Local officials are defined as those who were governing the county where they were born. Individual controls include an indicator for any female, an indicator for any minority, average age, average education, and average term of the party secretary and the governor. Geographic controls include PGA, terrain ruggedness, and the second-order polynomials of longitude and latitude. Building controls include the building's size, number of floors, and a set of indicators for missing values in each of the variables. BuildingType includes a set of indicators of schools, hospitals, government headquarters, firms, and other public facilities. Standard errors are clustered by county. Significance: * 10%; ** 5%; *** 1%.

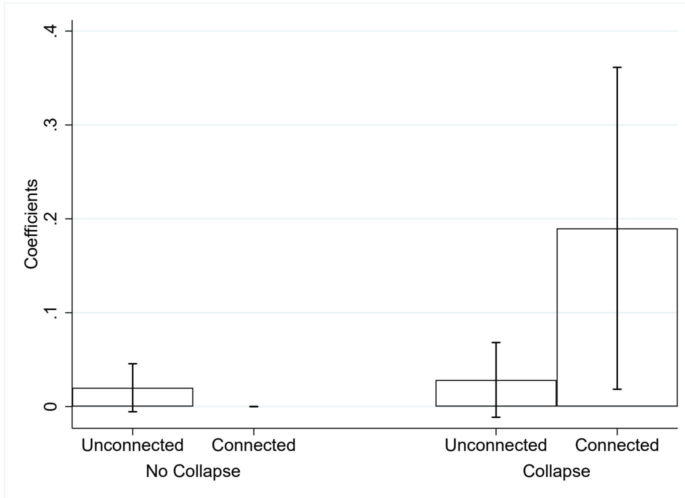
building collapses.

The estimated coefficients are depicted in Figure 6, with the group of connected officials without associated building collapses who serve as the reference. The analysis shows that connected officials associated with building collapses are significantly more likely to be prosecuted for corruption, whereas building collapses do not seem to affect the prosecution rates of unconnected officials. In scenarios without building collapses, however, connected officials appear slightly less likely to face corruption prosecutions. These results indicate that, although connected officials are generally more susceptible to corruption, they typically avoid detection and accountability unless their misdeeds lead to tangible consequences, such as building collapses. The earthquake, in this case, appears to have acted as a natural audit, exposing corrupt practices among connected officials and leading to their accountability.[30]

To examine more deeply into the role of corrupt county officials in building construction, I analyzed judgment documents from all recorded corruption cases in China

[30]Further, Figure A4 shows that the pattern in Figure 6 is attributed mainly to prosecutions occurring after 2008, rather than those before 2008, suggesting that the building collapses likely contributed to uncovering corrupt practices. This evidence suggests that officials faced accountability for their actions following the earthquake.

Figure 6: Hometown connections, building damage, and corruption prosecution



Notes: The figure depicts the estimated coefficients of corruption prosecution on hometown connections and building damage. The sample consists of 263 county officials associated with at least a building from the main analysis, and is constructed by aggregating the damage of buildings (any or no collapse) constructed under the official's authority and the connectedness of the official (once or never connected). The dependent variable is an indicator that equals 1 if the county official was prosecuted for corruption. The regression controls for the average ground motion (measured by PGA) of all buildings constructed under the official's authority. The 95% confidence intervals are constructed based on White standard errors.

during the 2012–2020 period. Among the 4,750 cases that involved county party secretaries and governors, 70% pertained to construction-related corruption. Specifically, 268 cases involved schools, 136 concerned hospitals, 239 related to government headquarters, and 610 involved public facilities.[31] These officials were found to actively support those offering bribes to gain construction contracts. Their methods included awarding contracts directly, providing favorable conditions for selected contractors, manipulating the bidding process, and biasing inspection and approval processes. It is not surprising that such practices would be more prevalent in public projects, such as schools, hospitals, and public facilities, given the greater opportunities for officials to intervene.

To summarize, Section 5.1 presents a series of findings that support the hypothesis that the observed effects are likely linked to more pronounced corruption activities among connected county officials. Specifically, the evidence indicates that disparities

[31]The relevant cases were identified based on keywords, including "construction," "party secretary," and "governor". The categorization of building types was performed using GPT4.0 and subsequently validated by human review.

in building damage are likely due to corner-cutting practices, with county officials playing a significant role in this process. This also suggests that these officials might have been aware of the consequences of their actions, and they were held accountable post-earthquake. Although each piece of evidence presented may be indirect and suggestive on its own, together they form a coherent body of evidence that suggests that the observed effects stem from corrupt activities among connected county officials. In Appendix E, I explore different alternative interpretations in which the observed effects might emerge from unintended consequences without involving corruption. I detail why those interpretations do not align with the comprehensive evidence presented in the study.

5.2 Political Selection or Moral Hazard?

So far, the findings reveal that buildings supervised by connected county officials experienced more severe damage, and this disparity is likely a result of more pronounced corruption among these officials. I thus am interested in why hometown connections make such a difference. There are two theoretical explanations rooted in the study of patron-client relationships. First is political selection: Connected officials might be a fundamentally different type than their counterparts, gaining their positions perhaps not on merit but, rather, through the advantage provided by their patron (Colonnelli et al., 2020). The second explanation is moral hazard: The same officials, when connected, might face altered incentives that encourage corrupt behavior, believing that their patron will protect them from being held accountable (Chu et al., 2020). Although the central thesis of this paper is not contingent upon pinpointing a specific theory, exploring whether political selection, moral hazard, or a combination of both is the driving factor in this context emerges as an interesting and valuable line of inquiry.

I differentiate between the two mechanisms by analyzing the variations that result from the rotation of senior officials compared to those from the rotation of junior officials, as illustrated in Figure A5. First, to isolate the effect that stems from changes in senior officials at the prefecture level, I include individual fixed effects of each county-level junior official in my sample. This approach effectively holds constant the selection of junior officials, concentrating instead on the shifts in their incentives associated with the presence or absence of hometown connections induced by senior official rotations. Therefore, any effects of hometown connections identified through this specification can be attributed solely to the moral hazard channel. The results, as demonstrated in the first two columns of Table 6, show that the estimated coefficients on $HometownTie$ are negative and not statistically significant. This pattern suggests that for incumbent junior officials, changes in their connection status do not have a significant impact on the damage of buildings under their oversight, indicating that the moral hazard channel may not be a significant factor in this context.[32]

Table 6: Hometown connection and building damage: Selection vs. moral hazard

	Dependent Variable: Damage Scale (1–5)			
	Moral Hazard		Political Selection	
	OLS	Oprobit	OLS	Oprobit
	(1)	(2)	(3)	(4)
HometownTie	-0.2319	-0.5139	0.3412**	0.7670**
	(0.2617)	(0.6174)	(0.1661)	(0.3257)
County Official FE	Y	Y		
Prefecture Official FE			Y	Y
Baseline Controls	Y	Y	Y	Y
Mean(Dep.var)	2.866	2.866	2.866	2.866
# Counties	35	35	35	35
# Observations	1033	1033	1033	1033
Adjusted R^2	0.489		0.449	
Pseudo R^2		0.436		0.349

Note. The dependent variable in all specifications is the level of damage on the 1(intact or slight damage)–5(full collapse) scale. *HometownTie* is an indicator variable that the county has a connected official (either the party secretary or the governor) via hometown connection when the building was constructed. Baseline controls include county fixed effects, year fixed effects, building type × year fixed effects, the set of building characteristics (size, number of floors, and indicators of missing values), geographic characteristics (second polynomials of latitude and longitude, PGA, and terrain ruggedness), and official characteristics (any female, any ethnic minority, average age, average education, and average term of the party secretary and the governor) Standard errors are clustered by county. Significance: * 10%; ** 5%; *** 1%.

Next, I explore the effect of the rotation of junior officials by incorporating individual fixed effects of senior officials in the analysis. In principle, this approach estimates the effect of hometown connections that stem from a combination of the selection of distinct county officials and any effects in the moral hazard margin due to these connections. Given the lack of significant moral hazard effects in the previous finding, however, the estimates from this specification can be attributed almost entirely to the influence of the political selection channel. The findings, presented in the

[32]Although not statistically significant, the sizeable negative sign contradicts the moral hazard prediction, suggesting that officials with connections might perform better once the selection effect is eliminated. This improvement could stem from the extra resources and support connected officials might obtain from their patrons, as evidenced in Column (7) of Table A17.

last two columns of Table 6, show that the coefficients on $HometownTie$ are positive and significant. This underscores the role of negative political selection as the key mechanism through which hometown connections influence building damage.[33]

To elucidate the dynamic effects associated with the formation of hometown connections through each channel, I conduct event studies that incorporate individual fixed effects for junior and senior officials. The outcomes of these studies are depicted in Figure A6. Panel (a) concerns the impact of senior official rotations (controlling for junior official fixed effects), and Panel (b) focuses on connections formed by replacing junior officials (controlling for senior official fixed effects). The findings in Panel (a) reveal no significant change in building damage subsequent to connections formed by senior official rotations, yet a marked increase in damage is observed in Panel (b) when senior officials appoint their clients. These results align with those in Table 6, indicating that negative political selection, rather than moral hazard, is the predominant mechanism.

Taken together, the evidence leads to the conclusion that the primary effects observed can be largely attributed to the selection of less effective officials, as opposed to a distortion of incentives within the same group of officials. This finding has crucial policy implications for addressing the detrimental impacts of patron-client relationships: Instead of focusing solely on addressing the moral hazard issue through monitoring and disciplining connected officials, a potentially more effective strategy would be to prevent the patronage-driven selection of these officials from the outset.

