

Can Cultural Norms Reduce Conflicts? Confucianism and Peasant Rebellions in Qing China^{*}

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ABSTRACT: Based on a panel dataset spanning 260 years (1651-1910) uniquely constructed on 107 counties of a northern Chinese province strongly steeped in the traditions of both Confucianism and peasant rebellions, we find that, while economic shocks as measured by crop failure trigger peasant rebellions, their effect is significantly smaller in counties characterized by stronger Confucian norms—as proxied by Confucian temples, schools, and folk customs. Our results are robust to the inclusion of a wide gamut of variables correlated with both Confucianism and peasant rebellions; these include state capacity, economic prosperity, social mobility, other cultural norms, and Western influence.

Keywords: Cultural norms, Confucianism, Economic shocks, Conflicts, Peasant rebellions

JEL Codes: N45, Z12

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1. Introduction

There is now more or less a consensus that economic (climate) shocks tend to trigger social conflicts (Collier and Hoeffler, 1998, 2004; Miguel, Satyanath and Sergenti, 2004; Bruckner and Ciccone, 2010; Bai and Kung, 2011; Besley and Persson, 2011; among others). But much less is known, at least empirically, about the potential attenuating effect of cultural norms on conflicts, despite the theoretical claim that such an effect exists (Rasmusen, 1996; Posner, 2000; Putnam, 2000; Funk, 2004).¹ By employing a unique dataset, we examine whether a set of cultural (Confucian) norms that have persisted for at least several millennia have had the benign effect of reducing social conflicts triggered by economic shocks.

We predicate our analysis on a specific form of social conflict—peasant rebellions—and examine whether the cultural norms associated with Confucianism served to attenuate the effect of economic shocks in triggering peasant rebellions in the last 267 years of China’s dynastic rule (the Qing dynasty, circa 1644-1911). We choose to study peasant rebellions because they are the principal form of social conflict in agrarian societies. In these societies, peasants live so close to subsistence, that periodic food shortages caused by the vagaries of weather easily give rise to what James Scott (1976) coins “subsistence ethic”—an ideology that justifies the occasional robbing and plundering for the sake of survival. The ties with which the peasant rebels have had with their village communities render them neither full-time military nor criminals, only someone forced to switch from farm work to robbery in times of economic hardship (Hobsbawn, 1972; Scott, 1976). This “two-faced” nature of peasants renders peasant rebellion a uniquely interesting form of conflict whose occurrence may occasionally be sparked by economic shocks.

To suppress this “subsistence ethic”, China’s emperors had tirelessly inculcated in the populace the Confucian norms throughout the country’s long history (circa 206 B.C. to 1911 A.D.).² By imposing shame and moral distress on those who fail to abide by the principles taught, Confucianism stresses the importance of “subordination”—of a subject to the ruler, of a son to his father, and of a wife to her husband; the intended result was conflict avoidance. To foster this ethos, the Chinese emperors developed an education and civil service examina-

¹ A notable example is shaming punishments, which involve deliberate public humiliation and moral distress of the offender, as alternative to the formal criminal justice system (Posner, 2000). Recent endeavors of the United Nations and other international communities in implementing a “peace education program” in those areas of Africa rife with civil conflicts are premised on this principle (UNICEF, 2009; Blattman, Hartman and Blair, 2011).

² It is easy to understand why the Chinese emperors were concerned about peasant uprisings. Throughout the country’s long history, peasant rebellions had directly overthrown Qin (221-207 B.C.), Han (202 B.C.–220 A.D.), Sui (581-618), Yuan (1271-1368), and the Ming dynasties (1368-1643) (Wakeman, 1975).

tion system based almost exclusively on the memorization of Confucian classics and rote learning,³ built temples to honor Confucius and his followers, praised the so-called chaste women (*lienn*) for the sacrifice they allegedly made by remaining widows or even committed suicide upon their husbands' deaths, and so forth.⁴ While the Confucian ethos was undoubtedly undermined during the tumultuous times of the Communist rule in the twentieth century, it has been revived and persists even to this day.⁵ Indeed, few civilizations have seen the persistence of cultural norms for such a long period of time, which presents an ideal situation for testing the possible effect of culture on conflict reduction.

To do this, we construct a panel dataset of 107 counties in Shandong Province that covers 260 years (1651-1910), a period that overlaps basically with the Qing dynasty. We choose the Qing dynasty for analysis because after several millennia of diffusion Confucianism had by then been firmly established as the cornerstone of morality in the Chinese society, permeating thoroughly to even the bottom rung of the social hierarchy (Yang, 1961; Ho, 1962). The primary reasons for choosing Shandong Province are two-fold. Foremost is that Shandong (Qufu County specifically) is the birthplace of Confucius, which explains why, throughout China's long imperial history a good number of emperors had zealously promoted Qufu as the "holy land" or Mecca of Confucianism. Choosing Shandong Province thus allows us to examine the purest effect of Confucian culture on reducing social conflicts. Shandong is also ideal for studying peasant rebellions because historically, certain parts of the province had been prone to both droughts and floods and had turned out to be the heartland of peasant rebellions in China.

Empirically measuring the strength or more specifically the popularity of Confucianism, however, is challenging. In light of the importance that the Chinese emperors accorded to religion, education and folk customs more generally, we employ the numbers of Confucian temples, schools, and chaste women to proxy for the strength of Confucianism. Given that cultural norms tend to evolve very slowly over time, our three measures of Confucianism should be fairly stable throughout the Qing dynasty.⁶

³ Established in the tenth century, the civil service examination was designed to select qualified candidates to serve in the state's bureaucracy.

⁴ The "virtuous" deed of steadfastly preserving purity and loyalty to their deceased husbands was held in the highest honor. These women allegedly exemplified the important virtues of Confucianism, namely subordination, loyalty and purity.

⁵ After being denounced during the Communist era, Confucianism was recently embraced, albeit cautiously by the Chinese Communist Party once again as the moral cornerstone on which to "re-establish" social morality and maintain a harmonious society. *The Economist*, April 28, 2011.

⁶ Given the strong correlation among these three measures we construct a single index of Confucianism by taking their first principal components so as to capture the *overall* strength of Confucian norms in a county.

To empirically assess if Confucian norms play any significant role in mitigating the effect of economic shocks on peasant rebellions, we rely on the results of the interaction between yearly incidence of crop failure in each county and Confucian norms within the framework of a generalized difference-in-differences approach. In addition to controlling for the county- and year-fixed effects, we also control for a host of factors—including military deterrence, population pressure (density), and terrain ruggedness (interacted with crop failure)—that may bear upon both peasant rebellions and Confucian norms.

But the effect of culture could still be confounded by other unobserved socioeconomic characteristics correlated with both Confucian norms and peasant rebellions. A notable case in point is state capacity, which is likely to reduce conflicts but may also simultaneously affect the diffusion of Confucian norms. To reduce this possibility, we expand our list of control variables to include the size of the local gentry (who in late imperial China were typically responsible for providing the local public goods), the capacity of famine relief (granaries) and taxation (grain revenue), and an interaction term between a county's political status (of being a prefectural capital) and the time-varying crop failures.

Another possible omission is economic prosperity, which is likely correlated with both the numbers of schools and temples, on the one hand, and peasant rebellions on the other. We control for this possible omission by employing the agricultural output of the major crops at the time and level of commercialization.

Then there is the issue of social mobility. In late imperial China, social mobility was achieved via success in civil service examinations, whose syllabi drew heavily on the memorization of Confucian classics. To rule out the possibility that Confucian norms may affect peasant rebellions via the channel of social mobility (i.e., those who failed the exam became a rebel), we control for the success in imperial exams in a county using the number of provincial degree holders (*juren*) as proxy.⁷

The same applies to Taoism and Buddhism (for which we control by enumerating their temples), given that these two religious-cum-philosophical beliefs similarly advocate harmony. By the same token, we also control for the possible effect of Western influence in the late Qing period; this we do by employing an interaction term between the county dummies and a time trend after 1860—a time when China became more opened up to the West.

⁷ The civil service examination is made up of three levels of degrees. The lowest level, the *shengyuan* (equivalent to a bachelor's degree), was taken at the county and prefecture levels. The next level up, the *juren* (equivalent to a master's degree), was taken at the provincial level. The highest degree, the *jinsshi* (equivalent to a doctoral degree), was taken at the metropolitan (palace) level (Chang, 1955; Ho, 1962). We choose the number of *juren* as the proxy for social mobility because this qualification facilitated entry into the civil service.

Last but certainly not least, since conflicts can destroy the physical infrastructures of temples and schools and lead to concerns about reverse causality, we restrict our sample to the period after 1790 (specifically of 1791-1910), as virtually all the Confucian temples and schools in our sample region had been erected by then.

Our empirical analysis finds that, while economic shocks as measured by crop failure do have the expected positive effect on the number of peasant rebellions, the effect is significantly smaller in counties with stronger Confucian norms. Our results remain robust after using the level of drought to instrument the endogenous incidence of crop failure, controlling for a myriad of factors that are potentially correlated with both Confucianism and peasant rebellions, and after using a restricted sample that allows us to eliminate the possibility of reverse causality. While we cannot rule out every single conceivable factor that might be correlated with both Confucian norms and peasant rebellions, we are reasonably confident that the evidence gathered is sufficiently robust in substantiating the claim that Confucian norms or culture have had a mitigating effect on economic shocks and accordingly peasant rebellions.

In addition to providing fresh empirical insights into the question of whether cultural norms have a mitigating effect on social conflicts triggered by economic shocks, our study also contributes to a small but growing literature that examines the direct effect of cultural norms on conflicts, violence and crime. For example, Voigtlander and Voth (2012) find that medieval anti-Semitism can explain the violence against the Jews in the 1920s. Similarly, Fisman and Miguel (2007) find that diplomats from countries with severe corruption proclivities have a tendency to commit unpaid parking violations in the United Nations.⁸ Of course, not all cultural norms have a negative impact on social behavior. We aim to demonstrate how, in the context of China's long history of civilization, the stable cultural norms of Confucianism had had the effect of mitigating social conflicts triggered by economic shocks. In this respect, our work coincides with that of MacCulloch and Pezzini (2010), who find that Christian beliefs have the benign effect of reducing the taste for revolts, and is in line with Buonanno, Montolio and Vanin's (2009) finding that a fear of social stigmatization and ostracism can similarly deter criminal behaviors.

The remainder of this paper proceeds as follows. The next section, Section 2, provides a

⁸ Other interesting examples of this endeavor include Miguel, Saiegh and Satyanath's (2008) study showing that the history of civil conflicts in a soccer player's home country—a proxy for a culture of violence—is positively correlated with his propensity to behave violently on the soccer field, and Beber and Blattman's (2013) study of the importance of rebel leaders' ideological indoctrination in the recruitment of child soldiers in Africa. Additionally, there are a number of studies examining the role of religious (ethnic) diversity in triggering religious (ethnic) conflicts (Fearon and Laitin, 2003; Collier and Hoeffler, 2004; Montalvo and Reynal-Querol, 2005).

historical background on peasant rebellions and Confucianism in late imperial China. Section 3 describes our sample and the construction of our variables. The effects of economic shocks and Confucianism on peasant rebellions are examined in Section 4. Section 5 deals with various estimation issues, first by adding a wide array of controls to our estimations, followed by restricting the sample period to 1791-1910 to address the potential problem of reverse causality. Section 6 provides a brief conclusion to the study.

