

# Dual Leadership and Bureaucratic Capacity

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## Abstract

This paper studies an institutional foundation of bureaucratic capacity. I construct a model to explain why autocracies tend to appoint a political governor and an economic governor to co-rule the same province (Weber (1978)). The model shows that the joint appointment secures the loyalty of provincial governments in an especially robust manner. Therefore, the joint appointment resolves the trade-off between loyalty and competence, allowing the autocrat to invest in bureaucratic capacity. I then construct a novel dataset tracing Chinese political institutions for over 1,300 years from original historical records written in classical Chinese. The dataset confirms that a meritocratic bureaucracy arose after the appointment of an economic governor to check the political governor, an institution also correlated with a much lower frequency of revolts. Case studies further show that the joint appointment is widely adopted across historical autocracies to support a strong bureaucracy.

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Among the devices used to maintain the control of the ruler’s central administration over the local officials the splitting up of spheres of jurisdiction became very important to the development of administrative law. This subdivision occurred either in the form that the finance administration alone was entrusted to special officials or that civilian and military officials were juxtaposed to one another in every administrative district, a solution also suggested by technical considerations. ...

It has been pointed out correctly that nearly every case of a permanent merger of these two jurisdictions, that means, the fusion of the military and economic power of an administrative district in the hands of one person, soon tended to encourage the administrator’s disengagement from the central authority [Max Weber, *Economy and Society: An Outline of Interpretative Sociology*, University of California Press, 1978, pp.1043-1044.].

## 1 Introduction

Autocracies are haunted by a fundamental dilemma between loyalty and competence. An autocrat is reluctant to appoint competent ministers or governors because they can weaponize their competence to challenge the autocrat himself. Consequently, autocracies are usually crowded with incompetent officials whose loyalty to the autocrats is still questionable. The loyalty-competence trade-off has been diagnosed as a major mechanism behind the economic stagnation and political instability in autocracies (Glazer (2002); Egorov and Sonin (2011); Svolik (2012); Zakharov (2016); Bai and Zhou (2019)).

Despite the acute trade-off, some autocracies manage to build a competent bureaucracy while remaining stable. Weber (1978) (pp.1044) highlights that most of these autocracies share a common feature: their provinces are co-ruled by two governors, one wielding political power and the other managing the economy. In other words, the political governor controls the infrastructure of organized violence (Weber (2004); Tilly (1992)), and the economic governor controls fiscal revenue and public good provision. Prominent examples include the joint appointments of the governor and the fiscal *procurator* in Roman Empire, the governor and *defterdars* for the Ottoman Empire, and the governor and the lieutenant governor in Imperial China (Weber (1978); Finer (1997a); Finer (1997b))<sup>1</sup>. To streamline my terminology, I use “power duality” to denote the joint appointment of a political governor and an economic governor. I hypothesize that such power duality resolves the trade-off between

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<sup>1</sup>I discuss details of these examples in Section 3 and Section 4.

loyalty and competence in an especially robust manner, allowing the autocrat to appoint competent officials. The hypothesis is investigated in detail for the rest of the paper, both theoretically and empirically.

Through a game-theoretical model, I formalize power duality to clarify its role in supporting bureaucratic capacity. In the benchmark model, the central government appoints only one governor to rule a province. Because the governor controls both economic power and political power, the governor can provide generous public goods to win support from the local population and then mobilize the population to revolt against the central government. The process is micro-founded by a signaling mechanism where only a “benevolent” governor provides lavish public goods. The construction of a “benevolent” reputation through lavish public goods is identified by Weber (1978) as *the* major strategy for autocracies to win popular support.<sup>2</sup> Conditional on lavish public goods, the province is more likely to revolt when a successful revolt can produce a higher return. The return is especially high when the province is governed by a team of competent officials capable of producing a large surplus. Consequently, the central government staffs the provincial government with mediocre officials.

In the main model, the central government appoints both a political governor and an economic governor. The political governor can mobilize a popular revolt against the central government, while the economic governor controls the provision of local public goods. The main model allows substantial collusion opportunities between the political governor and the economic governor. Collusion can break down many other separation-of-powers institutions (Persson et al. (1997); Laffont (2000)). Moreover, collusion is an especially serious concern in autocracies. Formal institutions in autocracies are more vulnerable to informal interactions among officials because autocracies are far less institutionalized than democracies (Acemoglu et al. (2004)).

Specifically, the main model allows the political governor to write a side contract with full commitment, promising to share the surplus from a successful revolt with the economic governor in exchange for public good provision. Even under such a collusion contract, any attempt to signal the “benevolence” of the political governor must fail and the province never revolts against the central government, a situation that guarantees the appointment of highly competent officials. I clarify the mechanism behind the revolt-free results, showing that the requirement of Perfect Bayesian Equilibrium strongly restricts feasible side contracts. Whenever a benevolent political governor offers a side contract that could energize a popular revolt, the same side contract would also be offered by a selfish political governor. Then the selfish political governor would capture a strictly positive surplus from the successful revolt

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<sup>2</sup>This welfarist perspective on autocracies is also reflected by Fearon (2011) and Przeworski (2022).

even after compensating the economic governor. Thus, side contracts (and the related public goods) cannot help the population to meaningfully identify a benevolent political governor. Power duality is an especially effective device to forestall local revolts because power duality is robust to collusion between the two governors, a characteristic rarely satisfied by other separation-of-power institutions. In addition, the formal model also allows the analysis of the welfare properties of power duality. For example, power duality is always desirable for the central government; but under general conditions, power duality reduces the payoff to the mass population because the population loses all the opportunity to reclaim the surplus extracted by the autocrat. In an autocracy, a highly stable and meritocratic government can produce the worst outcome for the population.