6 Concluding Remarks

In this study, I have illustrated the catastrophic consequences of corruption through the lens of the 2008 Sichuan earthquake. Using a building-level dataset within a difference-in-differences framework, I established that buildings constructed under the administration of connected county officials suffered significantly more damage and were far more prone to collapse during the earthquake. Quantitatively, the data suggest that buildings overseen by connected officials had an 75% higher likelihood of collapse compared to their non-connected counterparts. This effect is equivalent to

[33] In Appendix F, I adopt an alternative approach to distinguish between selection and moral hazard. Although that approach leverages different sources of variation and relies on different assumptions, the results are consistent with those presented here, thus reinforcing the confidence of this conclusion.

moving a building approximately 30 kilometers closer to the earthquake's epicenter.

To understand the underlying mechanism of the effect, I presented multiple pieces of evidence that point toward pronounced corruption among connected officials as the likely cause of the observed effects. Specifically, I determined that increased damage is due primarily to corner-cutting in construction processes and the potential involvement of county officials. Notably, these officials seemed aware of the consequences of their decisions and were able to avoid risks when their own safety and well-being were at stake. Further, officials potentially associated with the construction of inferior buildings faced more frequent corruption convictions after the earthquake. Although each piece of evidence is indirect, collectively, they form a coherent argument that supports the corruption hypothesis. In addition, the findings indicate that these effects are more attributable to negative political selection of officials through connections, rather than to moral hazard issues that arise from these connections.

These findings underscore the extensive cost of corruption, extending far beyond the typically documented efficiency losses. The study reveals how corruption can critically undermine public infrastructure and facilities, jeopardizing public safety and welfare. Such consequences often remain hidden until extreme events expose them, suggesting that the costs identified here may represent just the tip of the iceberg. Although this research centers on a specific event in China, its implications are likely relevant across different economic contexts and countries, highlighting the universal need for effective measures against deep-rooted corruption and its consequences.

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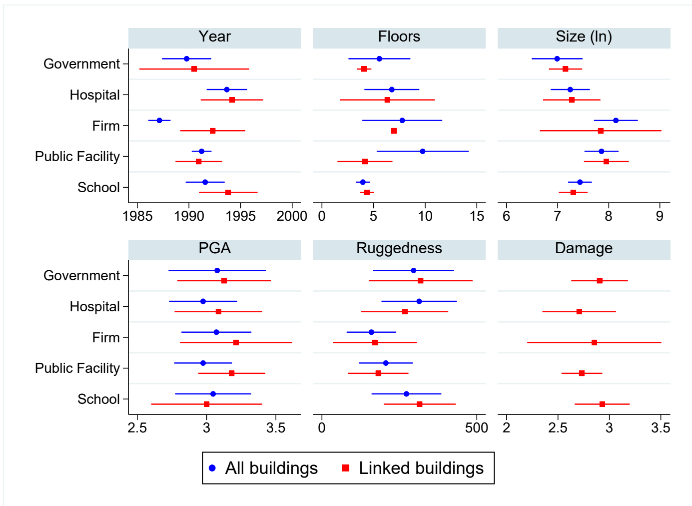
Online Appendix for
Audit of God: Hometown Connections and Building Damage in the Sichuan Earthquake

Yiming Cao

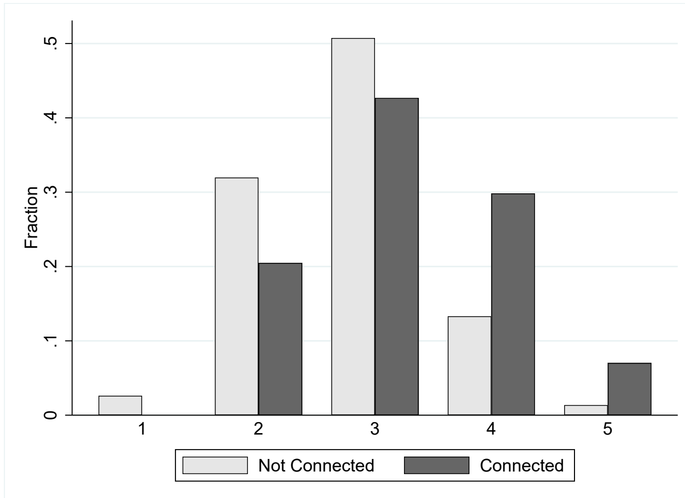
A Supplementary Figures and Tables

Figure A1: Building characteristics across types



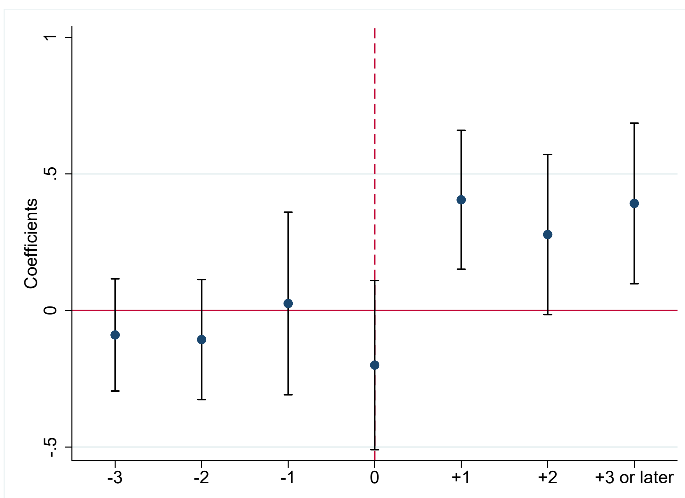
Note. The figure depicts building characteristics for each each type of buildings in the dataset. The scatter represents the mean value, and the line represents the 95% confidence interval based on standard errors clustered at the county level.

Figure A2: Distribution of damage scales by hometown connection



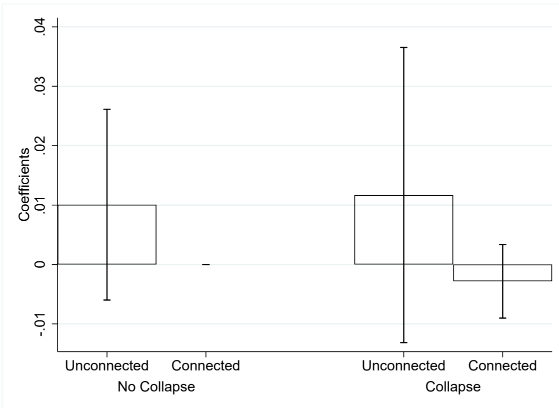
Note. The figure depicts the distribution of damage scales with and without hometown connection. Each bar represents the fraction of buildings that experienced each of the damage scales with and without hometown connection when constructed.

Figure A3: Effects of gaining connections on building damage

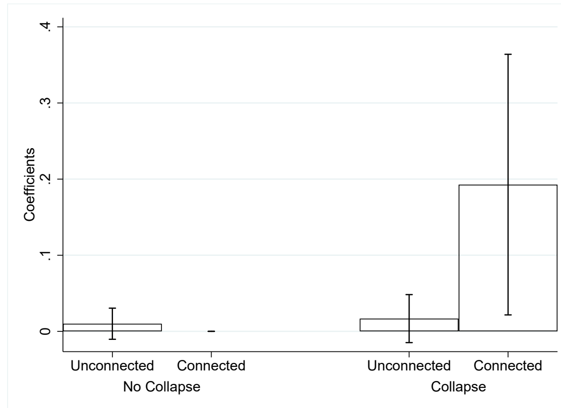


Note. The figures depict the effects of gaining a connected official on building damage. The markers and capped spikes represent the OLS estimators and 95% confidence intervals. Construction year is normalized to the year when the county gains a connected official (year 0), with buildings constructed more than 3 years earlier as the comparison. The dependent variables are the level of damage on a 1–5 scale. The regression accounts for county fixed effects, year fixed effects, building type × year fixed effects, the sets of building characteristics (size, number of floors, and indicators of missing values), geographic characteristics (second polynomials of latitude and longitude, PGA, and terrain ruggedness), and official characteristics (any female, any ethnic minority, average age, average education, and average term of the party secretary and the governor). Standard errors are clustered by county.

Figure A4: Hometown connections, building damage, and corruption prosecution



(a) Before 2008



(b) After 2008

Notes: The figure depicts the estimated coefficients of corruption prosecution on hometown connections and building damage. The sample consists of 263 county officials associated with at least a building from the main analysis, and is constructed by aggregating the damage of buildings (any or no collapse) constructed under the official's authority and the connectedness of the official (once or never connected). The dependent variable is an indicator that equals 1 if the county official was prosecuted for corruption. The regression controls for the average ground motion (measured by PGA) of all buildings constructed under the official's authority. The 95% confidence intervals are constructed based on White standard errors.