2. Historical Background

2.1. Economic Shocks and Peasant Rebellions in Historical China

By and large peasant rebellions had afflicted the entire imperial China (221B.C.-1911A.D.), which for thousands of years had remained a predominantly agrarian economy subject to the vicissitudes of weather.⁹ In this “land of famine”, to borrow Mallory’s (1926) term, the repeated ravages of weather shocks, periodic food shortages (and famines in the more extreme instances) and accordingly peasant rebellions were indeed a recurrent feature of rural China’s economic and social reality.¹⁰

The periodic food shortages caused by the vagaries of weather easily gave rise to what James Scott (1976) coins “subsistence ethic”—one that justifies the occasional robbing and plundering by peasants when their subsistence is threatened (see also Hobsbawn, 1972). Frederic Wakeman’s (1975, p. 6) depiction of the Chinese peasant-rebel as someone who “constituted the economic foundation of traditional Chinese society” (by devoting their lives to laborious farm work), but also “stepped out of this role and momentarily attached themselves just as firmly to ambitious bandits at the head of rebel armies” when facing economic scarcity, testifies to the typical characterization alluded to earlier by Scott (1976). Indeed, this pattern of “time allocation” between farming and banditry augurs well with the records of Qing China’s Board of Punishments, which found that banditry was “usually a seasonal activity closely tied to the agricultural calendar”. In particular the “prime time for bandits” coincided with the slack farming seasons in the winter months of North China when there was little if any work to be done, with banditry falling off remarkably “after entering the busy agricul-

⁹ In fact, China remained an agrarian economy until the early twentieth century, with roughly 95 percent of the population still classified as peasants then (Zhang, 1931).

¹⁰ Evidence based on the past several thousand years shows that droughts had occurred in especially the north and central provinces at the rate of roughly once every seven years, whereas floods about once every four years (Mallory, 1926). Moreover, the lack of irrigation infrastructure in most places suggests that crop yields were totally dependent on the vagaries of weather (Sun, 1957).

tural season of Spring” (Esherick, 1987, pp. 22-3).¹¹

Thus, notwithstanding the fact that some well-known peasant rebellions in the course of Chinese history had resulted in dynastic decline, the vast majority of these revolts were of a significantly smaller scale involving no more than hundreds of people and assuming the form of merely local unrests, most notably banditry where the resource-rich and powerful officials were plundered in times of economic hardship. This feature is well illustrated in C. K. Yang’s (1975) study of social unrests that occurred during the second half of China’s Qing dynasty (1796-1911), where he found that less than 4.7 percent of the peasant rebellions enumerated could be classified as significant, i.e. involving over 10,000 participants.¹²

2.2. Confucianism

Moral suasion, especially when applied via the subtle indoctrinating influence of cultural norms, can be an effective means of governance. Throughout various dynasties, China’s imperial authorities had indeed appealed to the virtues of subordination and pacifism—the twin pillars of Confucianism—in suppressing the “subsistence ethic”.¹³ The founding emperor of the Ming dynasty (1368-1643), Zhu Yuanzhang, was convinced that “indoctrination is the key to govern a country”. As a matter of fact, most emperors in Chinese history had religiously adhered to the following creed from Confucius: “Lead the people with governmental measures and regulate them by law and punishment, and they will avoid wrongdoing but will have no sense of honor and shame. Lead them with virtue and regulate them by the rules of propriety, and they will have a sense of shame and, moreover, set themselves right” (*The Analects*).

Indeed, Confucianism had been actively promoted by various Chinese emperors as orthodox ideology (state religion) for over two thousand years (throughout almost the entire dynastic regime) on grounds of the powerful conviction that its “pacifist” doctrines are capa-

¹¹ This feature of peasant rebellions was found especially pervasive on the North China plain during the nineteenth century, where an “aggressive survival style”—articulated in the forms of banditry, organized feuds, and local militarization—saw the peasants switch repeatedly between farming and banditry conditional on the vagaries of weather (Perry, 1980).

¹² More specifically, there were altogether a total of 6,643 incidents of social unrests in the whole country in that period, or an average of about 57 incidents per year. The average number of participants in each incident of unrest ranged from less than 100 to over 1,000,000, and the duration from less than one month to several years. Ninety percent of these unrests were organized and carried out by peasants and occurred in the rural areas. Wolf (1969), Chesneaux (1973), Feuerwerker (1975), Tong (1991), and Rowe (2009) similarly provide a rich description of peasant rebellions in historical China.

¹³ According to historians of China, the use of moral suasion for social control was also a consequence of: a) the sheer area of the country and its population, and b) the lack of a modern, sophisticated bureaucratic system (Hsiao, 1960; Wakeman, 1975).

ble of discouraging conflicts and violence. As a complex system of ethics, Confucianism has persisted tenaciously for several millennia since sixth century B.C. when Confucius (551-479 B.C.) first began teaching. The gist of Confucianism, in a nutshell, is to pursue harmonious human relations through the cultivation or (more appropriately) indoctrination of the twin virtues of subordination and pacifism.¹⁴ Embodied in the *Three Guiding Principles* (*sangang*), which had been actively promoted throughout various imperial regimes, the Confucian ethics advocate specifically the subordination of a subject to the ruler (with a distinct emphasis on loyalty towards the emperor—the so-called “Mandate of Heaven”), of a son to his father and of a wife to her husband. By distinctly emphasizing filial piety and subordination within the family, the latter two principles constitute the micro-basis justifying subordination to the rulers—the first and overriding principle (Yao, 2000).

While the *Three Guiding Principles* lay down a clear subordinating relationship between actors within both the society and family, the *Five Constant Regulations* (*wuchang*) stress a number of social norms (compassion, righteousness, propriety, wisdom, and faithfulness), the violation of which would lead to severe penalty in the form of stigmatization and ostracism within one’s community and family. Fear of such punishments, it is believed, would help suppress violence and reduce conflicts (Yao, 2000).

2.3. The Diffusion of Confucianism among the People

From (as early as) the West Han dynasty (206 B.C.–9 A.D.) onwards, the imperial authorities had consciously and persistently promoted the Confucian virtues through: 1) the erection of temples for worshipping and honoring Confucius and those adhering religiously to his cardinal principles, 2) the formal education system, and 3) honoring behavior that emphasized these principles.

The erection of Confucian temples within which the associated rituals could be practiced represented an important means of promoting Confucianism (Yang, 1961; Ho, 1962; Chow, 1994). Specifically, local governments were required to build temples and to perform sacrificial rites to worship the Confucian sages like Confucius and Mencius and their followers (the Confucian scholars).¹⁵ To complement this endeavor, local officials and gentry,¹⁶ like their

¹⁴ From the Confucian perspective, the causes of conflict lie in one’s own heart; people will naturally have peace when the heart is at peace; it is not riches or power, but virtuous manners that constitute harmonious human relations. In contrast, an uncultivated character causes one to be unhappy and prone to complaints, triggering conflicts and violence (Yao, 2000, pp. 179-80).

¹⁵ Emperor Yongzheng (1722 to 1735) of the Qing dynasty decreed that counties should build temples in which men (and women) who excelled in filial piety and loyalty should be duly honored. With guidance provided by the imperial court, elaborate and complex sacrificial rites and ceremonies were

Western missionaries counterparts, similarly put a great deal of effort into popularizing Confucianism by persuading peasants of the importance of the moral principles underpinning the Confucian values (Chang, 1955; Wakeman, 1975; Fairbank and Reischauer, 1989).¹⁷

In the realm of education, Confucian classics were almost exclusively taught in schools (Weber, 1922; Elman, 2000; Yuchtman, 2010), mainly because social mobility could only be achieved via passing the imperial civil service examinations, which were drawn heavily on the memorization of Confucian classics and rote learning.¹⁸ In addition, Confucianism was favored for the moral impact the emperors believed it would have on the public (Rawski, 1979). By around the late fourteenth century, an elaborate school system had been established, and, after allocating resources to support the elementary schools, in 1652 the Qing court decreed that every township must set up a school and to select teachers with “honest and sincere character”. The emphasis on a Confucian-based examination system allegedly had the effect of allowing families from a “commoner” background—meaning families without educated literati or gentry scholars as members—to study Confucianism and possibly even achieve success in the imperial exams (Ho, 1962; Rawski, 1979).

Last but not least, Confucian norms were also diffused through publicly praising local examples of laudable behavior and conduct. A notable Confucian exemplar was “chaste women” or *lienv*, who were basically widows who had vowed not to remarry or, at the extreme, even committed suicide after their husbands’ deaths, in order to demonstrate their unshaken determination to preserve fidelity and loyalty to their (deceased) husbands until death.¹⁹ Reflecting the Confucian ethics of subordination and loyalty (which serves as the

periodically held to honor those Confucian sages whose images or tablets were enshrined in the Confucian temples. It is believed that the religious, social, and psychological dimensions of these rituals are most effective in perfecting the characters of the people toward those of the exemplary sages (Yao, 2000).

¹⁶ According to Wakeman (1975), “every gentry was deeply schooled in ethical Confucianism and passed a set of imperial examinations drawing heavily Confucian classics, and insisted that the duty of a gentleman was the moral improvement of society” (p. 25).

¹⁷ To nurture people’s understanding and acceptance of the Confucian values, an imperial edict was decreed in 1670 by Emperor Kangxi that the “sixteen moral doctrines” had to be taught twice a month.

¹⁸ Confucian classics refer to the Four Books of *Great Learning*, *Doctrine of the Mean*, *Analects*, and *Mencius*, and the Five Classics of *Book of Changes*, *Classic of Poetry*, *Classic of Rites*, *Classic of History*, and *Spring and Autumn Annals* (see Nylan, 2001 for details). Students began their studies as young children by learning basic Chinese characters and memorizing the thousands of characters composing the Confucian classics. They then went on to master and memorize the Four Books and the Five Classics, and to practice their composition skills of the eight-legged essays that were required in the examinations. Small surprise, students at the time had little incentive to acquire knowledge beyond what was required for exam success (Elman, 2000; Yuchtman, 2010).