I also look at the case where the political governor can coerce the economic governor without any compensation, completely dominating the economic governor. Yet the economic governor still bears the bulk of the cost in public good provision because the economic governor directly supervises the provision of any public goods. Consequently, the political governor still cannot signal his benevolence because the signal remains too cheap to be informative. The simple result explains why the economic governor is sometimes second-ranked and subordinate to the political governor, but the economic governor almost never outranks political governor.

Informed by the formal model, I conduct a series of case studies on the New Kingdom of Egypt, the Roman Empire, and the Ottoman Empire. These case studies demonstrate that power duality is widely adopted to support a competent bureaucracy. Then I pay special attention to the case of Imperial China. Imperial China is of intrinsic interest as one of the most important and enduring historical autocracies (Finer (1997a)). More importantly, Imperial China keeps written historical records that are arguably the longest and the most continuous. These historical records provide a unique opportunity to construct long and uninterrupted time series data about political institutions, allowing us to capture the most fundamental trends in the development of political institutions.

Specifically, I construct an original time-series dataset of rebellions, power duality, and political meritocracy in Imperial China for 1,300 years. I construct consistent time series data from the most important collection of historical records written in Classical Chinese, the first ever such attempt in social sciences. Most of these records are biographies rather than chronological history, so I develop a novel methodology to transform these biographical texts into time-series data. Then I apply the dictionary-based method in computational text analysis (Grimmer and Stewart (2013)). For each decade, I look at power duality positions that are designed to check the main executive and count their frequency in those historical records. A similar method is applied to measure rebellions, while political meritocracy is

proxied by the fraction of historical figures with degrees from the civil service exam. The data show a strong positive correlation of power duality and political meritocracy, both of which are negatively correlated with rebellions. Also, power duality rises and falls before political meritocracy rises and falls, so emperors only invest in bureaucratic capacity after they institutionalize strong checks against the leaders of local governments. The quantitative data from Imperial China further corroborates the main thesis that power duality is a fundamental institution to secure the loyalty of local governments, allowing the autocrat to build up bureaucratic capacity.

The paper is related to many strands of literature. Of all the objectives of autocrats, they strive first of all to survive and stay in power (Finer (1997a); Francois et al. (2015); Li et al. (2022a)). Dominant among the many threats to autocratic survival is the challenge from other elites (Weber (1978); Myerson (2008); Acemoglu et al. (2008); Svoblik (2012)). The literature has proposed many devices that may neutralize the threat. Among many others (surveyed in Egorov and Sonin (2020)), such devices include council governance (Myerson (2008); Svoblik (2012)), mass welfarism (Fearon (2011); Jia et al. (2021)), divide and rule (Acemoglu et al. (2004)), authoritarian parties (Svoblik (2012); Francois et al. (2022)), and authoritarian coalition formation (Acemoglu et al. (2008)). To the best of my knowledge, the previous economics literature has not formally analyzed the local separation between political power and economic power, or what I call power duality. With his encyclopedic knowledge of historical regimes, Max Weber asserts that power duality is an existential institution without which an autocrat cannot maintain control of local governments. Indeed, Finer (1997a) and Finer (1997b) document that power duality is widely adopted by stable autocracies. My paper presents the first formal model of this crucial institution. Through the simple machinery of signaling games, I offer one explanation for why power duality is so effective and pervasive. The model shows that power duality is robust to collusion between the two governors, a characteristic that is of paramount concern in autocracies and is rarely satisfied by other separation-of-powers institutions (Persson et al. (1997); Laffont (2000)). I also construct long time series from original historical records in Imperial China to further corroborate the empirical relevance of power duality.

My paper also contributes to the literature on the origins of state capacity (Tilly (1992); Besley and Persson (2010); Gennaioli and Voth (2015); Dal Bó et al. (2013); Sánchez De La Sierra (2020); Chen et al. (2021)). Many autocracies build competent “patrimonial” bureaucracies (Weber (1978); Finer (1997a)). These competent bureaucracies in autocracies are especially puzzling because the acute trade-off between loyalty and competence should have forced autocracies to appoint incompetent officials ((Egorov and Sonin (2011); Svoblik (2012); Bardhan (2016)). My paper proposes one solution to this paradox between the

loyalty-competence trade-off and a competent “patrimonial bureaucracy.” Through a theoretical model and quantitative data, I show that power duality might be an especially powerful device to resolve the trade-off, allowing the autocrat to confidently invest in bureaucratic capacity. By doing so, my paper also makes a novel contribution to the literature on political and bureaucratic selection (Besley (2006); Dal Bó et al. (2013); Dal Bó and Finan (2018)) by analyzing a solution to a key tension in political selection.

The paper further contributes to the literature that constructs long-run time-series measurement for social phenomena, such as the historical evolution of conflicts (Bai and Kung (2011)), regime types (Marshall et al. (2014)), top income distribution (Piketty and Saez (2003)), capital (Piketty and Zucman (2014)), and party cleavages (Gethin et al. (2022)). I contribute to the literature by transforming original biographical records into time-series data and by constructing consistent time series of political institutions for more than a millennium. The methodology can be applied to construct consistent time series for any social phenomena from Chinese historical records, an extremely rich textual source yet vastly under-explored in quantitative works.