Figure A5: Variation in hometown connection due to senior vs. junior rotations

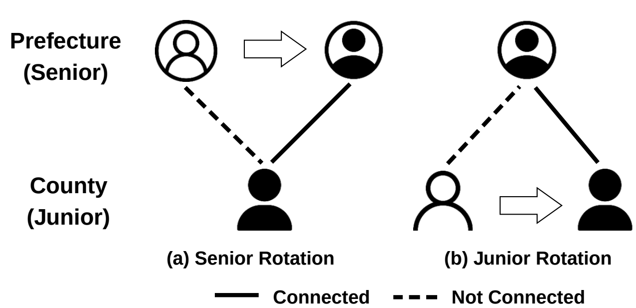
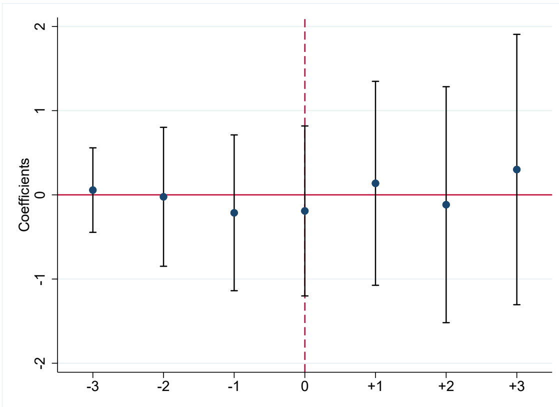
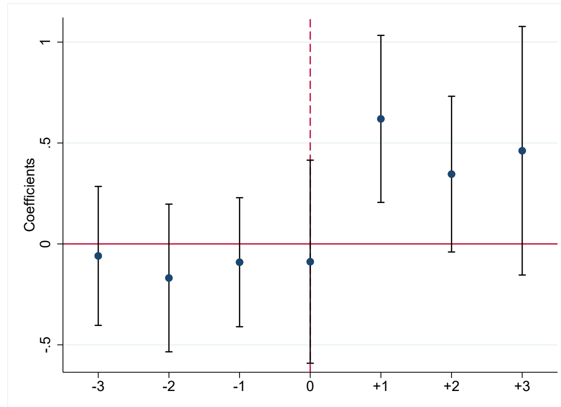


Figure A6: Effects of gaining connections due to senior vs. junior rotations



(a) Senior rotation (w/ junior FEs)



(b) Junior rotation (w/ senior FEs)

Note. The figures depict the effects of gaining a connected official due to rotations at the senior and junior levels. The markers and capped spikes represent the OLS estimators and 95% confidence intervals. The figure normalizes the years of construction to the year when the county gains a connected official (year 0), with buildings constructed more than 3 years earlier as the comparison. The sample contains the subset of buildings for which the year of construction was reported with precision. The dependent variables are the level of damage on a 1–5 scale. The regression accounts for county fixed effects, year fixed effects, building type × year fixed effects, the sets of building characteristics (size, number of floors, and indicators of missing values), geographic characteristics (second polynomials of latitude and longitude, PGA, and terrain ruggedness), and official characteristics (any female, any ethnic minority, average age, average education, and average term of the party secretary and the governor). Standard errors are clustered by county.

Table A1: Hometown connections and building construction

	Dependent Variable: Number of buildings (ln)							
	All types			Hospital	School	Facility	Firm	Gov.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
HometownTie	-0.1056	0.0134	-0.0124	0.0042	-0.1066	0.0630	-0.0032	-0.0785
	(0.1410)	(0.0946)	(0.0749)	(0.0505)	(0.0873)	(0.0682)	(0.0784)	(0.0525)
Individual Controls			Y	Y	Y	Y	Y	Y
County FE		Y	Y	Y	Y	Y	Y	Y
Year FE		Y	Y	Y	Y	Y	Y	Y
Mean(Dep.var)	1.069	1.069	1.731	1.731	1.731	1.731	1.731	1.731
# Counties	65	65	62	62	62	62	62	62
# Observations	1400	1400	864	864	864	864	864	864
Adjusted R^2	0.001	0.536	0.487	0.185	0.254	0.199	0.592	0.250

Note. The sample is a balanced county-panel of all damaged counties between 1978–2007. The dependent variables are the number of documented building construction, calculated as the natural logarithm of one plus the value. *HometownTie* is an indicator variable that the county has a connected official (either the party secretary or the governor) via hometown connection when the building was constructed. Individual controls include an indicator for any female, an indicator for any minority, average age, average education, and average term of the party secretary and the governor. Standard errors are clustered by county. Significance: * 10%; ** 5%; *** 1%.

Table A2: Hometown connections and building characteristics

	Dependent Variables:			
	Geographical		Physical	
	ln(PGA)	Ruggedness	ln(Size)	Floors
	(1)	(2)	(3)	(4)
HometownTie	-0.0127	-8.0472	-0.0738	-4.0267
	(0.0138)	(11.3562)	(0.1236)	(2.4181)
Individual Controls	Y	Y	Y	Y
BuildingType × Year FE	Y	Y	Y	Y
County FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Mean(Dep.var)	3.076	237.134	7.629	7.547
# Counties	62	62	51	18
# Observations	6015	6015	2406	160
Adjusted R^2	0.925	0.785	0.283	0.574

Note. The sample includes all buildings for which the years of contruction are observed. *HometownTie* is an indicator variable that the county has a connected official (either the party secretary or the governor) via hometown connection when the building was constructed. Individual controls include an indicator for any female, an indicator for any minority, average age, average education, and average term of the party secretary and the governor. BuildingType includes a set of indicators of schools, hospitals, government headquarters, firms, and other public facilities. Standard errors are clustered by county. Significance: * 10%; ** 5%; *** 1%.

Table A3: Hometown connections and damage reporting

	Dependent Variable: $\mathbb{1}\{DamagesObserved\}$						
	OLS						Probit
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
HometownTie	0.0757	-0.0387	-0.0255	-0.0250	-0.0235	-0.0084	-0.0562
	(0.0618)	(0.0282)	(0.0243)	(0.0238)	(0.0244)	(0.0251)	(0.1143)
Individual Controls						Y	Y
Geographic Controls					Y	Y	Y
Building Controls				Y	Y	Y	Y
BuildingType × Year FE			Y	Y	Y	Y	Y
County FE		Y	Y	Y	Y	Y	Y
Year FE		Y	Y	Y	Y	Y	Y
Mean(Dep.var)	0.174	0.174	0.174	0.174	0.174	0.174	0.209
# Counties	63	63	63	63	62	62	36
# Observations	6046	6046	6045	6045	6015	6015	4739
Adjusted R^2	0.004	0.223	0.314	0.318	0.321	0.326	
Pseudo R^2							0.299

Note. The sample includes all buildings for which the years of contruction are observed. The dependent variable is an indicator variable that the building's damage scale is observed. *HometownTie* is an indicator variable that the county has a connected official (either the party secretary or the governor) via hometown connection when the building was constructed. Individual controls include an indicator for any female, an indicator for any minority, average age, average education, and average term of the party secretary and the governor. Geographic controls include PGA, terrain ruggedness, and the second-order polynomials of longitude and latitude. Building controls include the building's size, number of floors, and a set of indicators for missing values in each of the variables. BuildingType includes a set of indicators of schools, hospitals, government headquarters, firms, and other public facilities. Column (7) drops observations of which the outcome variable can be perfectly predicted by the set of fixed effects. Standard errors are clustered by county. Significance: * 10%; ** 5%; *** 1%.

Table A4: Descriptive statistics of buildings for the main analysis

	Obs.	Mean	S.D	Max.	Min.
Outcome					
Damage Scale	1050	2.86	0.79	5.00	1.00
Treatment					
HometownTie	1050	0.16	0.37	1.00	0.00
Geographics					
Peak ground acceleration (% of g)	1050	28.63	23.13	104.00	4.00
Ruggedness	1050	267.57	303.13	1682.99	0.00
BuildingFeatures					
Stories #	55	4.65	2.44	13.00	2.00
Size (1,000 m^2)	596	4.23	9.23	110.00	0.00
Politicians					
AnyFemale	552	0.06	0.23	1.00	0.00
avg(Age)	642	44.30	4.74	56.00	32.00
avg(YrEdu)	795	15.07	2.48	18.00	9.00
avg(Term)	1050	3.02	1.59	8.00	1.00

Table A5: Hometown connections and building damage: Data precision

	Dependent Variable: Damage Scale (1–5)				
	Subsample of buildings with a high precision in:				
	Construction Date	Geocoded Location	Damage Reporting	Building Matching	All Aspects
	(1)	(2)	(3)	(4)	(5)
HometownTie	0.3645***	0.3414***	0.2439**	0.4221**	0.4106**
	(0.0911)	(0.0924)	(0.1107)	(0.1550)	(0.1627)
Individual Controls	Y	Y	Y	Y	Y
Geographic Controls	Y	Y	Y	Y	Y
Building Controls	Y	Y	Y	Y	Y
BuildingType × Year FE	Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y
Mean(Dep.var)	2.799	2.889	2.920	2.888	2.910
# Counties	34	34	35	31	28
# Observations	802	870	942	717	457
Adjusted R^2	0.507	0.467	0.501	0.471	0.642

Note. The dependent variable in all specifications is the level of damage on the 1(intact or slight damage)–5(full collapse) scale. *HometownTie* is an indicator variable that the county has a connected official (either the party secretary or the governor) via hometown connection when the building was constructed. Individual controls include an indicator for any female, an indicator for any minority, average age, average education, and average term of the party secretary and the governor. Geographic controls include PGA, terrain ruggedness, and the second-order polynomials of longitude and latitude. Building controls include the building's size, number of floors, and a set of indicators for missing values in each of the variables. BuildingType includes a set of indicators of schools, hospitals, government headquarters, firms, and other public facilities. Standard errors are clustered by county. Significance: * 10%; ** 5%; *** 1%.

