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Culture and Bureaucratic Behavior: Evidence from China

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Keywords: Technology choice, Cobb-Douglas, aggregate production function, factor endowments, general equilibrium.

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Abstract

We study political corruption through a cultural lens. Drawing on Confucianism that flourished in Imperial China emphasizing virtuous leadership, we find lower corruption in modern governments led by mayors with greater ancestral exposure to such culture. For causal identification, we leverage (a) the irrelevance of Confucianism in leader selection and allocation and (b) the exogeneity in Confucian academy location choices. We provide support for the virtuous leadership mechanism and rule out alternative explanations, including changes in formal institutions, education inputs, or government revenue. We further show that the persistence of this effect stems from the intergenerational transmission of cultural norms.

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1 Introduction

Political corruption is ubiquitous across the world and especially rampant in some developing countries. The literature has proposed various determinants such as socio-economic conditions (Glaeser and Saks, 2006), institutions (Olken, 2007; Ferraz and Finan, 2011; Avis, Ferraz and Finan, 2018), and geography (Campante and Do, 2014). These factors, however, cannot fully explain why there are still variations in corruption even within cities that have the same socio-economic, institutional, and geographic factors.

In this paper, we explain political corruption through the lens of politicians' cultural backgrounds. The persistent impact of cultural norms on contemporary outcomes has widely acknowledged theoretical underpinnings(Bisin and Verdier, 2001; Tabellini, 2008; Giuliano and Nunn, 2021), but few empirical works have examined the impacts on political corruption. This is probably due to the difficulty in finding a specific culture related to political corruption and then accurately measure it. In addition, it is also challenging to separate culture from confounders such as institutions. The case of China, which has been long exposed to the Confucian culture that emphasizes politician integrity, provides a well-suited setting to explain corruption through the lens of culture. The unique institutional arrangement precluding politicians from assuming office in their hometowns further allows us to isolate the cultural channel.

We measure such culture using the number of Confucian academies built in politicians' hometowns historically. We then relate mayors' exposure to such culture in their hometowns to government corruption in their governing prefectures. We find that a one standard deviation increase in mayors' hometown Confucianism leads to a 0.1 standard deviation decrease in citizens' perceived corruption about the governments led by the mayors. Such results are robust to using alternative and objective measures of corruption. To isolate the cultural channel, we show that our findings hold for a sample of mover politicians, namely, those politicians who are assuming office in areas far from their hometowns. To establish causality, we utilize two facts. First, Confucian academies were more likely to be built near scenic mountains, a unique feature stemming from thousands of years ago. We confirm this locational preference using both historical accounts and empirical tests. Second, the selection and allocation of politicians is unrelated to Confucianism. This rule is a feature of the bureaucracy in modern China, which we also confirm using empirical tests. We next show that the findings are consistent with a "virtuous leadership" mechanism. That is, mayors exposed to Confucianism behave in a virtuous way in leading their governments, thereby reducing the corruption at the government level. We also rule out several alternative explanations. Finally, we borrow insights from cultural transmission models to show that this persistent impact is due to the vertically transmission of

Confucianism.

The paper is mainly related to a nascent literature explaining corruption through the lens of culture. Compared to this literature, we have three refinements. First, we are the first to focus on corruption at the entire government level, while the literature focuses on corruption at the individual level (Fisman and Miguel, 2007). Given the instrumental role played by local governments in affecting the economy (Xu, 2011), it is relevant to study the sources of corruption at this level. Second, we employ a more direct measure of culture. The literature measures a culture of integrity using subjective attitudes towards corruption, but it is unclear about the origins of such culture, rendering it difficult to conceptually establish causality as it may conflate other cultures or attitudes (Guiso, Sapienza and Zingales, 2015). In contrast, we examine the Confucian culture which stemmed from thousands of years ago and directly touched on corruption, and further exploit exogenous variation in such culture. Third, we exploit the forced movement of politicians to disentangle the cultural channel. As we show below, such movement is quasi-random and politicians typically assume office in areas far away from their hometowns. So we are able to better isolate the cultural channel. In the literature, the common way to isolate the cultural channel is to focus on a sample of immigrants, but such immigration could be endogenous (Alesina and Giuliano, 2015).

The paper is also related to a growing literature studying the impact of leaders on organization performance. This strand of literature mostly focuses on economic performance of the organization, while we delve into one important force behind economic performance, which is corruption. In addition, we make some advancement in identification by utilizing the exogenous variation in both leader appointment and leader traits. In this regard, we are similar to Ottinger and Voigtländer (2021), who exploits the exogenous appointment of European monarchs induced by heredity and exogenous variation in monarch ability induced by inbreeding to estimate the causal impact of leader ability on state performance.

Finally, the paper is broadly related to a growing literature exploring the persistent effect of history. While the evidence in this literature is compelling, the mechanism of persistence is often relatively less clear (Voth, 2021; Cirone and Pepinsky, 2022). In contrast, we make a further step by borrowing insights from cultural transimission models to unpack the mechanisms of persistence.

2 Institutional Background

2.1 Confucian Virtues and Functions on Corruption

Confucianism is a philosophical and ethical system originating from the profound insights of Confucius, a revered Chinese sage living from 551 BCE to 479 BCE. It encompasses a comprehensive framework for personal, social, and political behavior, emphasizing moral integrity, social harmony, and ethical governance (Yao, 2000). At its core, Confucianism seeks to cultivate individuals of virtuous character who contribute to a harmonious and well-ordered society, resonating with the interests of the ruling authorities of imperial China. Thus, Confucianism was consistently advocated as an orthodox ideology across multiple dynasties (Mote, 1999; Yao, 2000). In the last millennium, attaining a comprehensive understanding of Confucian classics emerged as an essential way for commoners to climb the social-economic ladder and secure entry into the esteemed bureaucracy (Ho, 1962).

The potential of Confucianism to maintain a well-functioning bureaucratic system, and in particular, to discipline leader behaviors and mitigate corruption, is grounded in its ethical principles and its emphasis on virtuous leadership (Dawson et al., 1915; Yao, 2000; Schwartz, 2009; Bell, 2010). Confucianism highlights moral virtues such as benevolence, righteousness, and integrity. Leaders who internalize and uphold these values are thus less likely to engage in corrupt practices that contradict their ethical principles. Further, Confucianism directly advocates the concept of rulership by virture, in which leaders are expected to embody the values they advocate. When leaders exemplify ethical behavior, they could further inspire others, in particular, their subordinate officials, to follow suit and create an atmosphere where corrupt practices are shunned in favor of virtuous conduct.

In Figure xxx, we present two quotes from *The Analects*, a central text in Confucianism documenting Confucius' sayings, to substantiate these philosophies and ethical principles, among others. The first quote says:

> Govern with virtue, like the North Star, which remains in its place while all the other stars revolve around it (*The Analects*).

This statement uses a metaphor to illustrate the concept of virtuous leadership. Just as the North Star remains fixed in its position while other stars revolve around it, a leader should maintain their moral integrity and ethical principles while guiding and influencing the actions of their subordinates. The second quote says:

> When a leaders personal conduct is correct, their government is effective without the issuing of orders. If their personal conduct is not correct, they may issue orders, which, however, may not be followed (*The Analects*).

This statement underscores the crucial role of a leader's personal conduct in shaping the effectiveness and harmony of their government, arguing that a leader's virtuous and ethical behavior could serve as an example for others to follow.

In summary, the emphasis on virtuous leadership, moral integrity, and ethical conduct inherent in Confucianism can contribute significantly to creating an environment less conducive to corrupt practices in political spheres. While Confucianism ceases to affect political selection in modern China, it may still wield significant influence on contemporary leaders through the persistence of cultural impacts (Giuliano and Nunn, 2021; Voth, 2021). We thus expect that contemporary leaders' expsoure to Confucianism to have a negative impact on government corruption.

2.2 The Diffusion of Confucianism

The diffusion of Confucianism was not plain sailing (Yao, 2000). While Confucius was a seminal figure, the circumstances of his era, including political instability, competition from other philosophies, and a lack of state patronage, meant that his ideas were neither widely disseminated nor adopted during his time. Confucianism became the official state ideology and was incorporated into the civil service examination system in the Han Dynasty (206 BCE - 220 CE), thus establishing a deep-rooted association between Confucianism and governance. After a few tumultuous dynasties, Confucianism, however, lost its supermacy in the Tang Dynasty (618-917) due to the rise of other philosophies such as Buddhism. After all, the Tang Dynasty is noted for its cosmopolitan culture, openness to foreign influences, and the flourishing of Buddhism.

The state-sponsored promotion and development of Confucianism would then await the subsequent Song Dynasty (960-1279). In this era, a prominent philosopher named Zhu Xi (1130-1200), among others, played a pivotal role in the reinvigoration, systematization, and dissemination of Confucianism. By introducing metaphysical concepts from Buddhism and Taoism into Confucianism without compromising Confucianism's core ideas, Zhu Xi endowed the philosophy with a depth that allowed it to compete with Buddhist and Taoist philosophies, which were also influential at the time (Chang, 1958).[1] His lasting contributions also included editing and commenting on the Confucian classics, namely, the "Four Books" (*The Analects*, *The Mencius*, *The Doctrine of the Mean*, and *The Great Learning*). His interpretations became the orthodox

[1]From an identification perspective, this may raise the concern that we may conflate the impact of Confucianism with that of other philosophies. We argue that this concern is minimal due to the following reasons. First, the primary goal of incorporating these concepts from Buddhism and Taoism was to oppose them (Yao, 2000); second, concetually, these concepts have little relevance to curbing corruption; third, our results remain virtually unchanged when we include controls for Buddhism and Taoism.

reading of these texts and were made the basis of the civil service exams in China for several centuries.

Confucian academies (or *Shuyuan* in Chinese), which rose with the rejuvenation of Confucianism, played a pivotal role in disseminating Confucian ideals and ethos and shaping the ethical fabric of society from the Song Dynasty onwards (Lee, 1999; Xiao, 2012; Glomb, Lee and Gehlmann, 2020). While the term *Shuyuan* could be traced back to the Tang Dynasty, these academies at that time primarily severed as places to store official texts or for private learning, and they were not yet true educational institutions (Ji, 1996; Wang, 1998). From the Song Dynasty onwards, these academies were often founded and led by esteemed Confucian scholars and acted as centers of learning where Confucian classics were studied, discussed, and interpreted.[2] By imparting moral and ethical teachings, Confucian academies influenced generations of leaders and citizens, reinforcing the values that underpin a virtuous society. Zhu Xi himself was also deeply involved in these educational endeavors. He served as a teacher and administrator at several Confucian academies, such as the White Deer Grotto Academy, one of the most renowned Confucian academies. These academies continued to grow and flourish until the demise of the Qing Dynasty in the early 20th century. After that, these academies phased out due to both the advent of modern, Western-style educational institutions and a series of cultural movements, such as the May Fourth Movement and the Cultural Revolution.

In summary, Confucian academies, which emerged and flourished from the Song Dynasty onwards, were instrumental in the dissemination of Confucianism. We thus use them to measure Confucianism in our subsequent analysis. We provide more details about the distribution of these academies in our description of data and our discussion of the instrumental variable strategy.

2.3 State Bureaucracy in Modern China

Confucianism, despite its dominant role in Imperial China, lost its relevance in the state bureaucracy in modern China. Soon after the establishment of the People's Republic of China, the Chinese Communist Party broke with China's past, both institutionally and culturally. The state bureaucracy and Confucian traditions in Imperial China were destroyed. A cadre of party personnel recruited based on merit and indoctrinated by party ideology, as opposed to Confucian training, is established (Manion, 1985). In this cadre management system, what matters for a cadre's appointment and promotion is mainly their competency in developing the economy, as well as their

[2]The majority of funding for these academies came from private sources, primarily Confucian scholars, though some academies did receive encouragement and financial support from the government (Wang, 1998). That said, the distinction between private and government funding was not always clear-cut, given that many Confucian scholars often held official positions.

loyalty to the regime. As explained by Deng Xiaoping in the Central Economic Work Conference in 1980: "We must, under the socialist path, rejuvenate our cadre team, making it younger, more knowledgeable, and more professional ... we should gradually establish and refine a comprehensive cadre system ... when proposing these criteria the primary emphasis is, of course, to be revolutionary [i.e., to adhere to the party line]."[3] In 1983, as a response to Deng's speech, the Organization Department of the Party Central Committee formally established four criteria pertaining to cadre recruitment and promotion: revolutionary stand, youth, education, and specialization (Zhou, 1995). The importance of these criteria in dictating a cadre's political career has been verified by a large literature, though the role of political loyalty is subject to debates (Bo, 1996; Maskin, Qian and Xu, 2000; Li and Zhou, 2005; Shih, Adolph and Liu, 2012; Jia, Kudamatsu and Seim, 2015).

The well-functioning of the cadre management system relies on various control mechanisms put forward by the Communist Party. Regular interregional rotation, whereby cadres are rotated to assume office in different localities, is one feature that could align incentives beteen local cadres and their superiors (Huang, 2002).[4] If a local cadre knows ex ante that they would be regularly rotated to different localities, then their incentives to adhere to directives of their superiors would be strengthened, as these is little gain from overly pursuing their own interests in places where they would soon leave. Chen Yun, a member of the Politburo Standing Committee and initiated the rotation system, explained in 1982: "Rotation is beneficial. It's not good for a cadre to work in one place for a long time, which may foster factionalism. Cadres at the county level and above should be rotated" (Chen, 2005). It is noteworthy that the destinations of these rotations are often determined in a quasi-random fasion, which is unknown to local cadres ex ante, as it depends on various complicated factors beyond an individual's control, such as the availability of appropriate positions (Jiang and Mei, 2020). Another mechanism is that leading cadres are prohibited from assuming offices in their hometowns.[5] This is a long-lasting arrangement originating from Imperial China (Zhou, 2016), and is mainly used to curb nepotism and localism. In our analysis, about 93% mayors assume office outside their hometowns. The rest are a few exceptions mainly consisting of appointments in the ethinic minority areas, where it is difficult for outsiders to understand local customs and traditions, and we will exclude them for robustness.[6] This feature allows us to separate culture from confounding factors.

[3] See http://cpc.people.com.cn/BIG5/64162/64170/4467144.html

[4] We abstract from another type of rotation, which is the movement across different sectors (Zhou et al., 2018; Jia and Xu, 2018), which has a simiar function but is less relevant for our identification.

[5] See http://www.gongwei.org.cn/n1/2018/1204/c422547-30441886.html for restrictions on mayors' serving areas.

[6] See http://www.npc.gov.cn/npc/c2189/200508/0e20c8275fe744b8b67177c636aa2ca8.shtml for a discussion on the minority areas.

In summary, the irrrelevance of Confucianism in China's modern bureaucratic system, combined with frequent cadre rotation and hometown office avoidance, are important institutional features underpinning our empirical strategy. We leave more discussion in our subsequent analysis.

3 Data and Empirical Strategy

Our sample include all 337 cities in China: 333 prefecture-level cities and 4 direct-controlled municipalities.[7] We focus on cities rather than provinces or counties to achieve as much variation as possbile and also avoid the impact of confounding factors from hometowns.[8]

3.1 Measuring Government Corruption

Our key measure of government corruption is citizens' perceived corruption about the government using a nationally representative survey. We use two waves of the China Family Panel Studies (CFPS) in 2014 and 2016. The survey asks: *"In general, how serious do you think the government corruption is?"* The answer ranges from 0 to 10. This could be seen as an all-encompassing measure of government corruption. The major concern with perceived corruption is that it may deviate from true corruption, as citizens have different characteristics that may lead to such bias (Olken, 2009). Such deviation will *not* affect the consistency of our estimates as long as it is uncorrelated with mayors' Confucianism. Given the quasi-random allocation of mayors across prefectures, we expect this condition to be plausibly satisfied. We also include a number of important citizen characteristics to account for such deviation in all specifications. We take several further steps to alleviate the remaining concern. First, in addition to the baseline citizen characteristics, we present results with citizen fixed effects to control for unobserved time-invariant citizen traits, although this shrinks the number of observations considerably. Second, we present results in which we flexibly control for age effect to rule out concerns that citizens' political attitudes may correlate with age (Krosnick and Alwin, 1989; Martinez-Bravo et al., 2022). Third, we further include a rich set of time-varying characteristics that may affect citizens' perceived corruption, such as employment status and income, although these variables may themselves be

[7] The 4 direct-controlled municipalities are: Beijing, Shanghai, Tianjin, and Chongqing, which are on the same administrative level as provinces. Our results are virtually unchanged if we drop these four cities.

[8] At the province level, the variations are largely reduced as the number of provinces is 27. At the county level, the movement of local leaders are mostly within cities, which means it is hard to separate culture from confounding factors from hometowns due to the geographic proximity between local leaders' hometowns and governing counties.

affected by mayors' exposure to Confucianism. Fourth, we drop some citizens exhibiting concerns about the survey as observed by the interviewers. Finally, we adopt alternative measures of government corruption in the Online Appendix Section F, although these measures only capture certain aspects of corruption.[9] As we show below, the results are highly robust across these specifications, suggesting that our main findings are not an artifact of potential discrepancy between perceived corruption and true corruption.

3.2 Measuring Confucianism in Historical China

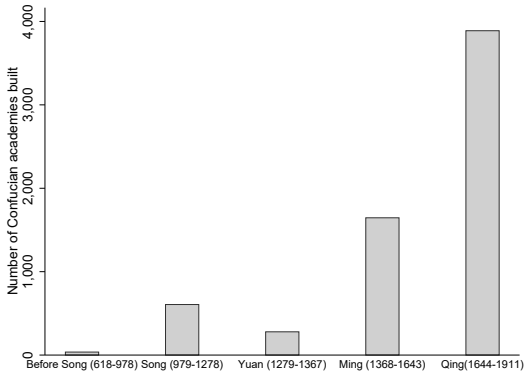
Our key measure of Confucianism is the number of Confucian academies built historically in each city. Such academies were built by local governors or scholars to serve as a key way to spread Confucian philosophies. We digitized such data from a book called "a dictionary on Confucian academies" in China, and there were over 7,000 such academies in total (they were abandoned in modern China since 1912). Appendix Figure A1 shows the picture and description of a typical academy recorded in the book. From the description, we know the name, location, year of establishment, founder, and the size.[10] We also show the distribution of the academies across dynasties and centuries in panels (a)-(b) of Figure 1, and we focus on those built since the Song Dynasty, when these academies started to grow. But our results are robust to using all academies or those built in the most recent two dynasties. We also show distribution of the academies across space in panels (c)-(d) of Figure 1. It seems that the variation comes mainly from the core areas of China (or the so-called China Proper). We focus on all the prefectures and check robustness to using only prefectures in the core areas. Finally, we show that our academy measure indeed correlates strongly with another measure of Confucianism, which is the number of historical *Jinshi* degree holders. These were those who performed well in civil service exams held in Imperial China, which mainly tested the grasp of Confucianism (Chen, Kung and Ma, 2020).