There is a large literature on the persistence of institutions (for example, Acemoglu et al. (2001); Acemoglu et al. (2002); Acemoglu and Robinson (2008); Dell (2010); Dell et al. (2018); Roland (2020)). This paper explores an institution that supports the persistence of strong state capacity in a “despotic state” (Acemoglu and Robinson (2022)). Due to the unique advantage of the data source, I am able to document the persistence of the duality institution and state capacity for over a millennium in Imperial China, without any gaps in these long time series.

The rest of the paper is organized as follows. Section 2 presents and analyzes a model of power duality and bureaucratic capacity. Section 3 discusses case studies from important autocracies and more implications from the model. Section 4 constructs data measuring power duality and bureaucratic capacity from Chinese historical records, and discusses how the data informs the model in Section 2. Section 5 concludes.

## **2 A model of duality and bureaucratic capacity**

### **2.1 The benchmark model**

In the benchmark case, I adopt a signaling model to formalize a loyalty-competence trade-off. A central government staffs a provincial government headed by a governor. A more competent provincial government produces higher surplus for the central government. Then the governor may provide public goods to signal his “benevolence” towards the population.

The population, observing public goods, decide whether to revolt under the leadership of the governor. A successful revolt forces the central government to return surplus to the province, and the governor distributes the returned surplus. If the governor builds up a reputation of “benevolence,” the central government faces a severe trade-off between loyalty and competence: a more competent provincial government produces more surplus, which also tempts the population to revolt if the population receives public goods. Generous public goods convince the population that the governor will distribute the returned surplus to the population.

To reiterate, the governor signals his benevolence through public goods. Signaling underpins important works in political economy, such as models of conflicts, populism, and electoral accountability (Fearon (1997); Besley (2006); Acemoglu et al. (2013); Gehlbach (2021)). I focus on signaling in an autocracy: signaling facilitates communications between local officials and the population, solving their collective action problem and constituting a huge threat to the central government. In Section 3.2.1, I argue in detail that an autocrat is especially worried that his governors may signal their benevolence through public good provision. In other words, signaling benevolence through public goods is a major mechanism behind the loyalty-competence trade-off in autocracies.

### 2.1.1 Setup

The benchmark model has three players, the Center, the provincial governor, and the population. There are four stages in the benchmark game.

**1. The appointment stage** In the appointment stage, the Center chooses  $W \in [\underline{W}, \bar{W}]$ , the competence of the provincial government, with  $\underline{W} > 0$ . More specifically,  $W$  is the amount of economic surplus the provincial government produces. The economic surplus  $W$  is affected by the competence of the entire staff of the provincial government, including the governor and lower-ranked bureaucrats. The Center can choose the competence of the provincial government because an autocrat commands high discretion over the appointment for a “patrimonial bureaucracy” (Weber (1978)).

There are two types of governors, normal or benevolent, and the governor is benevolent with probability  $\mu \in (0, 1)$ . A normal governor cares only about his own payoff, while a benevolent governor also cares intrinsically about the welfare of the population. Only the governor knows his type, *and this is the only source of asymmetric information in the*

*benchmark model.* Denote  $\theta$  as the type of the governor.

$$\begin{cases} \theta = b & \text{if the governor is benevolent} \\ \theta = m & \text{if the governor is normal} \end{cases}.$$

The status-quo payoff of the governor is  $Q > 0$ . The provincial government submits a surplus to the Center at:

$$R \equiv \lambda W, \tag{1}$$

where  $\lambda$  is the fraction of the surplus captured by the Center. The payoff to the population is  $(1 - \lambda)W$ . It is without loss of generality to assume that  $\lambda = 1$ .

**2. The signaling stage** The governor provides  $e(k)$  amount of public goods, which costs the governor  $k$ . The cost  $k$  can be interpreted as efforts from the governor. The amount of public goods  $e(k)$  increases with efforts  $k$ . The governor is free to choose any amount of public goods  $e(k) \in [0, e(\bar{k})]$ , with  $e(k = 0) = 0$ . Equivalently, the governor can choose any “effort” level

$$k \in [0, \bar{k}]. \tag{2}$$

We denote the amount of public good provision by the cost  $k$ . We will see that  $\bar{k}$ , the maximal amount of public goods, is a key parameter.

The population values public goods at  $e(k)$ , a normal governor does not value public goods, and a benevolent governor values it at  $\gamma e(k)$ ,  $\gamma > 1$ .

**3. The mobilization stage** An opportunity of a revolt arises with probability  $\pi \in (0, 1]$ . If there is no opportunity, the game ends. The Center receives  $R$  and the population receives  $e(k)$ . The governor’s payoff is

$$Q - k + \gamma e(k) \cdot \mathbb{1}\{\theta = b\}. \tag{3}$$

If there is an opportunity of a revolt, the population may launch it with cost  $c$ . The cost  $c$  follows the distribution  $F(\cdot)$ :

$$c \sim F(\cdot), \quad c \in [\underline{c}, \bar{c}]. \tag{4}$$

The governor decides whether to sponsor and lead the revolt.

If the population did not launch a revolt, the game also ends. The Center receives  $R$ , the population receives  $e(k)$ , and the governor’s payoff is Equation (3).

If the population launches a revolt and the governor does not lead it, the revolt fails and



the game ends. The Center receives  $R$ , the population receives  $e - c$ , and the governor's payoff is Equation (3).

