Size and dynastic decline: The principal-agent problem in late imperial China, 1700–1850

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Abstract

This paper argues that China’s size was one reason behind its relative decline in the nineteenth century. A ruler governing a large country faces severe agency problems. Given his monitoring difficulties, his agents have strong incentives to extort the taxpayers. This forces him to keep taxes low to prevent revolts. Economic expansion could aggravate corruption and cause further fiscal weakening. To support the model’s predictions, I show that the Chinese state taxed and administered sparingly, especially in regions far from Beijing. Furthermore, its fiscal capacity contracted steadily during the prosperous eighteenth century, sowing the seeds for the nineteenth-century crises.

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1. Introduction

Why was China unable to seize the opportunities presented by the Industrial Revolution to modernize its economy in the nineteenth century? Traditionally, many blame its autocratic regime. Going back to Montesquieu, prominent scholars have argued that China’s growth was hampered by an autocratic, managerial, and interventionist state, whose power to collect taxes, confiscate materials, and conscript labor was virtually unlimited. The Chinese state’s tendency to suppress private enterprise stifled initiative. Economic stagnation became inevitable thereafter (Wittfogel, 1957; Balazs, 1964).

This argument, however, faces theoretical challenges, for the Chinese emperor was a stable dictator.1 As Mancur Olson taught us, a stable dictator understands that excessive exaction in the short run reduces future tax revenues and increases political instability (Olson, 1993). Such a dictator will therefore demonstrate self-restraint when he expropriates.2

The argument is also inconsistent with the findings of Chinese historians in recent decades. While Kenneth Pomeranz’s claim in The Great Divergence that the

1 According to the Naito Hypothesis, the Chinese emperor became more secure from the Song dynasty (960–1279) onward. Usurpation became rare after the introduction of examinations to select officials (Miyakawa, 1955).
2 As Rosenthal and Wong (2011) put it, the Chinese rulers “were well aware that social stability translated into political longevity.”
levels of development in the Lower Yangzi delta and England were comparable in the eighteenth century is a subject of debate, his book has fostered an emerging consensus that the eighteenth-century Chinese economy was more developed than previously thought. Commercialization, facilitated by the monetization of taxes and the inflow of silver from Japan and the New World, linked the lives of ordinary people to the world outside their villages (Li, 1998; Wu and Xu, 2000). There is strong evidence suggesting that market integration was high in China before 1800 (Shiue and Keller, 2007).

Importantly, these empirical findings have created a new set of questions. If all was well and good with China in the eighteenth century, why did its fortunes reverse in the nineteenth century? Was China’s relative economic decline in the nineteenth century a consequence of historical contingency, or were structural factors at work?

This paper argues that part of the answer can be found in China’s size. The vast size of the Chinese empire created a severe principal-agent problem and constrained how the country was governed. In particular, taxes had to be kept low due to the emperor’s weak oversight of his agents and the need to keep corruption in check. The Chinese state’s fiscal weaknesses were long masked by its huge tax base. However, economic and demographic expansion in the eighteenth century exacerbated the problems of administrative control. This put a further squeeze on the nation’s finances and left China ill-prepared for the challenges of the nineteenth century.

Reprising the earlier work of Kiser and Tong (1992), I argue that the state in late imperial China (c. 1650–1850) can best be understood in light of a large (and stable) dictatorship where excessive exploitation comes not from the ruler, but from his agents who have shorter decision horizons and less encompassing interests than the “benevolent” ruler himself. While the ruler is motivated not to overtax the population to preempt rebellion, his agents have private incentives to expropriate rent from the taxpayers. If the ruler is unable to keep corruption in check, he will have to keep the tax rate low and his bureaucracy small to mitigate this “tyranny at the bottom” effect.

Size plays a crucial role in the hypothesis as it shapes the ruler’s ability to monitor his agents and the agents’ incentives for rent seeking. Specifically, size carries two dimensions in the hypothesis: geographic and economic. Geographic size matters because the costs of transmitting information over distance matter, especially in the premodern world. Moreover, a geographically large polity usually comes with regional diversity that makes collecting useful information more costly. Regional differences in climate, crops, per capita income, and other socioeconomic conditions often imply that local agents must have some flexibility in implementing central government decrees. Yet that very flexibility also makes it harder for the ruler to determine whether an agent who pursues a different path is doing so for private gain or in response to local conditions. Finally, when political power is highly centralized, monitoring and sanctioning would inevitably involve the ruler. All else equal, the larger his domain, the higher the risk that his attention may be spread too thin.

The effect of economic size on state finances is more ambiguous. Economic expansion enlarges the tax base, but it also increases the rent-seeking incentives of state agents. This puts pressure on the ruler to lower his rate of extraction to ensure that taxpayers are exploited in a sustainable manner. This paper constructs a simple model to show that if the principal-agent problem is sufficiently severe, the negative effect of economic expansion (a lower tax rate) could eventually overwhelm its positive effect (a bigger tax base) so that economic expansion actually hurts the ruler and weakens his ability to maintain stability and order.

The issue of size is particularly relevant to China, given that for the last two millennia, the landmass between the Great Wall and the South China Sea was more often than not under the rule of a single central authority. China’s vast size implies that obtaining timely and accurate information has always been a challenge to its ruler. In 1853, when the Taiping rebels captured Wuchang, a major city about 1200 km from Beijing, the news took eight days to reach the capital (Xie, 2002). Mao highlighted the challenges that size posed to centralized control when he told Nixon during the latter’s visit to China, “I have not been able to change [China]. I have only been able to change a few places in the vicinity of Beijing” (Kissinger, 1998, 60).
Apart from proposing a model that is consistent with the findings in recent scholarship, this paper also develops novel evidence that can be brought to bear on the hypothesis. First, I examine regional differences in land tax burdens and the spatial distribution of administrative units in China in 1820. These show that both land tax per capita and the number of counties per unit area were significantly higher in regions adjacent to Beijing than in regions far away from it. In other words, the Chinese state became progressively weaker and smaller as one moved farther away from the capital.

Next, using archival and published historical fiscal records of the Qing dynasty, I reconstruct the Qing state’s annual tax revenues between 1650 and 1850. The time series depict a hump-shaped pattern. In real terms, the regime’s tax revenue peaked early in the eighteenth century and contracted steadily from then on, even as the economy continued to grow through extensive expansion.6

Finally, I present historical evidence indicating that the contraction of the Qing state’s fiscal capacity—i.e., its ability to raise revenue for public spending—led to a gradual and sustained decline in state-provided public goods from the second half of the eighteenth century onward. The decline predated the military and socioeconomic troubles of the nineteenth century, suggesting that even before an expansionist West began taking steps to open up China by force, the seeds of a turbulent nineteenth century had already been sown.

This paper is related to several strands of the literature. Several important works by Chinese historians discussed at length the existence of agency problems in the Chinese state from a non-theoretical perspective (Zelin, 1984; Kuhn, 1990). Shiue (2004) found evidence from disaster relief operations that the Qing government did not operate as a unitary and wholly coordinated entity.7 More recently, Ma (2011) and Brandt et al. (2014) have applied the agency framework to analyze the evolution of China’s political economy in the last millennium. This paper provides a formal model and new data that complement these studies.

This paper also makes contact with the burgeoning literature on state capacity (Besley and Persson, 2010; Dincecco, 2011). My hypothesis is based on the view that, at the very least, a functioning state must have the capacity to ensure the security of property and person (Smith, 1776; North, 1990). However, it is also compatible with arguments that see a more proactive role for the state in economic development—to resolve coordination failures (Rosenstein-Rodan, 1943; Murphy et al., 1989; Epstein, 2000), to remove inflexibilities in the existing property rights regime (Rosenthal, 1990; Bogart and Richardson, 2008; Lamoreaux, 2011), or to implement social policies that allow the society to escape from the Malthusian trap (Doepke, 2004).