[9] While some literature employs corruption convictions as a measure of corruption (Glaeser and Saks, 2006), we refrain from using this measure as in our context these convictions are politicized for power consolidation purposes (Yuen, 2014; Jiang and Xu, 2015; Zhu and Zhang, 2017). Additionally, this measure does not align with our objective of examining corruption at the entire local government level, as only data on the convictions of key officials are available.

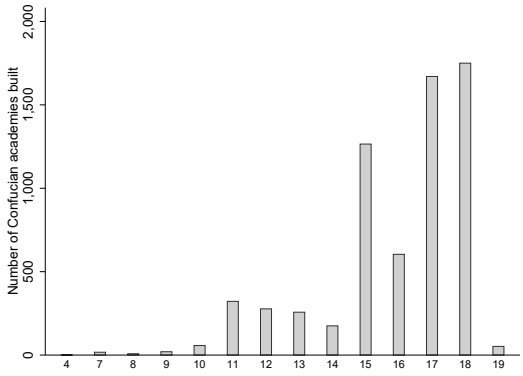
[10] The size could be one important source of variation, but currently we havent exploited it.

Figure 1: Distribution of historical Confucian Academies

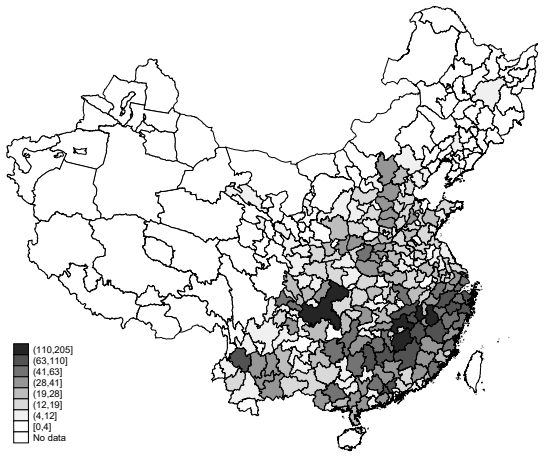
(a) Across dynasties



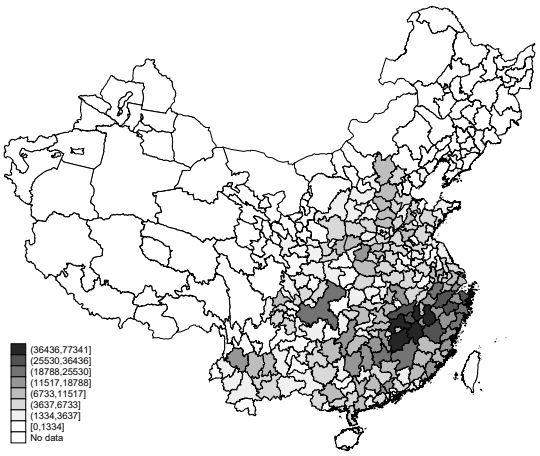
(b) Across centuries



(c) Across cities sing *Song*



(d) Across cities sing *Song* (# years weighted)



3.3 Other Data

3.4 Baseline Specification

For our baseline regression, we pool two waves of the CFPS surveys in 2014 and 2016 and estimate the effects of mayors' hometown exposure to Confucianism on government corruption using the following specification:

$$Y_{ict} = \beta HometownConfucianism_{ct} + \delta_c + \lambda_t + \mathbf{X}'\mathbf{B} + \varepsilon_{ict} \quad (1)$$

where Y_{ict} denotes citizen i's perception of government corruption in prefecture c at year t and $HometownConfucianism_{ct}$ denotes the number of Confucian academies built historically in the hometown prefecture of the mayor who is governing prefecture c at year t. To facilitate the interpretation of coefficients, we standardize both variables

to have a mean of zero and a standard deviation of one. $\mathbf{X}$ denotes a vector of covariates at the citizen, mayor, and mayor's hometown prefecture level.[11] The coefficient of interest is β, which is expected to be negative, implying lower government corruption in prefectures where the mayors have greater hometown exposure to Confucianism.

To alleviate concerns about bad controls, we only include relatively exogenous or preexisting covariates that may correlate with $HometownConfucianism_{ct}$, and check robustness to richer covariates, although some of them may be outcomes of Confucianism. Specifically, at the citizen level, we control for age, gender, and education; at the mayor level, we control for age, gender, education, and tenure;[12] at the mayor's hometown prefecture level, we control for agricultural suitability, prefecture area, distance to the Grand Canal, distance to coastlines, distance to rivers, and terrain ruggedness.[13] Note that we account for the sizes of hometown prefectures by controlling for their areas. Ideally, one may want to control for the population prior to the Song dynasty when Confucian academies started to grow, but such data is unavailable. We show robustness to the inclusion of historical population after the Song dynasty, although such data is only available for China Proper.

To tighten identification, we include prefecture fixed effects δ_c, which controls for time-invariant factors in the mayor's governing prefecture that may affect government corruption, such as institutions, cultures, and geography. To the extent that time-varying confounders in the mayor's governing prefecture would be relatively stable over two years, they would also be largely accounted for by δ_c.[14] λ_t denotes year fixed effects, which could control for shocks common to all years, such as national shocks (e.g., the anti-corruption campaign from 2013) or differences across survey waves. Hence, we are only exploiting the variation in mayors' cultural backgrounds within the same governing prefecture net of national trends for identification.

We adjust the standard errors for clustering at the hometown prefecture level, as this is the level at which our treatment varies (Abadie et al., 2017). We also show robustness to alternative inference procedures, including: (1) clustering at the hometown province level or two-way clustering at both the hometown prefecture (province) and governing prefecture (province) level (Cameron, Gelbach and Miller, 2011); (2) parametrically accounting for spatial correlation (Conley, 1999); (3) randomization infer-

[11] One may argue that Confucianism may spatially diffuse to other neighboring prefectures, which would bias our estimates. However, as we show in Table 5, such spatial diffusion is negligible.

[12] While education may seem to be a "bad control", we purposely include this to control for the education channel. After all, our measures of Confucianism are obviously highly correlated with historical education, which may persist until today. Our results are robust to excluding this variable. We also conduct a formal analysis to rule out the education channel in subsequent analysis.

[13] We do not include these same set of covariates at the mayor's governing prefecture level, as they are time-invariant and would thus be absorbed by δ_c.

[14] We also show that our results are robust to the inclusion of a vector of time-varying covariates at mayors' governing city level.

ence (Young, 2019). We find very similar results from these exercises.

3.5 Identifying Assumptions

In equation (1), the identifying assumption in order to reach a causal interpretation of the effect of mayors' hometown exposure to Confucianism on government corruption is that, conditional on prefecture fixed effects and a vector of covariates including mayor characteristics, a mayor's hometown exposure to Confucianism should be orthogonal to residual determinants of government corruption.[15] We will assess the plausibility of this identifying assumption below, relying on two unique features in our setting: (1) the irrelvance of Confucianism in mayor selection and allocation; (2) the exogenous locational choice of Confucian academies.

3.5.1 The Irrelevance of Confucianism in Mayor Selection and Allocation

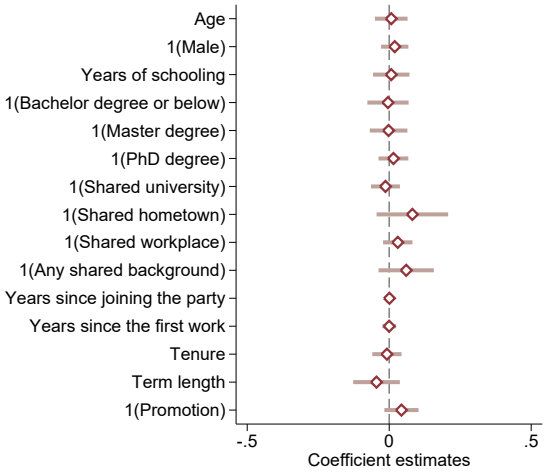
One may worry that Confucianism could be correlated with mayor characteristics, which further affect government corruption. This concern, however, should be minimal due to the fact that political selection in modern China is largely dictated by a politician's competency and loyalty, instead of their hometown exposure to Confucianism. As we discussed in the institutional background, this feature is established institutionally and also verified by a large literature. We also conduct a balance test to empirically examine whether Confucianism is correlated with mayor characteristics. In addition to the baseline mayor characteristics used in equation (1), we further include in this balance test some additional variables: number of years since joining the party, number of years since working, a dummy indicating shared previous workplace with provincial leaders, a dummy indicating shared university with provincial leaders, a dummy indicating shared hometown with provincial leaders, and a dummy indicating any shared background with provincial leaders.[16] Figure 2 presents the estimates. The estimates suggest that mayors' hometown exposure to Confucianism is not significantly correlated with a wide range of mayor characteristics, including competency as proxied by various measures of education attainment and loyalty as proxied by various forms of connections to upper-level leaders. Our empirical results are also robust to controlling for all these mayor characteristics.

[15] As we show below, that is crucial for our identification is *only* prefecture fixed effects.

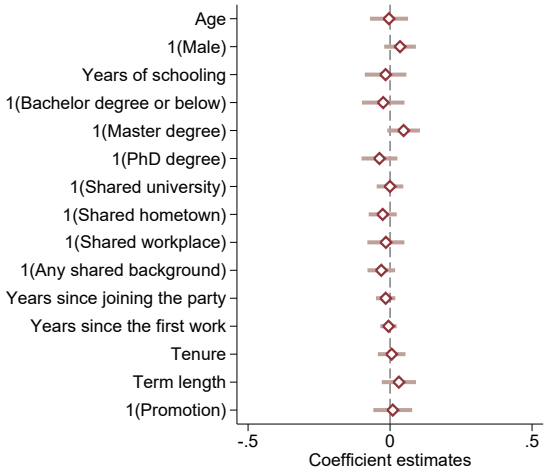
[16] We do not include these extended mayor controls to maxmize our observations, but our results are always robust to including them.

Figure 2: Exogeneity of Mayor Selection to Confucianism

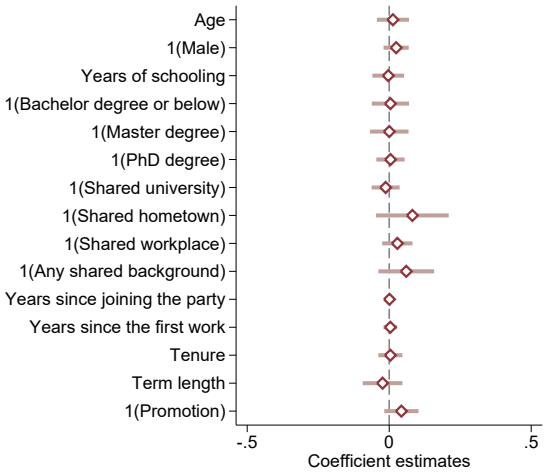
(a) No FE & no control



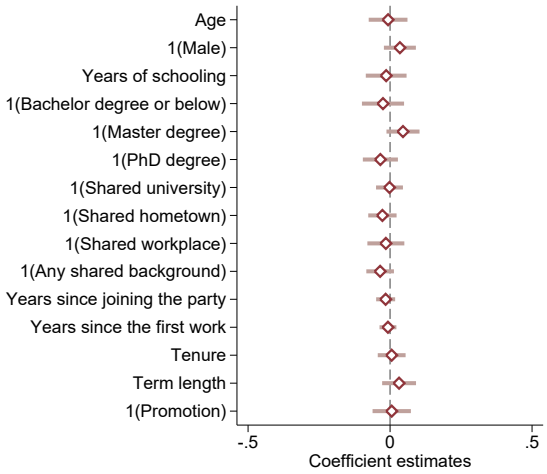
(b) Prefecture FE & no control



(c) No FE & hometown area



(d) Prefecture FE & hometown area



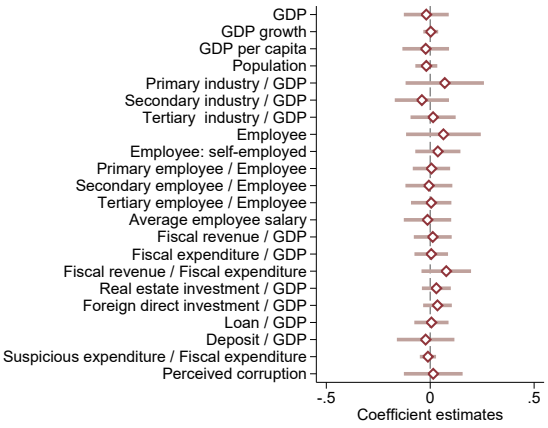
In addition, while Confucianism is uncorrelated with mayors' own characteristics, it may still correlate with local characteristics of mayors' governing prefectures that possibly affect corruption. For example, mayors originating from developed areas are often rotated to govern underdeveloped areas to trickle down growth there, and Confucianism may also correlate with economic development. Our analytical choice by including prefecture fixed effects could eliminate this type of time-invariant factor that possibly correlate with mayors' cultural background. The remaining threats come from time-varying characteristics. Several institutional features suggest that mayors' hometown exposure to Confucianism should also be uncorrelated with these characteristics. First, the irrelevance of Confucianism in modern state bureaucracy in China, as we discussed above, suggests that this possibility should be minimal. Second, the governing prefecture of a mayor, according to the hometown office avoidance system, is in theory different from their hometown. If, as is common in democracies, mayors

mostly assume local office, then even though Confucianism is irrelevant, it may still influence government corruption through its potential impact on local economic development or institutions. Third, a mayor has to be frequently rotated across multiple localities before serving in their current governing prefectures. Such rotation is often determined in a quasi-random fashion, as it depends on a number of complicated factors such as the availability of positions in the destination (Xu, 2011; Jia and Xu, 2018; Jiang and Mei, 2020; Shi et al., 2021). This feature further increases the exogeneity of mayor allocation to their Confucian backgrounds. In summary, these facts, namely, the irrelevant role of Confucianism in China's modern bureaucracy, the hometown avoidance system, and the frequent and quasi-random rotation of officials, suggest that a mayor's hometown exposure to Confucianism should be orthogonal to characteristics of their current governing prefecture.

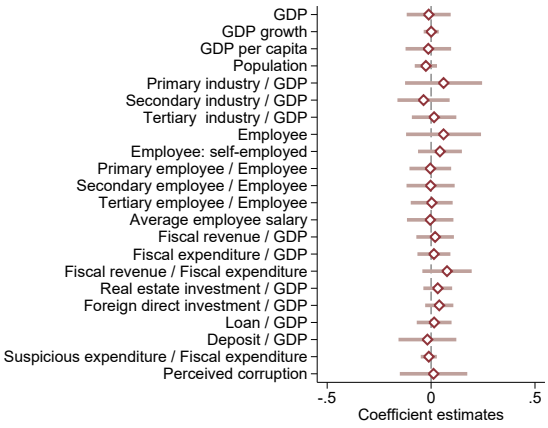
Figure 3: Exogeneity of Mayor Allocation to Confucianism

Effect on mayor's Confucianism in year t+1

(a) Prefecture FE & no control

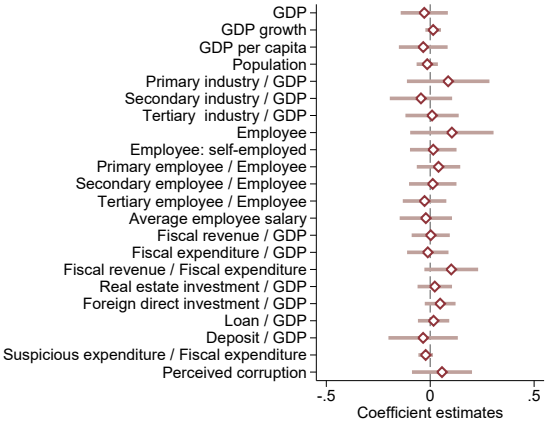


(b) Prefecture FE & hometown area



Effect on mayor's Confucianism in year t+2

(c) Prefecture FE & no control



(d) Prefecture FE & hometown area

To formally bolster the previous argument, we empirically examine whether current prefectural characteristics, including government corruption, could predict future mayors' hometown exposure to Confucianism. Figure 3 presents the results from this exercise. The estimates suggest that, conditional on prefecture fixed effects, prefectural characteristics in year t are not correlated with the Confucianism of the mayor in year $t+1$ (panels a-b), nor that of the mayor in year $t+2$ (panels c-d).[17] In particular, we find little correlation between current government corruption, as measured by either perceived corruption by citizens or suspicious expenditures found in audits, and future mayors' exposure to Confucianism. In Appendix Figure A3, we further collapse the data at the prefecture $\times$ mayor level, and show that current prefectural charac-

[17] We do not examine time-invariant characteristics such as geography, as any such differences could be accounted for by prefecture fixed effects.

teristics are not correlated with the Confucianism of the immediate successor. These results suggest that mayor allocation across cities are exogenous to their hometown exposure to Confucianism.