¹⁹ The deeds of chaste women were recorded in detail in the local gazetteers during the Ming and Qing dynasties. An example is Jing Shi, a native of Licheng County, Shandong Province, who was

foundation of subordination to the ruler), chaste women were held in the highest regard by the imperial authorities and greatly honored in their own local communities from as early as the Zhou dynasty (1046–256 B.C.). During the Ming and Qing dynasties, the imperial authorities promoted this virtue to an unprecedented level. Not only were a set of sophisticated laws established for the sake of canonizing the chaste women, rituals were also developed for honoring them (Chow, 1994; Mann, 1997). For example, after getting nominated by the local gentry, candidates were subjected to strict scrutiny by various levels of government authorities before their “purity” was certified and the coveted honor of a chaste woman was eventually conferred on them by the court. After receiving the honor, memorial archways would be constructed in their hometowns to broadcast these virtues.

Not unexpectedly, the number of chaste women increased by leaps and bounds in late imperial times. Indeed, historical records indicate that, when measured on a decadal basis only one chaste woman had been identified in every one million of the population in the Yuan dynasty (1271-1368), but that number increased sharply to 13 and 16 during the Ming and Qing dynasties respectively (Appendix Figure A1).²⁰ This surge suggests the growing importance that the imperial authorities had placed upon the Confucian ethics and norms as the last Chinese dynasty approached its eventual decline.

After two thousand years, Confucian ideology had arguably permeated the entire social strata and established itself as the predominant social norms among the Chinese populace (Yang, 1961; Ho, 1962; Fairbank and Reischauer, 1989). This may be evidenced, at least in part, by the fact that every township in Qing China had a temple built to honor and venerate Confucius and his followers, to the degree that veneration of the Confucian sages is likened to the Christians’ worship of Jesus Christ and the Muslims’ reverence for their prophet Mohammed (Carus, 1918, p. 155).

The effective diffusion of Confucian values and norms can also be gleaned from the fact that the overriding goal of suppressing the Taiping Rebellion (1850-1864) was intended not so much to protect the Manchu regime as to uphold Confucianism against a distorted interpretation of Christianity—the Society of God Worshippers, or *Bai Shangdi Hui* (Fairbank and Goldman, 1992).²¹ Likewise, the patriotic Boxers of the late nineteenth century who ended up

conferred the honor of a chaste woman for her determination to continue looking after her parents-in-law after her husband passed away when she was only 28 (*Licheng Gazetteer*, 1926).

²⁰ The data on chaste women are obtained from the *Gujin tushu jicheng* (*Great Collection of Ancient and Modern Books*) (1726).

²¹ With the most profound demographic consequences in Chinese history (the number of casualties was estimated to range between 50 [Perkins, 1969] and 73 million [Cao, 2000]), the Taiping Rebellion may be regarded as a “holy war” waged on Confucianism. It arose out of a disdainful denunciation of

killing many Western missionaries and Chinese communicants did so out of the intentions to preserve the Confucian values (Spence, 1990).²² Last but not least, that Confucian norms had firmly established itself in the Chinese society was also borne out in the New Cultural Movement (1915-1921)—the Chinese “Renaissance” that occurred shortly after the collapse of the Qing dynasty, wherein the Confucian culture was thoroughly condemned as being the key contributing factor to China’s failure to develop the economy and democracy (Schwartz, 1983).

The crux, for our purpose, is whether the diffusion of Confucian ethics played a role in reducing social conflicts or specifically peasant rebellions. Anecdotal evidence suggests it did. For example, the prevailing popular expression “be a peaceful dog [rather than] a rebel” clearly opined that one should strive to become a “courteous gentleman” rather than a “martial knight”. Even the peasant rebel army head Li Zicheng (1606-1645) and many other social bandits,²³ who were forced (by adverse circumstances) into such roles, maintained a reverence for Confucius, to the extent that the Confucius family mansion and temples in the hometown of Confucius were effectively spared from their plundering (Zeng, 1876). We thus expect that the diffusion of Confucian values and norms in China to have played a significantly positive role in reducing peasant rebellions.²⁴

3. Data

3.1. The Sample

To examine the effect of Confucianism on peasant rebellions, we construct a panel dataset that covers the 107 counties of Shandong Province throughout the 260 years of China’s Qing dynasty (1644-1911). There are good reasons for choosing Shandong on the North China Plain (Appendix Figure A2) for examining the possible effect of Confucianism on peasant rebellions. Foremost is that, being the birthplace of Confucius (Qufu County to be precise)

Confucianism and the Qing rule, and was suppressed by two army generals who were Confucian scholars—Zeng Guofan was a *jinsbi* and Zuo Zongtang was a *ju ren* (Fairbank and Goldman, 1992).

²² China was forced to open up to the West after its defeat in the First Opium War (1839-1842) and the signing of a series of so-called “unequal treaties”, particularly the Tianjin Treaty of 1860, which resulted in a more thorough penetration by the foreigners. A group of spontaneously formed, patriotic anti-imperialists in 1900 known as the “Boxers” attacked the foreign missionaries and communicants for the alleged superiority the latter imposed upon the Chinese, which essentially was underpinned by a clash of values between Confucianism and Christianity (Esherick, 1987).

²³ Li Zicheng was a famous peasant rebel leader who overthrew the Ming dynasty.

²⁴ In his book *The Origins of the Boxers Uprising*, historian Joseph Esherick (1987) similarly finds that, Confucianism’s lack of popularity in southwestern Shandong (especially Caozhou Prefecture) was an important reason behind the dominance of heterodox sects, which orchestrated endemic crime, banditry, and revolts in times of economic hardship.

and many other great Confucian sages, Shandong Province was the origin of the orthodox Confucian culture.²⁵ Its sacrosanct importance was reinforced in late imperial (Qing) times as some emperors, most notably Kangxi and Qianlong, chose to perform sacrificial ceremonies and built more temples there, and granted feudal nobility to descendants of the great Confucian sages who continued to live there (Elliott, 2009). While the county of Qufu and its neighboring regions allow us to examine the effect of Confucianism on peasant rebellions, there were regions within the province that were distinctly weak in the Confucian tradition. This sharp contrast within Shandong Province thus provides us with substantial variations across the counties for examining the effect of Confucianism on peasant rebellions (more on this below).

Second, historically the western plain of Shandong Province was frequently struck by natural calamities. While droughts were a common occurrence, the Yellow River—the second largest river in China that runs from western Shandong to the sea—occasionally breached its levees to flood the western plain (Appendix Figure A3). By contrast, the eastern part of Shandong (the peninsula) enjoyed a reliably plentiful supply of rainfall and was far away from the flooding areas of the Yellow River. By the mid-to-late nineteenth century the Yellow River had shifted its course repeatedly (1852-1887) and resulted in series of floods, leading to widespread crop failures. Even more unfortunate was that such mishaps were followed on close heels by the great drought of 1896-1897, resulting in a large-scale famine in Shandong and other parts of North China.

Accordingly, certain pockets in west Shandong were also home of the social bandits and popular unrests in historical China (Esherick, 1987). One of the four classic Chinese novels, the *Water Margin* (also known as *Outlaws of the Marsh*), which tells a tale of how a group of 108 outlaws gathered at Mount Liang (or *Liangshan* Marsh) to form a sizable army to resist the government, was set in southwest Shandong in the early twelfth century (the Song dynasty). By the late nineteenth and early twentieth centuries, Western missionaries saw southwestern Shandong as the place where the “classic Eldorado of bandits” were gathered (Stenz, 1897). Appendix Figure A2, which is constructed based on statistics compiled by C. K. Yang (1975), clearly shows that Shandong was indeed among the provinces with the most frequent out-

²⁵ Both Confucius and the majority of his disciples came from Qufu County or its nearby regions. His disciples, many of whom subsequently became great Confucian sages or scholars themselves, continued to spread Confucius’ doctrines back in their hometowns or other places near Qufu (Esherick, 1987; Legge, 1991). That was why Qufu was promoted as the “holy land” of Confucianism by various imperial authorities from the Han dynasty (202 B.C.-220 A.D.) onwards (Forsyth, 1912).

break of peasant rebellions during the Qing dynasty—with over 20 incidents per 10,000 km² between 1796 and 1911.

It is also worth mentioning that, with a land area approximately 20 percent larger than that of England, and with more than a hundred counties (107) with sufficient variations in culture, weather conditions, and peasant rebellions (see subsections 3.2 and 3.3 for details), Shandong Province is uniquely suitable for conducting a study of this nature. Not to mention that, as a single-province study this study avoids the unobserved heterogeneities that typically afflict other studies involving cross-country comparisons.

We choose the Qing dynasty (1644-1911) to be our sample period because, as we have pointed out in subsection 2.3, Confucianism had by then become deeply ingrained in the Chinese society after several millennia of promotion by many emperors. We begin our analysis from 1651 onwards to exclude those social unrests carried over from the Ming dynasty. Similarly, we end our analysis in 1910 just to avoid the complicated political circumstances that clouded the final year of the Qing dynasty (1911).

3.2. Measures of Peasant Rebellions and Economic Shocks

The dependent variable, peasant rebellions, is measured by the number of uprisings that reportedly occurred in a county on a yearly basis, on which detailed records on the place and time of each peasant rebellion were meticulously compiled by the Qing court (*Veritable Records of the Qing Emperors*).²⁶ According to Chinese historians, the *Veritable Records of the Qing Emperors* (*Veritable Records* hereafter) are the most complete and systematic source of original information on social unrests that occurred during the Qing dynasty. Indeed, C. K. Yang (1975) checked the accuracy of the entries on peasant rebellions by comparing those listed in the *Veritable Records* against those enumerated in 40 county gazetteers of six provinces, and found that the *Veritable Records* did adequately cover the details of virtually all the reported social unrests (specifically the location and time of occurrence). Figure 1(a) shows the striking contrast in the intensity of peasant rebellions across the counties within Shandong Province. For example, whereas those counties in the south and southwestern regions were heavily afflicted, the other parts of the province were decidedly more peaceful.

Being a rain-fed agrarian economy, China was susceptible to economic shocks, which oftentimes resulted in crop failures. To measure such shocks, we employ a dummy variable to indicate whether a county had experienced crop failures in the previous year. Our data source,

²⁶ Unfortunately, the *Records* contained no systematic information on the size and causes of the rebellions—they were all uniformly referred to as “*feiluan*” (bandit unrests).

namely the *Veritable Records of the Qing Emperors*, also contained detailed reports on counties suffering from crop failures that resulted from natural disasters on an annual basis.²⁷ Figure 1(b) shows that counties in the western regions were prone to crop failure, but the other parts of the province were relatively immune to it.

[Figure 1 about here]

3.3. Measures of Confucian Norms

Our main challenge is constructing a valid measure to proxy for the strength of Confucianism. Unlike other religions (such as Christianity), whose strength can be measured by, for instance, the share of communicants in a population (e.g., Becker and Woessmann, 2009), Confucianism resembles more of a set of social norms, and therefore lacks a clear-cut standard with which to identify the true believers. After careful deliberations, we came up with what we think are reasonable proxies for the strength of Confucian norms.