**4. Divide the pie** If the governor leads the popular revolt, the revolt succeeds. The Center receives 0, forced to return the surplus  $R$  to the province. The governor decides whether to award  $R$  to the population or keep it to himself, and the game ends. The population's payoff is:

$$e(k) + R \cdot \mathbb{1}\{\alpha = 1\}, \quad (5)$$

where  $\alpha = 1$  if the population receives the returned surplus  $R$ .

If the governor keeps the surplus, he obtains

$$Q - k + \gamma e(k) \cdot \mathbb{1}\{\theta = b\} + R. \quad (6)$$

If the governor awards  $R$  to the population, he obtains

$$Q - k + \gamma e(k) \cdot \mathbb{1}\{\theta = b\} + \gamma R \cdot \mathbb{1}\{\theta = b\}. \quad (7)$$

Now I introduce four assumptions to be maintained throughout the paper:

**Assumption 1.**

$$\underline{c} > \mu R.$$

Assumption 1 is standard. It guarantees that the population will not launch a revolt unless the population receives an informative signal on the governor's benevolence.<sup>3</sup> So the governor has to send a costly signal to ignite a popular revolt.

**Assumption 2.**

$$\text{For all } k > 0, \gamma e'(k) - 1 > 0.$$

Assumption 2 is also standard. For a benevolent governor, the marginal benefit from public goods,  $\gamma e'(k)$ , is always larger than one, the marginal cost. So more public goods are always desirable for the benevolent political governor. Assumption 2 is a simple micro-founded version of the "commitment type" assumption in the reputation literature. The assumption is also empirically plausible. Public goods are usually under-provided in autocracies and historical regimes, even in regimes with strong "welfare ideology" (Weber (1978); Von Glahn (2016)).

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<sup>3</sup>The population will obtain  $\mu(R - c) + (1 - \mu)(-c) = \mu R - c$  if they revolt without receiving any signal and 0 if they do not revolt. Thus,  $\underline{c} > \mu R$  ensures that the population will not revolt unless they update their belief.

**Assumption 3.**

$$\bar{k} > \pi F(R)R.$$

Assumption 3 says that the Center authorizes the governor with sufficiently high discretion over public good provision. The assumption is realistic in many autocracies because they govern large territories (Weber (1978); Stasavage (2020)). Due to logistics problems (Mann (2012); Sng (2014)), it is necessary for the Center to delegate most decisions to the provincial government.

The solution concept is pure-strategy Perfect Bayesian Equilibrium (PBE). As with most models employing Perfect Bayesian Equilibrium, I need to restrict off-equilibrium beliefs.

**Assumption 4.** *In a PBE, suppose that the benevolent governor's strategy is to provide  $k_b$  amount of public goods. For any off-equilibrium public goods at  $k' \neq k_b$ , the population's posterior belief on the probability of a benevolent governor is  $\hat{\mu}(k') = 0$ .*

If public goods  $k'$  is reached with probability zero, neither types of governors choose  $k'$ . With Assumption 4, the population believes that a governor who provides such public goods  $k'$  cannot be benevolent.

**2.1.2 The loyalty-competence trade-off**

**Proposition 1.** *A revolt happens with probability  $\mu\pi F(W)$ , which increases with competence  $W$ . So the Center chooses the competence  $W$  that satisfies:*

$$W^* = \arg \max_W [1 - \mu\pi F(W)]W. \quad (8)$$

*That is, the Center avoids the most competent officials and appoints mediocre officials to staff the provincial authority.*

All proofs are in the appendix. In the unique equilibrium, only the benevolent governor provides public goods, and the benevolent governor provides them at  $\bar{k}$ . Observing  $e(\bar{k})$  amount of public goods, the population infers that the governor is benevolent and revolt with probability  $F(W)$ . As the governor is benevolent with probability  $\mu$  and the revolt opportunity arises with probability  $\pi$ , the probability of revolt at the appointment stage is  $\mu\pi F(W)$ . The benchmark model is a very simple application of signaling games. Public goods are an informative signal because they cost the normal governor much more than the benevolent governor.

The population is more likely to revolt if the provincial government produces more surplus  $W$ . When the provincial government produces more surplus, the population expects a higher

return from a revolt. In the model, this is because the surplus returned by the Center to the province is higher with a more competent provincial government. The model formalizes the stark dilemma between loyalty and competence for the Center. The Center benefits from a higher surplus produced by a competent provincial government; but with a more competent provincial government, the province finds it easier to organize revolts against the Center.

## 2.2 Power duality supports a strong bureaucracy

In this section, I extend the above model. The governor in the previous section is now relabelled as the political governor, as he only directly controls the infrastructure to organize the population in a revolt. I add an economic governor, who makes the decision on the public good provision. As the economic governor controls the signaling device, it may look obvious that the political governor cannot signal his benevolence. Yet the model allows a credible and flexible collusion contract between the political governor and the economic governor: if a revolt is successful, the political governor can credibly transfer a fraction of the captured surplus to the economic governor in exchange for public goods  $e(k)$ . The political governor is free to choose the fraction to be transferred and the political governor has full *ex post* commitment power. Surprisingly, the political governor still cannot signal his benevolence at all. Even with strong collusion between the two governors, the Center avoids any revolts, allowing the Center to build a competent bureaucracy.

### 2.2.1 Setup

**1. The appointment stage** There are two types of the political governor and the economic governor, normal or benevolent. They are both benevolent with probability  $\mu$ , and the two random variables are independent. *Only the governors themselves know their types, and this is the only source of asymmetric information.*

Denote  $\theta_p$  as the type of the political governor.

$$\begin{cases} \theta_p = b & \text{if the political governor is benevolent} \\ \theta_p = m & \text{if the political governor is normal} \end{cases}$$

Similarly, denote  $\theta_e$  as the type of the economic governor.

$$\begin{cases} \theta_e = b & \text{if the economic governor is benevolent} \\ \theta_e = m & \text{if the economic governor is normal} \end{cases}$$

The Center chooses  $W$ , the amount of economic surplus the provincial government produces.