3.5.2 The Exogenous Locational Choice of Confucian Academies

While we have demonstrated that the selection and allocation of a mayor is exogenous to their hometown exposure to Confucianism, one may still worry that Confucianism in a mayor's hometown prefecture may also be correlated with other hometown characteristics, which further affect government corruption in the mayor's governing prefecture. We alrealy include a number of important characteristics at the hometown prefecture level. Additionally, as a vast majority of mayors are assuming office in prefectures different from their hometown prefectures, there is little reason to expect other hometown characteristics, except for cultural factors that could move along with mayors, could affect government corruption at different prefectures that they are currently governing.[18] We also show below that our results are robust to explicitly controlling for a number of other cultural factors, such as Buddhism, Taoism, and Western religions. To further tighten identification, we build on historical narratives that Confucian academies were usually located close to scenic mountains to construct a novel instrumental variable, which is the exposure of each prefecture to such mountains. This strategy could not only further isolate Confucianism from confounding factors at the hometown prefecture level, but also address an additional concern of measurement errors in Confucianism (e.g., some Confucian academies may be omitted from the book we digitized). We demonstrate the validity of this instrumental variable in Section 4.3, and show that our results are highly robust to using this instrumental variable.

4 Virtuous Leader and Government Corruption: Results

4.1 OLS Estimates

4.1.1 Baseline

In Table 1, we present OLS estimates of the effect of mayors' exposure to Confucianism in their hometown prefectures on citizens' perceived government corruption in prefectures that these mayors are governing. In column (1), we only include prefecture and year fixed effects. The coefficient estimate on $HometownConfucianism_{ct}$ is negative and statistically significant, consistent with the persistent impact of the

[18] See Fernández (2011) for a formal discussion of this method of focusing on 'movers' to isolate the impact of culture.

integrity-related norms embedded in Confucianism on contemporary corruption. In column (2), we control for citizens' age, gender, and education, which may bias their perception of political corruption. The coefficient estimate is almost identical. This high stability of coefficient estimate also implies that selection on unobserved citizen traits is very unlikely to explain our results. In fact, as we show in robustness tests, our results are still virtually unchanged if we further include a rich set of time-varying citizen characteristics. In column (3), we add mayors' age, gender, education, and tenure, which may be correlated with corruption. The coefficent estimate becomes slightly larger and more precise. In column (4), we add a vector of covariates at the mayor's hometown prefecture level: agricultural suitability, prefecture area, distance to the Grand Canal, distance to coastlines, distance to rivers, and terrain ruggedness. We find almost identical results. This is consistent with our argument that most confounding factors in mayors' hometown prefectures are unlikely to affect government corruption in their current governing cities, which are in general different from their hometown prefectures. In column (5), we further include citizen fixed effects. This could account for all time-invariant observed and unobserved heterogeneity across citizens that may bias their perception about government corruption, although we lose about one quarter observations. The coefficient slightly drops, but is still negative and statistically significant.

Table 1: Confucianism and government corruption: OLS estimates

Dep. var. =	(1)	(2)	(3)	(4)	(5)
	Perceived corruption (standardized)				
Hometown Confucianism (standardized)	-0.073**	-0.071**	-0.095***	-0.095***	-0.076**
	(0.028)	(0.029)	(0.022)	(0.024)	(0.036)
Prefecture FE	X	X	X	X	X
Year FE	X	X	X	X	X
Citizen controls		X	X	X	X
Mayor controls			X	X	X
Mayor hometown controls				X	X
Citizen FE					X
Observations	51,798	49,103	49,103	49,103	35,930
R-squared	0.054	0.079	0.081	0.082	0.644

Notes: this table shows that this table shows that this table shows that this table shows that this table shows that this table shows that this table shows that

To gauge the economic magnitude, note that the dependent and independent variables are standardized across all columns. Therefore, a one standard deviation increase in mayors' exposure to Confucianism in their hometown prefectures is associated with a 7.1%-9.5% standard deviation decrease in government corruption, as perceived by citizens, in the mayors' governing prefectures. To the extent that citizen attitudes evolve gradually over time, such a magnitude of attitude change over two

years is striking. To put such magnitude in perspective: Fisman and Miguel (2007) find in the US setting that diplomats from countries with corruption norms one standard deviation higher exhibit an 8.3% standard deviation increase in corruption; Avis, Ferraz and Finan (2018) find in the context of Brazil that mayors that experienced a randomized audit in the past exhibit a 10% standard deviation decrease in corruption. While different from our context and specification, these results nonetheless provide some reassurance that our estimates are of considerable economic significance.

4.1.2 Robustness

Having established the basic correlation between mayors' hometwon exposure to Confucianism and government corruption, we next conduct an extensive set of tests in the Online Appendix to check the robustness of such findings and also partially address some of the aforementioned identification concerns.

4.2 An Epidemiological Approach

Our next step is to confirm that the previous findings are indeed driven by Confucianism, instead of environmental confounders such as institutions and economic conditions at the hometown level. Building on a classic literature in cultural economics studying immigrants to isolate culture from environmental confounders (Fernández, 2011; Luttmer and Singhal, 2011; Alesina, Giuliano and Nunn, 2013; Giuliano and Nunn, 2021), or the so-called "epidemiological approach" (Fernández, 2011), we focus on a sample of mayors who are currently assuming office in prefectures different from their hometown prefectures. As we discussed previously, while in general mayors in China are precluded from assuming office in their hometowns, there are a few exceptions: in the ethnic minority areas, mayors may assume office locally as they are more familiar with local traditions and customs. Hence, we exclude these few mayors here. The benefit of focusing on these movers is that one can thus better rule out environmental confounders at the hometown prefecture level, as they cannot move along with mayors . Furthermore, in our setting, there is an additional benefit: unlike the literature that extensively focuses on immigrants, we focus on a sample of mayors whose movements are forced rather than endogenous, thus we are able to alleviate concerns about selective migration (Fernández, 2011).

Table 2: Confirming the cultural channel using movers sample

	(1)	(2)	(3)	(4)	(5)
Sample=	All movers		Dist.>100km	Dist.>250km	Dist.>500km
Dep. var.=	Perceived corruption (standardized)				
Hometown Confucianism (standardized)	-0.085***	-0.071***	-0.074***	-0.077*	-0.383*
	(0.025)	(0.027)	(0.025)	(0.042)	(0.213)
Prefecture FE	X	X	X	X	X
Year FE	X	X	X	X	X
Distance bin FE		X			
Citizen controls	X	X	X	X	X
Mayor controls	X	X	X	X	X
Mayor hometown controls	X	X	X	X	X
Observations	45,681	45,681	43,032	23,722	10,625
R-squared	0.083	0.085	0.085	0.087	0.097
p(diff. with baseline)	0.25	0.29	0.18	0.67	0.42

Before operationalizing this idea, we first calculate the distances between mayors' hometown prefectures and governing prefectures. There are about 7% mayors who are serving in their hometown prefectures, and we confirm that these prefectures are mainly in minority areas. Conditional on movement, the average distance of movement is 443 km, which is roughly three times the length of an average prefecture. So this is a relatively large distance that could largely isolate mayors' Confucianism from economic conditions and institutions in their hometown prefectures. We report the results in Table 2. In column (1), we include all movers. The estimate is similar to the baseline estimates in terms of both statistical significance and economic magnitude, suggesting that our baseline findings are unlikely confounded by factors other than culture. In column (2), we include 100 km distance bin fixed effects to control for any differential effects caused by the movement per se, and the results are robust. One threat to the validity of focusing on movers to rule out enviromental factors is that there could be correlated shocks that affect both the hometown prefectures and the governing prefectures. To alleviate this concern, in the remaining columns we focus on mayors who move a longer distance or are serving in other provinces. We find a larger effect, although the estimates are less precise due to smaller sample sizes. Note that in all specifications, we cannot reject that these coefficients are statistically different from the baseline estimate. These findings collectively suggest that environmental factors at the hometown level are unlikely to drive our findings.

4.3 An Instrumental Variable Approach

4.3.1 Historical Narratives on Confucian Academy Location

To further isolate the impact of Confucianism from potential confounders, especially those cultural factors that could move along with mayors, we employ an instrumental variable (IV) strategy. The strategy leverages exogenous variation in the locations of Confucian academies, which stems from the peculiar locational preference shaped during a turbulent time. Specifically, to escape the turmoil of the late Tang Dynasty and the Five Dynasties period, many scholars retreated to mountains and forests to seek solace. A significant portion of these scholars took the initiative to establish Confucian academies for teaching and mentoring (Ji, 1996). This phenomenon is well-documented in various historical accounts. Lü Zuqian, a renowned philosopher in the mid-Song period, observed that "at the nation's inception, people had just escaped the turmoil of the Five Dynasties ... Confucian scholars resorted to mountain retreats for teaching" (Lü, 1985). Similary, Zhu Xi noted that "Confucian scholars, lacking proper venues for study, often chose scenic locations to establish refined residences, using them as places for collective living and study" (Zhu, 1937). This peculiar locational preference is further elucidated by contemporary scholars. Wang (1998) documents that "in the late Tang Dynasty and the Five Dynasties period, scholars often retreated to mountains and forests to avoid chaos and study in seclusion. This later evolved into gathering books, teaching students, and lecturing, and such places for reading and teaching were often named 'Confucian academies'."

Despite the relative tranquility of the Song and subsequent dynasties, this unique locational preference—establishing Confucian academies proximate to scenic mountains—persisted. This is evident in local chronicles' description of several academies built subsequently, among others:

> Mount Wuyi ... is majestic and imposing ... [In 1183], Zhu Xi resigned from his position in Jiangdong ... He chose a location next to a large rock [in Mount Wuyi] to build a Confucian academy (*Chronicles of Jianning*).

> [In 1524] when Wangqi was governing Yunnan province, he climbed to overlook Mount Wuhua. The hills and peaks twisted and turned, the trees and forests were flourishing, and the beauty of Yunnan reached its utmost here. He then sighed and thought that this place was suitable for the construction of a Confucian academy (*General Chronicles of Yunnan*).

> [In 1544], Zhan Ruoshui ... visited Mount Heng. While passing by the Ziyun Peak, he was deeply impressed by the scenery and exclaimed: "This is the most beautiful place I have ever seen. If I cannot spend my old age

here, I would regret it." Thus, he decided to establish a Confucian academy and teach there (*General Chronicles of Hunan*).

[In 1823], Chen Zhaoxi, [magistrate of Tongren prefecture], was considering to relocate a Confucian academy. Local scholars thought: "the academy is the talent-nurturing center of the prefecture so it must be located in the most scenic part of the prefecture's landscape." Chen thus found a location where "the Zhengren Peak stands in front and the three terraces shine to the right" ..., and "purchased the land at a full price and relocated the academy there" (*Chronicles of Tongren*).

While the above are merely illustrative examples, this distinctive locational preference is pervasive. In Ji (1996)'s summary of historical Confucian academies, there is an explict comment on this: "The selection and construction of the environment [of the Confucian academies] are particularly prominent. Most often, they choose scenic mountains." Hence, we define our IV as the exposure of a prefecture to scenic mountains, and discuss details about this IV below.

4.3.2 IV Formation and Estimates

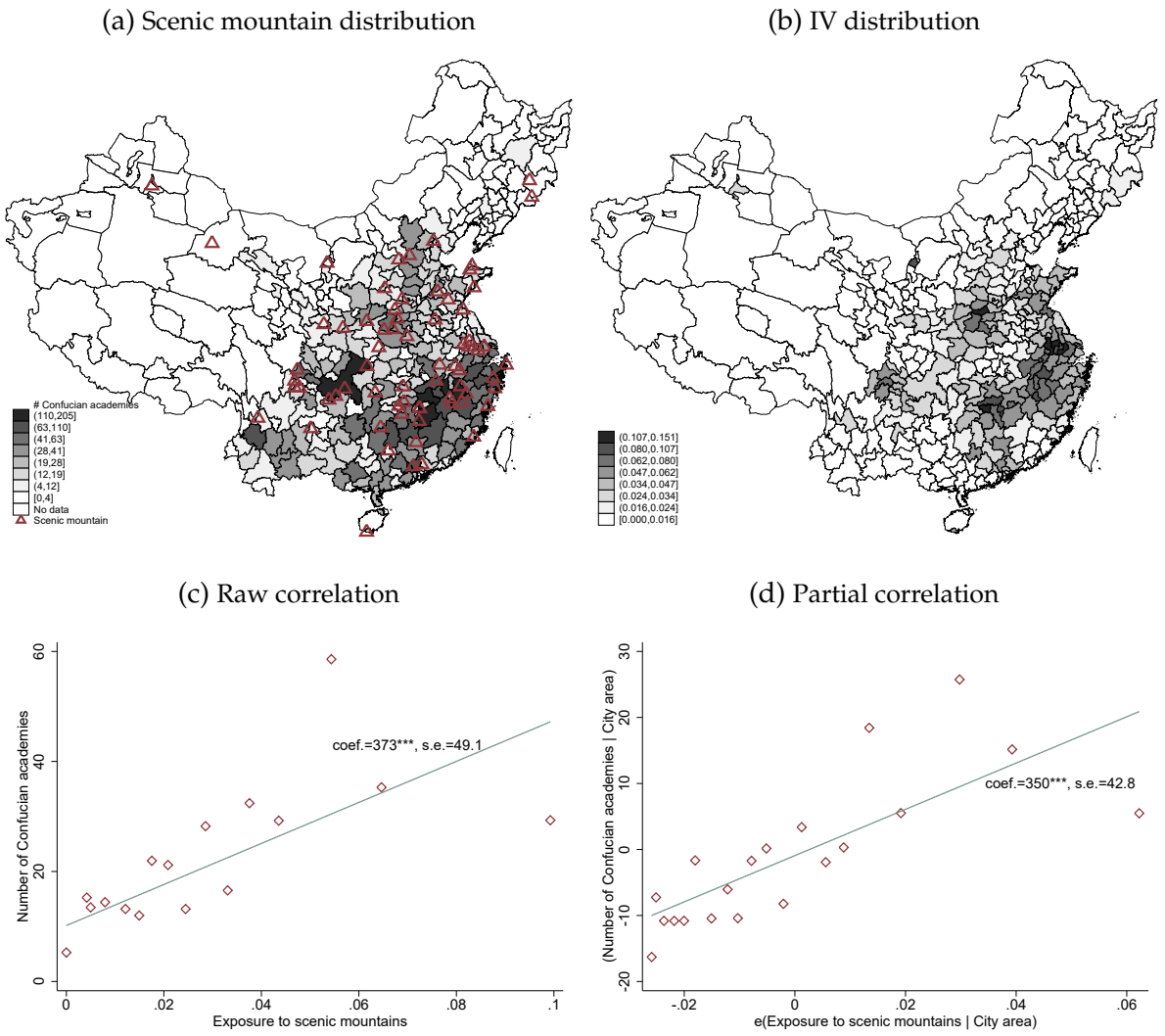
To operationalize the aforementioned IV idea, we need to first define scenic mountains. To this end, we use a list of tourist spots published by the Ministry of Culture and Tourism of China, which classifies the scenery into 5 rankings. We define scenic mountains as those mountains with the highest ranking. We plot both the distribution of the scenic mountains and the Confucian academies in panel (a) of Figure 4. Clearly, in areas with more scenic mountains, the number of historical Confucian academies is also higher. We then formally define our IV. We use the number of scenic mountains within 250 km of a prefecture's centroid, weighted by the inverse distance from the mountain to the prefecture' centroid. Specifically, the exposure of a prefecture c to scenic mountains is defined by equation (2)

$$Exposure_c = \sum_m 1(Distance_{mc} <= 250 \text{ km}) \cdot \frac{1}{Distance_{mc}} \tag{2}$$

where m denotes a scenic mountain and $Distance_{mc}$ denotes the distance from prefecture c's centroid to mountain m's centroid. Note that the distance cutoff of 250 km is not arbitrarily chosen: it is approximately equal to the average distance from a prefecture' centroid to border plus the average distance within which a mountain is visible on earth. Because the earth is a globe, a mountain becomes invisible on earth exceeding certain distance. So mountains within the distance cutoff of 250 km will be generally visible from some location inside the average prefecture. In addition,

we choose a unified distance cutoff to alleviate concerns that prefecture borders may be endogenously formed or affected by proximity to such mountains. Nevertheless, our results are robust to alternative cutoffs as we show below. As can be seen from panel (b) of Figure 4, this IV is spatially correlated with the distribution of Confucian academies, which is consistent with our conjecture that these academies were more likely to be built in areas with greater exposure to scenic mountains.

Figure 4: Exposure to scenic mountains as IV



For exposure to scenic mountains to be a valid instrument, it should be both relevant and excludable. The relevance of this IV could be seen from the remaining panels of Figure 4, where we plot the number of Confucian academies in each prefecture against this IV. The scatter plots suggest that the IV is positively and significantly related to the number of Confucian academies. We further confirm the relevance of this IV through the *F*-statistic reported later on. The excludability of this IV requires that, conditional on the covariates and fixed effects, it should only affect our outcomes through its impact on Confucianism. However, without additional instruments, this

condition is essentially untestable. Thus, we rely on logic-based justifications for excludability. In general, we view this condition as being plausibly satisfied because mountains were formed exogenously. In addition, even if mountains could be correlated with some local conditions, as long as these local conditions are immovable, they should not be a threat to the excludability due to the separation of mayors' workplaces from their hometowns. We discuss several potential concerns that may invalidate the excludability and propose several remedies after presenting the main 2SLS estimates.

Table 3: Using exposure to scenic mountains as IV

	(1)	(2)	(3)	(4)
	2SLS	First stage	2SLS	First stage
Sample=	Full sample		Movers	
Dep. var.=	Perceived corruption (standardized)			
Hometown Confucianism (standardized)	-0.154**		-0.134**	
	(0.064)		(0.062)	
	[0.072]		[0.070]	
Exposure to scenic mountains (standardized)		0.243***		0.246***
		(0.038)		(0.038)
Prefecture FE	X	X	X	X
Year FE	X	X	X	X
Citizen controls	X	X	X	X
Mayor controls	X	X	X	X
Mayor hometown controls	X	X	X	X
Observations	49,103	49,103	45,681	45,681
First stage *F*-statistic		41.37		41.21

Table 3 reports the IV estimates. As shown in column (1), the 2SLS estimate (coef.=−0.154, s.e.=0.064) is slightly larger than the OLS estimate (coef.=−0.095, s.e.=0.024) shown in our baseline table. In column (3), we focus on a sample of movers and find similar results. Columns (2) and (4) show the first-stage estimates. Following the recommendation of Andrews, Stock and Sun (2019), we report the effective *F*-statistic to alleviate concerns about weak instrument (Olea and Pflueger, 2013). The effective *F*-statistics are around 41, which are much larger than the rule-of-thumb critical value of 10, suggesting that the instrument is not weak. We also follow Lee et al. (2022) to report the "0.05 tF standard error" in 2SLS estimates, which inflate the conventional standard errors to account for the strength of the instrument.[19] Our standard errors also change little as shown in the brackets of columns (1) and (3).