Our first measure of Confucian norms is the number of Confucian temples that a county had established. Our choice is premised on the reasoning that stronger Confucian norms would likely give rise to more Confucian temples being built, which would in turn deepen these norms (Ho, 1962). According to the Qing court, Confucian temples were differentiated based on whether they were specifically erected for honoring Confucius (*wenmiao*), for honoring the notable officials and local virtuous Confucians (*minghuan xiangxian ci*), or for honoring the local loyal and filial men (*zhongxiao jieyi ci*) (Yao, 2000). As with the other important social and economic affairs of the time the Qing government kept systematic records of these temples in local gazetteers (*Provincial Gazetteer of Shandong*, 1890s).

The number of school is our second proxy, as Confucian classics made up the core of the curriculum. In this light, the strength of the Confucian norms was likely correlated positively with the number of schools. The *Provincial Gazetteer of Shandong* (1890s) contains detailed information on the number of schools (and their composition) in each county.²⁸

Our third measure is the number of chaste women officially elected by the Qing court. Due to data limitations, we can only cover the period 1644-1890—about two decades before the Qing dynasty came to an end. We consider chaste women a valid proxy for Confucian

²⁷ The natural disasters enumerated in the *Veritable Records of the Qing Emperors* included droughts, waterlogged land, floods, locust plagues, and earthquakes.

²⁸ There were four kinds of schools at the county level. The official county school, *xianxue*, was financed and administered by the county government, whereas the academies, *shuyuan*, the community schools, *shexue*, and private tutors, *sishu*, were run by the local literati and gentry.

norms because, as discussed in subsection 2.3, the deeds of the chaste women were considered an ultimate expression of the Confucian virtues pertaining to purity, loyalty, and subordination, and thus represented a code of conduct that the Qing government was eager to promote. Moreover, unlike schools and temples, it is less likely for chaste women to be correlated with economic prosperity.²⁹ Officially conferred by the court, the honor of chastity was also recorded in local gazetteers (*Provincial Gazetteer of Shandong*, 1890s).

To account for the possible effect of county size on our independent variables, we normalize them primarily by land area (per 10,000 km²).³⁰ To reduce skewness in our three measures, we express them in terms of natural logarithm.³¹

Figures 1(c-e), which respectively show the numbers of Confucian temples, schools, and chaste women (per 10,000 km²) at the county level in Shandong Province, indeed reveal a positive relationship among the three measures. To see if that is the case we examine their correlation in Appendix Table A1, and find that they are indeed positively correlated with each other at the 1% level of significance and with a coefficient of greater than 0.5. Moreover, the geographic distribution of each of these measures apparently supports the idea that Confucian norms were distinctly stronger in the “holy land” of Confucianism. For instance, Figures 1(c-e) show that there were indeed more schools, temples, and chaste women in Qufu and its surrounding counties, as well as in the northwestern part of the province than elsewhere in the province.

Finally, in light of the strong correlation among Confucian temples, chaste women, and schools, we construct a single index of Confucianism by taking their first principal components so as to capture the *overall* strength of Confucian norms in a county. In estimating the effect of Confucian norms, we use the single, aggregated index as our primary measure, and cross check its robustness with the separate proxies individually.

Since the *Provincial Gazetteer of Shandong* (1890s) does not provide any temporal variations in the numbers of Confucian temples, schools, and chaste women, we are treating the strength of Confucian norms as time-invariant. This is also consistent with the fact that cultures are likely to remain stable over a long period of time (e.g., Boyd and Richerson, 1985; Putnam, 1993; Tabellini, 2010; Nunn and Wantchekon, 2011). This is arguably the case for

²⁹ Indeed, Western historians condemn Confucian chastity as being “completely lost (of) any rationality and out of touch with reality” (Theiss, 2004, p.1).

³⁰ Since systematic population data are unavailable at the county level during the Qing dynasty, we thus rely on the normalization using a county’s land area.

³¹ As some counties had no schools (zero value), we use $\ln(1 + \text{number of schools})$ as the pertinent measure.

Confucianism, which had become firmly established as the orthodox ideology in China since the thirteenth century (Fairbank and Reischauer, 1989).

3.4. Baseline Controls

Military Deterrence. Rebellion is not without cost. A direct cost of peasant rebellion was suppression by the imperial authorities. To proxy for this cost we employ not only the number of imperial soldiers stationed in a county but also those in its (contiguous) neighboring counties in each year as the pertinent proxy, for the reason that the latter could be easily deployed to help suppress an uprising. The pertinent data are obtained from the *Provincial Gazetteer of Shandong* (1890s), which records the number of imperial soldiers stationed in each county over time.

Population Pressure. In agrarian societies, the occurrence of rebellions was usually a consequence of cumulative population pressure (Malthus, 1798; Bruckner, 2010). This was arguably the case in historical China, where the population grew rapidly in the Ming and Qing dynasties (Cao, 2000). We therefore control for population pressure using population density as the pertinent measure. Since population data are available at only the prefecture level (an administrative unit between the province and the county) for 1776, 1820, 1850, and 1910, we employ a linear interpolation of population density for the missing years as an approximation, premised on the reasoning that demographic variables tend to change slowly over time (see Jia, 2013).

Terrain Ruggedness. Geographic factors in general and terrain ruggedness in particular have long been considered a potential co-determinant of conflict (Fearon and Laitin, 2003). In our historical context, the rugged mountainous terrain in southern Shandong Province arguably provided an ideal nest for the bandits and outlaws (Esherick, 1987) (Appendix Figure A3). But rugged terrains are typically ill-served by the transport infrastructure and thus would impair the diffusion of Confucianism.³² To control for this effect we calculate the average terrain ruggedness for each county based on the method employed by Nunn and Puga (2012).³³

³² The effect of terrain ruggedness on development has recently received growing attention from economists. Nunn and Puga (2012), for example, have shown that the rugged terrain in parts of Africa protected the Africans from being raided during the slave trades (as these parts are more difficult to access), which in turn had a positive if indirect effect on contemporary income.

³³ Terrain ruggedness is measured in meters of elevation difference for grid points 3 arc-seconds apart. The elevation data are obtained from Hole-filled SRTM for the Globe, Version 4, CGIAR-CSI SRTM 90m Database (<http://srtm.csi.cgiar.org>). We match the elevation map to the Qing county-boundary map, the latter of which is obtained from Harvard-Yenching's (2007) CHGIS, and average all grid cells to obtain the average terrain ruggedness for each county.

Details on the sources of all the variables and their descriptive statistics are provided in Appendix Table A2.

3.5. Descriptive Evidence

Figure 2, which maps the yearly incidence of both peasant rebellions and crop failures in Shandong Province from 1651 to 1910, shows the close association between the two over time. Where there were few crop failures, as was the case before 1800, there were correspondingly few rebellions. But as the number of crop failures climbed rapidly after 1800 and peaked in 1850-1870s, the number of peasant rebellions surged in this period as well.

[Figure 2 about here]

Figure 3 shows the yearly difference in the number of peasant rebellions among counties in which Confucianism has diffused to varying degrees. For simplicity, we classify those counties with an indexed measure of Confucianism above (below) the mean of 0.198 as having strong (weak) Confucian norms. We find that, when crop failure occurs, the number of peasant rebellions in counties with strong Confucian norms is fewer than that in counties with weak Confucian norms. On average, the number of peasant rebellions (per county per year) is 0.046 in the former instance, whereas it is 0.066 in the latter. Evaluated at the mean of 0.056, this difference accounts for 35% of all peasant rebellions occurring in counties in times of crop failure. Together, Figures 2 and 3 provide intuitive support to the hypotheses regarding the role crop failures play in triggering peasant rebellions and specifically the mitigating effects of Confucianism, of which we will examine in Section 4.

[Figure 3 about here]

4. Empirical Results

4.1. The Effect of Economic Shocks on Peasant Rebellions

Before examining the effect of Confucian norms on peasant rebellions, we first examine whether economic shocks were indeed a primary source of peasant rebellions using the following OLS specification:

$$y_{it} = \beta_1 shock_{it-1} + \gamma_1 X'_{it} + county_i + year_t + \varepsilon_{it} \quad (1)$$

where y_{it} denotes the number of peasant rebellions in county i in year t , $shock_{it-1}$ denotes the variations in economic shocks as measured by the crop failure dummy in the previous year, X'_{it} denotes a vector of control variables including the cost of rebellion, population density, and terrain ruggedness. $county_i$ refers to county fixed-effects that capture the time-invariant and county-specific factors, whereas $year_t$ indicates year fixed-effects, which capture the common trend faced by all the counties.³⁴ ε_{it} is an error term that captures all other omitted factors.

Crop failure may be endogenous. Counties with better irrigation structures, for example, are likely less susceptible to crop failures. To address this concern, we employ the unusual levels of rainfall in drought and waterlogging episodes (hereafter “extreme rainfall”) as the instrumental variable for crop failure.³⁵ The rainfall data are obtained from the *Atlas on the Spatial Distribution of Drought and Waterlog in China for the Recent Five Hundred Years*, compiled by the China Meteorological Administration (1981). The rainfall level is differentiated on a scale of 0 to 2, with 0 indicating normal weather conditions, 1 indicating slight drought or waterlogging, and 2 indicating severe drought or waterlogging.³⁶ Reported in column (2) of Appendix Table A3, the regression results reveal a significant and positive relationship between the level of extreme rainfall (due to either drought or waterlogging) and the incidence of crop failure.

We report the results in Table 1. We report the OLS estimate of crop failure in columns (1) and (2). To provide a baseline, we do not include the control variables initially (column (1)). To control for serial correlation we cluster the standard errors at the county level.³⁷ The result shows that economic shocks have a significant and positive effect on peasant rebellions across all the estimations. In terms of magnitude, the coefficients in columns (1) and (2) indi-

³⁴ A notable example of this common trend is changing state capacity over time, which historically was stronger at the beginning (and in the middle) of a dynasty but declined toward the end (Goldstone, 1991; Sng, 2011).

³⁵ A more direct approach of examining the exogenous effect of economic shocks is to employ extreme rainfall as the pertinent measure. As shown in column (1) of Appendix Table A3, both drought and waterlogging have a significantly positive effect on the number of peasant rebellions. But since in peasant societies extreme rainfall is not as direct a measure of income shock as crop failure, we continue to use crop failure as our key measure of economic shock and employ extreme rainfall as the pertinent instrument.

³⁶ The original values in the *Atlas* are given a range of 1 to 5, with 1 standing for severe drought, 2 for slight drought, 3 for normal weather conditions, 4 for slight waterlogging, and 5 for severe waterlogging. To combine the two measures in the same direction, we convert 3 (normal weather conditions) to 0, 2 and 4 to 1 (slight drought or waterlogging), and 1 and 5 to 2 (severe drought or waterlogging).