This paper complements two recent works that explore the effects of territorial size on governance. Stasavage (2010) studies the evolution of representation in early modern Europe and argues that representative institutions were less effective in large territorial states as high communication and travel costs prevented representative bodies in these states from convening regularly. Olsson and Hansson (2011) show that territorial size affects the rule of law negatively in modern developing countries, and weak rule of law is more commonly observed when the capital city is not centrally located.

To keep the discussion focused and its scope manageable, I take as my point of departure a unified and politically centralized Chinese empire. This, I argue, is a reasonable assumption given the time frame that my analysis covers.8 While this paper focuses singularly on the inefficiencies of a large state, it is important to note that political unification also brought significant benefits to China—above all the peace dividend, as highlighted by Rosenthal and Wong (2011). However, a comprehensive cost-benefit analysis on the size of late imperial China is beyond the scope of this paper.9

2. Historical background

The Qing dynasty ruled China from 1644 to 1912. It was founded by the Manchus, an ethnic minority group from Manchuria who conquered China proper after the Ming dynasty was toppled by a peasant uprising in 1644. Historians usually divide the 267 years of Qing rule into four periods (Table 1). The early Qing focused on military conquest and political consolidation, which were accomplished by the 1680s. With the restoration...

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6 The Chinese population grew from less than 150 million to more than 400 million between 1650 and 1850 (Perkins, 1969) with no evidence of a significant drop in living standards (Baten et al., 2010).

7 See Markus (2012) for a related study on modern-day Russia and Ukraine.
of peace, interregional trade resumed and flourished, and China entered a golden age known as the High Qing. The third period, the mid-Qing, was characterized by rising socioeconomic instability and the reemergence of large-scale social unrest.

Domestic upheavals in the 1850s forced the imperial court to cede power to provincial authorities to deal with the crisis. Consequently, the imperial court’s grip on political power was significantly weakened in the last sixty years of Qing rule. The newfound ability of provinces to compete for power with the central government during the late Qing period implies that relations between central and local authorities can no longer be adequately analyzed using a principal-agent framework. For this reason, I ignore the late Qing period and focus primarily on the two centuries preceding 1850, when political power was firmly in the hands of the emperor, to study how a severe principal-agent problem shaped imperial rule and socioeconomic outcomes.

2.1. Political structure

Before 1850, all major decisions had to be approved by the emperor, who was advised by close aides in the Grand Council. Through the Board of Civil Appointments he chose who would be given posts, through the administrative hierarchy down to county magistrate. His Board of Revenue regulated and audited regional and local governments, all the way down to stationery expenses. Through the Board of Punishments he would review judicial decisions made across the empire. All death sentences required his sanction (Ch’u, 1962).

2.2. Local government

The empire had four main layers of formal government: center, province, prefecture, and county. The 1500 counties at the bottom of the formal hierarchy handled local administration. Each county was headed by a magistrate, who served a term of three years and could not be native to the area. The magistrate’s daily duties revolved around two themes: (1) the collection of land and miscellaneous taxes, which constituted the bulk of the Qing state’s revenue; and (2) the administration of justice, which required the magistrate to preside over all court hearings, civil or criminal, held in his jurisdiction (Wang, 1890).

While the magistrate was de jure responsible for local government, his power was shared by county clerks and runners as well as by the local gentry in practice. The county clerks and runners exercised de facto power because the magistrate, as an outsider unfamiliar with local conditions, relied heavily on them to govern. They performed mundane but essential duties, such as keeping tax records and sending tax notices to individual households. Historical accounts suggest that it was common for them to exploit their position and extort the commoners, for example, by manipulating tax documents...
(Ch’u, 1962; Rowe, 1983; Zelin, 1984). Some magistrates used them as proxies to avoid direct engagement in extortion. It was customary for them to share their profits with the magistrate, who would then forward some of what he received to higher officials as gifts (Ch’u, 1962).

The local gentry was one group of taxpayers protected from such abuses. They had good access to the official channels of information and their goodwill was essential for the magistrate to ensure that no complaints about him would reach his superiors (Holcombe, 1895). Some members of the gentry participated in the exploitation of small farmers by remitting taxes on their behalf and profiting from tax arbitrage (Zelin, 1984).

2.3. Monitoring system

The Qing state focused its monitoring efforts on ranked officials such as the magistrate. Each magistrate was subject to a triennial review, when his superiors in the central and provincial administrations would evaluate his performance and mete out either reward or punishment. Failure to remit the taxes owed to the central government in full and on time, a huge backlog of civil cases in court, and any unsolved criminal cases would cost the magistrate dearly during the review (Watt, 1977).

To supplement top-down monitoring, the late imperial Chinese state established the Censorate, an agency parallel to and autonomous of the executive branch of the government, to investigate and impeach shirkers and wrongdoers (Feuerwerker, 1976). Finally, commoners could send petitions complaining of corrupt officials to the central government. While the petition system did not work well—the size of the empire and therefore the sheer volume of complaints flowing to the capital made it impossible for the imperial court to verify the authenticity of every case—it survived as a form of bottom-up monitoring beyond the Qing dynasty (Fang, 2009).

3. The model

Based on the sociopolitical structure discussed above, I develop a simple model to analyze the politics of taxation in Qing China. Consider a game of taxation in a Chinese county involving the ruler, a representative tax agent, and a peasant population. Let $Y$ denote the aggregate income of the peasants. To keep the model simple, assume that the ruler observes $Y$ perfectly.

The ruler sets a tax rate $\tau$. Because he resides in the capital, he is unable to collect the taxes personally and has to delegate the task to the agent. The representative tax agent embodies the magistrate, the local state functionaries, and the local gentry, as discussed in the previous section. The agent may abuse his authority by asking the peasants to pay an additional surcharge $\epsilon$, which goes in his pocket. Each peasant therefore faces an effective tax rate of $\tau + \epsilon$.

The peasants have only one mechanism to keep taxes and extortion in check: revolt. If $\tau + \epsilon$ exceeds some threshold value $r$, violence ensues. The ruler wishes to avoid a revolt at all costs. The representative agent is less worried about the threat of revolt. This could be due to coordination problems, or because overexploited peasants may flee their home district and become outlaws in other counties (which would make them the problem of another agent). Either way, the ruler has an encompassing interest, but the agent does not.

To deter abuse against peasants, the ruler audits the agent after tax collection. If the audit detects extortion, the ruler punishes the agent by imposing a fine $X$ on the agent. For simplicity, $X$ is assumed to be exogenous. Alternatively, we can allow the ruler to choose $X$ from a range of possible values. The results will not change.

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11 Generally, the Qing society comprised two classes, the gentry and the commoners. According to Zhang (1955), gentry families accounted for 1.3% of the total population during the first half of the nineteenth century.

12 In this paper, I focus on one form of corruption: the extortion of ordinary taxpayers. In reality, corruption can take many forms, for example, quid pro quo deals between the magistrate and the gentry. However, this (and other forms of corruption) can be treated as a special case of extortion—if the magistrate reduced the tax of some gentry, he would have to cover the subsequent shortfall by over-collecting from the commoners.

13 Punishments typically included pay forfeiture, fines, demotions, and dismissal. Rewards usually came in the form of awarding merit points or promotion (Da Qing huidian, 2006, Qianlong edition, juan 6).

14 Because output is exogenous to the ruler, it makes no difference whether the ruler sets a tax rate ($\tau$) or a tax quota ($\tau Y$). I use the tax rate because it is commonly used in economic models.