4.3.3 Specification and Validity Checks

We conduct several robustness checks in this section. First, we show that our IV estimates are not sensitive to how we compute each prefecture's exposure to scenic

[19]The 0.05 tF standard error is used to construct 95% confidence intervals.

mountains. Second, we address various concerns about the excludability of the IV.

Table 4: IV estimates: robustness

Dep. var.=	(1)	(2)	(3)	(4)	(5)	(6)
	Perceived corruption (standardized)					
	Panel A: specification checks					
Hometown Confucianism (standardized)	-0.262**	-0.197***	-0.206***	-0.184**	-0.106***	-0.091**
	(0.104)	(0.066)	(0.063)	(0.076)	(0.028)	(0.039)
Prefecture FE	X	X	X	X	X	X
Year FE	X	X	X	X	X	X
Individual controls	X	X	X	X	X	X
Leader controls	X	X	X	X	X	X
Leader birthplace controls	X	X	X	X	X	X
Distance weighted IV	X	X	X	X		
Distance bin IV					X	X
LASSO selected IV						X
IV cutoff	125 km	500 km	250 km	250 km	250 km	250 km
IV weight	$(\text{dist.})^{-1}$	$(\text{dist.})^{-1}$	$(\text{dist.})^{-2}$	$(\text{dist.})^{-3}$	-	-
Observations	49,103	49,103	49,103	49,103	45,360	49,103
First stage *F*-statistic	9.62	34.25	24.07	21.53	32.75	20.08
	Panel B: validity checks					
Hometown Confucianism (standardized)	-0.100***	-0.153**	-0.286***	-0.296***	-0.248***	-0.249***
	(0.027)	(0.062)	(0.065)	(0.080)	(0.071)	(0.073)
Prefecture FE	X	X	X	X	X	X
Year FE	X	X	X	X	X	X
Individual controls	X	X	X	X	X	X
Leader controls	X	X	X	X	X	X
Leader birthplace controls	X	X	X	X	X	X
Using mountains in other cities	X					
Tourism		X	X	X	X	X
Economic development			X	X	X	X
Elevation, longitude, and latitude				X	X	X
Taoist and Buddhist temples					X	X
Revolutionary base						X
Observations	45,360	46,931	46,931	46,931	46,931	46,931
First stage *F*-statistic	30.5	40.59	31.33	27.4	26.69	26.81

Alternative specifications In panel A of Table 4, we adopt several alternative formulas to construct the IV. Column (1) halves the distance cutoff and Column (2) doubles it. Columns (2) and (3) use the inverse of the quadratic distance and cubic distance as weights, respectively. Column (5) utilizes the count of scenic mountains situated within distance bins of 10 km each, extending up to a range of 250 km from a prefecture. Given that there are many such distance bins as instruments, Column (6) further adopts the Double LASSO method to select the most relevant instruments (Belloni, Chernozhukov and Hansen, 2014). The results are robust to such alternative specifications.

Endogeneity in mountain list While scenic mountains are exogenously formed, whether they appear on the list we use may be endogenous to local conditions. We

address this concern by only counting scenic mountains outside a prefecture when calculating that prefecture's exposure to scenic mountains. As shown in column (1) of Panel B of Table 4, the results are robust to using this IV.

Tourism and economic development One may argue that exposure to scenic mountains is likely to be correlated with tourism and further economic development. We address this concern by controlling for the intensity of tourism and economic development. We measure tourism as the average share of tourism income in a prefecture's GDP from 2005 to 2012.[20] We measure economic development at the hometown prefecture level, which is the average nighttime light intensity (Henderson, Storeygard and Weil, 2012) from 1990 to 2013. As shown in columns (2)-(3) of Panel B of Table 4, the results are robust to including these controls.

Geography Exposure to scenic mountains may also correlate with geographical factors that could influence a range of outcomes, such as linguistic diversity or economic development (Michalopoulos, 2012; Nunn and Puga, 2012). However, this is not a critical concern in our study. For linguistic diversity, while it is found to be affected by geographic variability (Michalopoulos, 2012), our results show no significant change for the China Proper sample, which is predominantly composed of the *Han* population. For economic development, Nunn and Puga (2012) relates it to terrain ruggedness, but this is through the impact of geography on slave trade, which is not applicable in China. Our baseline controls include terrain ruggedness and other geographic traits at the hometown prefecture level. Additionally, we also include elevation, longitude, and latitude in our analysis to address these concerns. As shown in column (4) of Panel B of Table 4, the results are robust to including these controls.

Buddhism and Taoism Exposure to scenic mountains may also capture the influence of Buddhism and Taoism, if Buddhist and Taoist temples were also more likely to be located near these mountains. To address this concern, we controls for the numbers of these two types of temples. As shown in column (5) of Panel B of Table 4, the results are robust to including these controls.

Communism At its early stage, the Communist party tended to establish a series of revolutionary bases in the mountainous areas. As such, exposure to scenic mountains may also capture the influence of Communism. To alleviate concern, we collect the list of revolutionary bases and include the number of such bases in each prefecture as a control in column (6) of Panel B of Table 4. The results remain unchanged.

Placebo test Finally, exposure to scenic mountains could also correlate with other unobservables. We conduct two falsification tests using similarly constructed IVs unrelated to the locational choice of the Confucian academies. The first instrument is exposure to ordinary mountains, which we define as those mountains with the low-

[20] We collect the data on tourism income from prefecture-level statistical yearbooks, which is only available from 2005 to 2012.

est ranking as classified by the Ministry of Culture and Tourism. Exposure to such mountains should capture the geographic component as also captured by our true instrument. The second instrument is exposure to scenic lakes, which we define as those lakes with the highest ranking as classified by the Ministry of Culture and Tourism. Exposure to such lakes should capture tourism or further economic development as reflected in our true instrument.[21] If the true instrument affects our outcomes through channels other than the locational choice of Confucian academies, such as through tourism, economic development, or geography, then we should expect these two placebo instruments to also have predictive power for our outcome. We test this conjecture by estimating the reduced form effect of the instruments on our outcome in Appendix Table A9. Column (1) reports the reduced form results using the true instrument, which is negative and statistically significant. In contrast, the results reported in columns (2) and (3), which use the two placebo instruments, are small and statistically significant. Given that these two placebo instruments share most features with our true instrument, we are thus confident that potential violations of the exclusion restriction is not a critical concern in our setting.

Imperfect Exogeneity To further quantitatively assess how sensitive our results are to potential violations of the exclusion restriction, we following the method developed by Conley, Hansen and Rossi (2012). The idea is to allow the instrument to directly enter the second-stage regression with a coefficient δ, which captures the degree of violations of the exclusion restriction. We then plot the confidence intervals of our 2SLS estimates against different values of δ in Appendix Figure A8. We find that the 2SLS estimates are statistically significant up to a substantial departure from the assumption of zero direct effect of the instrument. Specifically, the direct effect of exposure to scenic mountains on government corruption should be around -0.028 to make our results insignificant. Given that we have already accounted for alternative channels such as tourism, economic development, and geograhpy, this magnitude is very unlikely as it accounts for about 80% of the reduced form effect of the true instrument as reported in column (1) of Appendix Table A9. We could further more precisely infer the magnitude of δ in our setting by examining the reduced form effects of the two placebo instruments as reported in column (2) and (3) of Appendix Table A9: as these two placebo instruments are not related to the locational choice of Confucian academies, then their reduced form effects should provide rough bounds for δ, which are far larger than the critical value below which our 2SLS estimates become insignificant. Hence, we are able to find a negative impact of mayors' hometown exposure to Confucianism on government corruption even allowing for a substantial degree of violations of the exclusion restriction.

[21] Due the distributional differences of these mountains and lakes with scenic mountains, we choose different cutoffs when using equation (2), but these cutoffs are not critical to our results.

5 Mechanisms

After demonstrating the robustness of the baseline findings, in this section we explore the underlying mechanisms. We show that the findings are consistent with a "virtuous leadership" mechanism. Namely, mayors exposed to Confucianism behave in a virtuous way in leading their governments, thereby reducing the corruption at the government level. We also rule out several alternative explanations.

5.1 Virtuous Leadership as the Key Mechanism

As we are unable to observe mayors' daily behaviors, we test this mechanism by checking whether its impact is larger in areas where local constraints on government corruption are lower. In such areas, the effect of a virtuous leader should be more pronounced. We construct four measures of local constraints on government corruption. The first is the distance from a prefecture to the provincial capital, which captures the extent of monitoring exerted by higher-level governments. The second is a provincial institutional quality index developed by Fan, Wang and Zhu (2003)[22], which captures institutional constraints on government corruption. The third and fourth are citizen's tolerance of government appropriation and participation in local governance, respectively, which we construct using the 2010 Chinese General Social Survey (CGSS) survey. We first partial out citizen characteristics such as age, gender, and education from each answer, and then aggregate individual answers to the prefecture level weighted by sampling weights. As shown in Figure 5 and Appendix Table A15, we find that the impacts of mayors' exposure to Confucianism decrease almost monotonically with local constraints on government corruption.

5.2 Alternative Explanations

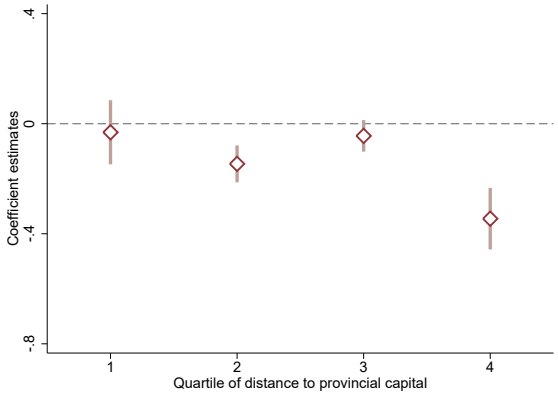
In this section, we rule out several alternative explanations. Mayors with greater exposure to Confucianism in their hometowns may increase education inputs, implement institutional changes, generate less government revenue, or place greater emphasis on citizen welfare. These actions could lead to a reduction in actual government corruption or in citizens' perception of government corruption. We adopt various methods to measure these actions, including a textual analysis of government work reports.[23] As shown in Appendix Table A10, A11, A12, and A13, the findings are robust to controlling for these actions.

[22]The index is available annually and I take the average of the index in the pre-reform period.

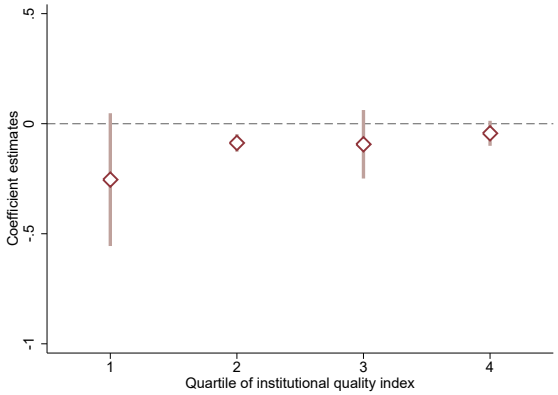
[23]Given the multiple-dimentional nature of government policies, we adopt unsupervised Latent Dirichlet Allocation (LDA) topic models to examine the key policies and their respective relative proportions in a report. We estimate a 50-topic model, where the number of topics is selected by the Perplexity and Coherence rule. The word clouds of these topics are shown in Appendix Figure A11.

Figure 5: Heterogeneity by local constraints on government corruption

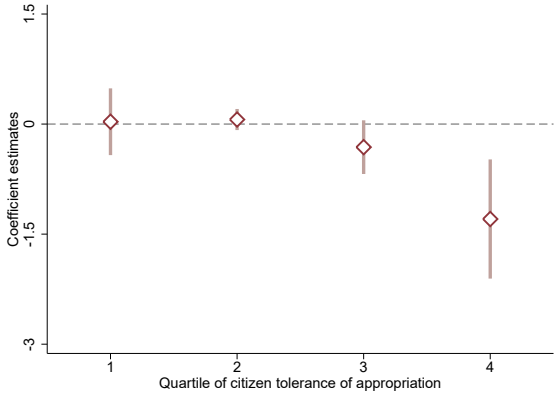
(a) By distance to provincial capital



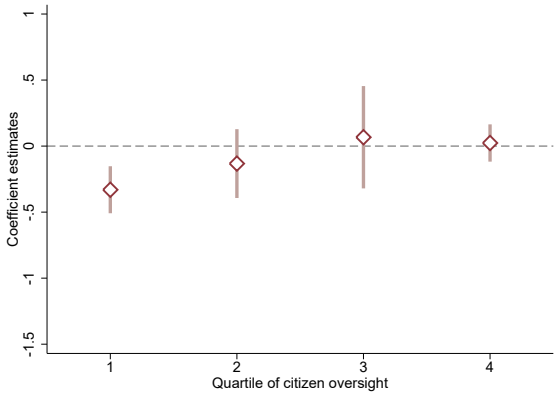
(b) By provincial institutional quality



(c) By citizen tolerance of govt. appropriation



(d) By citizen participation in local governance



6 Intergenerational Transmission of Cultural Norms

Having established a robust impact of Confucianism on government corruption, we now turn to the mechanisms of such persistence. According to cultural transmission models (Cavalli-Sforza and Feldman, 1981; Boyd and Richerson, 1988; Bisin and Verdier, 2001), culture could transmit both horizontally and vertically. Horizontal transmission means that mayors should be affected by people other than their parents. In contrast, vertical transmission means that mayors are affected by their parents' exposure to Confucianism. We test these mechanisms one by one.

6.1 Horizonal Transmission

We test the horizonal transmission mechanism by examining the impact of mayors' exposure to Confucianism in locations where they previously worked or attended u-

niversity. To this end, we collect detailed information on mayors' work and education history. We then calculate the average intensity of Confucianism in these respective locations. We present the results in Table 5. As shown in columns (1) and (2), the impact of Confucianism in the aforementioned locations is small and statisticaly insignificant. In column (3), we ran a horse race by including Confucianism in a mayor's hometown locations, previous work locations, and university locations. The impact of Confucianism in a mayor's hometown locations is negative and statistically significant, while the impacts of Confucianism in the latter two locations are small and statistically insignificant, and we could further reject the null hypothesis of equal impacts across these three types of locations. These results suggest that horizontal transmission is unlikely to explain the persist impact of Confucianism.

Table 5: Mechanism of persistence: horizontal transmission

Dep. var. =	(1)	(2)	(3)	(4)	(5)
	Perceived corruption (standardized)				
Hometown Confucianism (standardized)			-0.121***		-0.078**
			(0.041)		(0.033)
University Confucianism (standardized)	0.007		0.003		
	(0.013)		(0.018)		
Workplace Confucianism (standardized)		-0.012	-0.038		
		(0.018)	(0.031)		
Hometown Neighbor Confucianism (standardized)				-0.019	0.026
				(0.032)	(0.036)
Prefecture FE	X	X	X	X	X
Year FE	X	X	X	X	X
Citizen controls	X	X	X	X	X
Mayor controls	X	X	X	X	X
Mayor hometwon controls	X	X	X	X	X
Observations	35,367	40,238	31,776	49,103	49,103
R-squared	0.089	0.084	0.092	0.082	0.082
p(Hometown=University)			.002		
p(Hometown=Workplace)			.041		
p(Hometown=Neighbor)					.081

As another way to test the horizontal transmission mechanism, we examine the economic geography of cultural transmission. Specifically, if horizontal transmission works, then cultural traits should diffuse spatially to neighboring prefectures through population contacts or, indirectly, through trade and exchange of goods that embody cultural information (Migliaccio and Verdier, 2018; Bisin and Verdier, 2023). We use the average intensity of Confucianism among a prefecture's neighbors to define the strength of spatial difusion to that prefecture, where neighbors are defined as other prefectures sharing a common boundary segment with that prefecture. We report the results in columns (4)-(5) of Table 5, where we find little effect of spatial diffusion. Overall, the evidence so far suggests that horizontal transmission is negligible in our

setting. The insignificant impact of horizontal transmission is consistent with the relatively more important role of vertical transmission in spreading abstract cultural traits such as Confucian traits as found in the literature (Bisin and Verdier, 2011; Grosfeld and Zhuravskaya, 2015).

6.2 Vertical Transmission

We then move to the vertical transmission mechanism. Because we cannot identify mayors' ancestors, here we test such vertical transmission mechanism indirectly. Based on predictions from cultural transmission models, we test whether such transmission is moderated by the suitability for vertical transmission in their hometown prefectures, where such suitability is proxied by environmental volatility across generations and ancestor worship.

The logic behind environmental volatility is the following: if the environment is more stable across generations, then the cultural traits inherited from previous generations would likely be more optimal for the current generation, which should then be more likely to be preserved (Rogers, 1988; Giuliano and Nunn, 2021). Note that one issue with this strategy is that such environmental volatility could affect both vertical transmission and horizontal transmission. However, as we have already demonstrated a neglible impact of horizontal transmission, then we could be confident in identifying a vertical transmission mechanism if we find larger effects for mayors with hometowns in areas with less environmental volatility. To implement the idea, we follow Giuliano and Nunn (2021) to construct two measures of environmental volatility. Specifically, let $w_{g,j}$ denotes the average environmental measure (either temperature anomaly or drought severity) in location j, then environmental volatility in that location across generations is calculated as: $[\frac{1}{G}\sum_{g=1}^{G}(w_{g,j}-\bar{w}_j)]^{\frac{1}{2}}$, where G denotes the number of generations in the sample, and g denotes a generation, which covers 20 years. We obtain data on temperature anomaly from Giuliano and Nunn (2021), which is at the 5-degree-by-5-degree grid cell level from 500 to 1900. We match each prefecture to the nearest grid cell according to their centroids. The data on drought severity is from Chinese Academy of Meteorological Sciences (1981), which is at the station level from 1470 to 1979, and we match each prefecture to the nearest station according to their centroids.