³⁷ Given that peasant rebellions can be contagious as they can easily spread from one county to another (spatial correlation), we employ the two-way standard errors clustered not only at the county level but also at the year \times prefecture level (the pertinent results are reported in Appendix Table A5).

cate that the number of peasant rebellions in counties with crop failures is about 0.01 times higher than in counties without crop failures. Evaluated at the mean (0.03), this difference accounts for one-third of the total number of peasant rebellions occurred. We report the instrumented results in column (3). Consistent with the observation that peasant rebellions in Shandong Province were triggered mainly by droughts (Esherick, 1987), we indeed find that the instrumented result is significant only where drought but not waterlogging is employed to instrument crop failure.³⁸

[Table 1 about here]

4.2. The Effect of Confucian Norms on Peasant Rebellions

Now we turn to examine whether Confucian norms are able to mitigate the effect of crop failures on peasant rebellions. We employ the specification in Equation (2):

$$y_{it} = \beta_2 shock_{it-1} + \beta_3 Confucianism_i \times shock_{it-1} + \gamma_2 X'_{it} + county_i + year_t + \varepsilon_{it} \quad (2)$$

where $Confucianism_i$ denotes the time-invariant strength of the Confucian norms as measured by the aggregated index of Confucian temples, schools, and chaste women. The interaction term $Confucianism_i \times shock_{it-1}$ is our key variable of interest, included to estimate the possible effect of Confucian norms. Specifically, we expect the effect of economic shocks to be smaller in counties with a stronger diffusion of Confucian norms. Should that be the case, the sign of the coefficient β_3 should be significantly negative.

Before examining the possible mitigating effect of Confucianism based on Equation (2), we first examine whether or not Confucianism has any direct effect on peasant rebellions. Since the Confucianism index does not vary with time, we are restricted to employing the random-effect regressions. The pertinent results are reported in columns (1) and (2) of Table 2, which confirm the significant effect of Confucianism on reducing peasant rebellions. To check their robustness, we convert the panel data into cross-sectional data and run the regressions again. Reported in columns (3) and (4), the results reaffirm the earlier findings. For robustness we also use the three separate measures of Confucianism and obtain consistent results (Appendix Table A4).

³⁸ It is possible that peasant rebellions may reflect the tenacious persistence of poverty accumulated from shocks in the past. To capture this effect, we ran the regressions again by aggregating the number of crop failures that occurred in the past ten years, with values ranging from 0 to 10 to indicate the degree of severity. The results (not reported) show that crop failures accumulated over the past decade also significantly impacted peasant rebellions (in the current year).

[Table 2 about here]

In Table 3, we examine whether Confucian norms are able to mitigate the effect of crop failures on peasant rebellions based on the specification of Equation (2). Across all regressions the county- and year fixed-effects are fully controlled for. To provide a baseline, we do not include the control variables initially (column (1)). In column (2) we include all other baseline controls (military deterrence, population density, and terrain ruggedness), and in column (3) we employ the level of drought to instrument the incidence of crop failure. The results show that, while the effect of crop failures is significant and positive, its interacting effect with Confucian norms has a significant and *negative* impact on peasant rebellions across estimations. To check the robustness of the single index measure of Confucianism we also report the results using Confucian temples, schools, and chaste women separately and find them to be the same (Appendix Table A5).

[Table 3 about here]

5. Robustness

In examining the relationship between culture and conflict, a formidable task is to disentangle the effects of culture from those of other variables, most notably institutional environment and its attendant socioeconomic conditions (Fisman and Miguel, 2007; Miguel, Saiegh and Satyanath, 2008). This is especially the case in the Chinese context because Confucianism, as state orthodoxy, was more than just a culture as it had long been promoted and embedded in state institutions and the education system, affecting both governance and social mobility (see below), not to mention its possible (morally) constraining effects among the populace. Against this background, one might wonder if the effect of Confucian norms (in Table 4) came instead from other omitted factors correlated with both Confucian norms and peasant rebellions. To address this concern, we add a vector of controls based on the pertinent literature and the specific historical context of China.

5.1. Confucianism and State Capacity

It is widely assumed that state capacity plays an important role in determining conflict (Fearon and Laitin, 2003; Abadie, 2006; Besley and Persson, 2011). In particular, to the extent that local authorities were required to consciously promote Confucianism in imperial China as

state orthodoxy, spatial variations in the strength of Confucian norms were likely to be correlated positively with state capacity. To address this concern, we construct several measures to proxy for state capacity at the county level in Qing China.

The first is local gentry, for which we proxy by the number of *shengyuan* (the lowest) degree holders who passed imperial exams at the prefectural and county levels. Apart from the few who managed to obtain *juren* (provincial level degree) and/or *jinshi* (palace level degree), which in those days represented a passport for subsequent appointment in the government bureaucracy, the majority of *shengyuan* degree holders were destined to stay behind in their hometowns and served as the local gentry; whose role, importantly, was to administer a whole host of affairs ranging from public goods provision, disputes resolution, coordination between the government and commoners, and tax collection (Chang, 1955). In this context, the size of the local gentry in a county would be a reasonable proxy for the capacity of local governance (the precise number of which can be obtained from the *Provincial Gazetteer of Shandong* (1890s)).³⁹ Our measure of local gentry is thus consistent with the conventional definition of state capacity according to economists as the institutional (or governance) quality or the ability to implement a wide range of policies (see, e.g., Besley and Persson, 2009). Specifically, we employ the annual (log) size of the local gentry (per 10,000 km²) at the county level to be the pertinent measure.

A related but more specific measure of state capacity is the ability to provide famine relief. In late imperial China, the Qing administration, together with the local gentry, had striven to use granaries as a means to provide temporary relief to victims of natural calamities (Shiue, 2004). We expect that government relief measures could effectively reduce peasant rebellions in times of economic hardship. As we have no information on the actual amount of grain stored in each county, we employ the capacity of the granaries in a county, taken from the *Provincial Gazetteer of Shandong* (1890s), to proxy for the possible effect of famine relief.

According to Tilly (1990), state capacity may also be reflected in the ability to levy tax (fiscal capacity). We employ grain revenue (in silver *liang*) per *mu* (1 Chinese *mu* is equivalent to 666.7 square meters) to proxy for a county's fiscal capacity. The pertinent data are extracted from the *Provincial Gazetteer of Shandong* (1890s), which provides grain revenue in the 1890s at the county level. Since we have only the cross-sectional variations of grain revenue, we interact it with crop failure to obtain the temporal variations.

To add more confidence to our measure of state capacity, we employ an additional proxy—a dummy variable indicating whether a county is also the seat of a prefectural gov-

³⁹ The local gentry may also include some *juren* degree holders who failed to obtain any appointment in the government bureaucracy. Unfortunately, data on their number are unavailable.

ernment (Appendix Figure A3). Typically, governance was likely stronger in counties where a prefectural government was seated. Since prefectural seat is time invariant, we interact it with crop failure.

The results after controlling for various measures of state capacity are reported in column (1) of Table 4. As we can clearly see, Confucian norms still have a significant and negative effect on the number of peasant rebellions. Since our primary focus is the effect of economic shocks and Confucianism, we only show their coefficients in Table 4 and relegate the others to Appendix Table A6.

[Table 4 about here]

5.2. Confucianism and Economic Prosperity

Economic prosperity is another possible omission that may be correlated with both Confucian culture and peasant rebellions. On the one hand, the economically prosperous counties were better poised to alleviate the income shocks associated with crop failure; on the other hand the rich counties were better able to promote the Confucian culture by erecting more Confucian temples and schools.

To proxy for this effect, we control for a county's total agricultural output of its main crops (wheat, maize, broomcorn, and potato), which we normalize by their planting acreage before taking natural logarithm. A drawback of this measure is that systematic data on actual agricultural output do not exist for the Qing period so we have to rely on comparable data in the 1930s, which we obtain from *zhongguo shiye zhi* (*Gazetteer of China Industries*), compiled in 1933 by the Ministry of Economic Affairs, Republic of China. In addition, in order to control for the varying degrees of commercialization, we employ a dummy variable indicating whether a county was a designated regional commercial center in Shandong Province during the early (1644-1730), mid (1731-1820), and late (1821-1911) Qing periods. The pertinent data are obtained from the *Provincial Gazetteer of Shandong* (1890s). The results after controlling for both agricultural output and commercialization are reported in column (2) of Table 4. The effect of Confucianism remains highly robust.

5.3. Social Mobility, Taoism and Buddhism, and Western Influence

It is also necessary to control for social mobility as it is likely correlated with both Confucianism and peasant rebellions. For instance, we know that social mobility in Qing China was intimately tied to Confucianism, given that the imperial examination drew heavily on the mem-

orization of the Confucian classics and rote learning (Ho, 1962; Elman, 2000). Likewise, social mobility is also likely a partial correlate of social conflict. For example, in areas of high (low) social mobility people were likely more (less) willing to invest in civil examination than to engage in unlawful behavior.⁴⁰ Given the relationships between social mobility on the one hand and respectively Confucianism and conflict on the other, we control for social mobility using the annual change in the number of provincial degree holders (*juren*) (per 10,000 km², in natural logarithm) in each county as proxy.⁴¹ To the extent that the *juren* qualifications facilitated entry into bureaucracy, we consider counties with more *juren* to enjoy greater social mobility.

Like Confucianism, Taoism and Buddhism similarly advocate harmony and condemn violence (Giles, 1989; Gethin, 1998). Also like Confucianism, the two had a similarly long history and enjoyed immense popularity among the Chinese. This raises the concern that omission of these two religions may be correlated with both Confucianism and peasant rebellions. To deal with this we employ the numbers of Taoist temples and Buddhist temples (natural logarithm per 10,000 km²) that existed in the Qing dynasty to proxy for the respective strengths of Taoism and Buddhism in a county. Once again, the pertinent data are obtained from the *Provincial Gazetteer of Shandong* (1890s). As before, given that the numbers of Taoist and Buddhist temples does not vary with time, we interact them with crop failure to obtain the temporal variations.

The other factor that may bear upon both Confucianism and peasant rebellions was the increasing influence of the West after China's defeat by the Western powers in the First Opium War (1839-1842). Prominent among these changes were the rapid diffusion of Christianity (in particular Protestantism) and the eventual abolition of China's longstanding imperial examination system,⁴² both of which had the likely effect of undermining the strength of Confucian norms. At the same time, this penetration of Western economic and ideological forces had also bred popular social unrests (Wakeman, 1975; Spence, 1990); the Taiping Re-

⁴⁰ Esherick (1987) also finds that the lower social mobility rate in southwestern Shandong during the Qing period was a potential source of popular unrests.

⁴¹ The provincial degree holders were those who had passed the province-level imperial examination. Given that the provincial examination was held once every three years, we fill out the missing years using the number of provincial degree holders in the most recent examination. For example, if a provincial examination was held in 1700, it would not be held again until 1703; we thus take the number of degree holders in 1701 and 1702 to be the same as that in 1700.

⁴² Although Christianity had long existed in China, its influence was significantly smaller before the nineteenth century, thanks to a ban imposed by Emperor Kangxi in 1721 after a dispute occurred between the Qing government and the Roman Catholic Church over whether it was acceptable to the latter for the Chinese to continue worshipping their ancestors and other deities after converting to Christianity (e.g., Hsu, 2000).

bellion and the Boxers Uprising alluded to earlier are but two salient examples of the consequences of these influences.