15 For simplicity, I ignore the income of the gentry from nonexploitative sources.

16 Recall that the representative agent embodies a group of individuals (the magistrate, the local state functionaries, and the local gentry). Collectively, it is rational for them to show self-restraint to prevent a revolt, but individually, everyone has a dominant strategy of exploiting beyond the socially optimal level.

17 If the ruler is free to determine the level of the fine from a range of possible values, in equilibrium he will always choose the maximum level possible (e.g. the death sentence) and this generates $X$ in the model. In addition, if agents are heterogeneous—there are incorruptible agents among the corruptible ones—and there is a non zero probability that an agent may be wrongly punished, the ruler will have to set $X$ below the maximum level if he wishes to retain the incorruptible agents due to their individual rationality constraint.
The success of the audit at finding extortion depends on the ruler’s monitoring capacity, which is determined by factors such as the distance between the capital and the county, communication technologies, and the ruler’s time constraint. Holding these factors constant, the probability of the agent getting caught increases with the level of extortion that he commits. As a reduced-form representation, suppose that the agent gets caught with probability $m \varepsilon^2$ if he collects a surcharge of $\varepsilon$, where $m$ is a positive real number and represents the ruler’s monitoring capacity. The central concern of this model is how corruption, taxation, and bureaucratic size are influenced by the value of $m$.

In this model, all players are self-interested. A peasant remains submissive to the regime if the effective tax rate $\tau + \varepsilon$ is less than $r$, but he rebels otherwise. The agent maximizes his expected returns from extortion $V^I = \varepsilon Y - m \varepsilon^2 X$. The ruler maximizes his tax receipts $V^R = \tau Y$ subject to the no-revolt constraint $\tau + \varepsilon \leq r$.

The sequence of events is as follows: first, the ruler sets a non negative $\tau$. Next, the representative agent sets a non negative $\varepsilon$, and proceeds to collect taxes. If $\tau + \varepsilon \leq r$, the peasants pay taxes $\tau Y$ and surcharges $\varepsilon Y$. Upon the completion of tax collection, the ruler audits the agent and fines the agent $X$ if the agent is found to be corrupt. If $\tau + \varepsilon > r$, the peasants revolt and the regime is overthrown.

### 3.1. Equilibrium outcomes

I solve the model by backward induction. First, consider the agent’s problem. His first order condition for utility maximization is:

$$\varepsilon^* = Y/(2mX) \quad (1)$$

Hence, the equilibrium extortion rate increases with the aggregate output and decreases with the efficacy of the audit and the severity of punishment.

Next, consider the ruler’s problem. Since his objective is to maximize his tax receipts without violating the no-revolt constraint, it is in his interest to increase $\tau$ until the no-revolt constraint binds. Hence, $\tau^* + \varepsilon^* = r$ in equilibrium, and the equilibrium tax rate is given by:

$$\tau^* = r - Y/(2mX) \quad (2)$$

This equilibrium condition implies that if $m$ is small, $\tau^*$ will be small too. Hence:

**Proposition 1.** A severe principal-agent problem leads to a (fiscally) weak state.

**Proposition 1** suggests that even though the ruler is outwardly a dictator with an unchallenged claim to the state’s tax revenue, in practice the economy’s surplus is shared between him and the agent. If the principal-agent problem is severe ($m$ is small), high corruption ensues (Eq. 1), and the ruler will have to keep taxes low to preempt a revolt (Eq. 2).

Although the historical evidence is sketchy and fragmented, it suggests that corruption was pervasive and institutionalized in Qing China. In a collection of letters published in 1782, the French missionary Joseph-Marie Amiot noted that corruption was so deep-rooted in the bureaucracy that “it is rare among the Chinese to find anyone in an official post who does not enrich himself” (Park, 1997, 999). Based on fragmented evidence, Zhang (1962, 32) estimated that a magistrate serving in the early nineteenth century would fetch 30,000 silver taels in extralegal income annually, on top of his salary and salary supplement of less than 2340 taels. Meanwhile, it is commonly observed that official tax revenue in Qing China was low considering the taxable capacity of the economy (Wang, 1973). *Proposition 1* argues that the phenomena of high corruption and light taxation were causally linked.

### 3.2. Size of the bureaucracy

I now extend the model to allow the ruler to select the size of his tax bureaucracy. Suppose the ruler’s domain consists of a large number of natural districts of equal size. For every district, the ruler decides whether to set up a county administration (in other words, to station an agent in the district) to collect taxes from the residents. Suppose that this decision is made at the same time as he decides the tax rate. Let

18 Similarly, eighteen-century Chinese novels, such as *Dream of the Red Chamber* and *Strange Tales of Liaozhai*, portrayed a society where honest officials were rare, local state functionaries were rapacious, and elite privileges were entrenched (Park, 1997).

19 To be sure, it was customary for the magistrate to collect a surcharge to cover the cost of tax collection. The Kangxi emperor stated that he would consider a magistrate who imposed a surcharge rate of no more than 10% on the regular tax an honest official (Wang, 1890, 141). Historical accounts suggest that local state agents commonly took advantage of the blurred boundary between customary fees and corruption to enrich themselves (Zelin, 1984). According to Wang Huizu (1731–1807), a Qing magistrate and the author of several popular handbooks for magistrates and clerks, government assignments were customarily labeled “good” or “bad” in officialdom depending on their potential to collect irregular fees and kickbacks (Wang, 1785).
\( \beta \) represent the number of counties set up. I normalize \( \beta \) so that \( 0 \leq \beta \leq 1 \).\(^{20}\)

Maintaining counties is costly. Let the cost be represented by the convex function \( C(\beta) \).\(^{21}\) Under this modified setup, the ruler’s problem is to select values of \( \tau \) and \( \beta \) that maximize \( \text{VR} = \tau BY - C(\beta) \) subject to \( \tau + \varepsilon \leq r \). The problems of the peasants and the agent are unchanged.

It is easy to show that the earlier results remain valid, but there is now an additional condition (derived from the ruler’s maximization problem) to be satisfied in equilibrium:

\[
\tau^* Y = C'(\beta^*). \tag{3}
\]

Essentially, it states that the ruler will set up an additional county as long as the marginal benefit of doing so is greater than the cost of maintaining it.

Consider the case when the ruler has a weak monitoring capacity (\( m \) is small). Since \( \tau^* \) is small (Proposition 1), \( \beta^* \) will be small too (by Eqs. 2 and 3). Hence,

Proposition 2. A severe principal-agent problem leads to a small bureaucracy.

The proposition is consistent with the now widely accepted view that, measurement problems notwithstanding, the Chinese state was small compared to its Western counterparts (Vries, 2002). In 1800, there were only around 20,000 ranked officials governing a population that might have exceeded 300 million, or a ratio of one official per 15,000 people.\(^{22}\)

Proposition 2 is also in line with G. William Skinner’s observation that there were more counties in China during periods of disunity than during periods of unification. In the sixth century when China was divided into three empires, the three administrations of Northern Zhou, Northern Qi, and Chen together governed approximately 2300 counties. Less than half a century later, when Sui, an offshoot of Northern Zhou, reunified China, the number of counties, now under a single central authority, shrunk to 1255 (Skinner, 1977, 21).