Table A6: Hometown connections and building collapse

	Dependent Variable: $\mathbb{1}\{Collapse\}$						
	OLS						Probit
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
HometownTie	0.2217**	0.1313*	0.1288**	0.1275**	0.1379**	0.1142*	0.8457*
	(0.0821)	(0.0657)	(0.0599)	(0.0606)	(0.0608)	(0.0615)	(0.4324)
Individual Controls						Y	Y
Geographic Controls					Y	Y	Y
Building Controls				Y	Y	Y	Y
BuildingType × Year FE			Y	Y	Y	Y	Y
County FE		Y	Y	Y	Y	Y	Y
Year FE		Y	Y	Y	Y	Y	Y
Marginal Effect							0.182
Mean(Dep.var)	0.183	0.182	0.184	0.184	0.184	0.184	0.320
# Counties	37	35	35	35	35	35	20
# Observations	1050	1047	1033	1033	1033	1033	566
Adjusted R^2	0.044	0.285	0.354	0.354	0.359	0.366	
Pseudo R^2							0.388

Note. The dependent variable in all specifications is an indicator variable that the building partially or fully collapsed during the earthquake. *HometownTie* is an indicator variable that the county has a connected official (either the party secretary or the governor) via hometown connection when the building was constructed. Individual controls include an indicator for any female, an indicator for any minority, average age, average education, and average term of the party secretary and the governor. Geographic controls include PGA, terrain ruggedness, and the second-order polynomials of longitude and latitude. Building controls include the building's size, number of floors, and a set of indicators for missing values in each of the variables. BuildingType includes a set of indicators of schools, hospitals, government headquarters, firms, and other public facilities. Standard errors are clustered by county. Significance: * 10%; ** 5%; *** 1%.

Table A7: Hometown connections and building damage: Alternative damage encoding

	Dependent Variable: Damage Scale (1–4)						
	OLS						Ordered Probit
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
HometownTie	0.3890***	0.2948**	0.2915***	0.2891***	0.2974***	0.2519***	0.5976***
	(0.1227)	(0.1146)	(0.0981)	(0.1005)	(0.1034)	(0.0886)	(0.1758)
Individual Controls						Y	Y
Geographic Controls					Y	Y	Y
Building Controls				Y	Y	Y	Y
BuildingType × Year FE			Y	Y	Y	Y	Y
County FE		Y	Y	Y	Y	Y	Y
Year FE		Y	Y	Y	Y	Y	Y
Mean(Dep.var)	2.838	2.839	2.843	2.843	2.843	2.843	2.843
# Counties	37	35	35	35	35	35	35
# Observations	1050	1047	1033	1033	1033	1033	1033
Adjusted R^2	0.037	0.323	0.414	0.415	0.421	0.429	
Pseudo R^2							0.337

Note. The dependent variable in all specifications is the level of damage on the 1(intact or slight damage)–5(full collapse) scale. Individual controls include an indicator for any female, an indicator for any minority, average age, average education, and average term of the party secretary and the governor. Geographic controls include PGA, terrain ruggedness, and the second-order polynomials of longitude and latitude. Building controls include the building's size, number of floors, and a set of indicators for missing values in each of the variables. BuildingType includes a set of indicators of schools, hospitals, government headquarters, firms, and other public facilities. Standard errors are clustered by county. Significance: * 10%; ** 5%; *** 1%.

Table A8: Hometown connections and building damage: Number of connections

	Dependent Variable: Damage Scale (1–5)						
	OLS						Ordered Probit
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
HometownTie #	0.1619***	0.1455***	0.1455***	0.1459***	0.1458***	0.1210***	0.2699***
	(0.0397)	(0.0415)	(0.0417)	(0.0433)	(0.0418)	(0.0433)	(0.0801)
Individual Controls						Y	Y
Geographic Controls					Y	Y	Y
Building Controls				Y	Y	Y	Y
BuildingType × Year FE			Y	Y	Y	Y	Y
County FE		Y	Y	Y	Y	Y	Y
Year FE		Y	Y	Y	Y	Y	Y
Mean(Dep.var)	2.861	2.862	2.866	2.866	2.866	2.866	2.866
# Counties	37	35	35	35	35	35	35
# Observations	1050	1047	1033	1033	1033	1033	1033
Adjusted R^2	0.035	0.347	0.423	0.424	0.431	0.436	
Pseudo R^2							0.322

Note. The dependent variable in all specifications is the level of damage on the 1(intact or slight damage)–5(full collapse) scale. HometownTie # is the number of hometown connections between the two county officials and the two prefecture officials. Individual controls include an indicator for any female, an indicator for any minority, average age, average education, and average term of the party secretary and the governor. Geographic controls include PGA, terrain ruggedness, and the second-order polynomials of longitude and latitude. Building controls include the building's size, number of floors, and a set of indicators for missing values in each of the variables. BuildingType includes a set of indicators of schools, hospitals, government headquarters, firms, and other public facilities. Standard errors are clustered by county. Significance: * 10%; ** 5%; *** 1%.

Table A9: Hometown connections and building damage: Months of being connected

	Dependent Variable: Damage Scale (1–5)						
	OLS						Ordered Probit
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Months Connected	0.0285***	0.0232***	0.0217***	0.0216***	0.0217***	0.0204***	0.0441***
	(0.0062)	(0.0067)	(0.0052)	(0.0053)	(0.0053)	(0.0054)	(0.0098)
Individual Controls						Y	Y
Geographic Controls					Y	Y	Y
Building Controls				Y	Y	Y	Y
BuildingType × Year FE			Y	Y	Y	Y	Y
County FE		Y	Y	Y	Y	Y	Y
Year FE		Y	Y	Y	Y	Y	Y
Mean(Dep.var)	2.861	2.862	2.866	2.866	2.866	2.866	2.866
# Counties	37	35	35	35	35	35	35
# Observations	1050	1047	1033	1033	1033	1033	1033
Adjusted R^2	0.053	0.352	0.423	0.425	0.432	0.439	
Pseudo R^2							0.324

Note. The dependent variable in all specifications is the level of damage on the 1(intact or slight damage)–5(full collapse) scale. Months Connected is cumulative number of months governed by connected officials, taking into account all officials who worked in the county during any period of the year. Individual controls include an indicator for any female, an indicator for any minority, average age, average education, and average term of the party secretary and the governor. Geographic controls include PGA, terrain ruggedness, and the second-order polynomials of longitude and latitude. Building controls include the building's size, number of floors, and a set of indicators for missing values in each of the variables. BuildingType includes a set of indicators of schools, hospitals, government headquarters, firms, and other public facilities. Standard errors are clustered by county. Significance: * 10%; ** 5%; *** 1%.

Table A10: Hometown connections and building damage: Socioeconomic controls

	Dependent Variable: Damage Scale (1–5)						
	OLS						Ordered Probit
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
HometownTie	0.4375***	0.2704**	0.2497**	0.2400**	0.2450**	0.2089**	0.4709**
	(0.1573)	(0.1037)	(0.1002)	(0.1030)	(0.1076)	(0.1011)	(0.1957)
GDP per capita (10,000 RMB)	-0.0321	-0.1371*	-0.1581	-0.1795*	-0.1912*	-0.1925	-0.3963*
	(0.1689)	(0.0691)	(0.0950)	(0.0917)	(0.1013)	(0.1155)	(0.2287)
Population (10,000)	0.0004	0.0009	0.0021**	0.0023**	0.0024**	0.0023**	0.0051**
	(0.0017)	(0.0012)	(0.0009)	(0.0009)	(0.0009)	(0.0011)	(0.0023)
Individual Controls						Y	Y
Geographic Controls					Y	Y	Y
Building Controls				Y	Y	Y	Y
BuildingType × Year FE			Y	Y	Y	Y	Y
County FE		Y	Y	Y	Y	Y	Y
Year FE		Y	Y	Y	Y	Y	Y
Mean(Dep.var)	2.861	2.862	2.866	2.866	2.866	2.866	2.866
# Counties	37	35	35	35	35	35	35
# Observations	1050	1047	1033	1033	1033	1033	1033
Adjusted R^2	0.048	0.343	0.420	0.422	0.430	0.437	
Pseudo R^2							0.324

Note. The dependent variable in all specifications is the level of damage on the 1(intact or slight damage)–5(full collapse) scale. *HometownTie* is an indicator variable that the county has a connected official (either the party secretary or the governor) via hometown connection when the building was constructed. Individual controls include an indicator for any female, an indicator for any minority, average age, average education, and average term of the party secretary and the governor. Geographic controls include PGA, terrain ruggedness, and the second-order polynomials of longitude and latitude. Building controls include the building's size, number of floors, and a set of indicators for missing values in each of the variables. BuildingType includes a set of indicators of schools, hospitals, government headquarters, firms, and other public facilities. Standard errors are clustered by county. Significance: * 10%; ** 5%; *** 1%.