If Western influence indeed had an effect on both Confucianism and peasant rebellions, its omission would bias our estimates. While the year fixed-effects help to capture the common trend in social changes in the late Qing period for all the counties, we cannot control for the differential impact of these changes across counties using these year fixed-effects. To isolate the potentially confounding effects of Western influence, we add an interaction term between the county dummies and a time trend after 1860—by which time China had become significantly more opened up to the West.

In column (3) of Table 4, we control for social mobility, Taoism and Buddhism, and Western influence, together with other additional controls mentioned above. In column (4) we continue to control for all the covariates but instrument crop failure with the level of droughts. The results continue to show that counties with stronger Confucian norms have significantly fewer peasant rebellions in times of economic shocks. Even more encouraging is the result that the coefficient of the interaction term between Confucianism and crop failure is nearly identical to those without any additional controls (Table 3), suggesting that the effect of Confucian norms on peasant rebellions is unlikely to have come through the channels of the controlled variables.

5.4. Restricted Sample of 1791-1910

Given that endemic civil conflicts can destroy the physical infrastructure of temples and schools, reverse causality cannot be ruled out. We thus restrict our sample to a period that excludes the years before 1790, as most of the Confucian temples and schools in our sample counties had already been established before then (*Provincial Gazetteer of Shandong*, 1890s).

The results are reported in Table 5, in which all baseline and additional controls are included. In column (1) we use the single index measure of Confucianism, and find that the effect of Confucianism remains significant and negative, and the coefficient size hardly changes. While we are confident that the Confucian temples and schools were all established before the 1790s, the *Provincial Gazetteer of Shandong* (1890s) only lists the total number of chaste women for the entire Qing dynasty (without providing any temporal variations), hence our indexed measure of Confucianism fails to accurately account for the number of chaste women before 1790s. Because of this inadequacy, we use only Confucian temples and schools as our measures of Confucianism in columns (2) and (3), respectively. The results still show a significant and negative effect of Confucianism on the number of peasant rebellions.

[Table 5 about here]

6. Conclusion

The research question raised in this study—namely whether conflicts triggered by economic shocks can be mediated by strong cultural norms—was motivated by a literature that has consistently demonstrated the existence of a significant relationship between economic shocks and social conflicts. Using historical China as the pertinent context, we constructed a unique dataset to ascertain, first of all, whether there was indeed a significant relationship between economic shocks and peasant rebellions, before we turned to examine, more importantly, whether the Confucian norms which emphasize conflict avoidance were effective in alleviating this particular form of social conflict. Regardless of how economic shocks (specifically crop failure) and Confucian norms (religion, education, and folk customs) were measured, and the extent to which we controlled for other covariates, we arrived at the same robust results that economic shocks did impact peasant rebellions significantly. But what is of greater interest to us is the result that the effect of economic shock was significantly smaller in areas where Confucian norms were more widely diffused.

Our findings serve importantly to enrich the understanding of the determinants of social conflicts in a broader context than that of historical China. In particular, we have demonstrated that the triggering effect of economic shocks is actually *conditional* upon the specific set of prevailing cultural norms that exist in peace times. Furthermore, we are confident that Confucianism is not an exceptional case. There is now evidence suggesting that Christian beliefs have the similarly pacifying effect of subduing the taste for revolts (MacCulloch and Pezzini, 2010), just as the fear of social stigmatization and ostracism has a deterring effect on criminal behaviors (Buonanno, Montolio and Vanin, 2009). While understanding the causes of conflict is clearly an important endeavor, examining the possible effect that various cultural norms may have on social conflict is a potentially exciting research agenda.

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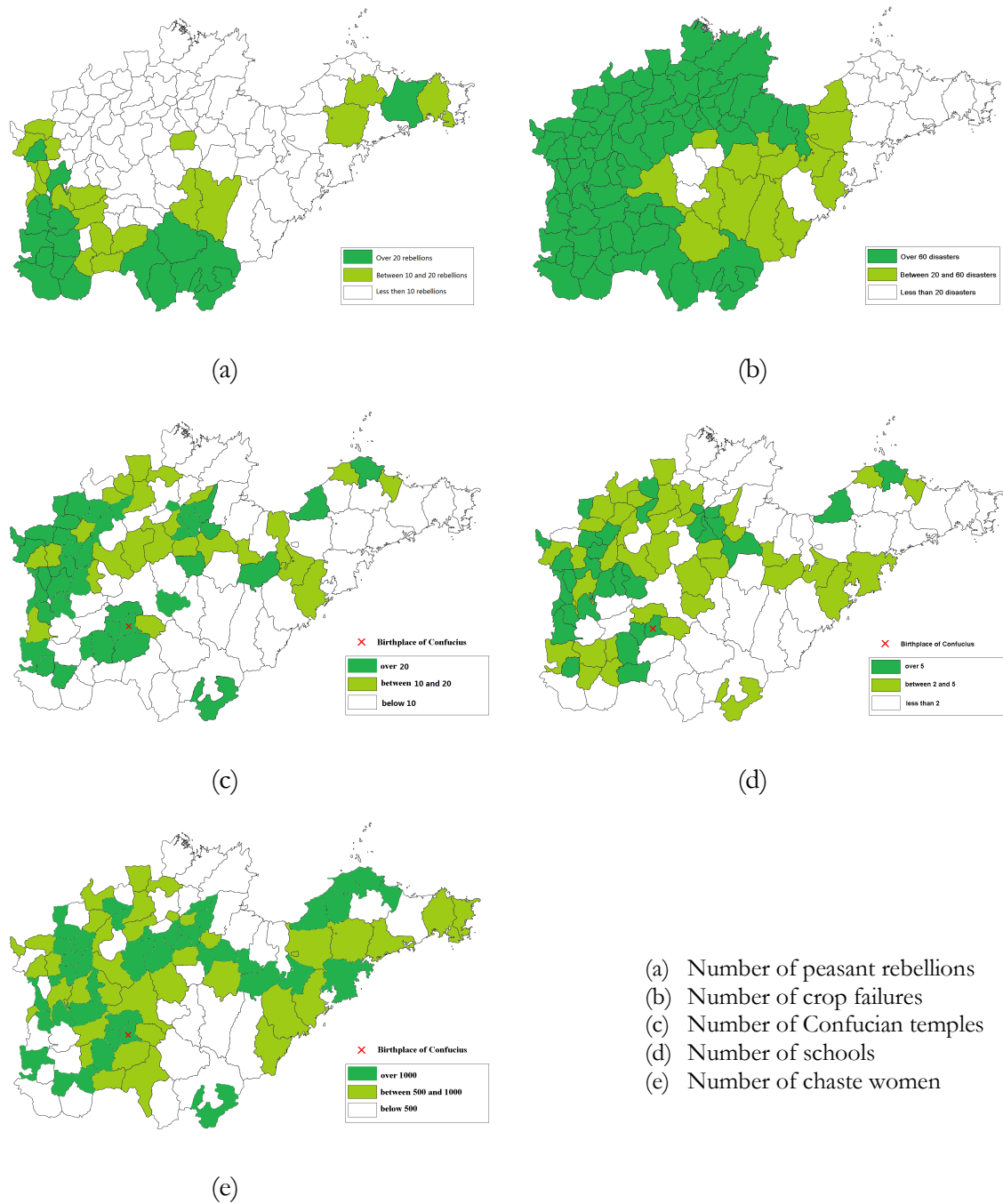


Figure 1. Distribution of Peasant Rebellions, Crop Failures, and Confucianism in Shandong Province during the Qing Period (by County)

Notes: The numbers of peasant rebellions and crop failures are based on the *Veritable Records of the Qing Emperors*. The numbers of Confucian temples, schools, and chaste women are all based on the *Provincial Gazetteer of Shandong* (1890s), and are normalized by a county's land area (in 10,000 km²).

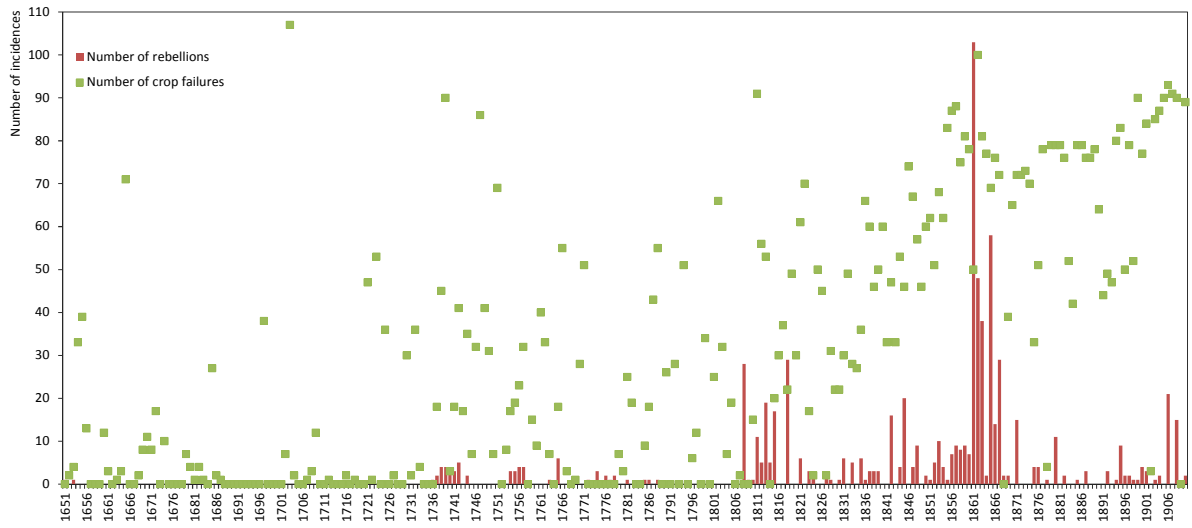


Figure 2. Number of Peasant Rebellions and Crop Failures in Shandong Province (by Year)

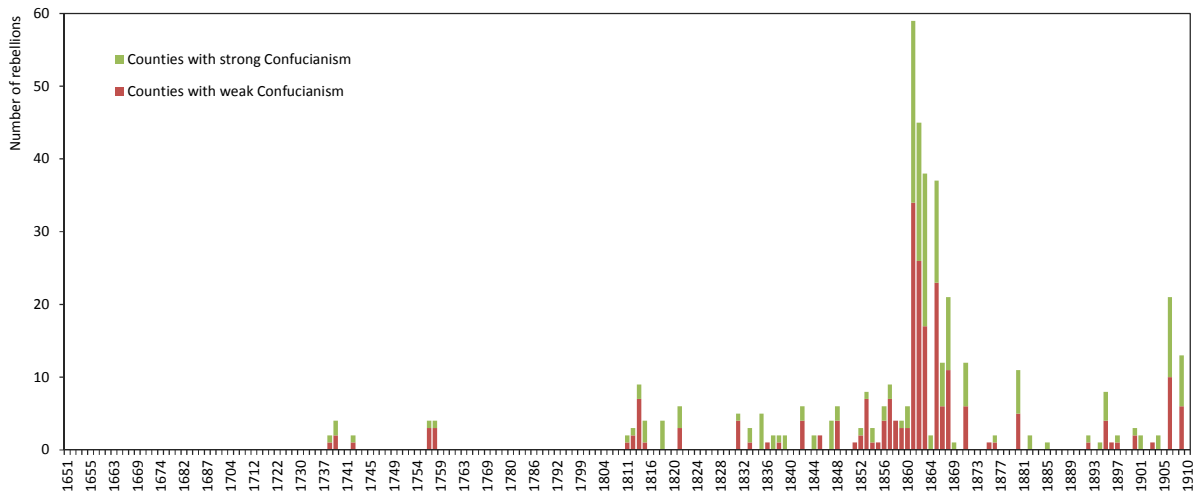


Figure 3. Number of Peasant Rebellions in Counties with Crop Failure (by Year): Weak and Strong Confucian Norms Compared

Notes: We enumerate only peasant rebellions on a per annum basis in counties with reported crop failure. For simplicity we classify counties with an indexed measure of Confucianism above (below) the mean of 0.198 as being strongly (weakly) steeped in Confucian traditions. The average number of peasant rebellions (per county per year) is 0.046 in counties with strong Confucian norms and 0.066 in counties with weak Confucian norms.