3.3. Dynamic implications

Finally, consider how this economy would evolve over time. Since the Chinese economy did not experience a structural change between 1650 and 1850, I focus on economic expansion driven by population growth. For simplicity, assume that \( Y = AN \), where \( A \) represents agricultural output per capita, and \( N \) represents the size of the peasant population.\(^{23}\)

Suppose \( N \) expands steadily over time,\(^{24}\) it follows from Eqs. 1 and 2 that \( d\varepsilon/\varepsilon > 0 \) and \( d\tau^*/\varepsilon \) < 0. This implies that population growth has two effects on the ruler’s finances, one positive and the other negative. On the positive side, it increases the aggregate output (and hence the tax base). On the negative side, the expansion of the economic output encourages corruption and depresses the tax rate. It can be shown by the envelope theorem that if \( m \) is large, the positive effect dominates and the ruler’s payoff \( \text{VR} \) will increase steadily with population growth. However, if the ruler’s information about the agents’ behavior is sufficiently noisy (if \( m \) is sufficiently small), the relationship between the ruler’s payoff and the population level is no longer monotonic. The negative effect of economic expansion (rising corruption) will eventually dominate its positive effect (an enlarging tax base), causing tax revenue to follow a hump-shaped pattern.

Proposition 3. If the principal-agent problem is severe, economic expansion will initially increase the tax revenue but eventually depress it.

Historians generally concur that bureaucratic corruption and socioeconomic instability grew over time in Qing China (Naquin and Rawski, 1987; Rowe, 2009). Classical Chinese historiography attributes this to the declining moral vigor of the ruling class (Qian, 1940).

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\(^{20}\) Suppose that the total land area of the ruler’s domain is \( Z \). Given technological limitations, the maximum area that the agent can physically cover on duty is \( z \), where \( z \ll Z \). Hence, \( \beta = 1 \) if the ruler maintains \( Z/z \) counties.

\(^{21}\) The convexity of \( C(.) \) comes from the observation that highly centralized organizations are usually steeply hierarchical. Suppose that one intermediate supervisor is required for every two officials. To hire four agents, the ruler will need to hire two supervisors. To hire eight agents, six supervisors will be required. Here, doubling the number of agents requires a tripling of supervisors.

\(^{22}\) As Needham and Huang (1974) put it, “Chinese bureaucratic government always appeared impressive in breadth while remaining shallow in depth.”

\(^{23}\) The results are unaffected if I assume that the marginal product of labor is diminishing.

\(^{24}\) \( N \) can be endogenized in a dynamic setup by assuming that every peasant lives only one period and spends his after-tax income on consumption and reproduction to maximize his utility. If the two goods are complements and are subject to diminishing marginal utility, the peasant population will expand as long as their net income per capita is above some critical level.
However, modern Chinese historians point out that nineteenth-century emperors faced problems they had not caused and could do little about. As the analysis here suggests, a sustained deterioration in governance need not imply less vigilant rulers. State affairs in nineteenth-century China had simply become intractable and would have overwhelmed the ablest and most dedicated ruler.

4. Empirical evidence: distance and agency costs

The model assumes that the severity of the principal-agent problem in a dictatorship increases with distance from the ruler. It predicts, as a consequence, that the tax burden or tax per capita should decline with distance from the capital to compensate for the weakening monitoring (Proposition 1). Likewise, the network of local administrative units should be denser near the capital and lower elsewhere (Proposition 2). Given that the county was the lowest level of formal administration in Qing China, Proposition 2 suggests that all else equal, the number of counties (per unit area) should be higher near the capital.

4.1. Data

Due to a lack of data on corruption, I am unable to empirically investigate the relationship between distance and agency costs directly. Instead, I use three sets of information to examine the spatial distribution of the land tax and counties in Qing China. The first is a GIS demarcation of county seats and prefectures in 1820, drawn from the Harvard University China Historical GIS Project (CHGIS, 2007). The second data set, based on the Grand Gazetteer of the Qing during the Reign of Jiaqing, provides the number of inhabitants as well as the land tax quota of every prefecture in 1820. Finally, I have plotted the imperial postal relay routes according to the description in the Collected Statutes of the Qing Dynasty (Da Qing huidian, 2006, Yongzheng edition). The imperial court relied upon this network of roads to maintain communications with the rest of the country.

Fig. 1 depicts the spatial distribution of the population, land tax, and counties in China in 1820. One observes eastern China to be more populated than western China (Fig. 1a). Since agriculture in Qing China was labor intensive and since counties were set up to administer the population, it is unsurprising that the concentrations of taxes and counties were higher in the east than in the west (1b and 1c). However, Fig. 1 also provides suggestive evidence that distance from Beijing matters—there appear to be a relatively high concentration of taxes and counties in North China that cannot be fully explained by the spatial distribution of the population.

The scatter plots in Fig. 2a and b show that prefectural land tax and the number of counties in each prefecture are indeed negatively correlated with distance from Beijing. Since prefectures differ in size, in Fig. 2c and d I replace land tax and the number of counties with land tax per capita and the number of counties per 10,000 km², respectively. The correlations remain negative.

4.2. Empirical specification and variables

While the negative correlations in Fig. 2 are consistent with Propositions 1 and 2, they could have been driven by factors independent of agency cost considerations. To investigate further, I estimate the following equation:

\[ y_i = \delta_0 + \delta_1 \cdot Distance_i + \delta_2 \cdot X_i + e_i \]

In Eq. (4), \( i \) indexes prefectures, \( y_i \) is Tax; (land tax per capita in grams of silver) or Admin.; (the number of counties per 10,000 km²) in prefecture \( i \), and \( e_i \) is the error term. To deal with potential heteroskedasticity, I cluster the standard errors by province.

The regressor of interest is Distance, the distance of prefecture \( i \) from Beijing (in 1000 km). It is the sum of two components: (a) the distance of the least-cost path from the prefectural seat to the provincial capital, and (b) the distance by imperial postal roads from the
provincial capital to Beijing.\(^{29}\) \(x_i\) is a collection of control variables that is potentially correlated with \(y_i\): population density (per square kilometer); prefecture \(i\)’s average elevation (in meters); a dummy to indicate if the provincial capital is located in prefecture \(i\). When the dependent variable is \(\text{Tax}_i\), I also include prefecture \(i\)’s population as a control variable to account for possible omitted variable bias, since population size is likely to affect both \(\text{Tax}_i\) and population density in Eq. (4). When \(y_i\) is \(\text{Admin}_i\), I include instead prefecture \(i\)’s land area as an additional control variable for the same reason. Table 2 presents the summary statistics of the variables that I use.

4.3. Baseline estimates

Importantly, this empirical analysis does not identify causality, but it still serve as a useful check on the hypothesis. The model predicts that \(\delta_1 < 0\) when \(y_i\) is \(\text{Tax}_i\) (Proposition 1) and also when \(y_i\) is \(\text{Admin}_i\) (Proposition 2). The baseline estimates are reported in Table 3.\(^{30}\) Looking first at column (a), when land tax per capita is regressed on distance from Beijing, one finds empirical support for Proposition 1. The coefficient estimate of \(\delta_1\) is negative and statistically significant. In column (b), I add population density as a control variable and interpret it as a proxy measure of agricultural output per capita (following Acemoglu et al., 2002). In column (c), additional control variables are included in the regression. In both instances, the core results are unchanged.

In columns (d) through (f), I replace \(\text{Tax}_i\) with \(\text{Admin}_i\) as the dependent variable and repeat the regressions in columns (a) through (c). The results are in line with Proposition 2. The coefficient estimate of \(\delta_1\) is negative and statistically significant.

4.4. Instrumental evidence and robustness checks

One may worry that the imperial postal relay routes might have been designed to pass through regions that were heavily taxed and administered. As a check, I

\(^{29}\) The *Collected Statutes of the Qing Dynasty* provides information on the postal roads linking the provincial capitals and Beijing, but it does not discuss the postal roads that connect prefectures with their respective provincial capitals. To fill in the missing information, I use GIS least-cost path analysis to construct hypothetical intra-provincial road systems. Each road system is a set of slope-dependent least-cost paths that connect the administrative centers of a province. As a robustness check, in the Appendix A use the sum of (a) the straight-line distance from a prefectural seat to its provincial capital and (b) the imperial postal road distance from the provincial capital to Beijing as an alternative measurement of Distance. The results are effectively unchanged.