Table A11: Hometown connections and building damage: Cell fixed effects

	Dependent Variable: Damage Scale (1–5)					
	OLS					Ordered Probit
	(1)	(2)	(3)	(4)	(5)	(6)
HometownTie	0.0910	0.2302***	0.2259***	0.2124***	0.2312***	0.8608***
	(0.0793)	(0.0819)	(0.0823)	(0.0764)	(0.0837)	(0.2211)
Individual Controls					Y	Y
Geographic Controls				Y	Y	Y
Building Controls			Y	Y	Y	Y
BuildingType × Year FE		Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
Cell FE	Y	Y	Y	Y	Y	Y
Mean(Dep.var)	2.865	2.872	2.872	2.872	2.872	2.872
# Counties	35	34	34	34	34	34
# Observations	895	875	875	875	875	875
Adjusted R^2	0.547	0.607	0.608	0.609	0.609	
Pseudo R^2						0.580

Note. The dependent variable in all specifications is the level of damage on the 1(intact or slight damage)–5(full collapse) scale. *HometownTie* is an indicator variable that the county has a connected official (either the party secretary or the governor) via hometown connection when the building was constructed. Individual controls include an indicator for any female, an indicator for any minority, average age, average education, and average term of the party secretary and the governor. Geographic controls include PGA, terrain ruggedness, and the second-order polynomials of longitude and latitude. Building controls include the building's size, number of floors, and a set of indicators for missing values in each of the variables. BuildingType includes a set of indicators of schools, hospitals, government headquarters, firms, and other public facilities. Standard errors are clustered by county. *CellFE* is a set of dummies for each 1×1 arcminute (approximately 1.6 kilometers) cell based on the building's latitude and longitude. Significance: * 10%; ** 5%; *** 1%.

Table A12: Hometown connections and building damage: Hometown fixed effects

	Dependent Variable: Damage Scale (1–5)					
	OLS					Ordered Probit
	(1)	(2)	(3)	(4)	(5)	(6)
HometownTie	0.2271***	0.1638**	0.1540**	0.1614*	0.1998**	0.4698***
	(0.0703)	(0.0753)	(0.0739)	(0.0814)	(0.0825)	(0.1624)
Individual Controls					Y	Y
Geographic Controls				Y	Y	Y
Building Controls			Y	Y	Y	Y
BuildingType × Year FE		Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
HomeCity FE	Y	Y	Y	Y	Y	Y
Mean(Dep.var)	2.862	2.866	2.866	2.866	2.866	2.866
# Counties	35	35	35	35	35	35
# Observations	1047	1033	1033	1033	1033	1033
Adjusted R^2	0.356	0.437	0.440	0.449	0.455	
Pseudo R^2						0.353

Note. The dependent variable in all specifications is the level of damage on the 1(intact or slight damage)–5(full collapse) scale. *HometownTie* is an indicator variable that the county has a connected official (either the party secretary or the governor) via hometown connection when the building was constructed. Individual controls include an indicator for any female, an indicator for any minority, average age, average education, and average term of the party secretary and the governor. Geographic controls include PGA, terrain ruggedness, and the second-order polynomials of longitude and latitude. Building controls include the building's size, number of floors, and a set of indicators for missing values in each of the variables. BuildingType includes a set of indicators of schools, hospitals, government headquarters, firms, and other public facilities. Standard errors are clustered by county. *HomeCityFE* is a set of dummies for each specific city of origin. Significance: * 10%; ** 5%; *** 1%.

Table A13: Hometown connections and building damage: Prefecture-year fixed effects

	Dependent Variable: Damage Scale (1–5)					
	OLS					Ordered Probit
	(1)	(2)	(3)	(4)	(5)	(6)
HometownTie	0.564***	0.537***	0.560***	0.525***	0.526**	1.239***
	(0.147)	(0.164)	(0.175)	(0.190)	(0.209)	(0.434)
Individual Controls					Y	Y
Geographic Controls				Y	Y	Y
Building Controls			Y	Y	Y	Y
BuildingType × Year FE		Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
Prefecture × Year FE	Y	Y	Y	Y	Y	Y
Wild cluster p-value	0.024	0.022	0.029	0.044	0.056	
Mean(Dep.var)	2.863	2.868	2.868	2.868	2.868	2.868
# Counties	35	34	34	34	34	34
# Observations	1025	1013	1013	1013	1013	1013
Adjusted R^2	0.378	0.457	0.458	0.470	0.472	
Pseudo R^2						0.403

Note. The dependent variable in all specifications is the level of damage on the 1(intact or slight damage)–5(full collapse) scale. *HometownTie* is an indicator variable that the county has a connected official (either the party secretary or the governor) via hometown connection when the building was constructed. Individual controls include an indicator for any female, an indicator for any minority, average age, average education, and average term of the party secretary and the governor. Geographic controls include PGA, terrain ruggedness, and the second-order polynomials of longitude and latitude. Building controls include the building's size, number of floors, and a set of indicators for missing values in each of the variables. BuildingType includes a set of indicators of schools, hospitals, government headquarters, firms, and other public facilities. Standard errors are clustered by county. Significance: * 10%; ** 5%; *** 1%.

Table A14: Hometown connections and building damage: Two-stage diff-in-diff

	Dependent Variable: Damage Scale (1–5)				
	(1)	(2)	(3)	(4)	(5)
HometownTie	0.332**	0.352***	0.341***	0.376***	0.334***
	(0.140)	(0.099)	(0.099)	(0.103)	(0.122)
Individual Controls					Y
Geographic Controls				Y	Y
Building Controls			Y	Y	Y
BuildingType × Year FE		Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y
Mean(Dep.var)	2.835	2.835	2.835	2.835	2.835
# Observations	1050	1050	1050	1050	1050

Note. The dependent variable in all specifications is the level of damage on the 1(intact or slight damage)–5(full collapse) scale. *HometownTie* is an indicator variable that the county has a connected official (either the party secretary or the governor) via hometown connection when the building was constructed. The estimation follows the two-stage difference-in-differences approach described in Gardner (2021). Individual controls include an indicator for any female, an indicator for any minority, average age, average education, and average term of the party secretary and the governor. Geographic controls include PGA, terrain ruggedness, and the second-order polynomials of longitude and latitude. Building controls include the building's size, number of floors, and a set of indicators for missing values in each of the variables. BuildingType includes a set of indicators of schools, hospitals, government headquarters, firms, and other public facilities. Standard errors are clustered by county. Significance: * 10%; ** 5%; *** 1%.

Table A15: Hometown connections and building damage: Placebo connections

	Dependent Variable: Damage Scale (1–5)						
	OLS						Ordered Probit
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
HometownTie (w/ non-supervisor)	-0.3655**	-0.1572	-0.0436	-0.0510	-0.0571	-0.0039	-0.0236
	(0.1459)	(0.1247)	(0.0965)	(0.0971)	(0.1007)	(0.1119)	(0.2131)
Individual Controls						Y	Y
Geographic Controls					Y	Y	Y
Building Controls				Y	Y	Y	Y
BuildingType × Year FE			Y	Y	Y	Y	Y
County FE		Y	Y	Y	Y	Y	Y
Year FE		Y	Y	Y	Y	Y	Y
Mean(Dep.var)	2.861	2.862	2.866	2.866	2.866	2.866	2.866
# Counties	37	35	35	35	35	35	35
# Observations	1050	1047	1033	1033	1033	1033	1033
Adjusted R^2	0.019	0.331	0.407	0.409	0.416	0.427	
Pseudo R^2							0.315

Note. The dependent variable in all specifications is the level of damage on the 1(intact or slight damage)–5(full collapse) scale. $HometownTie(non-supervisor)$ is an indicator variable that the county has an official connected with a prefectural-level official in an adjacent prefecture when the building was constructed. Individual controls include an indicator for any female, an indicator for any minority, average age, average education, and average term of the party secretary and the governor. Geographic controls include PGA, terrain ruggedness, and the second-order polynomials of longitude and latitude. Building controls include the building's size, number of floors, and a set of indicators for missing values in each of the variables. BuildingType includes a set of indicators of schools, hospitals, government headquarters, firms, and other public facilities. Standard errors are clustered by county. Significance: * 10%; ** 5%; *** 1%.

Table A16: Hometown connections and building damage: Resistance requirements

	Dependent Variable: $\mathbb{1}\{Collapse\}$						
	OLS						Probit
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
HometownTie × Weaker	0.1816*	0.0852	0.0761	0.0767	0.0990	0.0699	0.9256
	(0.0956)	(0.0933)	(0.0991)	(0.0987)	(0.0989)	(0.0866)	(0.7404)
HometownTie × Equivalent	0.2489*	0.2499***	0.2491***	0.2508***	0.2565***	0.2310***	1.4670***
	(0.1267)	(0.0876)	(0.0778)	(0.0770)	(0.0710)	(0.0662)	(0.3427)
HometownTie × Stronger	0.2301	0.0338	0.0157	0.0069	0.0036	-0.0157	0.3760
	(0.1526)	(0.0945)	(0.1255)	(0.1213)	(0.1291)	(0.1297)	(0.8434)
Equivalent	0.0401	0.0619	0.0538	0.0546	0.0561	0.0705	0.6999
	(0.0601)	(0.0593)	(0.0629)	(0.0625)	(0.0546)	(0.0575)	(0.4753)
Stronger	0.1176**	0.1795**	0.1549**	0.1589**	0.1585**	0.1764**	1.6907***
	(0.0547)	(0.0669)	(0.0726)	(0.0691)	(0.0755)	(0.0849)	(0.5381)
Individual Controls						Y	Y
Geographic Controls					Y	Y	Y
Building Controls				Y	Y	Y	Y
BuildingType × Year FE			Y	Y	Y	Y	Y
County FE		Y	Y	Y	Y	Y	Y
Year FE		Y	Y	Y	Y	Y	Y
Mean(Dep.var)	0.183	0.182	0.184	0.184	0.184	0.184	0.320
# Counties	37	35	35	35	35	35	20
# Observations	1050	1047	1033	1033	1033	1033	566
Adjusted R^2	0.058	0.298	0.364	0.365	0.368	0.375	
Pseudo R^2							0.404

Note. The dependent variable in all specifications is the level of damage on the 1(intact or slight damage)–5(full collapse) scale. *HometownTie* is an indicator variable that the county has a connected official (either the party secretary or the governor) via hometown connection when the building was constructed. *Weaker*, *Equivalent*, and *Strong* are three indicators of whether the observed seismic ground motion parameter (PGA) at the building's location is weather than, equivalent to or stronger than the required resistance (intensities under which the building should not collapse) in the building codes. Individual controls include an indicator for any female, an indicator for any minority, average age, average education, and average term of the party secretary and the governor. Geographic controls include PGA, terrain ruggedness, and the second-order polynomials of longitude and latitude. Building controls include the building's size, number of floors, and a set of indicators for missing values in each of the variables. BuildingType includes a set of indicators of schools, hospitals, government headquarters, firms, and other public facilities. Column (7) drops observations of which the outcome variable can be perfectly predicted by the set of fixed effects. Standard errors are clustered by county. Significance: * 10%; ** 5%; *** 1%.