Table 1. Economic Shocks and Peasant Rebellions

Dependent variable	Number of peasant rebellions		
	OLS (1)	OLS (2)	IV (3)
Crop failure	0.010*** (0.003)	0.013** (0.006)	0.231* (0.125)
Baseline controls	No	Yes	Yes
Year fixed-effects	Yes	Yes	Yes
County fixed-effects	Yes	Yes	Yes
R-squared	0.18	0.13	0.18
Number of observations	27713	27713	27674
Number of counties	107	107	107

Notes: The baseline controls include military deterrence, population density, and terrain ruggedness. Robust standard errors clustered at the county level are reported in parentheses. In column (3) crop failures are instrumented by the level of drought (a variable that ranges from 0 to 2).
 * Significant at 10%; ** significant at 5%; *** significant at 1%.

Table 2. The Main Effect of Confucianism on Peasant Rebellions

Dependent variable	Number of peasant rebellions			
	Random-effects		Cross-sectional regressions	
	(1)	(2)	(3)	(4)
Crop failure	0.011*** (0.004)	0.010** (0.004)	0.065*** (0.017)	0.073*** (0.190)
Confucianism	-0.003* (0.002)	-0.014*** (0.004)	-1.133** (0.544)	-1.835** (0.749)
Baseline controls	No	Yes	No	Yes
Year fixed effects	Yes	Yes	No	No
R-squared	0.18	0.17	0.12	0.10
Number of observations	27713	27713	107	107
Number of counties	107	107	107	107

Notes: The baseline controls include military deterrence, population density, and terrain ruggedness. Columns (1) and (2) are panel data random-effects regressions. Column (3) and (4) are cross-sectional (county-by-county) regressions, in which variables are organized at the county level. Confucianism is the first principal component of Confucian temples, schools, and chaste women, all of which are normalized by either a county's land area (in 10,000 km²) and expressed in terms of natural logarithm. Robust standard errors clustered at the county level are reported in parentheses in columns (1) and (2), and the Huber-White robust standard errors are reported in parentheses in columns (3) and (4). * Significant at 10%; ** significant at 5%; *** significant at 1%.

Table 3. The Mitigating Effect of Confucianism: Main Results

Dependent variable	Number of peasant rebellions		
	OLS (1)	OLS (2)	IV (3)
Crop failure	0.011** (0.004)	0.016*** (0.006)	0.205* (0.117)
Crop failures \times Confucianism	-0.007* (0.004)	-0.008** (0.003)	-0.055** (0.026)
Baseline controls	No	Yes	Yes
Year fixed-effects	Yes	Yes	Yes
County fixed-effects	Yes	Yes	Yes
R-squared	0.18	0.13	0.10
Number of observations	27694	27713	27713
Number of counties	107	107	107

Notes: Confucianism is the first principal component of Confucian temples, schools, and chaste women. All variables of Confucian norms are normalized by a county's land area (in 10,000 km²) and expressed in terms of natural logarithm. The Baseline controls include military deterrence, population density, and terrain ruggedness. In column (3) crop failure is instrumented by the level of drought (a variable that ranges from 0 to 2). Robust standard errors clustered at the county level are reported in parentheses. * Significant at 10%; ** significant at 5%; *** significant at 1%.

Table 4. Robustness: Additional Controls

Dependent variable	Number of peasant rebellions			
	OLS (1)	OLS (2)	OLS (3)	IV (4)
Crop failures	0.050*** (0.013)	0.047*** (0.012)	0.054*** (0.013)	0.285* (0.151)
Crop failures \times Confucianism	-0.006* (0.003)	-0.006** (0.003)	-0.008** (0.004)	-0.051* (0.029)
Baseline controls	Yes	Yes	Yes	Yes
Number of gentry	Yes	Yes	Yes	Yes
Famine relief	Yes	Yes	Yes	Yes
Grain revenue \times crop failures	Yes	Yes	Yes	Yes
Prefecture capital \times crop failures	Yes	Yes	Yes	Yes
Agri-output \times crop failures	No	Yes	Yes	Yes
Commercial center	No	Yes	Yes	Yes
Social mobility	No	No	Yes	Yes
Taoism and Buddhism \times crop failures	No	No	Yes	Yes
Western influence	No	No	Yes	Yes
Year fixed-effects	Yes	Yes	Yes	Yes
County fixed-effects	Yes	Yes	Yes	Yes
R-squared	0.12	0.12	0.10	0.07
Number of observations	27713	27606	27606	27606
Number of counties	107	107	107	107

Notes: Confucianism is the first principal component of Confucian temples, schools, and chaste women, all of which are normalized by a county's land area and expressed in terms of natural logarithm. Baseline controls include military deterrence, population density, and terrain ruggedness. Robust standard errors clustered at the county level are reported in parentheses. * Significant at 10%; ** significant at 5%; *** significant at 1%.

Table 5. Robustness: Restricted Period of 1791-1910

Dependent variable	Number of peasant rebellions		
	(1)	(2)	(3)
Crop failures	0.040*** (0.015)	0.081*** (0.026)	0.040** (0.016)
Crop failures \times Confucianism	-0.010** (0.004)		
Crop failures \times Confucian temples		-0.016** (0.008)	
Crop failures \times schools			-0.017** (0.008)
Baseline controls	Yes	Yes	Yes
Additional controls	Yes	Yes	Yes
Year fixed-effects	Yes	Yes	Yes
County fixed-effects	Yes	Yes	Yes
R-squared	0.11	0.11	0.10
Number of observations	12840	12840	12840
Number of counties	107	107	107

Notes: Confucianism is the first principal component of Confucian temples, schools, and chaste women, all of which are normalized by a county's land area and expressed in terms of natural logarithm. Baseline controls include military deterrence, population density, and terrain ruggedness. Additional controls include number of gentry, grain revenue, prefecture capital, famine relief, agricultural output, commercial center, social mobility, Taoism and Buddhism, and Western influence. Robust standard errors clustered at the county level are reported in parentheses. ** Significant at 5%; *** significant at 1%.

Appendix Figures

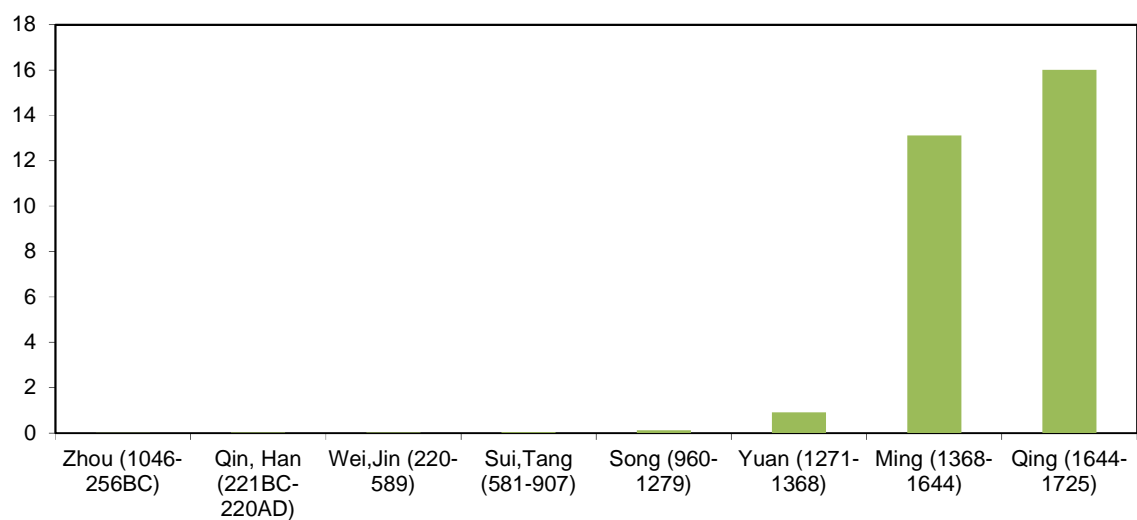


Figure A1. Number of Chaste Women per Decade by Dynasty

Note: Normalized by the population of each dynasty (in one million). The number of chaste women is based on *Gujin tushu jicheng* (*Great Collection of Ancient and Modern Books*) (1726). Population is enumerated based on Maddison (2007).