\(^{30}\) When the dependent variable is \(\text{Tax}_i\), I drop seven prefectures in the immediate vicinity of Beijing (namely, Shuntian, Baoding, Yongping, Xuanhua, Chengde, Tianjin, and Zunhua) from the regression as my data on the land tax does not fully capture the amount of state exaction in these prefectures. The imperial household owned a significant proportion of cultivated lands in these prefectures and the cultivators of these lands paid rents instead of taxes to the state (*Qingshigao*, 1927, juan 120). Imperial landholdings were insignificant outside the greater Beijing area. Nationally, more than 99% of all cultivated lands were private (*Da Qing huidian*, 2006, Qianlong edition, juan 10).
employ GIS analysis to calculate the slope-dependent least-cost paths that connect the provincial capitals with Beijing. As shown in Appendix A Fig. A1, the resulting hypothetical road network bears a strong resemblance to the historical imperial road system. This suggests that the imperial road system is primarily determined by physical instead of human geographical features and the magnitude of any endogeneity bias is likely to be small.

However, as a precautionary measure, in columns (a) and (d) of Table 4, I use the straight-line distance between prefecture $i$ and Beijing as an instrument for $\text{Distance}_i$ (since there is no reason for straight-line distance to be correlated with $\text{Tax}_i$ or $\text{Admin}_i$ other than through $\text{Distance}_i$). The IV results remain stable and consistent with the hypothesis. The estimates suggest that every 1000 km increase in distance from Beijing is accompanied by a 25.9% decrease in tax per capita and a 25.7% decrease in the number of counties per 10,000 km$^2$ respectively.

In the remaining columns of Table 4, I perform several robustness checks. First, according to Wang (1973), China proper in 1800 can be divided into a “developed area” in the east and a “developing area” in the west (Fig. 1a), with the former having “well-developed agricultural resources.” In column (b) of Table 4, I drop observations in the developing area to exclude the effects of this east–west divide. Second, historical research suggests that the Qing emperor often used tax reduction to pacify the population after a revolt (Rowe, 1983; McMahon, 2009). In my dataset, there are twelve prefectures with a tax per capita less than 0.5 g of silver (or one-tenth of the average land tax per capita) and all twelve prefectures had experienced an uprising in the late eighteenth century. To check if these outliers are driving the estimation results, I exclude them in the tax regression in column (c).

Switching to $\text{Admin}_i$ as the dependent variable, in column (e) I drop the prefectures that were more than 1500 km from Beijing. This restricts the area under consideration to the Yellow and Yangzi river basins and excludes from the regression the southwestern provinces of Yunnan, Guizhou, and Guangxi, where minority ethnic groups constituted a sizable portion of the local population, and the southeastern provinces of Fujian and Guangdong, which were on the periphery of Chinese politics throughout history. Finally, one may be concerned that the need to manage the flood-prone Yellow River in the north and the presence of self-regulating clans in the south could have contributed to the higher concentration of counties in northern China. In column (f), I introduce two dummy variables indicating whether a prefecture is along the flood-prone middle and lower reaches of the Yellow River and whether it is located in one of the six provinces in the south or southeast. As Table 4 shows, on each occasion the core result remains robust.

31 These twelve prefectures were from the provinces of Sichuan, Hunan, Hubei, and Shaanxi (Fig. 1b). Each experienced one of the following events: the Jinchuan rebellion (1771–76) in Sichuan, the Miao uprising (1795–97) in Hunan, and the White Lotus revolt (1796–1804) along the Sichuan–Hubei–Shaanxi border.

32 Namely: Jiangsu, Zhejiang, Anhui, Jiangxi, Fujian, and Guangdong.
measures of Distance, Tax, and Admin. The results remain robust and consistent with the model’s predictions.

5. Empirical evidence: fiscal decline through the golden age

Proposition 3 suggests that when agency costs are sufficiently high, the aggregate tax revenue will first increase but eventually decrease as the population expands. Admittedly, my simple model has no predictive power as to when the tax revenue will begin to contract and how strong the contraction will be. Instead, the relevance of Proposition 3 lies in a broader message: a regime plagued with a severe principal-agent problem is likely to face significant difficulties expanding its revenue over time, even if the economy is growing and taxes are low to begin with.

To check Proposition 3’s relevance to the historical experience of Qing China, I have reconstructed the Qing state’s tax revenues between 1650 and 1850 using official Qing documents. Some of these documents are published, for example the Collected Statutes of the Qing Dynasty, the Encyclopedia of the Historical Records of the Qing, and the Veritable Records of the Qing Dynasty. Others are archival records kept in the National Library of China Department of Rare Books.

Table 3
Effect of distance on the distribution of land tax and counties, circa 1820.

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>(a) OLS</th>
<th>(b) OLS</th>
<th>(c) OLS</th>
<th>(d) OLS</th>
<th>(e) OLS</th>
<th>(f) OLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance from capital [‘000 km]</td>
<td>$-0.503^{***}$ (0.150)</td>
<td>$-0.383^{**}$ (0.155)</td>
<td>$-0.349^{**}$ (0.148)</td>
<td>$-0.562^{***}$ (0.097)</td>
<td>$-0.383^{***}$ (0.075)</td>
<td>$-0.310^{***}$ (0.056)</td>
</tr>
<tr>
<td>Population density [‘00 persons per km²]</td>
<td>$-0.167^{***}$ (0.041)</td>
<td>$0.192^{***}$ (0.051)</td>
<td>–</td>
<td>$0.281^{***}$ (0.051)</td>
<td>$0.169^{***}$ (0.022)</td>
<td></td>
</tr>
<tr>
<td>Elevation [‘00 m]</td>
<td>–</td>
<td>–</td>
<td>$-0.021^{*}$ (0.021)</td>
<td>–</td>
<td>–</td>
<td>$-0.021^{**}$ (0.008)</td>
</tr>
<tr>
<td>Prefectural seat</td>
<td>–</td>
<td>–</td>
<td>$0.498^{***}$ (0.139)</td>
<td>–</td>
<td>–</td>
<td>$0.190^{**}$ (0.088)</td>
</tr>
<tr>
<td>Population [‘000,000]</td>
<td>–</td>
<td>–</td>
<td>$-0.166^{**}$ (0.069)</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Area [‘000 km²]</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>$-0.017^{***}$ (0.003)</td>
</tr>
<tr>
<td>No. of observations</td>
<td>261</td>
<td>261</td>
<td>261</td>
<td>268</td>
<td>268</td>
<td>268</td>
</tr>
<tr>
<td>$\hat{R}^2$</td>
<td>0.14</td>
<td>0.19</td>
<td>0.23</td>
<td>0.27</td>
<td>0.47</td>
<td>0.72</td>
</tr>
</tbody>
</table>

Constant terms are not reported. Standard errors (clustered by province) in brackets. The number of observations is smaller when the dependent variable is tax per capita due to missing tax information (footnote 30).