Table A17: Hometown connections and other economic and political outcomes

	Dependent Variables: Growth rate in:						
	GDP	Population	Expense:				Transfer
			Construction	Education	Health	Administration	Payments
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
HometownTie	1.4887	-0.0017	-0.1954	0.0028	1.2233	0.2036***	0.1676***
	(3.1149)	(0.0096)	(0.7271)	(0.0170)	(1.0964)	(0.0745)	(0.0414)
Individual Controls	Y	Y	Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y
Mean(Dep.var)	15.510	0.021	1.434	0.205	3.436	0.501	0.275
# Counties	64	64	64	64	47	64	64
# Observations	731	733	632	586	94	685	733
Adjusted R^2	0.067	-0.034	0.026	0.542	0.571	0.517	0.457

Note. The sample is a county-year panel of all damaged counties between 1994–2007. The dependent variables are the economic and political outcomes in the county. *HometownTie* is an indicator variable that the county has a connected official (either the party secretary or the governor) via hometown connection when the building was constructed. Individual controls include an indicator for any female, an indicator for any minority, average age, average education, and average term of the party secretary and the governor. Standard errors are clustered by county. Significance: * 10%; ** 5%; *** 1%.

B China's Building Codes

Given the significant earthquake hazard in China, the Chinese government promulgated its first national building codes in 1974, which were amended subsequently in 1978, 1989, 2001, and most recently in 2010 (Li et al., 2012). The 1974 Code did not work well because it did not impose sufficient safety requirements. The requirements were significantly upgraded in the 1978 Code in response to the 1976 Tangshan earthquake, which killed over 200,000 people.

The goal of the building codes is to ensure that buildings should "[have] no damage under minor earthquakes, [be] repairable under moderate earthquakes, and [suffer] no collapse under severe earthquakes". According to the official explanation, "minor" standards for earthquakes with a 63 % probability of exceedance in 50 years (or a yearly probability of 2%);[34] "moderate" standards for earthquakes with a 10 % probability of exceedance in 50 years (0.2% yearly); "severe" standards for earthquakes with a 2–3 % probability of exceedance in 50 years (0.1% yearly) (National Codes of P.R.C., 1989).

The specifications vary across the country, depending on the estimated earthquake hazards. Most of the regions in Sichuan Province are in the high-intensity zones in which buildings compliant with the codes should sustain (no collapse) at a local seismic intensity scale of VIII or IX according to the China Seismic Intensity Scale (Gao and Shi, 1992). [35] This is equivalent to sustaining an earthquake of magnitude 6.5 at its epicenter. Public buildings such as schools and hospitals are required to survive even stronger earthquakes than this baseline requirement (National Codes of P.R.C., 2004).

[34]The probability of exceedance is formally defined as the probability that a certain value will be exceeded in a predefined future time period. Thus, "minor" earhquakes refer to those expected to occur whith a probability of less than 63% in a 50-year period.

[35]Intensities according to the Chinese Seismic Intensity Scale (CSIS) may not be equivalent to the Modified Mercalli Intensity (MMI) measures used by the USGS. A CSIS intensity of VIII or IX is approximately equivalent to a MMI intensity of VII or VIII in terms of the underlying seismic ground motion parameters (National Codes of P.R.C., 2008).

C Additional Data Description

C.1 Building Level Data Construction

As explained in the paper, the building level dataset is constructed by combining two lists of buildings from the archives. In this section, I provide additional information on the nature of the data source and the procedure of sample construction.

Data on Building Damage The data on building damage is obtained from the local *Earthquake Relief Reports* (*Kangzhen Jiuzai Zhi*), which are issued by each county through the local Gazetteer Office (*Difangzhi Bangongshi*). These reports are similarly formatted, although not entirely consistent in terms of the data they present. Counties in Sichuan Province issued these on an occasional basis, and I have used those that are publicly available. As of 2019, 31 counties and three prefectures had published their *Earthquake Relief Reports* — from which I extracted a list of buildings located in 37 counties. A prefectural *Earthquake Relief Report* covers materials from all of the counties it governs, which allows me to observe some additional counties that have yet to publish their own *Earthquake Relief Report*.

The books are generally comprised of three parts: the damage, the rescue efforts, and the reconstruction projects during and following the 2008 quake. The damage sections contain detailed descriptions and statistics of the damage caused by the earthquake; it is also common for the report to mention the damage to individual buildings. In most cases, the materials are compiled and presented by sectors and by towns. As a result, buildings recognizable within a town-sector's scope are most likely to be recorded. Representative types include schools, hospitals, government headquarters, some other public organizations (e.g., libraries, news outlets, postal offices, nursing homes), and a few prominent local firms (mainly state-owned). Residential or commercial buildings are rarely covered in the records.

The national standard categorizes building earthquake damage into five grades: "intact," "slight," "moderate," "severe," and "collapsed" (National Codes of P.R.C., 2002). Most of the buildings that I observe are referred to according to these grades. There are, however, buildings that have been described according to parallel standards (e.g., National Codes of P.R.C. (2008), which use four grades to rank building safety) or in verbal terms. The damage of these buildings was manually coded through a careful reading of the descriptions in accordance with the definitions of the standard grades. The work was conducted by a second person, who saw only the list of descriptions without knowing the details of the buildings that were being described (e.g., which county the building is located in, whether it had been linked to those in the other source). Confidence levels were assigned to each building based on the clarity of the description. I use the confidence levels to construct a subsample of buildings with high precision in damage reporting.

It is worth mentioning that the indexes that I employ for the analysis vary slightly from the standard recommendations in National Codes of P.R.C. (2002). First, I group "intact" and "slight damage" into one single category because there are literally no "intact" buildings that entered the sample. Second, I split the standard "collapsed" into two categories to differentiate fully collapsed buildings (especially the notoriously shoddy ones such as those described in Section 2) whenever the descriptions are sufficiently detailed to make a distinction. These modifications allow me to exploit better the type of variation in this context in which the seismic intensities are extraordinarily strong and the average buildings are "severely" affected. The results are robust to using an alternative index system that strictly follows the recommendation in the national standard (i.e., grouping all collapsed buildings into one single category), as shown in Table A7.

Data on Building Construction Records The data on building construction records are obtained from the general *County Gazetteers* (*Xian Zhi*), which are published by each county's Gazetteer Office on an occasional basis, every few decades. Most counties in Sichuan Province have published two rounds of *County Gazetteers* since 1949. The first round was published generally between 1985 and 1989, covering materials that start from 1949 (and, in some cases, from 1911) until the publication year; the second round renewed the coverage until the 2003–2007 period. Because these gazetteers were published before the 2008 earthquake, it is unlikely for the observed construction projects to be selected by their future level of damage.

The *County Gazetteers* are book-length volumes of local history that document the county's major events. They are often regarded as a county's "encyclopedia." The materials in these books are generally compiled and presented by town and by sector, and the prominent construction projects completed within the town-sector scope are often highlighted in the gazetteers. The building types likely to be recorded in these gazetteers are similar to those described in the *Earthquake Relief Reports*.

This feature makes it feasible to identify a set of buildings that have been jointly mentioned in the two sources.

One potential issue with this data source is that, although some buildings report the date of their groundbreaking, others may report the date of their completion, and there is only a very small set of buildings for which both dates are reported. This inaccuracy could lead to serious measurement errors (which would bias the estimates toward zero) if the construction spans multiple years. Fortunately, China is famous for its speed in implementing public construction projects so that most of the building construction should be completed within one or two years[36] (which is verified with the small subset of buildings for which I observe both dates). In my analysis, I define a building's year of construction as the beginning of the construction project, which captures the period during which most planning, licensing, and inspection activities take place. For buildings that report only the date of completion, I take the previous year as their year of construction. My findings are robust to restricting the sample to buildings whose year of construction was reported with precision.

In addition to the year of construction, I also collect, whenever available, other building features, such as their size, number of stories, structure and material, as well as their funding source.

Data Precision I face several challenges in the data collection and construction process that may impact the precision of my data. First, construction years are reported occasionally as ranges (e.g., "between 2000 and 2003"). In these instances, I use the earliest stated year as the construction year. Second, the descriptions of building damage are occasionally vague, which could impact the precision of damage classification. Third, the geocoding process for a building's location exhibits varying degrees of precision. Finally, linking buildings from the two data sources involves some fuzzy matching based on names and locations, potentially introducing noise. These challenges might lead to measurement errors and an attenuation bias. Table A5 examines my findings in subsamples with more precise data and finds that the results are not only robust but also become more pronounced as the precision increases.

[36] This argument has been verified with the small subset of buildings for which I observe both dates, in which 50% of the buildings were completed within a year and another 30%, within two years.