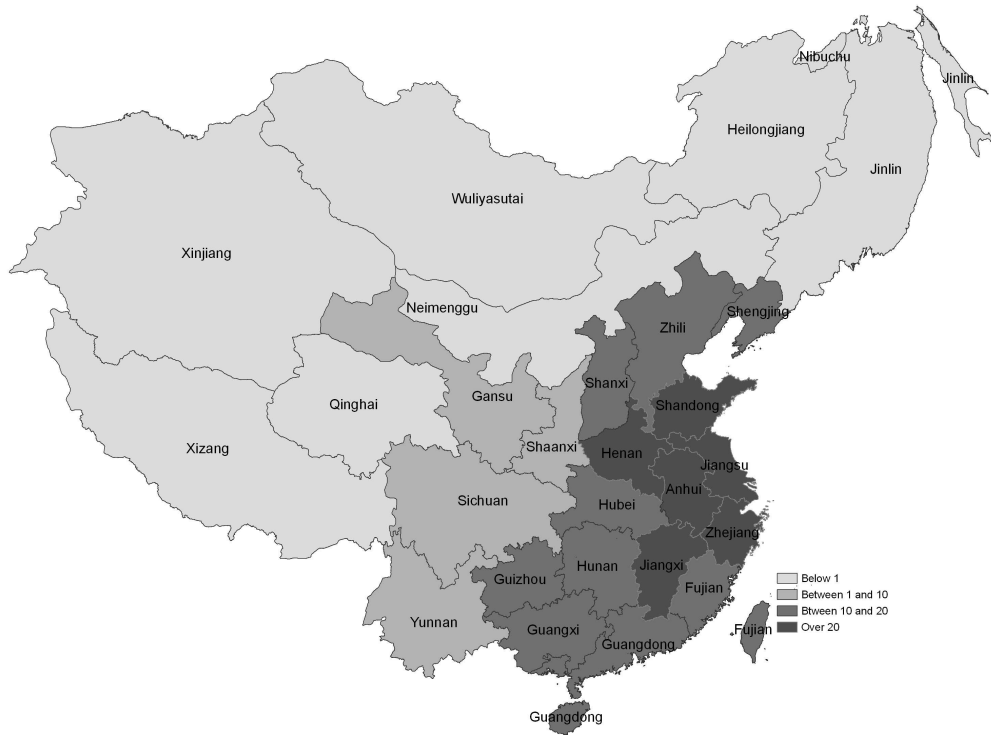


Figure A2. Provinces of Qing China and the Interprovincial Variations in the Number of Peasant Rebellions

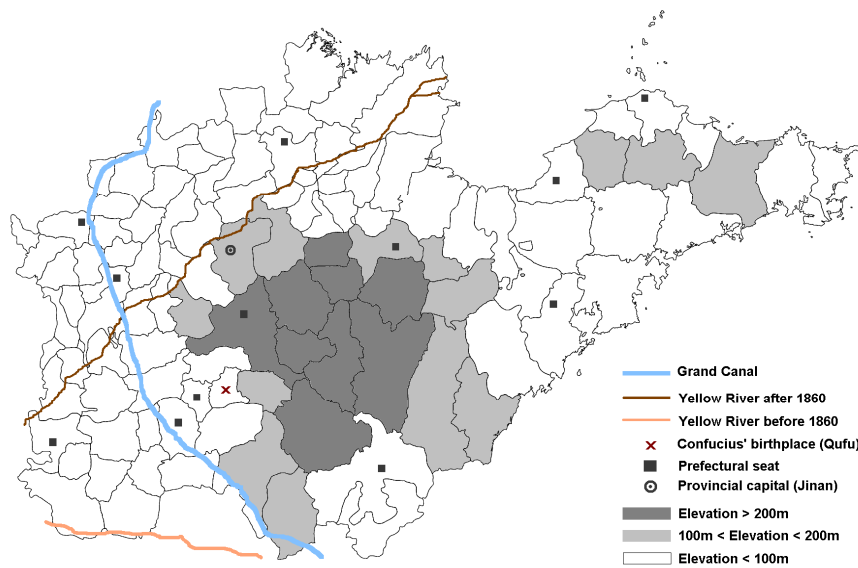


Figure A3. Shandong Province

Notes: The maps are based on CHGIS, Version 4, Harvard Yenching Institute, 2007. The number of peasant rebellions refers to the total number of peasant rebellions occurred between 1796 and 1911, and is normalized by a province's land area (per 10,000 km²). The data are based on C. K. Yang (1975).

Appendix Tables

Table A1. Correlation Matrix among the Variables of Confucianism

	Confucian temples	Schools	Chaste women
Schools	0.892*** (0.000)		
Chaste women	0.544*** (0.000)	0.514*** (0.000)	
Confucianism	0.941*** (0.000)	0.931*** (0.000)	0.752*** (0.000)

Notes: p -value in parentheses. Confucianism is the first principal component of schools, Confucian temples, and chaste women, all of which are normalized by either a county's land area (in 10,000 km²) and expressed in terms of natural logarithm.

Table A2. Sources and Descriptive Statistics of the Variables

Variable	Source	Mean	S.D.	Min.	Max.
Peasant rebellions	<i>The Veritable Records of the Qing Emperors.</i>	0.03	0.21	0	7
Crop failures	<i>The Veritable Records of the Qing Emperors.</i>	0.28	0.45	0	1
Drought	China Meteorological Administration (1981)	0.37	0.65	0	2
Waterlog	China Meteorological Administration (1981)	0.50	0.72	0	2
Confucian temples	<i>Provincial Gazetteers of Shandong</i> (1890s)	2.55	0.90	0.19	4.91
Schools	<i>Provincial Gazetteers of Shandong</i> (1890s)	1.14	0.63	0	3.07
Chaste women	<i>Provincial Gazetteers of Shandong</i> (1890s)	6.60	0.85	4.17	8.90
Confucianism	The first principal component of Confucian temples, schools, and chaste women	-1.22e-10	1.52	-3.95	3.61
Military deterrence	<i>Provincial Gazetteers of Shandong</i> (1890s)	6.82	1.21	0	9.60
Population density	Cao (2000)	0.46	0.46	-0.84	1.50
Terrain ruggedness	Hole-filled SRTM for the Globe, 2008; CHGIS, Version 4, Harvard-Yenching Institute, 2007.	0.35	0.34	0.05	2.02
Number of gentry	<i>Provincial Gazetteers of Shandong</i> (1890s)	3.34	0.86	1.02	5.46
Famine relief	<i>Provincial Gazetteers of Shandong</i> (1890s)	6.99	4.57	0	12.58
Grain revenue	<i>Provincial Gazetteers of Shandong</i> (1890s)	0.04	0.02	0.002	0.09
Prefectural seat	<i>Provincial Gazetteers of Shandong</i> (1890s)	0.12	0.33	0	1
Agri-output	Ministry of Economic Affairs (1933)	1.19	0.58	0	2.46
Commercial center	<i>Provincial Gazetteers of Shandong</i> (1890s)	0.14	0.34	0	1
Social mobility	<i>Provincial Gazetteers of Shandong</i> (1890s)	0.38	0.56	0	3.28
Taoism	<i>Provincial Gazetteers of Shandong</i> (1890s)	0.68	0.59	0	2.46
Buddhism	<i>Provincial Gazetteers of Shandong</i> (1890s)	0.99	0.98	-1.39	2.95

Notes: Refer to the text for variables definition.

Table A3. The Effect of Extreme Rainfall on Peasant Rebellions and Crop Failure

Dependent variable	Number of peasant	
	rebellions	Crop failure
	(1)	(2)
Drought	0.007** (0.003)	0.063*** (0.006)
Waterlog	0.007** (0.003)	0.077*** (0.007)
Baseline controls	Yes	Yes
Year fixed effects	Yes	Yes
R-squared	0.13	0.42
Number of observations	27820	27713
Number of counties	107	107

Notes: Both drought and waterlog are variables differentiated on a scale of 0 to 2, with 0 indicating normal weather conditions, 1 indicating slight drought or waterlogging, and 2 indicating severe drought or waterlogging. The baseline controls include military deterrence, population density, and terrain ruggedness. Robust standard errors clustered at the county level are reported in parentheses. ** Significant at 5%; *** significant at 1%.

Table A4. The Main Effect of Confucianism on Peasant Rebellions: Separate Measures of Confucianism

Dependent variable	Number of peasant rebellions					
	Random-effects			County level regression		
	(1)	(2)	(3)	(4)	(5)	(6)
Confucian temples	-0.021*** (0.007)			-2.445* (1.411)		
Schools		-0.017*** (0.006)			-2.036* (1.169)	
Chaste women			-0.018*** (0.006)			-2.770*** (0.969)
Crop failures	0.010** (0.004)	0.010** (0.004)	0.010** (0.004)	0.077*** (0.020)	0.079*** (0.021)	0.054*** (0.020)
Baseline Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	No	No	No
R-squared	0.17	0.17	0.18	0.10	0.10	0.12
Number of observations	27713	27713	27713	107	107	107
Number of counties	107	107	107	107	107	107

Notes: The controls include military deterrence, population density, and terrain ruggedness. Columns (1)-(3) are panel data random-effects regressions. Column (4)-(6) are cross-sectional (county-by-county) regressions, in which variables are organized at the county level. Robust standard errors clustered at the county level are reported in parentheses in columns (1)-(3), and the Huber-White robust standard errors are reported in parentheses in columns (4)-(6). * Significant at 10%; ** significant at 5%; *** significant at 1%.

Table A5. The Mitigating Effect of Confucianism: Separate Measures of Confucianism and Two-Way Clustering Standard Error

Dependent variable	Number of peasant rebellions			
	(1)	(2)	(3)	(4)
Crop failures	0.054 (0.013)*** [0.019]**	0.089 (0.022)*** [0.027]***	0.061 (0.014)*** [0.016]**	0.158 (0.045)*** [0.052]***
Crop failures \times Confucianism	-0.008 (0.004)** [0.004]**			
Crop failures \times Confucian temples		-0.014 (0.006)** [0.007]**		
Crop failures \times schools			-0.010 (0.006)* [0.007]*	
Crop failures \times chaste women				-0.016 (0.007)** [0.007]**
Baseline controls	Yes	Yes	Yes	Yes
Additional controls	Yes	Yes	Yes	Yes
Year fixed-effects	Yes	Yes	Yes	Yes
County fixed-effects	Yes	Yes	Yes	Yes
R-squared	0.10	0.10	0.10	0.10
Number of observations	27606	27606	27606	27606
Number of counties	107	107	107	107

Notes: Confucianism is the first principal component of Confucian temples, schools, and chaste women, all of which are normalized by a county's land area and expressed in terms of natural logarithm. Robust standard errors clustered at the county level are reported in parentheses, and standard errors adjusted for two-way clustering at respectively the county and year \times prefecture levels are reported in brackets. * Significant at 10%; ** significant at 5%; *** significant at 1%.

Table A6. Results of Control Variables

Dependent variable	Number of peasant rebellions
Crop failures	0.054*** (0.013)
Crop failures \times Confucianism	-0.008** (0.004)
Military deterrence	0.028*** (0.007)
Population density	0.174*** (0.045)
Terrain ruggedness \times crop failures	-0.008 (0.014)
Number of gentry	0.026 (0.072)
Famine relief	-0.001 (0.001)
Grain revenue \times crop failures	-1.072*** (0.304)
Prefecture capital \times crop failures	0.005 (0.012)
Agri-output \times crop failures	0.016 (0.010)
Commercial center	-0.016 (0.010)
Social mobility	0.003 (0.003)
Taoism and Buddhism \times crop failures	-0.006 (0.009)
Western influence	Y
Year fixed-effects	Y
County fixed-effects	Y
R-squared	0.10
Number of observations	27606
Number of counties	107

Notes: Confucianism is the first principal component of Confucian temples, schools, and chaste women, all of which are normalized by a county's land area and expressed in terms of natural logarithm. Robust standard errors clustered at the county level are reported in parentheses. ** Significant at 5%; *** significant at 1%.