* Significant at 10%.
** Significant at 5%.
*** Significant at 1%.
Table 4

<table>
<thead>
<tr>
<th>Variable</th>
<th>(a) IV</th>
<th>(b) IV, area only</th>
<th>(c) IV, omit if &gt;1500 km from Beijing</th>
<th>(d) IV, omit if &gt;1500 km from Beijing</th>
<th>(e) IV; developed</th>
<th>(f) IV; additional control variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance from capital (log)</td>
<td>0.259</td>
<td>0.279</td>
<td>0.339</td>
<td>0.392</td>
<td>0.409</td>
<td>0.409</td>
</tr>
<tr>
<td>Population density (p千/km²)</td>
<td>0.153</td>
<td>0.153</td>
<td>0.153</td>
<td>0.153</td>
<td>0.153</td>
<td>0.153</td>
</tr>
<tr>
<td>Population density (千人/ hm²)</td>
<td>0.046</td>
<td>0.046</td>
<td>0.046</td>
<td>0.046</td>
<td>0.046</td>
<td>0.046</td>
</tr>
<tr>
<td>Land area (hm²)</td>
<td>0.022</td>
<td>0.022</td>
<td>0.022</td>
<td>0.022</td>
<td>0.022</td>
<td>0.022</td>
</tr>
<tr>
<td>Locality in &quot;Yellow River&quot; south</td>
<td>0.184</td>
<td>0.184</td>
<td>0.184</td>
<td>0.184</td>
<td>0.184</td>
<td>0.184</td>
</tr>
<tr>
<td>No. of observations</td>
<td>261</td>
<td>261</td>
<td>261</td>
<td>261</td>
<td>261</td>
<td>261</td>
</tr>
<tr>
<td>R²</td>
<td>0.126</td>
<td>0.126</td>
<td>0.126</td>
<td>0.126</td>
<td>0.126</td>
<td>0.126</td>
</tr>
<tr>
<td>No. of observations</td>
<td>416.1</td>
<td>416.1</td>
<td>416.1</td>
<td>416.1</td>
<td>416.1</td>
<td>416.1</td>
</tr>
<tr>
<td>F on excluded instrument</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Constant terms are not reported.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: Standard errors (clustered by province) in brackets. Significance levels: * Significant at 10%, ** Significant at 5%, *** Significant at 1%.

Dependent variable: Tax per capita (log) #Counties per 10,000 km²

In line with previous studies (Wang, 1971, 1973), my estimates show that the Qing state taxed lightly. Its annual tax revenue between 1650 and 1850 averaged around four billion liters of rice in real terms. This is equivalent to less than 4% of China’s hypothetical output in 1800, if we take the basic standard of living to represent an annual consumption of 3.33 shi of grain per capita and assume that the entire population lived at this level.

What is new in Fig. 3 is the progressive deterioration of the Qing fiscal position over time. Although the High Qing did not end until late in the eighteenth century, in real terms the Qing state’s tax revenue had begun to trend downward in the first half of the 1700s (Fig. 3b). In per

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33 The published sources are widely used in historical research. The archival sources contain information on the destination of the taxes collected (spent locally, sent to other provinces or Beijing), which allows cross-checking for consistency. With the exception of the *Veritable Records*, all sources provide provincial-level monetary tax returns. The *Veritable Records* publish only aggregated national-level tax returns. In Fig. 3, I use a different symbol to differentiate the estimates based on the *Veritable Records* from the other (more reliable) estimates.

34 However, my tax revenue estimates do not include the Qing state’s revenue from non-tax sources. Data on the Qing state’s non-tax revenue is somewhat patchy. Sng (2011, Figure 1.7b) estimates that non-tax revenues constituted less than 10% of the Qing state’s total revenue.

35 I have also tried using other estimates, such as the Peng price series (Global Price and Income History Group, n.d.) and the population estimates in Cao (2000). In each case, the results are comparable.

36 This would cover expenditure on clothing, food, and food supplements such as oil and salt (Huang, 2003, 158). I underestimate the national output intentionally to produce an upper-bound estimate of the tax-to-GDP ratio.

37 In practice, the Qing state did not adjust tax rates regularly. Where the land tax is concerned, the tax liability of a household was expressed as a fixed amount of silver per plot of land. This stipulated nominal sum hardly changed over time. During the early and mid-eighteenth century when inflation was positive, the decline in the real tax rate was automatically achieved through rising prices. It was only when the long-term price trend reversed itself during the early nineteenth century that the Qing court had to grant tax waivers or postponements to relieve the tax burden on the peasants. In 1812, 1824, and 1848, respectively, 14.1%, 6.2%, and 14.2% of the land tax was waived or exempted on a national level based on my calculation.
capita terms, the deterioration is even more striking. In 1685 the Qing state’s tax revenue was sufficient to feed and clothe 9.6% of the Chinese population. This fell to 7.7% in 1724, 5.4% in 1753, and 2.3% in 1848 (Fig. 3c).

In the historical literature, the White Lotus Rebellion in 1796 is often viewed as the landmark event that triggered a sharp and irreversible deterioration of the Qing fiscal position (Mann and Kuhn, 1978; Rowe, 2009). The cost of putting down the rebellion wiped out three quarters of the Qing state’s fiscal reserves (see Figure 5 in Ma, 2011). Fig. 3 suggests that the fiscal problems of the Qing dynasty can be traced back still further. One reason why the tax revenue contraction in the decades before the White Lotus Rebellion received little notice is that state expenditures were also falling during this period. This spared the Qing state from incurring a structural deficit until the late 1700s. However, as discussed in the next section, the decline in spending in the second half of the eighteenth century was costly in the long run as it weakened the Qing state’s ability to resist external threats and maintain domestic order and contributed to the White Lotus Rebellion and the problems of the nineteenth century.

Low taxation in Qing China is often seen as a direct consequence of its adherence to the Confucian ideal of benevolent rule. However, the Qing state’s tax revenue was too small to be explained by ideological beliefs, since Confucianism promoted a tax rate of 10%. Furthermore, although the Qing emperors’ decision to keep taxes low and fair was couched in ideological terms, it was very much motivated by pragmatism. The Qing emperors were keen to avoid repeating the mistakes of their Ming predecessors, who were toppled by a peasant uprising after raising the nominal land tax three times in under thirty years. In the language of the model, they were keen to avoid violating the no-revolt constraint.

It should be noted that the decline of real tax revenue in Fig. 3b began some time after Emperor Kangxi’s 1712 decision to freeze the aggregate nominal head tax permanently. One influential view attributes the Qing nineteenth-century fiscal problems to Kangxi’s well-intentioned but ill-conceived head tax freeze (Rowe, 2009). However, the head tax made up only about 5% of the national tax revenue before its freeze. An often overlooked but perhaps more important policy change is the Qing state’s decision in the 1730s to stop offering incentives to local officials for reporting newly reclaimed lands in their jurisdictions. The change went into effect after the imperial court discovered that these incentives had encouraged false reporting by officials eager for promotions and taxpayers were made to shoulder taxes on lands that never existed (Rowe, 2009). Consequently, despite the continued growth of the cultivated acreage, the registered acreage stopped expanding (Wang, 1973, Tables 1.1 and 2.1), which in turn capped the growth of the land tax.

As Rosenthal and Wong (2011) reminded us, China was blessed with a peaceful external environment in the eighteenth century and there was no pressing need for the Qing state to tax its population heavily. This factor certainly contributed to the small size of the Qing state’s coffers. However, if modest spending needs were the only reason behind low taxation in Qing China, the state should have been able to expand its fiscal and administrative capacity had such needs arisen. The next section shows that this was not the case.

6. Reduction in public goods provision

An implication of Proposition 3 is what the historian Ian Morris calls the “paradox of development”: social development creates the very forces that undermine it (Morris, 2010). If the underlying principal-agent problem is severe, a regime that successfully maintains stability and fosters economic expansion may become a victim of its own success as slow or negative revenue growth could severely constrain its ability to deal with problems that accompanied the economic expansion. This section provides a historical narrative to argue that

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38 The Qing state’s fiscal reserves stood at around 75 million silver taels before the rebellion, which is equivalent to 3.5% of China’s hypothetical output or slightly less than the Qing state’s annual tax revenue in 1800.