The political governor and the economic governor obtains a status-quo payoff of  $Q$  and the Center receives a surplus at  $R \equiv \lambda W$ . The payoff to the population is normalized to  $(1-\lambda)W$ . Without loss of generality, set  $\lambda = 1$ .

**2. The signaling stage with collusion** The population values public goods as  $e(k)$ , and the provision of public goods costs the economic governor  $k$ . A normal political or economic governor does not value public goods, while a benevolent political governor values it at  $\gamma e(k)$ ,  $\gamma > 1$ .

First, the economic governor may voluntarily provide public goods. A benevolent economic governor always provides public goods at  $\bar{k}$ .<sup>4</sup>

Second, to an economic governor who does not voluntarily provide public goods, the political governor can write a credible side contract. The political governor promises to transfer benefits from the revolt to the economic governor in exchange for a specific amount of public goods  $e(k)$ . The political governor can choose to transfer any  $\eta R$  to the economic governor with  $\eta \in [0, 1]$ . As standard in the contract theory (Bolton and Dewatripont (2004)), the political governor has all the bargaining power, so the economic governor needs to provide public goods at the maximal level that still satisfies the economic governor's participation constraint.

**3. The mobilization stage** An opportunity of a revolt arises with probability  $\pi \in (0, 1]$ . If there is no opportunity, the game ends. The Center receives  $R$  and the population receives  $e(k)$ . The payoff to the normal economic governor is

$$Q - k. \tag{9}$$

The political governor's payoff is:

$$Q + \gamma e(k) \cdot \mathbb{1}\{\theta_p = b\}. \tag{10}$$

If there is an opportunity of a revolt, the population may launch it with cost  $c$ . The cost  $c$  follows the distribution  $F(\cdot)$ :

$$c \sim F(\cdot), \quad c \in [\underline{c}, \bar{c}]. \tag{11}$$

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<sup>4</sup>This device of a full commitment type is also widely employed in the reputation literature as a key simplification (see Section 15.2 of Mailath and Samuelson (2006)). Mailath and Samuelson (2006) shows that "commitment types are easily modeled as payoff types," the later referring to players with fully modeled structures in strategies and payoffs, for example as what my benchmark model does. Similar as the reputation literature, I impose this assumption so we can focus our analysis on the more novel and challenging problem, in my case the problem of collusion between the political governor and the economic governor.

The political governor decides whether to sponsor and lead the revolt.

If the population did not launch a revolt, the game ends. The Center receives  $R$ , the population receives  $e(k)$ , and the two governors receive the payoffs as in Equation (9) and Equation (10).

If the population launches a revolt and the governor does not lead it, the revolt fails and the game also ends. The Center receives  $R$ , the population receives  $e - c$ , and the two governors receive the payoffs as in Equation (9) and Equation (10).

**4. Divide the pie** If the population launches a revolt and the political governor leads the population, the revolt succeeds. The Center is forced to return the surplus  $R$  to the province. After paying the economic governor, the political governor decides whether to award the net surplus  $(1 - \eta)R$  to the population or keep it to himself. The population's payoff is:

$$e(k) + (1 - \eta)R \cdot \mathbb{1}\{\alpha = 1\}, \quad (12)$$

where  $\alpha = 1$  if the population receives the returned surplus  $(1 - \eta)R$ . If the political governor keeps the surplus, he obtains

$$Q + \gamma e(k) \cdot \mathbb{1}\{\theta_p = b\} + (1 - \eta)R. \quad (13)$$

If the political governor awards  $R$  to the population, he obtains

$$Q + \gamma e(k) \cdot \mathbb{1}\{\theta_p = b\} + \gamma(1 - \eta)R \cdot \mathbb{1}\{\theta_p = b\}. \quad (14)$$

I introduce one additional assumption analogous to Assumption 4.

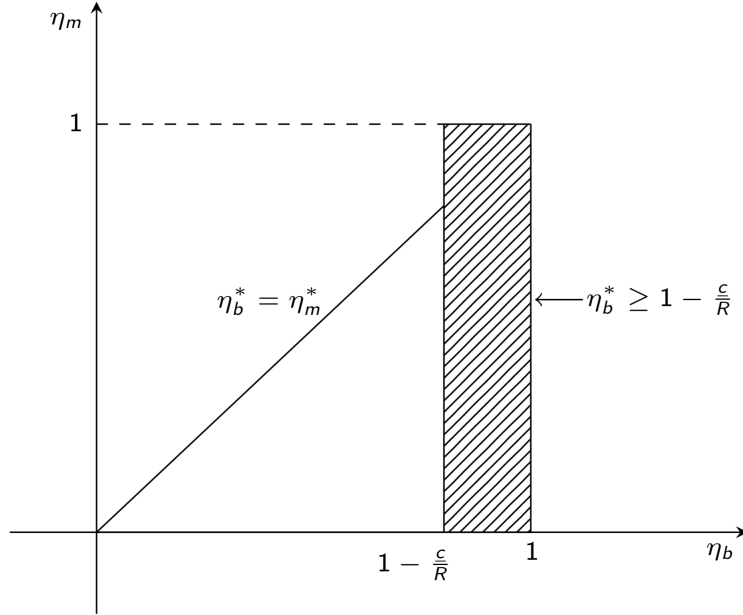
**Assumption 5.** *In a PBE, suppose that the benevolent political governor offers a side contract with share to be transferred to the economic governor at  $\eta_b$ . For any contracts with off-equilibrium transfer at  $\eta'$  with  $\eta' \neq \eta_b$ , population's posterior belief on the probability of a benevolent political governor is  $\hat{\mu}(\eta') = 0$ .*

This assumption also restricts off-equilibrium beliefs. If  $\eta'$  is reached with probability zero, neither types of political governors choose  $\eta'$ . The population believes that a political governor who offers such a contract  $\eta'$  cannot be benevolent.