C.2 Covariates

I construct some additional variables to account for other factors that might determine the damage to a building from the earthquake, including a set of building characteristics, geographical features, individual profiles of the officials, and county-wide socioeconomic conditions; these variables are explained in more detail below.

Building Features The first set of controls to consider are the characteristics of the buildings that may be relevant for their resistance. I collect these characteristics from the general *County Gazetteers* which also provide information about building construction history. The documents also mention, though inconsistently, some basic characteristics of the buildings, such as size, levels, and funding source. For such buildings, I observe these characteristics and include them in my analyses; for cases of unreported information, I create a set of indicators of the missing variables.

Geographic Features Another factor that plays a central role in determining earthquake damage is geography, in particular, local seismic intensity and terrain ruggedness. For seismic intensity, I use PGA — a standard parameter in seismology that measures local ground motion. The PGA is from *ShakeMap* (U.S. Geological Survey, 2017). The index for terrain ruggedness is constructed for each 30×30 arc-second grid cell using the elevation data from GTOPO30 (U.S. Geological Survey, 1996), following the procedure described in Nunn and Puga (2012). I geocode each building's location using Google Maps Geocoding API services to determine its local ground motion parameter and terrain ruggedness.

Individual Characteristics Whether county officials have hometown connections may be determined by information in their profiles that is relevant to local governance. Therefore, I also collect the individual profiles of these county officials from their online biographies, which indicate gender, year of birth, education, ethnicity, the first year in their current positions, and whether or not they have been prosecuted for corruption. Because there are two county officials of interest, I construct the following variables for a given county and year: an indicator that denotes gender, average age, average years of education, an indicator of belonging to an ethnic minority, and average number of years of tenure in their current positions. I also construct a set of indicators that denote missing values.

Economic and Demographic Conditions Some of the analyses consider economic and demographic factors that might constrain the financial resources available and, thus, affect building resistance. I focus on per capita GDP and population measures. I obtain these data from the *China County Statistical Yearbook*. For the building-level analysis, I include the per capita GDP and population of the county in the year in which the building was constructed.[37]

Seismic Resistance Requirements Several analyses in this study incorporate seismic resistance requirements as outlined in national building codes, as documented by National Codes of P.R.C. (2001), China Earthquake Administration (1990), and China Earthquake Administration (1977). I obtained the specific resistance standards for each building's location, applicable to its construction period, from `http://www.gb18306.net/`. The retrieved figures indicate the range of intensity levels at which a building is expected to be repairable. Following national guidelines, I adjust these baseline values to account for the elevated requirement for buildings designated for public functions and to specify the intensity levels at which a building should withstand collapse.

D Losing Connections

In Section 4.2, I have examined the dynamic effects before and after the establishment of hometown connections. In this section, I explore the consequences of losing connections by estimating the following event study specification:

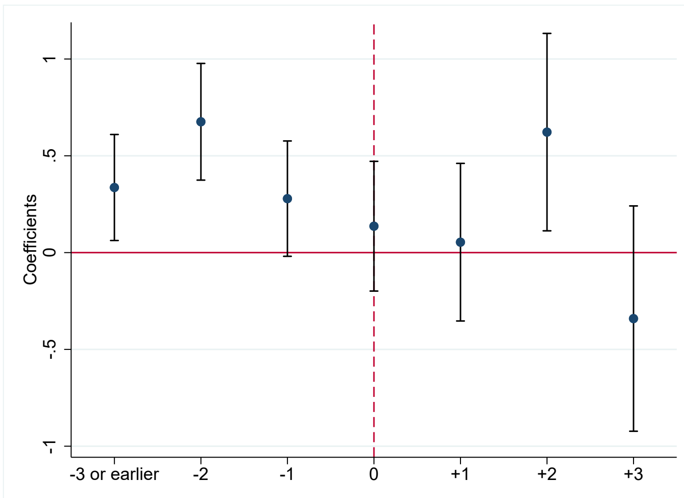
$$Damage_{ict} = \sum_{j=-3}^{3} \beta_j LoseTie_{cjt} + \delta_c + \sigma_t + \mathbf{X}'_{\mathbf{ict}}\mathbf{\Gamma} + \varepsilon_{ict} \tag{3}$$

where $LoseTie_{cjt}$ represent sets of dummy variables indicating the normalized year j relative to when a county c transitions out of a connected regime. The findings are illustrated in Figure D7, with the benchmark being buildings constructed over three years post-transition. Unlike the prominent impact of gaining connections, the effects

[37]Note that the economic and demographic constraints (which may affect building resistance) themselves might be an outcome of existing patronage ties, a matter often referred to as "bad controls" (Pearl, 2009). In view of this possibility, I do not include these conditions in my baseline specification in Section 4.2. Instead, I evaluate them as a robustness check in Table A10.

associated with losing connections are much noisier. Despite the overall downward trend, noticeable fluctuations are present, highlighting that the dynamics following the loss of connections are much more complex. These complexities could reflect the enduring influence of previously connected officials, whether due to their continued presence in power or a lasting distortion in the county's political environment that perpetuates corrupt practices.

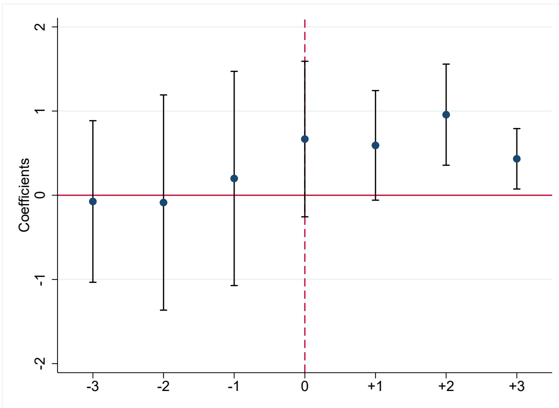
Figure D7: Effects of losing connections on building damage



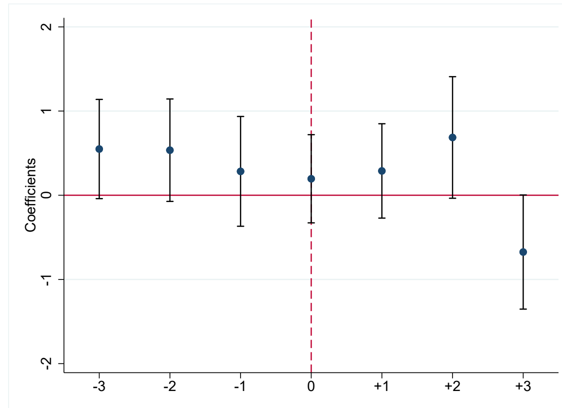
Note. The figures depict the effects of losing a connected official on building damage. The markers and capped spikes represent the OLS estimators and 95% confidence intervals. Construction year is normalized to the year when the county gains a connected official (year 0), with buildings constructed more than 3 years later as the comparison. The sample contains the subset of buildings for which the year of construction was reported with precision. The dependent variables are the level of damage on a 1–5 scale. The regression accounts for county fixed effects, year fixed effects, building type × year fixed effects, the sets of building characteristics (size, number of floors, and indicators of missing values), geographic characteristics (second polynomials of latitude and longitude, PGA, and terrain ruggedness), and official characteristics (any female, any ethnic minority, average age, average education, and average term of the party secretary and the governor). Standard errors are clustered by county.

To further dissect the intricate dynamics associated with the discontinuation of hometown connections, I apply the individual fixed effects approach introduced in Section 5.2 to the event study analysis of losing connections. The results are plotted in Figure D8, with Panel (a) showing the impact of senior official rotations (controlling for junior official fixed effects), and panel (b) the replacement of junior officials (controlling for senior official fixed effects). Intriguingly, Panel (a) reveals a decline in building quality when previously connected officials lose oversight from their patrons, indicating that the adverse effects of appointing a connected official might not only persist but could also worsen after the departure of the patron. A plausible explana-

Figure D8: Effects of gaining connections due to senior vs. junior rotations



(a) Senior rotation (w/ junior FEs)



(b) Junior rotation (w/ senior FEs)

Note. The figures depict the effects of losing a connected official due to rotations at the senior and junior levels. The markers and capped spikes represent the OLS estimators and 95% confidence intervals. The figure normalizes the years of construction to the year when the county loses a connected official (year 0), with buildings constructed more than 3 years later as the comparison. The sample contains the subset of buildings for which the year of construction was reported with precision. The dependent variables are the level of damage on a 1–5 scale. The regression accounts for county fixed effects, year fixed effects, building type × year fixed effects, the sets of building characteristics (size, number of floors, and indicators of missing values), geographic characteristics (second polynomials of latitude and longitude, PGA, and terrain ruggedness), and official characteristics (any female, any ethnic minority, average age, average education, and average term of the party secretary and the governor). Standard errors are clustered by county.

tion is a decrease in resources allocated to the county after losing such connections.[38] This pattern helps to explain the fluctuations seen in Figure D7 and the negative, albeit statistically insignificant, effects of connections seen in Columns (1) and (2) of Table 6, for which junior official fixed effects are included. Panel (b) reveals no noticeable improvement in building quality when senior officials replace a connected official with another individual. This implies that successors, even without direct hometown ties, might still be part of a patron-client network through other forms of connection. It suggests that senior officials who have previously selected individuals based on hometown ties might generally favor appointing their clients.