39 See Sng (2011, Figure 1.14) for a reconstructed annual expenditure series based on the Qing Board of Revenue’s dajin (major receipts) and dachu (major expenses) records kept in the Chinese Academy of Social Sciences.

40 Mencius (372–289 BC), the “sage” who first proposed the concept of benevolent rule, recommended a tax rate of one-ninth for agriculture and one-tenth for commerce. He warned that anything more would put an unbearable burden on the people, and anything less would lead to an underfunded government (Mencius, 2009, 3A3, 6B10).

41 Imperial statements collected in the Veritable Records of the Qing Dynasty suggest that Qing emperors such as Shunzhi, Kangxi, and Qianlong viewed these tax hikes and bureaucratic malfeasance as the main cause of the late Ming peasant rebellions. Ironically, these hikes were imposed to shore up border defenses against the Qing empire.

42 A close look at historical evidence also suggests that Kangxi’s head tax freeze was not based purely on altruism. Shi (1999) provides a detailed discussion of how abuses and disputes in the collection of the head tax helped fuel social instability and contributed to Kangxi’s announcement of a permanent freeze.
events had unfolded in pre-1850 China in accordance with this proposition.

Table 5 provides a glimpse of the Qing state’s role in the Chinese economy. It suggests that the regime contributed to the economy’s well-being mostly in an indirect manner, as a “night watchman state.” The composition of the Qing state’s silver expenditure was heavily tilted toward the military and civilian administrations. The army provided peace, which was crucial for economic exchange to take place. The civilian administration, which administered justice and maintained social order, also supported economic activity. Since the two items together accounted for more than 80% of the government’s silver expenditure, they were bound to be affected by the sustained revenue decline that began in the first half of the eighteenth century.

6.1. Defense

Let us consider the military first. The defense of the empire depended on two military systems: the Eight Banners and the Green Standard Army. The Eight Banners garrisoned Beijing as well as the strategic approaches to the capital, while the Green Standard troops were deployed to defend the provinces against external and internal threats. There were about 200,000 banner soldiers in the mid-eighteenth century (Feuerwerker, 1976). To cut state payroll, measures were taken during the reign of Qianlong, for example, to decommission Han Chinese bannermen. Meanwhile, the size of the Green Standard Army stood at around 600,000 (Wang, 1890). Table 6 illustrates the size of the Green Standard troops deployed in four provinces in South China. These provinces are of particular interest because the main battles of the Opium War (1839–42) were fought along the coastal provinces of Guangdong, Fujian, and Zhejiang, while the Taiping Rebellion (1850–64) originated in Guangxi. In each of the four
provinces, the size of its military was on the decline before disaster struck.\(^{44}\)

The military cuts were implemented not because of complacency. The imperial court was aware of its military weaknesses, especially at sea. Much has been made of Emperor Qianlong’s snubbing of the Macartney Mission in 1793. However, as Waley-Cohen (1993) points out, Qianlong’s behavior had more to do with diplomatic posturing than a lack of awareness of Western technological superiority. Immediately upon Macartney’s departure, the emperor instructed coastal provinces to bolster their defenses (Qingshilu, 1986, QL juan 1436):

That they [Britain] made such outrageous demands shows that we must make preparations in case they harbor evil intentions. The defense of our coast is most critical. In recent years, our coastal patrol and surveillance have been lax. Fighting ability has deteriorated. We must do something about it.

In 1834, five years before the Opium War, Qianlong’s grandson, Emperor Daoguang, made remarks in the same vein after two British warships intruded into Chinese waters and sailed up the Pearl River with ease (BLP, 2008, v. 3):

It seems that our cannon platforms are as good as useless. How laughable and deplorable it is that we cannot even repel two barbarian ships. Our military have decayed so much. No wonder the barbarians are looking down on us.

Yet no action was taken as Daoguang’s main concern was to restore his regime’s fiscal viability. He did not welcome a new expenditure commitment. The pressure on state finances was so severe that during the Opium War, Daoguang ordered troops along the coast to begin demobilization before the peace treaty had been concluded “to cut costly outlays” (yi jie mi fei) (Wenging et al., 1836–1874, 473, 491, 512). In short, it was structural, fiscal, and administrative weaknesses, not ignorance and hubris, that resulted in China’s inability to respond more resolutely to the rise of the West.

### 6.2. Local administration

Consider now local administration. In 1724, there were 1360 counties, or one county for approximately every 150,000 Chinese (Ch’u, 1962). Although the population more than doubled between 1700 and 1850, the number of counties barely increased. Relatively few counties were created to administer the burgeoning settlements in previously sparsely populated regions. Meanwhile, existing counties were occasionally consolidated to keep the already meager growth of counties in check.\(^{45}\)

Since the imperial court entrusted all administrative affairs of the county to the magistrate, as the average population in each county increased, so did the magistrate’s workload.\(^{46}\) In particular, because he was the only imperial officer in the county authorized to preside over court proceeding, available court resources per person fell over time. To stem the ever-growing tide of civil cases flowing into local courts, the state had to resort to measures such as outlawing litigation masters, the Chinese equivalent of lawyers (Macauley, 1998).\(^{47}\) Eastman (1991, 127) observed that the increasingly overworked magistrates paid less and less attention to

\(^{44}\) The decline in fighting capability was likely to be worse than what Table 6 suggests for two reasons. First, Table 6 reports the statutory number instead of the actual number of troops. It was observed that the gap between the two grew over time as many military officials kept positions vacant so as to pocket the stipends of the unfilled positions (Feuerwerker, 1976). Second, the Qing army suffered not only a loss in quantity, but a fall in quality as well. As military expenditure contracted in real terms, it became increasingly common for soldiers to take up second jobs as street peddlers or craftsmen to supplement their low and falling wages. Consequently, military preparedness suffered (Luo, 1945).

\(^{45}\) Sociological theories and the experience of the United States suggest that as the population expands from the core to the periphery, to maintain the effectiveness of the state new counties must be created unless there are improvements in transportation that allow the state to effectively administer the new settlements from existing county seats (Stephan, 1971). Since there was no transportation revolution in pre-1850 Qing China, these theories would predict that state effectiveness declined over time. See Skinner (1977, 17–23) for a detailed discussion.

\(^{46}\) Only about one in every three counties was assigned an assistant magistrate, who had no rights in terms of hearing court cases or authorizing arrests (Ch’u, 1962, 11–12).

\(^{47}\) Because of data constraints, it is not possible to prove statistically that litigation rates went up over time. According to Macauley (1998, 62, 332), the annual number of lawsuits per county could have reached eight hundred by the late eighteenth and early nineteenth centuries, and only about one-third of these cases were resolved in formal court sessions.
bandit activities in their jurisdictions, thereby allowing social unrest to brew.

The undergovernment of volatile frontier societies, in particular, put social stability under increasing threat. In eighteenth-century China, demographic pressure and the introduction of new crops from the Americas led to a wave of immigration from the plains to the highlands. Communal violence was relatively common in these frontier societies due to a weak state presence and the absence of an established elite. Consequently, some of these societies became highly militarized (Naquin and Rawski, 1987). The revolt of Lin Shuangwen, the first major commoner rebellion after Qing pacification of China, took place in the fast growing but weakly administered frontier island of Taiwan in 1786 (Appendix A Fig. A1). The revolt of the White Lotus sect (1796–1804), another major uprising, erupted in the highlands of central China. There, a steady influx of population took place over the course of the eighteenth century, but strong political institutions were never established.48 In a strikingly similar fashion, the Taiping Heavenly Kingdom movement (1850–64), which almost overthrew the Qing dynasty, originated in the highlands surrounding the Pearl River Basin in South China.