We are ready to state the main proposition:

**Proposition 2.** *In all pure-strategy Perfect Bayesian Equilibria, the province never revolts and the Center appoints a provincial government with the highest competence  $\bar{W}$ .*

Figure 1: Equilibrium Side Contracts



Proposition 2 formalizes the intuition that revolts are completely forestalled by a separation between political power and economic power. A normal economic governor provides no public goods because he would never be compensated for public good provision. This leaves only a benevolent economic governor to provide public goods, which fully reveals the benevolence of the economic governor. However, the equilibrium tells the population nothing about the benevolence of the political governor. Yet the population only cares about the benevolence of the political governor rather than the economic governor because it will be the political governor who leads the revolt and distributes revolt benefits. Unable to update their belief about the political governor, the population refuses to revolt. Never challenged, the Center then appoints the most competent provincial government.

At first glance, the collusion opportunity may provide an informative signal for the benevolence of the political governor. If a benevolent political governor chooses a specific collusion contract  $\eta$  different from a normal political governor, the contract  $\eta$  tells the population about the political governor's type. However, Proposition 2 shows that such a signal cannot lead to any revolts. Figure 1 shows all side contracts  $\eta_b$  and  $\eta_m$  that can constitute a PBE, where  $\eta_b$  is the committed share of revolt benefits that will be transferred by a benevolent political governor to the economic governor and  $\eta_m$  is the committed share of revolt benefits that will be transferred by a normal political governor to the economic governor. There are two cases.

In the first case, it constitutes a PBE for both types of political governors to write the same side contract. That is, any  $\eta_b^* = \eta_m^*$  is a pair of PBE strategies, a case where the

signal is completely uninformative. With an uninformative signal, the population does not revolt. No political governors deviate from the equilibrium side contract; otherwise the deviating political governor would be recognized as a normal type by the population, and the population still refuses to revolt. In the second case, the game does admit separating equilibria, but only when the benevolent political governor chooses such a high transfer to the economic governor (i.e.  $\eta_b$ ) that the population's return  $(1 - \eta_b)R$  cannot recoup the cost of revolts (the shaded area in Figure 1). In this case, the population knows that the political governor is benevolent but still does not revolt. Again, no political governors deviate from their equilibrium side contracts because no deviation can mobilize the population.

Importantly, all other side contracts are not PBE strategies. To see this, suppose that the benevolent political governor chooses  $\eta_b$  and the normal political governor chooses  $\eta_m$  different from  $\eta_b$ . Also suppose that  $\eta_b$  brings the benevolent political governor a strictly positive return. Then the revolt must succeed with a strictly positive probability. If the revolt would never succeed, the benevolent political governor cannot capture any surplus and return it to the population. Neither will the normal economic governor provide any public goods because the political governor can only compensate the normal economic governor with the benefit from a successful revolt. But given that  $\eta_b$  leads to a strictly positive probability of a successful revolt, the normal political governor wants to deviate from  $\eta_m$  and chooses  $\eta_b$ . So the game only admits pooling equilibria as well as separating equilibria that cannot support any revolts.

The no-revolt result looks surprising: the political governor and the economic governor can write a side contract that is fully credible and highly flexible. But still, the contract is not flexible enough to facilitate effective collusion. Specifically, the political governor faces a limited ability to pay the economic governor. The political governor can fully commit to paying the economic governor with the surplus captured by a successful revolt. However, the political governor cannot pay the economic governor upfront. He must rely on the surplus from a successful revolt to compensate the economic governor. This imposes an upper limit on how much the political governor can promise to pay:

$$\pi F[\hat{\mu}(\eta) \cdot (1 - \eta)R] \eta R. \quad (15)$$

Therefore, public goods in a side contract can only cost the normal economic governor  $\pi F[\hat{\mu}(\eta) \cdot (1 - \eta)R] \eta R$ . To understand this limit on public goods (15), the term  $\hat{\mu}(\eta)$  is the population's posterior belief of the political governor's type as a function of the side contract  $\eta$ , and  $(1 - \eta)R$  is how much the population can obtain from a successful revolt led by a benevolent political governor. So  $\pi F[\hat{\mu}(\eta)R(1 - \eta)R]$  is the probability that the

population launches a revolt, and  $\eta R$  is the promised transfer from the political governor to the economic governor conditional on a successful revolt.