The logic behind ancestor worship is the following: as vertical transmission is affected by parents' efforts invested in socializing their children to their own cultural traits (Bisin and Verdier, 2001), then in regions with greater ancestor worship, parents will exert more efforts as they would be reminded of and also feel obligated to transmit their cultural traits to their children; on the other hand, the role of parents in the socialization of their own children is also limited by the children's pro-active role in

choosing who to imitate and learn from (Bisin et al., 2011), which further suggests that ancestor worship could reinforce vertical transmission by affecting children's receptiveness to parents' socialization. To implement such idea, we collect data on genealogy books from Dincecco and Wang (2020),[24] and use the number of books compiled historically up to 2005 in a prefecture normalized by the population in 2005 to proxy for the prevalence of ancestor worship. In China, genealogy books are used to record the family history of ancestors, and compiling such books is widely recognized by anthropologists and sociologist as an important practice of ancestor worship (Ahern, 1973; Cohen, 1990; Hu, 2016; Hu and Tian, 2018).

Table 6: Mechanism of persistence: vertical transmission

Dep. var. =	(1)	(2)	(3)
	Perceived corruption (standardized)		
Hometown Confucianism (standardized)	-0.107***	-0.140***	-0.132***
	(0.029)	(0.022)	(0.023)
Hometown Confucianism (standardized)	0.060**		
× 1(High temperature anomaly volatility)	(0.024)		
Hometown Confucianism (standardized)		0.116**	
× 1(High drought volatility)		(0.058)	
Hometown Confucianism (standardized)			0.077*
× 1(Low ancestor worship)			(0.045)
Prefecture FE	X	X	X
Year FE	X	X	X
Citizen controls	X	X	X
Mayor controls	X	X	X
Mayor hometown controls	X	X	X
Indicators for vertical transmission suitability	X	X	X
Observations	47,238	49,103	46,931
R-squared	0.080	0.082	0.083

We present the results in Table 6. In columns (1) and (2), we examine the moderating effect of environmental volatility. We use dummies to indicate areas with environmental volatility higher than the median. Consistent with our conjecture, we find that the effect of mayors' hometown exposure to Confucianism on government corruption is much smaller if mayors are from such areas. In column (3), we use a dummy to indicate areas with ancestor worship lower than the median. Again, we find smaller effect of mayors' hometown exposure if they are from such areas. To summarize, these findings suggest that the persistent impact of Confucianism on contemporary mayor is predominantly due to the vertical transmission of Confucianism.

[24] Dincecco and Wang (2020) digitized and geocoded the genealogy data from the Comprehensive Catalogue of Chinese Genealogies edited by Wang Heming, which contains more than 50,000 genealogy books compiled in China since 1005.

References

Abadie, Alberto, Susan Athey, Guido W Imbens, and Jeffrey Wooldridge. 2017. "When should you adjust standard errors for clustering?" National Bureau of Economic Research.

Ahern, Emily M. 1973. *The cult of the dead in a Chinese village.* Stanford University Press.

Alesina, Alberto, and Paola Giuliano. 2015. "Culture and institutions." *Journal of economic literature*, 53(4): 898–944.

Alesina, Alberto, Paola Giuliano, and Nathan Nunn. 2013. "On the origins of gender roles: Women and the plough." *The quarterly journal of economics*, 128(2): 469–530.

Anderson, Christopher J, and Yuliya V Tverdova. 2003. "Corruption, political allegiances, and attitudes toward government in contemporary democracies." *American journal of political science*, 47(1): 91–109.

Andrews, Isaiah, James H Stock, and Liyang Sun. 2019. "Weak instruments in instrumental variables regression: Theory and practice." *Annual Review of Economics*, 11: 727–753.

Avis, Eric, Claudio Ferraz, and Frederico Finan. 2018. "Do government audits reduce corruption? Estimating the impacts of exposing corrupt politicians." *Journal of Political Economy*, 126(5): 1912–1964.

Beeri, Itai, and Doron Navot. 2013. "Local political corruption: Potential structural malfunctions at the central–local, local–local and intra-local levels." *Public Management Review*, 15(5): 712–739.

Bell, Daniel A. 2010. *Confucian political ethics.* Princeton University Press.

Belloni, Alexandre, Victor Chernozhukov, and Christian Hansen. 2014. "Inference on treatment effects after selection among high-dimensional controls." *The Review of Economic Studies*, 81(2): 608–650.

Bisin, Alberto, and Thierry Verdier. 2001. "The economics of cultural transmission and the dynamics of preferences." *Journal of Economic theory*, 97(2): 298–319.

Bisin, Alberto, and Thierry Verdier. 2011. "The economics of cultural transmission and socialization." In *Handbook of social economics*. Vol. 1, 339–416. Elsevier.

Bisin, Alberto, and Thierry Verdier. 2023. "Advances in the economic theory of cultural transmission." *Annual Review of Economics*, 15.

Bisin, Alberto, Eleonora Patacchini, Thierry Verdier, and Yves Zenou. 2011. "Formation and persistence of oppositional identities." *European Economic Review*, 55(8): 1046–1071.

Boyd, Robert, and Peter J Richerson. 1988. *Culture and the evolutionary process.* University of Chicago press.

Bo, Zhiyue. 1996. "Economic performance and political mobility: Chinese provincial leaders." *Journal of Contemporary China*, 5(12): 135–154.

Burgess, Robin, Remi Jedwab, Edward Miguel, Ameet Morjaria, and Gerard Padró i Miquel. 2015. "The value of democracy: evidence from road building in Kenya." *American Economic Review*, 105(6): 1817–1851.

Cameron, A Colin, Jonah B Gelbach, and Douglas L Miller. 2011. "Robust inference with multiway clustering." *Journal of Business & Economic Statistics*, 29(2): 238–249.

Campante, Filipe R, and Quoc-Anh Do. 2014. "Isolated capital cities, accountability, and corruption: Evidence from US states." *American Economic Review*, 104(8): 2456–81.

Campante, Filipe R, Davin Chor, and Bingjing Li. 2023. "The political economy consequences of Chinas export slowdown." *Journal of the European Economic Association*, jvad007.

Cavalli-Sforza, Luigi Luca, and Marcus W Feldman. 1981. *Cultural transmission and evolution: A quantitative approach.* Princeton University Press.

Chang, Carsun. 1958. *The Development of Neo-Confucian Thought.* London: Vision Press Ltd.

Chen, Jiafeng, and Jonathan Roth. 2022. "Log-like? Identified ATEs defined with zero-valued outcomes are (arbitrarily) scale-dependent."

Chen, Shuo, Xinyu Fan, L Colin Xu, and Xun Yan. 2023. "Competence-loyalty tradeoff under dominant minority rule: The case of Manchu rule, 1650-1911." *Journal of Public Economics*, 220: 104843.

Chen, Ting, James Kai-sing Kung, and Chicheng Ma. 2020. "Long live Keju! The persistent effects of Chinas civil examination system." *The economic journal*, 130(631): 2030–2064.

Chen, Yun. 2005. *Collected Works of Chen Yun.* Central Literature Publishing House.

Chinese Academy of Meteorological Sciences. 1981. *Yearly Charts of Dryness/Wetness in China for the Last 500-Year Period).* Map Press.

Chu, Jian, Raymond Fisman, Songtao Tan, and Yongxiang Wang. 2021. "Hometown ties and the quality of government monitoring: evidence from rotation of Chinese auditors." *American Economic Journal: Applied Economics*, 13(3): 176–201.

Cirone, Alexandra, and Thomas B Pepinsky. 2022. "Historical persistence." *Annual Review of Political Science*, 25: 241–259.

Cohen, Myron L. 1990. "Lineage organization in north China." *The Journal of Asian Studies*, 49(3): 509–534.

Conley, Timothy G. 1999. "GMM estimation with cross sectional dependence." *Journal of econometrics*, 92(1): 1–45.

Conley, Timothy G, Christian B Hansen, and Peter E Rossi. 2012. "Plausibly exogenous." *Review of Economics and Statistics*, 94(1): 260–272.

Dawson, Miles Menander, et al. 1915. *The ethics of Confucius: the sayings of the master and his disciples upon the conduct of "the superior man".* GP Putnam's Sons.

Dee, Thomas S. 2005. "A teacher like me: Does race, ethnicity, or gender matter?" *American Economic Review*, 95(2): 158–165.

Dincecco, Mark, and Yuhua Wang. 2020. "Internal Conflict, Geopolitics, and State Development: Evidence from Imperial China." Working paper, Harvard Department of Government. https://ssrn. com/abstract .

Do, Quoc-Anh, Kieu-Trang Nguyen, and Anh N Tran. 2017. "One mandarin benefits the whole clan: hometown favoritism in an authoritarian regime." *American Economic Journal: Applied Economics*, 9(4): 1–29.

Fan, Gang, Xiaolu Wang, and Hengpeng Zhu. 2003. "NERI index of marketization of Chinas provinces." *National Economic Research Institute, Beijing*.

Fernández, Raquel. 2011. "Does culture matter?" *Handbook of social economics*, 1: 481–510.

Ferraz, Claudio, and Frederico Finan. 2008. "Exposing corrupt politicians: the effects of Brazil's publicly released audits on electoral outcomes." *The Quarterly journal of economics*, 123(2): 703–745.

Ferraz, Claudio, and Frederico Finan. 2011. "Electoral accountability and corruption: Evidence from the audits of local governments." *American Economic Review*, 101(4): 1274–1311.

Fisman, Raymond, and Edward Miguel. 2007. "Corruption, norms, and legal enforcement: Evidence from diplomatic parking tickets." *Journal of Political economy*, 115(6): 1020–1048.

Giuliano, Paola, and Nathan Nunn. 2021. "Understanding cultural persistence and change." *The Review of Economic Studies*, 88(4): 1541–1581.

Glaeser, Edward L, and Raven E Saks. 2006. "Corruption in america." *Journal of public Economics*, 90(6-7): 1053–1072.

Glomb, Vladimir, Eun-Jeung Lee, and Martin Gehlmann. 2020. *Confucian Academies in East Asia.* Vol. 3, Brill.

Grosfeld, Irena, and Ekaterina Zhuravskaya. 2015. "Cultural vs. economic legacies of empires: Evidence from the partition of Poland." *Journal of Comparative Economics*, 43(1): 55–75.

Guarnieri, Eleonora, and Ana Tur-Prats. 2023. "Cultural distance and conflict-related sexual violence." *The Quarterly Journal of Economics*, 138(3): 1817–1861.

Guiso, Luigi, Paola Sapienza, and Luigi Zingales. 2015. "Corporate culture, societal culture, and institutions." *American Economic Review*, 105(5): 336–339.

Henderson, J Vernon, Adam Storeygard, and David N Weil. 2012. "Measuring economic growth from outer space." *American Economic Review*, 102(2): 994–1028.

Hodler, Roland, and Paul A Raschky. 2014. "Regional favoritism." *The Quarterly Journal of Economics*, 129(2): 995–1033.

Ho, Ping-ti. 1962. *The ladder of success in imperial China: Aspects of social mobility, 1368–1911.* Columbia University Press.

Huang, Yasheng. 2002. "Managing Chinese bureaucrats: An institutional economics perspective." *Political studies*, 50(1): 61–79.

Hu, Anning. 2016. "Ancestor worship in contemporary China: An empirical investigation." *China Review*, 16(1): 169–186.

Hu, Anning, and Felicia F Tian. 2018. "Still under the ancestors shadow? Ancestor worship and family formation in contemporary China." *Demographic Research*, 38: 1–36.

Jiang, Junyan, and Yan Xu. 2015. "Popularity and power: The political logic of anti-corruption in authoritarian regimes." *Available at SSRN 2641567*.

Jiang, Junyan, and Yuan Mei. 2020. "Mandarins make markets: Leadership rotations and inter-provincial trade in China." *Journal of Development Economics*, 147: 102524.

Jiang, Junyan, Tianguang Meng, and Qing Zhang. 2019. "From Internet to social safety net: The policy consequences of online participation in China." *Governance*, 32(3): 531–546.

Jia, Ruixue, and Yiqing Xu. 2018. "Rotating to the top: How career tracks matter in the Chinese Communist Party." *Available at SSRN 3613276*.

Jia, Ruixue, Masayuki Kudamatsu, and David Seim. 2015. "Political selection in China: The complementary roles of connections and performance." *Journal of the European Economic Association*, 13(4): 631–668.

Ji, Xiaofeng. 1996. *Chinese Confucian Academy Dictionary.* Zhejiang Education Press.

Kelly, Morgan. 2019. "The standard errors of persistence."

Krosnick, Jon A, and Duane F Alwin. 1989. "Aging and susceptibility to attitude change." *Journal of personality and social psychology*, 57(3): 416.

Lee, David S, Justin McCrary, Marcelo J Moreira, and Jack Porter. 2022. "Valid t-ratio Inference for IV." *American Economic Review*, 112(10): 3260–3290.

Lee, Thomas HC. 1999. "Education in traditional China: A History." In *The Routledge Encyclopedia of Traditional Chinese Culture*. Brill Academic Pub.

Li, Hongbin, and Li-An Zhou. 2005. "Political turnover and economic performance: the incentive role of personnel control in China." *Journal of public economics*, 89(9-10): 1743–1762.

Luttmer, Erzo F P, and Monica Singhal. 2011. "Culture, context, and the taste for redistribution." *American Economic Journal: Economic Policy*, 3(1): 157–179.

Lü, Zuqian. 1985. *Collected Works of Lü Donglai.* Zhonghua Book Company.

Manion, Melanie. 1985. "The cadre management system, post-Mao: The appointment, promotion, transfer and removal of party and state leaders." *The China Quarterly*, 102: 203–233.

Martinez-Bravo, Monica, Gerard Padró I Miquel, Nancy Qian, and Yang Yao. 2022. "The rise and fall of local elections in China." *American Economic Review*, 112(9): 2921–2958.

Maskin, Eric, Yingyi Qian, and Chenggang Xu. 2000. "Incentives, information, and organizational form." *The review of economic studies*, 67(2): 359–378.

Michalopoulos, Stelios. 2012. "The origins of ethnolinguistic diversity." *American Economic Review*, 102(4): 1508–1539.

Migliaccio, Emanuela, and Thierry Verdier. 2018. "On the spatial diffusion of cooperation with endogenous matching institutions." *Games*, 9(3): 58.

Moldogaziev, Tima T, and Cheol Liu. 2021. "Public sector corruption and perceived government performance in transition." *Governance*, 34(2): 475–504.

Mote, Frederick W. 1999. *Imperial China, 900-1800.* Harvard University Press.

Nunn, Nathan, and Diego Puga. 2012. "Ruggedness: The blessing of bad geography in Africa." *Review of Economics and Statistics*, 94(1): 20–36.

Olea, José Luis Montiel, and Carolin Pflueger. 2013. "A robust test for weak instruments." *Journal of Business & Economic Statistics*, 31(3): 358–369.

Olken, Benjamin A. 2007. "Monitoring corruption: evidence from a field experiment in Indonesia." *Journal of Political Economy*, 115(2): 200–249.

Olken, Benjamin A. 2009. "Corruption perceptions vs. corruption reality." *Journal of Public economics*, 93(7-8): 950–964.

Oster, Emily. 2019. "Unobservable selection and coefficient stability: Theory and evidence." *Journal of Business & Economic Statistics*, 37(2): 187–204.

Ottinger, Sebastian, and Nico Voigtländer. 2021. "Historys masters: The effect of european monarchs on state performance." National Bureau of Economic Research.

Rogers, Alan R. 1988. "Does biology constrain culture?" *American Anthropologist*, 90(4): 819–831.

Sandberg, Anna. 2018. "Competing identities: a field study of in-group bias among professional evaluators." *The Economic Journal*, 128(613): 2131–2159.

Schwartz, Benjamin Isadore. 2009. *The world of thought in ancient China.* Harvard University Press.

Shayo, Moses, and Asaf Zussman. 2011. "Judicial ingroup bias in the shadow of terrorism." *The Quarterly journal of economics*, 126(3): 1447–1484.

Shih, Victor, Christopher Adolph, and Mingxing Liu. 2012. "Getting ahead in the communist party: explaining the advancement of central committee members in China." *American political science review*, 106(1): 166–187.

Shi, Xiangyu, Tianyang Xi, Xiaobo Zhang, and Yifan Zhang. 2021. "Moving Umbrella: Bureaucratic transfers and the comovement of interregional investments in China." *Journal of Development Economics*, 153: 102717.

Tabellini, Guido. 2008. "The scope of cooperation: Values and incentives." *The Quarterly Journal of Economics*, 123(3): 905–950.

Voth, Hans-Joachim. 2021. "Persistence–myth and mystery." In *The handbook of historical economics*. 243–267. Elsevier.

Wang, Bingzhao. 1998. *Confucian Academies in Historical China.* Commercial Press.

Xiao, Yongming. 2012. *Confucianism, Academies, and Society: Academies in the Perspective of Social and Cultural History.* The Commercial Press.

Xu, Chenggang. 2011. "The fundamental institutions of China's reforms and development." *Journal of economic literature*, 49(4): 1076–1151.

Yao, Xinzhong. 2000. *An introduction to Confucianism.* Cambridge University Press.

Young, Alwyn. 2019. "Channeling fisher: Randomization tests and the statistical insignificance of seemingly significant experimental results." *The Quarterly Journal of Economics*, 134(2): 557–598.

Yuen, Samson. 2014. "Disciplining the party. xi jinpings anti-corruption campaign and its limits." *China Perspectives*, 2014(2014/3): 41–47.

Zhou, Xueguang. 1995. "Partial reform and the Chinese bureaucracy in the post-Mao era." *Comparative Political Studies*, 28(3): 440–468.