As Fig. 4 illustrates, social order was gradually restored in China during the second half of the seventeenth century with the consolidation of Qing rule. However, large-scale social unrest reappeared in the 1770s and gradually picked up momentum thereafter. It was fiscal decline that preceded social and political instability, not the other way around.

7. Conclusion

At first glance, the late imperial Chinese state is a puzzle. It was absolutist, yet weak. It taxed lightly, yet the effective tax burden on the peasant was relatively heavy. It seemed inefficient, yet it was able to survive for more than two centuries. It was able to support rapid Smithian growth, without which the more than doubling of the Chinese population during the eighteenth century would have been impossible, yet it imploded when the opportunities and challenges of industrialization knocked on its door. This paper argues that these contradictions can be understood if we fully appreciate how size shaped China’s fiscal and organizational possibilities. While my framework is too simple to analyze many aspects of late imperial China, it does capture some salient features of the Chinese political economy that may appear puzzling in light of the experience of the West.

I have assumed that the Qing emperor’s ability to monitor his agents did not improve over time. This, I argue, is a reasonable assumption given the lack of significant improvement in information technology during the late imperial period. However, it was not for the want of trying, as the Qing state did put in place multiple mechanisms to mitigate the principal-agent problem embedded in its system. The Censorate in particular impressed foreign observers such as the nineteenth-century American diplomat Chester Holcombe (Holcombe, 1895). Likewise, the idea of allowing commoners to petition against corrupt officials is fundamentally sound and worked well when it was introduced in Japan (Roberts, 1994).

Furthermore, during the reign of Yongzheng, fiscal reforms were carried out to rationalize the financing of local government and combat corruption (Zelin, 1984). Among the initiatives implemented was an increase of bureaucratic compensation by as much as thirty-fold. However, the reforms of the 1720s did not yield

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48 McCaffrey (2003) describes the region as being plagued by increasingly fragile ecological conditions, as population growth led to excessive land reclamation that narrowed the water channels and increased the risk of flooding. The Qing state understood the risk, but was unable to enforce its decision to ban reclamation activities.
long-lasting results. This, perhaps, should not be surprising. Besley and McLaren (1993) have shown that when the principal’s monitoring capacity is low, efficiency wages are effective only if they are set at exorbitantly high levels. According to Ni and Van (2006), the Qing state would have needed to institute a 250-fold increase in salary to eradicate bureaucratic corruption in 1750.

Another institutional change that could have lowered agency costs was decentralization. This was the path that China took after 1850, when the Taiping Rebellion swept the southern half of the empire and forced the Qing court to cede decision-making power to the provincial governors. Fiscally, decentralization meant that provincial governments replaced the imperial court as the residual claimant on the taxes collected within each province. In return, the central government received a fixed amount of silver annually from every province to finance its expenditures. In the language of contract theory, the emperor sold the “firm” to the provincial governor, the principal-agent problem was mitigated, and state finances should improve.

Indeed, decentralization allowed the Qing state to mount a more effective response to the social and military crises of the mid-nineteenth century. Following the suppression of the Taiping Rebellion, a group of provincial governors led a successful campaign to reduce the effective fiscal burden of the peasants without a fall in tax revenue (Rowe, 1983). Halsey (2007) showed that as provincial leaders took over from the central government in initiating major reform efforts, the Qing state’s extractive capacity expanded significantly after 1850.

Yet decentralization also created free-rider problems in the provision of public goods at the national level (Deng, 2011). When the Sino-Japanese war broke out in 1894, only Manchuria and the province of Zhili mobilized. In 1911, Beijing’s attempts to nationalize the railway system intensified the political tension between central and provincial authorities and led to the collapse of the Qing dynasty.49

From then on, China oscillated between fragmentation (1912–1925), unification (1925–1940), centralization (1945–1979), and decentralization (1979–), in its search for the right balance between having the center maintain vertical control, and allowing some degree of local state building.50 The details of the causes and legacies of these historical developments are beyond the scope of this paper. However, the role that size played in shaping China’s institutions and hence the path of its recent history should be clear.

49 Theoretically, agency problems could be resolved through a transfer of ownership rights from the principal to the agent in exchange, for example, for a stream of fixed payments. However, this presupposes that the contract is enforceable. In the world of politics, if the provincial leaders renege on payment after assuming control of the devolved province, the emperor will not be able to seek redress through supranational courts. From this perspective, it is easy to understand why the Qing monarchs saw devolution as a measure of last resort.

Acknowledgments

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Appendix A

Fig. A1. Road systems; origins of major rebellions. Remarks: (i) *Based on slope-adjusted least cost analysis; (ii) With the exception of the easternmost road, the hypothetical road system and the historical imperial road system share strong similarities; (iii) Almost all the major rebellions of the mid-Qing began in the empire’s inner frontiers where state power was particularly weak.

Table A1
Further robustness checks.

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>(a) IV; Linear model</th>
<th>(b) IV; Linear model</th>
<th>(c) IV; Alternative measure of Distance</th>
<th>(d) IV; Alternative measure of Distance</th>
<th>(e) IV; Alternative measure of Tax</th>
<th>(f) IV; Alternative measure of Admin</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tax per capita</td>
<td>#Counties per 10,000 km²</td>
<td>Tax per capita (log)</td>
<td>#Counties per 10,000 km² (log)</td>
<td>Total land tax (log)</td>
<td>#Counties (log)</td>
</tr>
<tr>
<td>Distance from capital [‘000 km]</td>
<td>$-1.10^{**}$ (0.48)</td>
<td>$-1.31^{***}$ (0.41)</td>
<td>–</td>
<td>–</td>
<td>$-0.411^{***}$ (0.149)</td>
<td>$-0.231^{***}$ (0.049)</td>
</tr>
<tr>
<td>Alternative distance measure [‘000 km]</td>
<td>–</td>
<td>–</td>
<td>$-0.260^{*}$ (0.154)</td>
<td>$-0.281^{***}$ (0.064)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Population density [‘00 persons per km²]</td>
<td>$1.66^{***}$ (0.33)</td>
<td>$1.67^{***}$ (0.14)</td>
<td>$0.206^{***}$ (0.044)</td>
<td>$0.175^{***}$ (0.024)</td>
<td>$0.180^{***}$ (0.055)</td>
<td>$0.061^{**}$ (0.027)</td>
</tr>
<tr>
<td>Elevation [‘00 m]</td>
<td>$-0.022$ (0.046)</td>
<td>$0.003$ (0.031)</td>
<td>$-0.022$ (0.019)</td>
<td>$-0.022^{***}$ (0.008)</td>
<td>$-0.038$ (0.025)</td>
<td>$-0.025^{***}$ (0.010)</td>
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</table>
Table A1 (continued)

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Tax per capita</th>
<th>#Counties per 10,000 km²</th>
<th>Tax per capita (log)</th>
<th>#Counties per 10,000 km² (log)</th>
<th>Total land tax (log)</th>
<th>#Counties (log)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Linear model</td>
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<tr>
<td>(b) IV; Linear model</td>
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<td>(c) IV; Alternative measure of Distance</td>
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<td>(d) IV; Alternative measure of Distance</td>
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<td>(e) IV; Alternative measure of Tax</td>
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<td>(f) IV; Alternative measure of Admin</td>
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<tr>
<td><strong>Significant at 5%.</strong></td>
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<td><strong>Significant at 1%.</strong></td>
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<tr>
<td>Constant terms are not reported. Standard errors (clustered by province) in brackets.</td>
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