To better understand the no-revolt result, it is instructive to further investigate each term in the limit (15). First, the belief on an off-equilibrium contract is 0 (Assumption 5). So a political governor that chooses an off-equilibrium side contract is perceived by the population as a normal political governor. Also, because I focus on pure strategies, the on-equilibrium belief for any side contract  $\hat{\mu}$  can only take three values: 0,  $\mu$ , or 1. With  $\hat{\mu} = 0$  or  $\hat{\mu} = \mu$ , the population's belief on the political governor's benevolence is too low to justify costly revolts. With  $\hat{\mu} = 1$ , there are two cases. In the first case, the normal political governor also wants to offer the same contract as the benevolent political governor. So  $\hat{\mu} = 1$  cannot be the posterior belief in equilibrium. In the second case, the normal political governor does not want to choose the same contract as the benevolent political governor; but given that choosing any other contract only allows the normal political governor to earn the status-quo payoff, it must be the case that the population revolts with probability zero even if they know that the political governor is benevolent ( $\hat{\mu} = 1$ ). That is, the benevolent political governor must have offered too much transfer to the economic governor so that the population cannot recoup the cost of the revolt. An exhaustive analysis concludes that in all pure strategy Perfect Bayesian Equilibria, for any equilibrium side contract  $\eta$ , it must be the case that:

$$\pi F[\hat{\mu}(\eta) \cdot (1 - \eta)R] \eta R = 0. \quad (16)$$

Side contracts therefore are fully bound by the seemingly innocuous constraint that the political governor finances the compensation to the economic governor through successful revolts. The constraint is binding because PBE strongly limits the posterior belief  $\hat{\mu}(\eta)$ , henceforth the profitability of any side contracts. It is impossible for the benevolent political governor to meaningfully reveal his benevolence.

But suppose that a political governor could pay the economic governor upfront without any constraints. Then the benevolent political governor would pay the economic governor the full cost  $\bar{k}$  and the normal political governor would pay nothing to the economic governor, allowing the benevolent political governor to fully reveal his type. Yet the political governor could not make *ex ante* compensation to the economic governor precisely because the political governor does not directly manage the economy or the fiscal revenue. Consequently, the political governor control few economic rents, especially compared with the huge cost of providing lavish public goods. The model uncovers a second reason why it is imperative to separate economic power from the political governor, complementing the main reason to separate the signaling device from the political governor. Under the separation, the political



governor directly controls too few economic rents to compensate the economic governor *before* a revolt succeeds.

This is the full force of power duality at work. The political governor controls the infrastructure to mobilize the population, and he can even collude with the economic governor with substantial flexibility. But he still cannot communicate with the population. Equally important, the analysis clarifies the micro-foundation of the collusion-proof results. As the normal economic governor demands compensation that can only be financed through successful revolts, the compensation eliminates signaling opportunities for the political governor.

**A comment on the welfare properties of power duality** Power duality offers everything that the autocrat wants. The autocrat enjoys the large surplus produced by a provincial government that is highly competent, a government that is also fully loyal to the autocrat. In this model however, power duality reduces the welfare of the population. The population receives the same amount of local public goods as the case with a single governor, but the population loses all the opportunity to reclaim the surplus extracted by the autocrat.<sup>5</sup> This result holds as long as  $\lambda$ , the fraction of the surplus captured by the autocrat, is large enough. In an autocracy, a highly stable and meritocratic government can produce the worst outcome for the mass population.

### 2.3 Weak power duality still supports a strong bureaucracy

In this section, I assume that the political governor can issue orders to the economic governor without any compensation, and the economic governor has to follow whatever the political governor commands. This is the extreme form of power duality, where the economic governor has the weakest possible strength *vis-a-vis* the political governor. Even with such a weak economic governor, revolts will never happen. As the economic governor still bears the cost of public good provision, the signal is too cheap to be informative about the political governor.

The setup is very similar to that in the previous section. The difference is that the economic governor has to provide any amount of public goods as demanded by the political governor. The political governor does not need to compensate the economic governor for his effort. Thus, there is no collusion stage, as the political governor and the economic governor behave as a single agent. The difference from the single-agent case is that the economic governor bears the full cost of public good provision. It is straightforward to show the following result.

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<sup>5</sup>As we will see in the Section 2.3, even the weak power duality reduces the welfare of the population if the population cares more about reclaiming the surplus extracted by the central government than local public goods.

**Proposition 3.** *In the unique pure-strategy Perfect Bayesian Equilibrium, both normal and benevolent political governors provide public goods at  $\bar{k}$ . Consequently, there is no revolt and the Center appoints a provincial government with the highest competence  $\bar{W}$ .*

Because it costs nothing for the political governor to provide public goods, the political governor cannot weaponize public goods as an informative signaling device to organize revolts. Specifically, because both types of political governors provide the same amount of public goods, the population cannot infer the type of the political governor *as well as* the economic governor.

There is an advantage in such asymmetric power duality: it also hides the type of the economic governor. In some situations the central government may want to appoint a previous economic governor to serve as the political governor. But if the economic governor has full discretion over public good provision, he can freely signal his benevolence. When the economic governor is appointed to be the political governor, he can take full advantage of his benevolent reputation and organizes a successful revolt. By implementing asymmetric power duality, the Center also eliminates the economic governor's capacity to lead revolts as a political governor in the future. Furthermore, it is straightforward to show that the no-revolt result is also robust when the political governor share a fraction of the cost in public good provision. As long as the cost born by the political governor is not too large, the province still can never revolt against the central government.

So far, I have shown that the province cannot revolt when the political governor dominates the economic governor. The real danger is when the economic governor dominates the political governor. To see this, suppose that the economic governor could fully coerce the political governor to lead a revolt and to distribute the post-revolt benefit. Then the game is essentially reduced to the benchmark game in Section 2.1. A benevolent economic governor would provide public goods at the maximal level  $\bar{k}$ . A normal economic governor does not imitate the benevolent one because the economic governor still bears the bulk of the cost of public good provision. Observing the public goods at  $\bar{k}$ , the population would revolt because they know that the benevolent economic governor would then force the political governor to return all the benefit from the successful revolt to the population. Taken together, our analysis explains why the political governor either shares the same rank with the economic governor or outranks the economic governor.<sup>6</sup> But it is exceedingly rare for the economic governor to outrank the political governor.