Zhou, Xueguang. 2016. "The separation of officials from local staff: The logic of the Empire and personnel management in the Chinese bureaucracy." *Chinese Journal of Sociology*, 2(2): 259–299.

Zhou, Xueguang, Yun Ai, Jianhua Ge, Huijun Gu, Lan Li, Qinglian Lu, Wei Zhao, and Ling Zhu. 2018. "Stratified mobility in Chinese bureaucracy: A model and empirical evidence." *Chinese Journal of Sociology*, 38(3): 1–45.

Zhu, Jiangnan, and Dong Zhang. 2017. "Weapons of the powerful: authoritarian elite competition and politicized anticorruption in China." *Comparative political studies*, 50(9): 1186–1220.

Zhu, Xi. 1937. *Collected Works of Master Zhu.* Commercial Press.

Online Appendix

Culture and Corruption: Evidence from Chinese Subnational Leaders

Yongwei Nian Cindy Xinyi Shen Zhengyang Zhou

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A Extended Controls

As shown in Appendix Table A1, our results are robust to the inclusion of a rich set of additional controls at the individual, the mayor's hometown prefecture, and the mayor's governing prefecture level, although these controls may be outcomes of Confucianism.

To further account for the size differences across prefectures, we add historical population, which is only available for China Proper after the Song dynasty, and our results are robust to this additional size measure (column 1).

To avoid conflating the effect of Confucianism with other cultural factors, we explicitly control for a number of other cultures at the mayor's hometown level, and our results are barely affected (column 2).

To alleviate the concern that perceived corruption may deviate from true corruption, we include an additional set of individual controls that may bias their perception about government corruption, and our results remain virtually unchanged (column 3).

To alleviate the concern that mayors with differential exposure to Confucianism may differ in their quality, we include an additional set of mayor characteristics. The results are unaffected (column 4)

To confirm that our findings are indeed driven by culture instead of other channels such as economic development, we include a number of historical variables at the hometown prefecture level, and some contemporay variables at both the hometown and the governing prefecture level.[1] These variables mainly capture economic development and our results are robust to these controls (column 5-6).

Given that we have numerous controls, we further show that our results are robust to using the most relevant controls selected by the Double LASSO method (Belloni, Chernozhukov and Hansen, 2014) (column 7).

Finally, to address the remaining concern about unobservables, we follow Oster (2019) to check the stability of our estimates after including all the aforementioned controls and find that our results hold qualitatively up to a large degree of selection on unobservables, as shown in Appendix Figure A4.

[1] We do not include the same set of historical variables at the governing prefecture level as they are time-invariant and would thus be absorbed by the governing prefecture fixed effects.

Table A1: Robustness to additional controls

Dep. var.=	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Perceived corruption (standardized)						
Hometown Confucianism (standardized)	-0.079***	-0.136***	-0.091***	-0.113***	-0.120***	-0.087**	-0.101***
	(0.028)	(0.022)	(0.023)	(0.030)	(0.025)	(0.040)	(0.035)
Prefecture FE	X	X	X	X	X	X	X
Year FE	X	X	X	X	X	X	X
Citizen baseline controls	X	X	X	X	X	X	X
Mayor baseline controls	X	X	X	X	X	X	X
Mayor hometown baselinle controls	X	X	X	X	X	X	X
Mayor hometown historical population	X					X	X
Mayor hometown cultural controls		X				X	X
Citizen additional controls			X			X	X
Mayor additional controls				X		X	X
Mayor hometown historical dev. controls					X	X	X
Mayor hometown contemporary dev. controls					X	X	X
City contemporary dev. controls					X	X	X
LASSO selected controls							X
Observations	44,805	49,103	43,987	39,717	49,103	31,957	31,957
R-squared	0.084	0.082	0.097	0.083	0.083	0.102	-

B Sample Selection

Our results are also robust to using alternative samples, as shown in Appendix Table A2. To alleviate the concern about potential deviation of perceived corruption from true corruption, we show that our results are virtually unchanged if we drop some citizens that express high concerns or give unreliable answers, as observed by the interviewers (panel A).[2] A second concern is that the variation in $HometownConfucianism_{ct}$ seems to mainly come from the core areas of China, or the so called China Proper, as seen from Figure 1. We show that our results are robust if we restrict the hometown prefectures to China Proper. We find similar findings if we further restrict the governing prefectures to China Proper (panel B). Finally, we show in panel C that our results are robust to excluding the four directly controlled municipalities (Beijing, Tianjin, Shanghai, Chongqing),[3], and robust to excluding any specific hometown province or governing province (Appendix Figure A5).

[2] Alternatively, we also show that our results robust to using citizen concerns about the survey and the reliability of citizens' answers as additional controls.

[3] Directly controlled municipalities are the highest-level prefectures in China's administrative hierarchy. They are equivalent to a province and report directly to the central government. Hence, they may not be comparable to other prefectures

Table A2: Robustness to alternative samples

Dep. var.=	(1)	(2)	(3)
	Perceived corruption (standardized)		
Panel A, sample=	Low concerns	High reliability	Both (1) & (2)
Hometown Confucianism (standardized)	-0.111***	-0.109***	-0.116***
	(0.023)	(0.022)	(0.022)
Observations	37,835	42,211	33,470
R-squared	0.089	0.078	0.085
Panel B, sample=	Hometown in China Proper	Working in China Proper	Both (1) & (2)
Hometown Confucianism (standardized)	-0.095***	-0.089***	-0.093***
	(0.026)	(0.024)	(0.027)
Observations	44,805	43,816	43,441
R-squared	0.084	0.083	0.083
Panel C, sample=	Hometown in non-DCM	Working in non-DCM	Both (1) & (2)
Hometown Confucianism (standardized)	-0.095***	-0.097***	-0.097***
	(0.024)	(0.024)	(0.024)
Observations	49,103	44,217	44,217
R-squared	0.082	0.081	0.081
Prefecture FE	X	X	X
Year FE	X	X	X
Citizen controls	X	X	X
Mayor controls	X	X	X
Mayor hometown controls	X	X	X

C In-group Favoritism

One may argue that our results may be driven by a group of citizens with a similar exposure to Confucianism as the mayor. This is a legitimate concern given the large literature on in-group favoritism. Specifically, in our setting such favoritism could occur in two ways: on the one hand, citizens may have biased perceptions of corruption towards the in-group mayor (Dee, 2005; Shayo and Zussman, 2011; Sandberg, 2018), and the mayor may also distribute public goods in favor of in-group citizens (Hodler and Raschky, 2014; Burgess et al., 2015; Do, Nguyen and Tran, 2017), which in turn leads to biased perceptions of corruption among favored citizens.

To test this, we define cultural distance between citizens and the mayor as the absolute difference in the intensity of Confucianism between the mayor's governing prefecture and hometown prefecture.[4] In column (1) of Appendix Table A3, we test whether the effect of the mayor's hometown exposure to Confucianism on government corrup-

[4] Guarnieri and Tur-Prats (2023) also adopts a similar definition of cultural distance.

tion as perceived by citizens is attenuated by such cultural distance. We find no evidence of a statistically significant larger effect among groups with more simialr culture . In columns (2)-(4), we further check whether our results hold after excluding these similar groups. Namely,we drop observations in which cultural distance between citizens and the mayor is below the lowest 10%, 25%, and 50% quantiles, respectively. Reassuringly, the results remain virtually unchanged, implying that our main findings are not driven by in-group favoritism between culturally similar citizens and mayors.

Table A3: Alternative explanation: in-group favoritism

	(1)	(2)	(3)	(4)
		Drop the following lower quantiles of cultural similarity		
	Full sample	10%	25%	50%
Dep . var. =	Perceived corruption (Standardized)			
Hometown Confucianism (standardized)	-0.090**	-0.116***	-0.119***	-0.092***
	(0.042)	(0.025)	(0.022)	(0.033)
Cultural similarity (standardized)	-0.000			
	(0.008)			
Hometown Confucianism (standardized)	0.011			
x Cultural similarity (standardized)	(0.027)			
Prefecture FE	X	X	X	X
Year FE	X	X	X	X
Citizen controls	X	X	X	X
Mayor controls	X	X	X	X
Mayor hometown controls	X	X	X	X
Observations	49,103	44,790	36,733	25,855
R-squared	0.082	0.080	0.086	0.087

D Alternative Variable Measures

Our results are also robust to alternative variable measures as shown in Appendix Table A4. We use the raw value of Confucianism and corruption perception measures in our baseline specification to avoid making any restrictions, but we also show that our results are robust to alternative functional forms of Confucianism and corruption perception measures, such as using dummies to indicate the raw values higher than the medians, taking the natural log of one plus the raw values, or adopting the inverse hyperbolic sine transformation.[5] Additionally, we adopt an alternative measure of Confucianism, namely, the number of *Jinshi* degree holders in the Ming and Qing dynasties (Chen, Kung and Ma, 2020; Chen et al., 2023). Our results are nearly identical using such measure in terms of both statistical significance and economic magnitude.

[5] However, one should interpret the coefficient estimates using the latter two transformations with caution as they are highly scale dependent (Chen and Roth, 2022).

Table A4: Robustness to alternative variable measures

Dep. var.=	(1) 1(Perceived corruption >Median)	(2) log(1+ Perceived corruption)	(3) IHS(Perceived corruption)	(4) Perceived corruption (standardized)
1(#Confucian academies>Median)	-0.044***			
	(0.011)			
log(1+#Confucian academies)		-0.020**		
		(0.008)		
IHS(#Confucian academies)			-0.019**	
			(0.009)	
#*Jinshi* holders (standardized)				-0.097**
				(0.039)
Prefecture FE	X	X	X	X
Year FE	X	X	X	X
Citizen controls	X	X	X	X
Mayor controls	X	X	X	X
Mayor hometown controls	X	X	X	X
Observations	49,103	49,103	49,103	44,805
R-squared	0.068	0.068	0.065	0.084

E Alternative Inference Procedures

Our results are also robust to alternative inference procedures. To address concerns about spatial correlation (Kelly, 2019), we adopt two strategies in Appendix Table A5: first, we show that our results are robust to more conservative clustering levels, such as clustering at the hometown province level, at both the hometown prefecture level and the governing prefecture level, or at both the hometown province level and the governing province level (Cameron, Gelbach and Miller, 2011); second, we parametrically account for spatial correlation by assuming that correlation of residuals across homwtown prefectures to decay with distance until some cutoffs (Conley, 1999). The standard errors using these methods are similar, suggesting that spatial correlation is not a critical concern to our results.

In addition, to address concerns about outliers or high-leverage observations (Young, 2019), we conduct 10,000 randomized permutations of mayors' hometown prefectures drawing from the true spatial distribution of their hometowns prefectures, and re-estimate our baseline equation (1). As shown in Appendix Figure A6, our true estimate falls at the lower tail of these placebo estimates. The randomization inference p-values calculated following Young (2019) are 0.001 in panel (a) (based on estimated coefficients) and 0.04 in panel (b) (based on estimated t-values), suggesting that our main results are unlikely to be driven by outliers or high-leverage observations.

Table A5: Robustness to alternative inference procedures

	(1)	(2)	(3)	(4)	(5)	(6)
	Alternative clustering at the following levels:			Conley standard errors with the following distance cutoffs:		
	Hometown province	Hometown prefecture & governing prefecture	Hometown province & governing province	200 km	400 km	800 km
Dep. var.=	Perceived corruption (standardized)					
Hometown Confucianism (standardized)	-0.095***	-0.095***	-0.095***	-0.095***	-0.095***	-0.095***
	(0.024)	(0.033)	(0.030)	(0.024)	(0.016)	(0.017)
Prefecture FE	X	X	X	X	X	X
Year FE	X	X	X	X	X	X
Citizen controls	X	X	X	X	X	X
Mayor controls	X	X	X	X	X	X
Mayor hometown controls	X	X	X	X	X	X
Observations	49,103	49,103	49,103	49,103	49,103	49,103
R-squared	0.082	0.082	0.082	0.001	0.001	0.001

F Additional Corruption Measures

We have so far focused on the effect of mayors' hometown exposure to Confucianism on government corruption as perceived by the citizens. One valid concern is that such measure of corruption may not capture true corruption, although we have adopted several methods to address potential deviations between perceived corruption and true corruption. Hence, in this section we delve into additional corruption-related outcomes to corroborate our main findings. Specifically, we show that mayors with greater exposure to Confucianism in their hometown prefectures are associated with less suspicious expenditure found in audits, lower corruption recorded in government work reports, and higher evaluation of government performance by citizens. While each of these outcomes captures only specific aspects of government corruption, when considered collectively, they consistently strengthens our main findings.

F.1 Suspicious Expenditure Found in Audits

In this section , we utilize external audits to construct another measure of government corruption following the literature that reveals corruption from external audits of local governments (Ferraz and Finan, 2008, 2011; Avis, Ferraz and Finan, 2018; Chu et al., 2021). We collect data from the China Audit Yearbooks, which records suspicious expenditure found in each audit of local governments, and aggregate the data to the prefecture level. We focus on the period from 2005 to 2016, as 2005 is the earliest year for which the data is available. To account for prefecture size, we normalize sus-

picious expenditure by prefecture population or total government expediture. Note that while this measure could be viewed as an object measure of government corruption, it obvisouly misses some aspects of corruption, such as bribery. Nevertheless, it would be reassuring if we could confirm our main findings using such measure. In addition, as found by Chu et al. (2021), provincial auditors in China tend to be more lenient when auditing their hometown prefectures. To address this issue, we control for each prefecture's hometown ties to provincial auditors, using data also colllected from the China Audit Yearbooks.[6]

Table A6: Confucianism and suspicious expenditure found in audits

	(1) OLS	(2) 2SLS	(3) OLS	(4) 2SLS
Dep. var. =	Suscipious exp. / population (standardized)		Suscipious exp. / fiscal exp. (standardized)	
Hometown Confucianism (standardized)	-0.068**	-0.354*	-0.078*	-0.575*
	(0.030)	(0.207)	(0.044)	(0.342)
Prefecture FE	X	X	X	X
Year FE	X	X	X	X
Mayor controls	X	X	X	X
Mayor hometown controls	X	X	X	X
Connection to provincial auditors	X	X	X	X
Observations	3,219	3,219	3,218	3,218
First stage *F*-statistic		17.4		19.25

We report the results in Appendix Table A6. We find a negative and significant relationship between mayors' hometown exposure to Confucianism and suspicious expenditure found in audits across different measures and specifications. Specifically, in column (1) where we report OLS estimates, a one standard deviation increase in mayors' hometown exposure to Confucianism is associated with a 0.068 standard deviation decrease in suspicious expenditure per capita. In column (2), we establish causality utilizing the previous instrument, namely, a prefecture's exposure to scenic mountains, and find a larger effect. In columns (3) and (4), we normalize suspicious expenditure by total government expenditure, and the results are quite similar, albeit with less precision.

F.2 Corruption Recorded in Government Work Reports

We adopt a textual analysis measure of government corruption in this section, drawing on the prefecture-level government annual work reports. In these reports, apart from the summary of past economic achievements and delineation of futher

[6]Our results are essentially unchanged if we do not control for hometown ties to provincial auditors, as shown in Appendix Table A14.

work plans as we mentioned previously, some salient issues in the jurisdiction, such as social stability and corruption, are also discussed by local leaders (Jiang, Meng and Zhang, 2019; Campante, Chor and Li, 2023). One natural concern with this measure is that local leaders may have incentives to misreport corruption. However, we believe this concern is not critical for two reasons. First, these reports would undergo approval through an anonymous voting process in the People's Congress at the prefecture level, which helps reduce the likelihood of deliberate manipulation. Second, even in the case of misreporting, it's plausible that mayors with stronger hometown exposure to Confucianism would tend to overreport actual corruption cases due to their higher intolerance of corruption. Conversely, mayors with weaker Confucian influences might underreport even in the case of misreporting. Consequently, our results may be viewed as a lower bound of the true effect of Confucianism on corruption.

Table A7: Confucianism and corruption recorded in government work reports

	(1) OLS	(2) 2SLS	(3) OLS	(4) 2SLS
Dep. var. =	% corruption-related paragraphs (standardized)		% corruption-related sentences (standardized)	
Hometown Confucianism (standardized)	-0.077***	-0.238*	-0.041	-0.256*
	(0.025)	(0.128)	(0.031)	(0.134)
Prefecture FE	X	X	X	X
Year FE	X	X	X	X
Citizen controls	X	X	X	X
Mayor controls	X	X	X	X
Mayor hometown controls	X	X	X	X
Observations	3,439	3,439	3,439	3,439
Kleibergen-Paap rk Wald F		17.03		17.03

We focus on paragraphs that are related to corruption, which we identify manually from prefecture-level work reports from 2006 to 2015.[7] We choose this specific time period to maintain consistency with our previous audit-based measure of corruption, although our results are robust to different time periods. We also identify corruption-related sentences as a robustness check. We then normalize the number of paragraphs or sentences related to corruption in a work report by the total number of paragraphs or sentences in the same work report. This normalization allows us to account for the varying lengths of different work reports and present a more accurate representation of corruption-related content in each work report. We report the results in Appendix Table A7. In general, we find a negative relationship between

[7]Our focus on paragraphs is similar to Campante, Chor and Li (2023), who identify paragraphs in a work report pertaining to maintaining social stability using a machine learning approach. In addition, we did not adopt the LDA method to infer corruption-related content as corruption accounts for a very tiny fraction of a typical work report.

mayors' hometown exposure to Confucianism and emphasis of corruption in local government work reports, although the estimates are less precise in some specifications. Specifically, in column (1) where we identify corruption at the paragraph level, a one standard deviation increase in mayors' hometown exposure to Confucianism is significantly associated with a 0.077 standard deviation decrease in the percentage of corruption-related paragraphs. The magnitude becomes larger when we correct for the endogeneity of Confucianism in column (2) using the previous instrument. In the remaining two columns, we measure corruption at the sentence level, and find similar effects, albeit with less precision.