These findings highlight the enduring influence and intricate dynamics that prevail in the aftermath of connected regimes, emphasizing that their impact may not

[38]Consistent with this hypothesis, Column (7) of Table A17 shows that counties with connected officials receive significantly more transfer payments from higher government levels.

dissipate until the replacement of both the patron and their client. Therefore, to thoroughly address the detrimental impacts of hometown connections, it is vital to replace both the patron and their client, rather than merely one of the two.

E Alternative Interpretations

I explore a range of alternative interpretations for the observed effects, where the disparity in damage between buildings overseen by connected and unconnected officials might be unintended and not necessarily indicative of corruption.

The first alternative interpretation posits a quantity-quality tradeoff: connected county officials might have prioritized constructing a larger number of buildings over their quality to maximize construction within a fixed budget. However, this interpretation is not supported by the evidence presented in Section 3.2. Table A1 clearly shows that connected officials did not construct more buildings than their unconnected counterparts. Furthermore, as demonstrated in Table A2, the buildings overseen by connected officials were neither larger nor taller. This effectively refutes the hypothesis of a quantity-quality tradeoff in the construction projects managed by connected officials.

A second hypothesis states that connected county officials might have different policy priorities, focusing on other county needs such as growth or education, at the expense of building safety. This theory would imply a more significant effect among connected party secretaries, given their political authority in setting general policy agendas. However, this is not corroborated by the data. As indicated in Table 3, the effects are notably more substantial among connected governors. Additionally, Table A17 explores the impact of hometown connections on various indicators of economic and social development, including GDP growth rate, population growth, and public spending in areas like construction, education, public health, and administration. The findings reveal no significant association between connected officials and these development variables, except for administrative expenses, which are frequently a sign of higher-level corruption as noted by Cai et al. (2011). Consequently, the data does not support the notion that differing policy priorities of connected officials explain the observed disparities in building safety.

The third alternative I explore is the possibility that connected county officials had limited resources to construct quality buildings. This theory is, however, contradicted by the data. As demonstrated in Table A10, the findings remain consistent even after accounting for the county's economic conditions, indicating that the observed effects are not due to financial limitations. Furthermore, Column (7) of Table A17 indicates that connected officials actually received increased transfer payments from higher government levels, suggesting they had access to more, not fewer, resources. Consequently, the evidence does not support the interpretation that resource constraints led to the disparities in building quality.

The last possibility to consider is that connected officials might be less competent in managing building construction projects, rather than being inherently more corrupt. While this scenario is plausible, it alone fails to fully explain certain observations. Notably, it does not account for the reduced impact of connected officials' decisions on projects directly affecting their own safety and well-being (Figure 5 and Table 5). Moreover, this theory struggles to explain the higher rate of corruption convictions among connected officials following the earthquake, a pattern not observed among unconnected officials even in cases of building collapse (Figure 6). These discrepancies suggest that a mere lack of capability does not fully capture the dynamics at play.

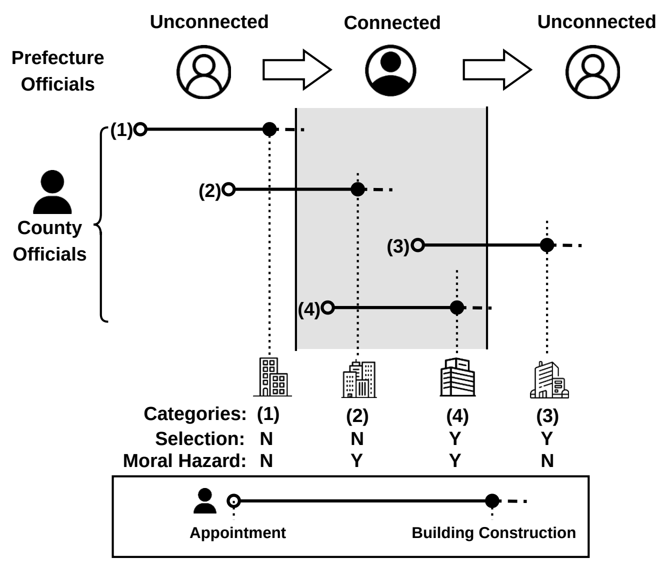
In conclusion, while various alternative interpretations for the damage disparities between connected and unconnected buildings exist, none withstand the scrutiny of the comprehensive empirical evidence presented. The elimination of these alternative interpretations further strengthens the likelihood that the observed disparities in building damage are indeed a consequence of corruption activities among connected officials.

F An Alternative Approach to Selection vs. Moral Hazard

In Section 5.2 of this paper, the distinction between political selection and moral hazard is separated by comparing two distinct specifications: one incorporating individual fixed effects for county officials, and the other for prefectural officials. The first specification rules out the selection effect by focusing on buildings overseen by the same county official. The second specification captures a combination of both selection and moral hazard effects. The findings from that analysis suggest that the selection effect predominates over the moral hazard effect.

In this section, I introduce an alternative approach to differentiate between the selection and moral hazard effects within the framework of a single specification. This method is based on the idea that the selection effect occurs only during the appointment of connected officials, while the moral hazard effect may persist as long as the connection remains. To isolate the selection effect, I focus on officials who were initially appointed by a connected supervisor (hereafter referred to as their patron) but subsequently managed by a non-patron. The moral hazard effect is isolated by examining officials initially appointed by non-patrons but later managed by a patron. In both scenarios, the variations are derived from the rotations of senior-level officials, though the comparisons are conducted between distinct groups of officials.

Figure F9: Illustration of the Method



Building on this concept, I categorize officials into four distinct groups, delineated by their status of connectedness at the time of their appointment and during the construction period:

1. Officials not connected at either the time of appointment or construction.

2. Officials not connected at the time of appointment, but connected during construction.

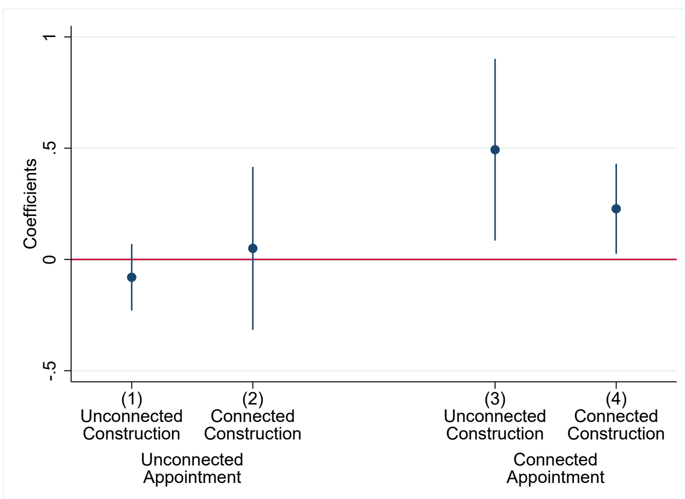
3. Officials connected at the time of appointment, but not during construction.

4. Officials connected at both the time of appointment and construction.

I construct a set of dummy variables to indicate if either of the two overseeing officials (the party secretary or the governor) associated with a building falls into any of these categories.

Figure F10 displays the estimated coefficients, along with their 95% confidence intervals, derived from a regression incorporating all covariates utilized in the baseline estimation. The comparison between columns (2) and (1) indicates the moral hazard effect. In both cases, the officials do not have connections at the time of appointment, which precludes the selection effect. Thus, the observed difference predominantly reflects the moral hazard effect arising when an official later becomes connected. We see a minor and statistically non-significant difference between the two coefficients, suggesting that the moral hazard effect is minimal.

Figure F10: Hometown connections when officials were appointed and when buildings were constructed



Notes: The figure depicts the estimated coefficients of building damage on indicators of either the party secretary or the governor belongs to one of the four categories, defined by whether the official had connections when they were appointed and when the building were constructed. The regression takes into account county fixed effects, year fixed effects, building type by year fixed effects, building features and geographic controls. The 95% confidence intervals are computed based on standard errors clustered by county.

The difference between columns (3) and (1) in Figure F10 is indicative of the selection effect. Both sets of officials are unconnected at the time of construction, but those in column (3) are appointed by a connected supervisor. This absence of ongoing protection from a patron means that the observed difference reflects poorer official selection at the time of appointment by patrons. The analysis reveals a worsened building damage when appointments are by patrons, even when the officials are no longer managed by patrons, which indicates a negative selection effect. This pattern is further confirmed by comparing the difference between columns (4) and (2), which demonstrates that, among officials having connections during the construction phase, those appointed by patrons are associated with worsened building damage compared to those appointed by non-patrons.

The difference between columns (4) and (3) in Figure F10 appears counterintuitive, as it implies that, among officials appointed by patrons, those who fall outside the management of their patrons are associated with higher building damage, in contrast to those who continue under the management of their patrons. Yet, this trend aligns with the results depicted in Panel (a) of Figure D8, which indicate an escalation in building damage when officials, previously connected, lose their connections due to senior official rotation. It also addresses the negative, albeit statistically insignificant, effects of connections seen in Columns (1) and (2) of Table 6, for which junior official fixed effects are included. A plausible interpretation of these observations is that these officials, while managed by their patrons, might have access to additional resources from their patrons, thereby partially offsetting the detrimental impacts of corruption on building quality. This explanation is consistent with the finding in Column (7) of Table A17, which shows that officials with connections tend to receive higher transfer payments from higher government levels.

Taken together, the estimates in Figure F10 reinforce the assertions made in Section 5.2, showing that the selection effect, rather than the moral hazard effect, accounts for the observed consequences of connection. These methodologies are considered complementary, as they are grounded in distinct sources of variation yet converge on the same conclusion.