F.3 Citizens' Evaluation of Government Performance

As a final piece of supporting evidence, we examine citizens' evaluation of government performance, which is motivated by insights in the political science literature that corruption could erode citizens' evaluation of government performance (Anderson and Tverdova, 2003; Beeri and Navot, 2013; Moldogaziev and Liu, 2021). While this is not a direct measure of corruption, it would be reassuring if we could find a positive relationship between mayors' hometown exposure to Confucianism and citizens' evaluation of government performance. To this end, we utilize another question in the CFPS dataset, which asks citizens' overall evaluation of the government's achievements. The raw answer ranges from 1 to 5, with smaller integers denoting higher achievements. To ease interpretation, we reverse this answer with 5 denoting the highest achievements.

Table A8: Confucianism and citizens' evaluation of government performance

	(1) OLS	(2) 2SLS	(3) OLS	(4) 2SLS
Dep. var.=	Evaluation of government performance (standardized)		1(High evaluation)	
Hometown Confucianism (standardized)	0.069**	0.169*	0.031**	0.086**
	(0.033)	(0.087)	(0.014)	(0.042)
Prefecture FE	X	X	X	X
Year FE	X	X	X	X
Citizen controls	X	X	X	X
Mayor controls	X	X	X	X
Mayor hometown controls	X	X	X	X
Observations	48,457	48,457	48,457	48,457
First stage *F*-statistic		41.93		41.93
Mean dep. var.			0.53	0.53

We report the results in Appendix Table A8. We find a positive and significant impact of mayors' hometown exposure to Confucianism on citizens' evaluation of

government performance. The OLS estimate in column (1) suggests that a one standard deviation increase in mayors' hometown exposure to Confucianism significantly increases citizens evaluation of government performance by 0.069 standard deviation. Compared with the baseline effect of Confucianism on perceived government corruption of 0.095, this implies that a one standard deviation increase in corruption is associated with a 0.073 (0.069/0.095) standard deviation decrease in citizens' evaluation of government performace, which is similar to the magnitude found by Anderson and Tverdova (2003). [8] In column (2), we establish causality through IV estimation utilizing the previous instrument and find a larger impact. In columns (3)-(4), we use dummies to indicate evaluations higher than the median, and the results are robust. In sum, the evidence presented so far consistently points to a negative impact of mayors' hometown exposure to Confucianism on government corruption.

[8] In Anderson and Tverdova (2003)'s cross-national studies, a one standard deviation in corruption is roughly associated with a 0.4 standard deviation decrease in citizens' evaluation of government performace.

G Additional Figures and Tables

Figure A1: Measuring Confucianism using historical Confucian academies

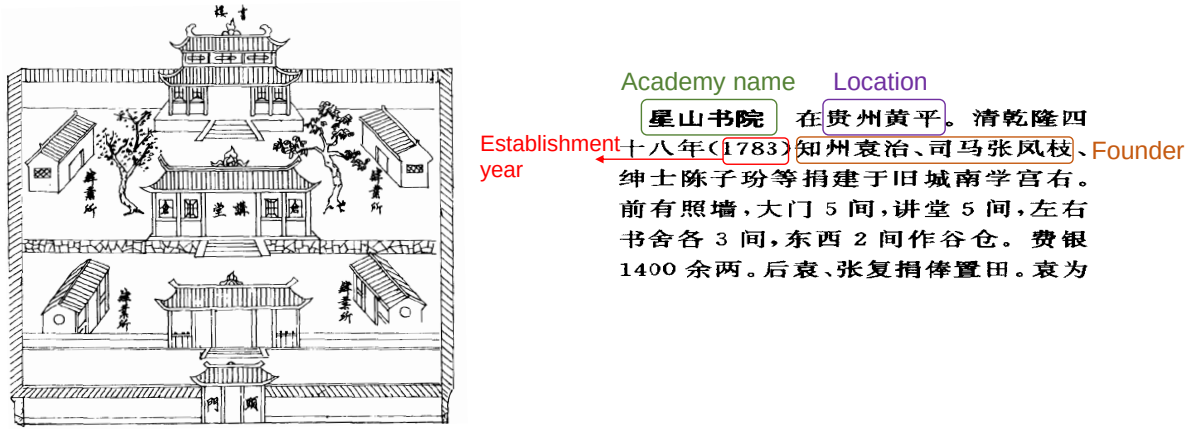
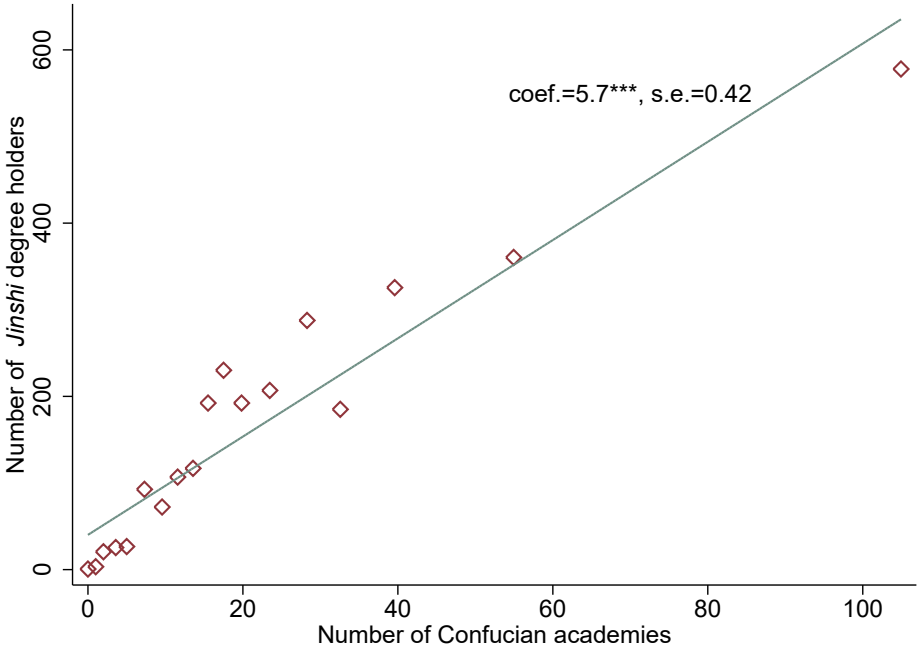


Figure A2: Measure verfication: correlation with historical *Jinshi* degree holders

(a) Raw correlation



(b) Partial correlation

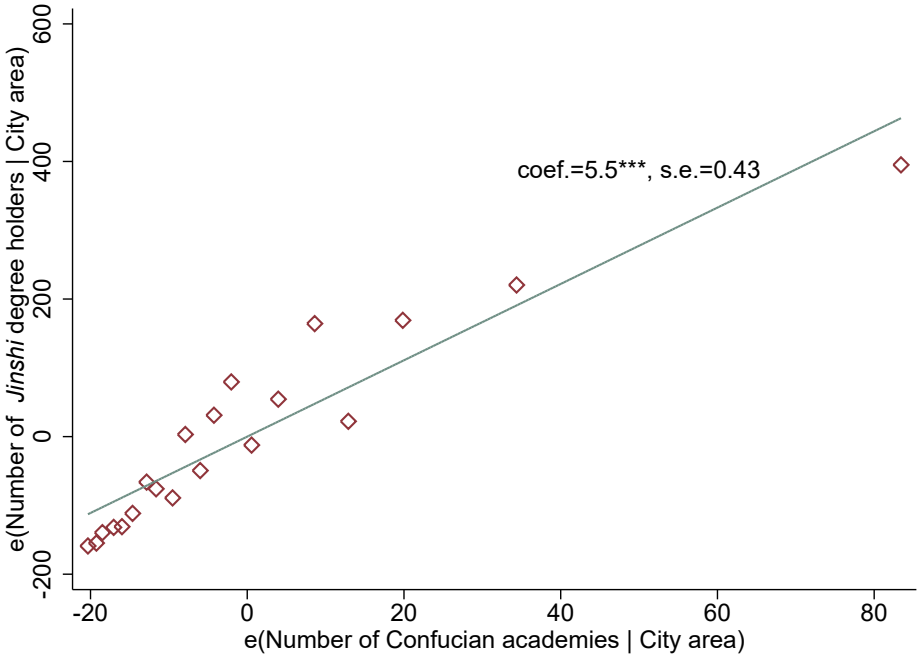
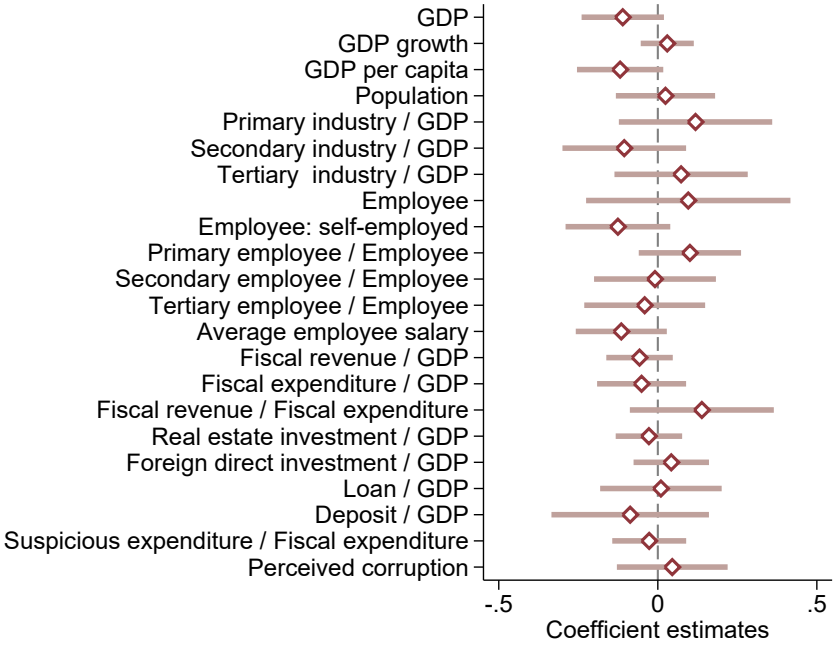


Figure A3: Exogeneity of mayor allocation to Confucianism: prefecture × mayor level

(a) Effect on next mayor's Confucianism, with prefecture FE only



(b) Effect on next mayor's Confucianism, with prefecture FE + hometown area

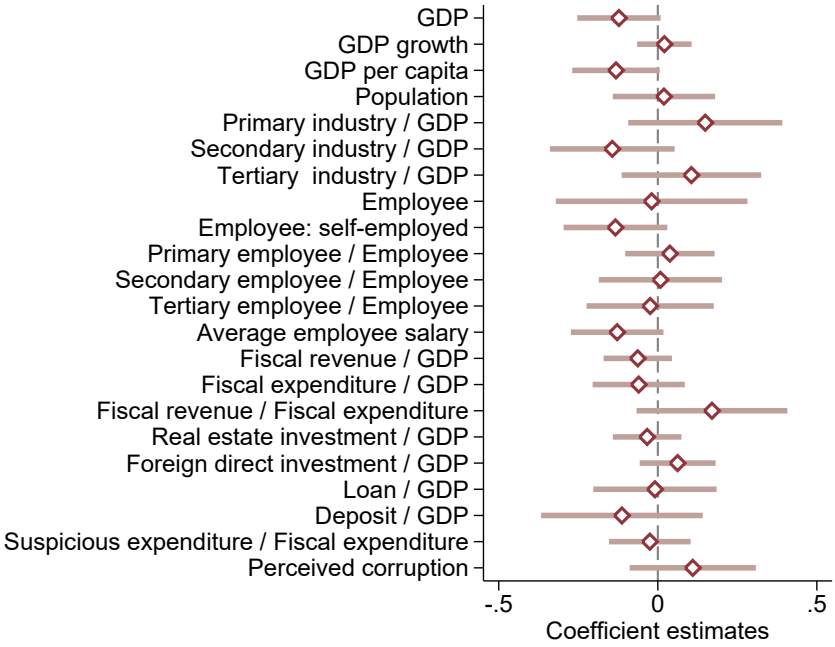


Figure A4: Assessing coefficient stability using Oster (2019)'s test

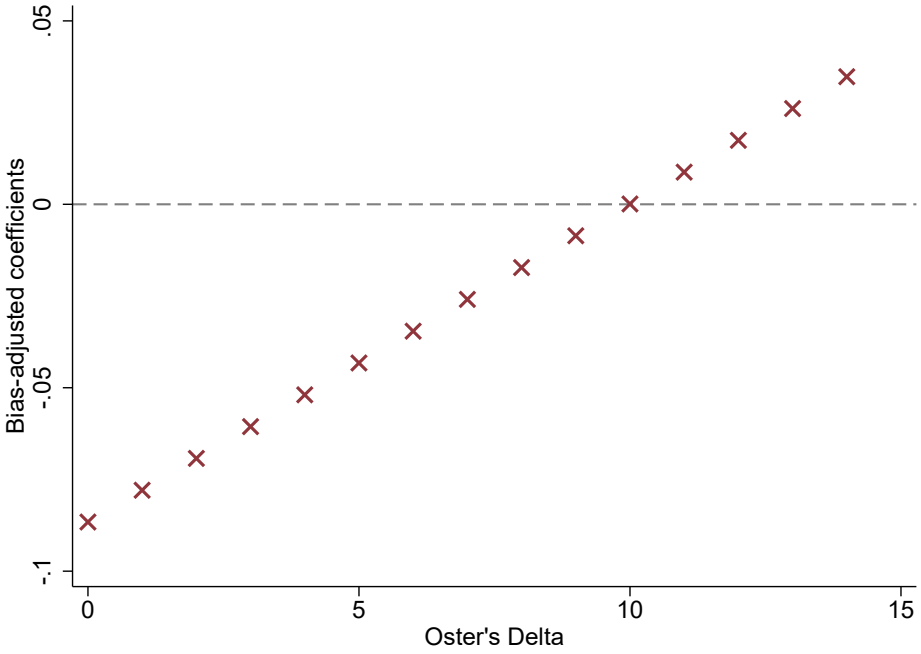
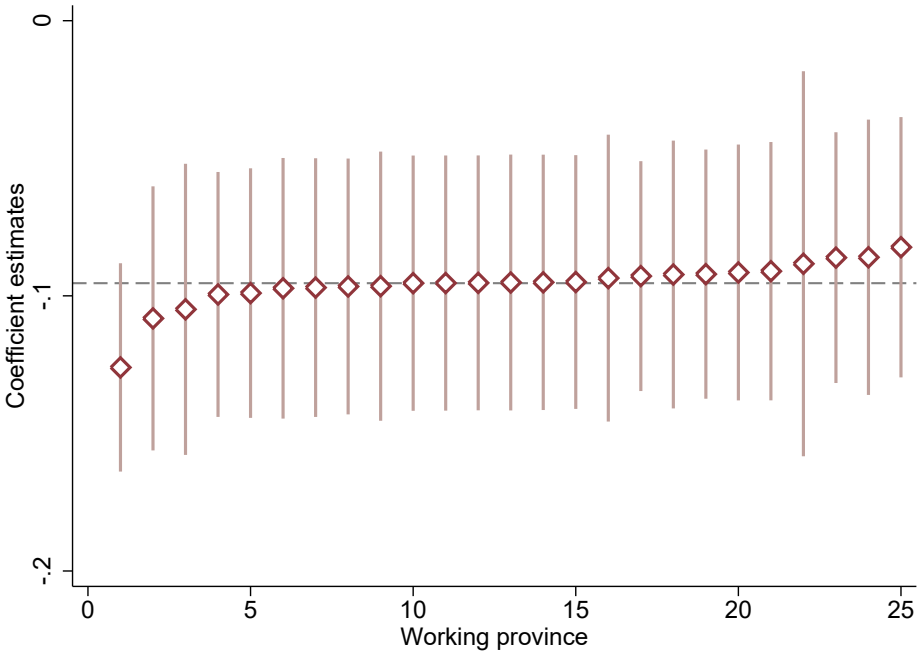


Figure A5: Leave-out estimates

(a) Dropping one governing province at a time



(b) Dropping one hometown province at a time

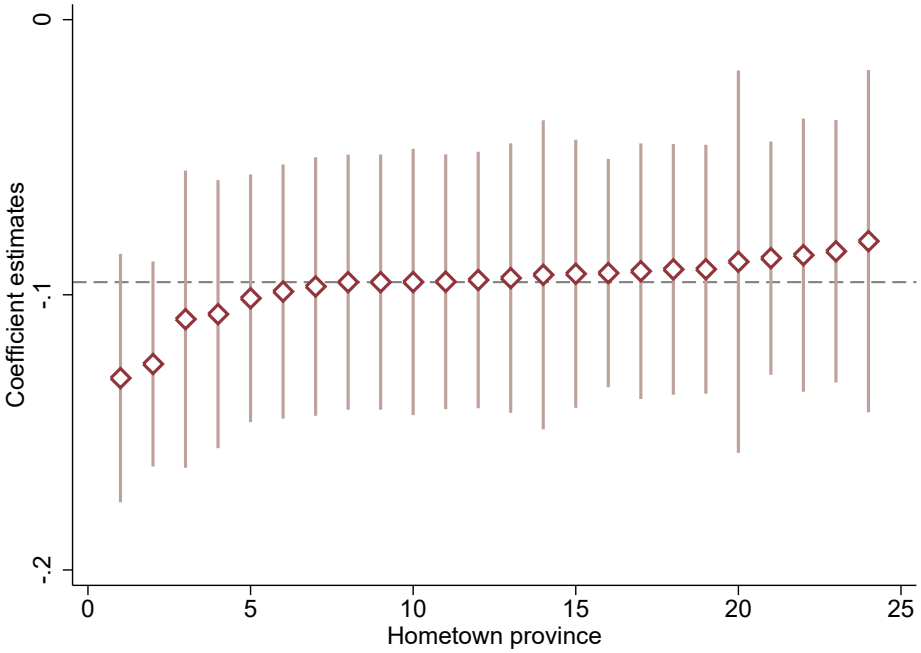
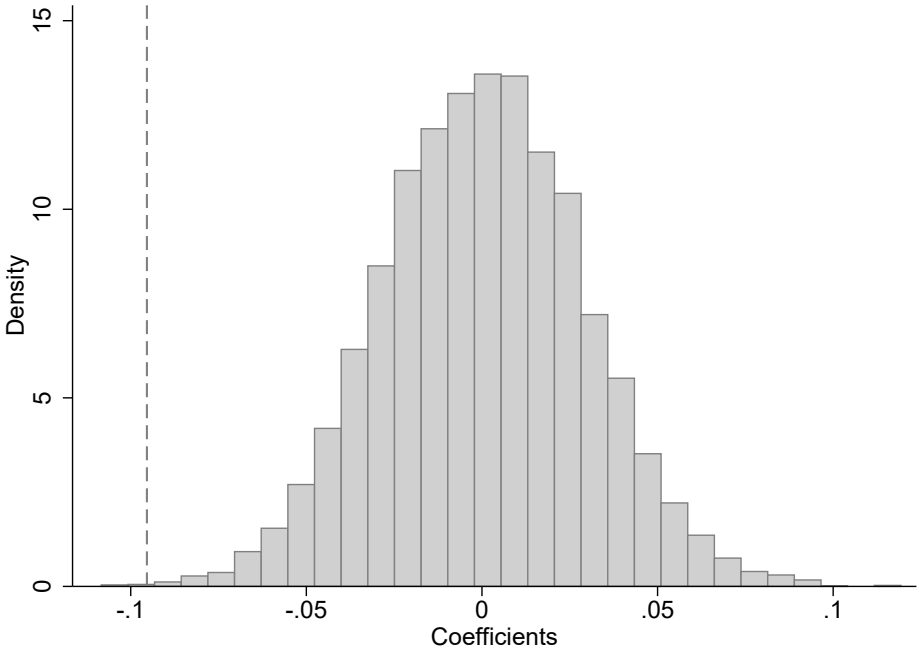


Figure A6: Randomization inference by permuting mayors' hometowns

(a) Estimated coefficients



(b) Estimated *t*-values

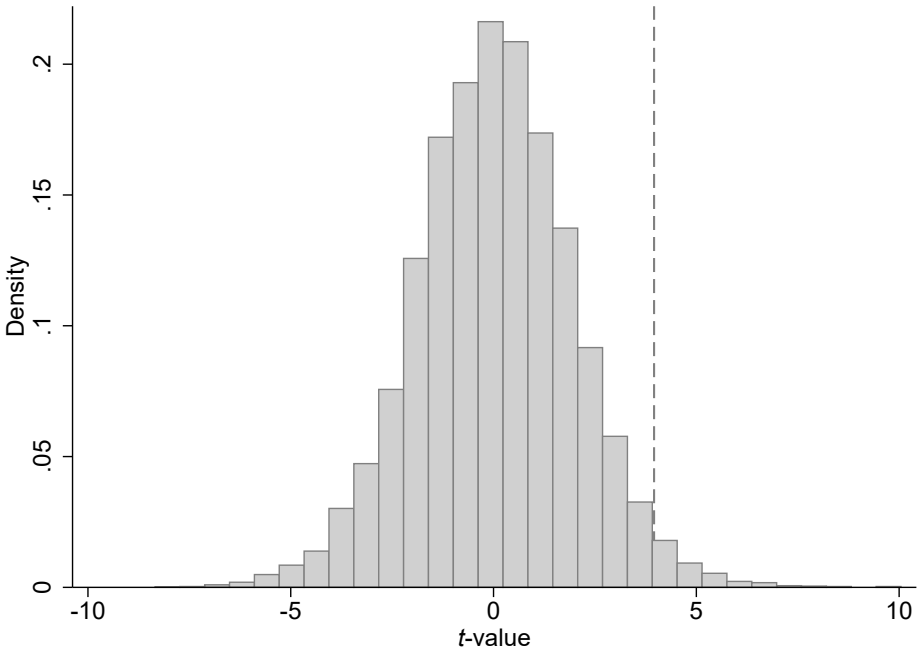


Figure A7: (No) heterogeneity by mayor characteristics

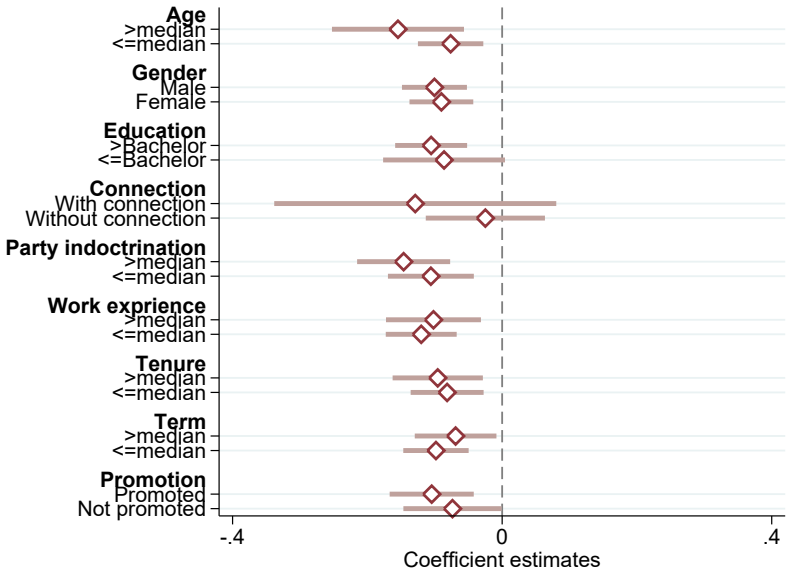


Figure A8: Relaxing the exogeneity of the IV

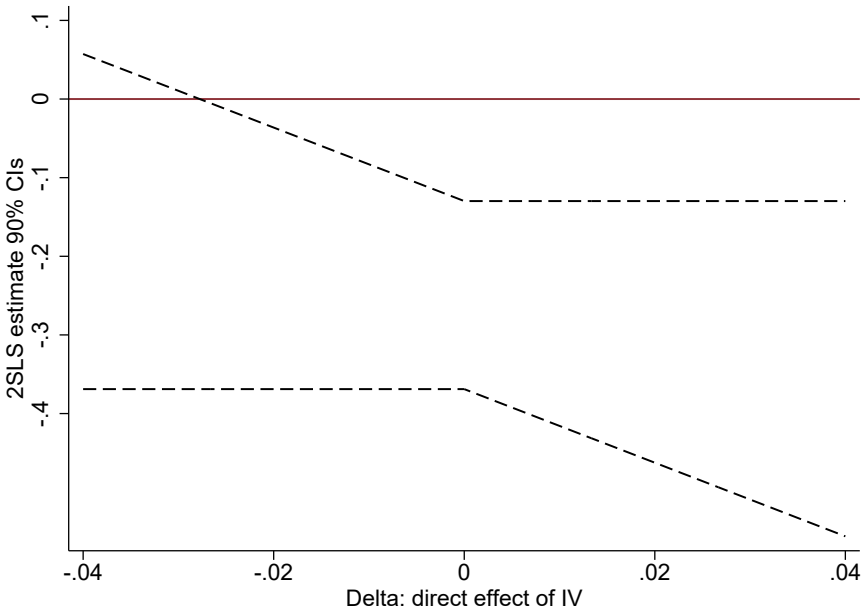


Figure A9: LDA topics

Fiscal revenue

Poverty alleviation

Industry

Government leadership

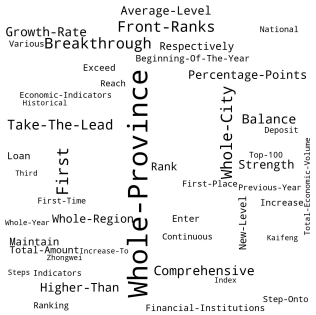
Manufacturing

Transportation

Public well-being

National achievements

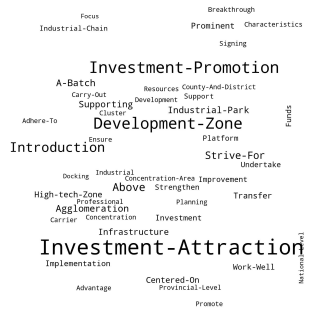
Provincial rankings



Pension

Financial support

Industrial parks



System enhancement

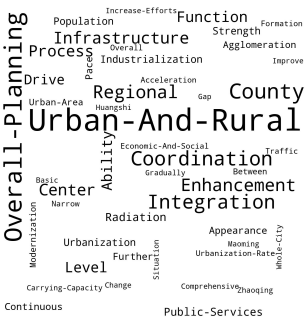
Administrative efficiency

Digital services

Trade and investment

Figure A10: LDA topics

Urban-rural integration



Education

Strategic implementation

Tech innovation

Service industry

Culture

Strategic opportunities

Market stability

Project investment

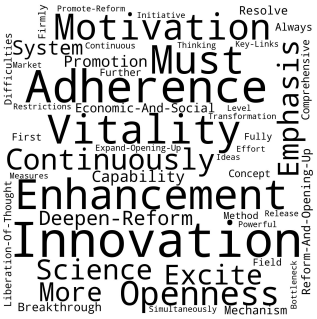
Rural welfare

Eco-protection

Social stability

Strategic transformation

Innovative reform

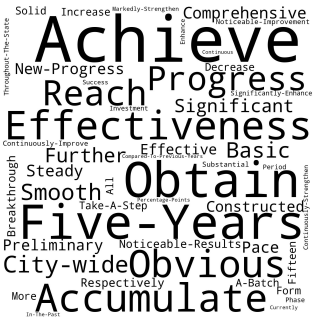


Policy implementation

The masses' life

Figure A11: LDA topics

Progress achieved



Official training

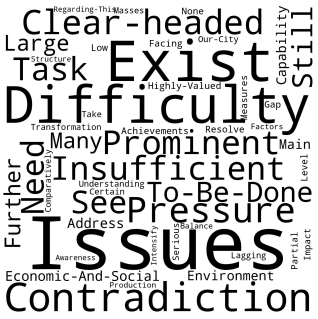
Infrastructure

Agricultural production

Systemic reform

Housing

Challenges



Land development

Socialist Leadership

Employment

National services

Tourism

Rural-urban planning

Income

Urban renovation

Rule of law

Port and shipping

International cooperation

Table A9: Using exposure to other scenery as placebo

Dep. var.=	(1)	(2)	(3)
	Perceived corruption (standardized)		
Hometown exposure to scenic mountains (standardized)	-0.035**		
	(0.017)		
Hometown exposure to ordinary mountains (standardized)		0.018	
		(0.018)	
Hometown exposure to scenic lakes (standardized)			-0.009
			(0.015)
Prefecture FE	X	X	X
Year FE	X	X	X
Individual controls	X	X	X
Leader controls	X	X	X
Leader hometown controls	X	X	X
Observations	49,103	49,103	49,103
R-squared	0.081	0.081	0.081

Table A10: Alternative explanation: education input

Dep. var.=	(1)	(2)	(3)	(4)	(5)
	Perceived corruption (standardized)				
Hometown Confucianism (standardized)	-0.094***	-0.100***	-0.098***	-0.099***	-0.102***
	(0.025)	(0.024)	(0.022)	(0.023)	(0.022)
LDA topic: education (standardized)	0.019				-0.000
	(0.027)				(0.020)
Education expense per capita (standardized)		-0.061			-0.050
		(0.092)			(0.087)
Education expense per capita (standardized)					-0.016
					(0.051)
# Pupils per 10,000 people (standardized)				0.047	0.041
				(0.061)	(0.064)
Prefecture FE	X	X	X	X	X
Year FE	X	X	X	X	X
Citizen controls	X	X	X	X	X
Mayor controls	X	X	X	X	X
Mayor hometown controls	X	X	X	X	X
Observations	48,706	45,831	45,831	45,592	45,592
R-squared	0.082	0.083	0.083	0.083	0.083

Table A11: Alternative explanation: institutional change

Dep. var.=	(1)	(2)	(3)	(4)	(5)
	Perceived corruption (standardized)				
Hometown Confucianism (standardized)	-0.096***	-0.094***	-0.095***	-0.097***	-0.093***
	(0.024)	(0.026)	(0.023)	(0.024)	(0.024)
LDA topic: admin. efficiency (standardized)	0.009				0.013
	(0.026)				(0.023)
LDA topic: policy implementation (standardized)		-0.045**			-0.043**
		(0.019)			(0.019)
LDA topic: official training (standardized)			0.036*		0.030
			(0.020)		(0.021)
LDA topic: rule of law (standardized)				0.006	0.011
				(0.034)	(0.035)
Prefecture FE	X	X	X	X	X
Year FE	X	X	X	X	X
Citizen controls	X	X	X	X	X
Mayor controls	X	X	X	X	X
Mayor hometown controls	X	X	X	X	X
Observations	48,706	48,706	48,706	48,706	48,706
R-squared	0.082	0.082	0.082	0.082	0.083

Table A12: Alternative explanation: emphasis on welfare

Dep. var.=	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Perceived corruption (standardized)								
Hometown Confucianism (standardized)	-0.108***	-0.097***	-0.099***	-0.092***	-0.110***	-0.104***	-0.097***	-0.093***	-0.141***
	(0.024)	(0.025)	(0.025)	(0.025)	(0.025)	(0.024)	(0.024)	(0.025)	(0.028)
LDA topic: poverty alleviation (standardized)	0.069**								0.062*
	(0.031)								(0.032)
LDA topic: public well-being (standardized)		-0.014							-0.038*
		(0.021)							(0.019)
LDA topic: social security and pension (standardized)			0.027						0.029
			(0.021)						(0.018)
LDA topic: rural welfare (standardized)				-0.017					0.024
				(0.018)					(0.022)
LDA topic: the masses' life (standardized)					0.048***				0.058***
					(0.015)				(0.016)
LDA topic: housing (standardized)						-0.023			-0.024
						(0.031)			(0.028)
LDA topic: employment (standardized)							-0.007		-0.014
							(0.021)		(0.017)
LDA topic: income (standardized)								0.030*	0.036**
								(0.017)	(0.015)
Prefecture FE	X	X	X	X	X	X	X	X	X
Year FE	X	X	X	X	X	X	X	X	X
Citizen controls	X	X	X	X	X	X	X	X	X
Mayor controls	X	X	X	X	X	X	X	X	X
Mayor hometown controls	X	X	X	X	X	X	X	X	X
Observations	48,706	48,706	48,706	48,706	48,706	48,706	48,706	48,706	48,706
R-squared	0.082	0.082	0.082	0.082	0.083	0.082	0.082	0.082	0.084

Table A13: Alternative explanation: government revenue

Dep. var.=	(1)	(2)	(3)	(4)	(5)
	Perceived corruption (standardized)				
Hometown Confucianism (standardized)	-0.101***	-0.096***	-0.096***	-0.103***	-0.113***
	(0.024)	(0.022)	(0.024)	(0.024)	(0.023)
Revenue to GDP (standardized)	-0.062*				-0.052
	(0.037)				(0.035)
LDA topic: fiscal revenue (standardized)		0.039			0.014
		(0.036)			(0.021)
Land revenue to GDP (standardized)			0.001		0.013
			(0.022)		(0.022)
LDA topic: land development (standardized)				-0.015	-0.034**
				(0.017)	(0.013)
Prefecture FE	X	X	X	X	X
Year FE	X	X	X	X	X
Citizen controls	X	X	X	X	X
Mayor controls	X	X	X	X	X
Mayor hometown controls	X	X	X	X	X
Observations	45,831	48,706	45,831	48,706	45,831
R-squared	0.083	0.082	0.083	0.082	0.084

Table A14: Confucianism and suspicious expenditure found in audits - robustness

	(1) OLS	(2) 2SLS	(3) OLS	(4) 2SLS
Dep. var. =	Suscipious exp. / population (standardized)		Suscipious exp. / fiscal exp. (standardized)	
Hometown Confucianism (standardized)	-0.072**	-0.354*	-0.072*	-0.585
	(0.033)	(0.204)	(0.041)	(0.358)
Prefecture FE	X	X	X	X
Year FE	X	X	X	X
Mayor controls	X	X	X	X
Mayor hometown controls	X	X	X	X
Observations	3,219	3,219	3,218	3,218
First stage *F*-statistic		17.33		18.75

Table A15: Mechanism

Measure of local constraints on govt. corruption=	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Distance from each city to provincial capital		Institutional quality at the provincial level		Citizen tolerance of government appropriation		Citizen oversight of local governments	
Dep. var.=	Perceived corruption (standardized)							
Hometown Confucianism (standardized)	-0.101***		-0.092***		-0.109		-0.052	
	(0.022)		(0.017)		(0.079)		(0.050)	
Hometown Confucianism (standardized)	-0.081**		0.033*		-0.206***		0.097**	
× Local constraints on govt. corruption (standardized)	(0.037)		(0.017)		(0.047)		(0.036)	
Hometown Confucianism (standardized)		-0.031		-0.254*		0.032		-0.331***
× 1[Local constraints on govt. corruption=Q1]		(0.059)		(0.152)		(0.226)		(0.089)
Hometown Confucianism (standardized)		-0.146***		-0.087***		0.062		-0.133
× 1[Local constraints on govt. corruption=Q2]		(0.034)		(0.020)		(0.071)		(0.130)
Hometown Confucianism (standardized)		-0.044		-0.093		-0.314*		0.067
× 1[Local constraints on govt. corruption=Q3]		(0.029)		(0.079)		(0.182)		(0.193)
Hometown Confucianism (standardized)		-0.345***		-0.044		-1.294***		0.023
× 1[Local constraints on govt. corruption=Q4]		(0.056)		(0.029)		(0.404)		(0.070)
Local constraints on govt. corruption quartile FE x Year FE	X	X	X	X	X	X	X	X
Prefecture FE	X	X	X	X	X	X	X	X
Year FE	X	X	X	X	X	X	X	X
Individual controls	X	X	X	X	X	X	X	X
Leader controls	X	X	X	X	X	X	X	X
Leader birthplace controls	X	X	X	X	X	X	X	X
Observations	44,217	44,217	49,103	49,103	19,306	19,306	19,306	19,306
R-squared	0.081	0.082	0.083	0.083	0.076	0.076	0.076	0.076