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<sup>6</sup>In the later case, the economic governor is usually the second most senior official of the provincial government. Details in Section 3.

## 3 Implications of the model

### 3.1 Power duality widely adopted to support meritocracy

The local separation between economic power and political power is a fundamental tool to control local governments in historical autocracies. Max Weber highlights this point in his chapter on “defenses of the patrimonial state against disintegration” (pp.1042-1044, Weber (1978)). The patrimonial state is the Weberian ideal type of historical autocracies. A patrimonial state fully dominates its subjects, analogous to how a traditional patriarch fully dominates his family. A third of this chapter is devoted to an exclusive discussion of power duality, while all the other eight devices jointly share another third of the chapter, highlighting the centrality of power duality in securing regime stability. As I quote at the beginning of the paper, “[a]mong the devices used to maintain the control of the ruler’s central administration over the local officials the splitting up of spheres of jurisdiction became very important to the development of administrative law. This subdivision occurred either in the form that the finance administration alone was entrusted to special officials or that civilian and military officials were juxtaposed to one another in every administrative district, a solution also suggested by technical considerations” (pp.1403, Weber (1978)).

The local separation of economic and political powers is indeed existential to autocracies. “It has been pointed out correctly that nearly every case of a permanent merger of these two jurisdictions, that means, the fusion of the military and economic power of an administrative district in the hands of one person, soon tended to encourage the administrator’s disengagement from the central authority” (pp.1404, Weber (1978)).

Securing the loyalty of governors, stable autocracies then attempt to realize its intrinsic tendency to build a meritocratic bureaucracy. Autocracies tend to deploy such a bureaucracy to “level social differences” (pp.1081, Weber (1978)), disregarding the status difference that is central to historical “constitutional government” (*Rechtstaat*, pp.1082 of Weber (1978); also see Jia et al. (2021)) Indeed, “typical of patrimonialism is the determined rise from rags, from slavery and lowly service for the ruler, to the precarious all-powerful position of the favorite” (pp.1107, Weber (1978)). Weber then discusses a long list of historical regimes that implement power duality and build a meritocratic bureaucracy, focusing on the New Kingdom of ancient Egypt, the Roman Empire, and the Ottoman Empire. These discussions are corroborated with further details and evidence by later historians.

**New Kingdom of ancient Egypt** The first example is the New Kingdom of ancient Egypt, appraised by Finer (1997a) as “a perfect autocracy” (pp.204). “It seems that already the Pharaonic administration of the New Kingdom separated the magazine administration

from the military command...” (pp.1043, Weber (1978)). Compared with the Old Kingdom and the Middle Kingdom of Egypt, “[n]o longer did the central government work to a provincial plenipotentiary governor...Since ‘mayors’ were responsible only for the tax collection, other services such as assessments, public order, and the like must have been carried out by central agents stationed in the localities...” (pp.188, Finer (1997a)). Under the separation between economic power and political power, the New Kingdom is “the Egyptian polity as zenith...For virtually all these 370 years the country was governed stably and well...It was immensely stable for over 400 years”(pp.179 and pp.190, Finer (1997a)).

In terms of its bureaucracy, “[t]he Egyptian government administration functioned in a relatively meritocratic way. High level officials enjoyed high prestige and becoming a high level official was the most important aspiration among ordinary citizens” (Roland (2020) citing Trigger (2003)). In premodern conditions, a *de facto* barrier to unlimited meritocracy is dictated everywhere by the high economic cost to prepare for a career in bureaucracy. Nevertheless, the New Kingdom government was far more meritocratic than historical regimes that imposes insurmountable *de jure* status barrier, especially feudal regimes (pp. 1105, Weber (1978)). “Access to bureaucracy and the household offices was in principle open to those with ability and dedication regardless of birth, and some biographical mortuary inscriptions of important officials describe how lowly were their origins before the pharaoh promoted them” (pp.190, Finer (1997a)). The meritocratic bureaucracy was able to undertake the complicated task to manage a highly “organized natural economy” (pp.964, Weber (1978)), reflecting the strong capacity of the bureaucracy. In accomplishing this task, the New Kingdom bureaucracy “not only went far beyond any of its contemporaries, then, but beyond pretty well all states and empires that followed it” (pp.204, Finer (1997a)).

**The Roman Empire** After mentioning the Ptolemaic Kingdom in passing, Weber focuses on his second example, the Roman Empire. “During the Principate the Roman administration – excepting certain areas such as Egypt and some frontier provinces, where this was not done for political reasons –appointed an autonomous imperial *procurator* of finance who served as the second highest provincial official next to the imperial commander or the senatorial governor, and it created separate career channels for the two administrations” (pp.1104, Weber (1978)). Finer (1997a) affirms that the emperor appoints an independent fiscal procurator to the governor of a typical province (pp.540, Finer (1997a)). The Principate was able to sustain the famous and long *Pax Romana*. In the late Roman empire, “[t]he reorganization under Diocletian divided the whole imperial administration into civilian and military branches, from the *praefecti praetorio* as imperial chancellors and the *magistri militum* as imperial commanders down to the *praesides*, on the one hand, and the *duces* on the other”

(pp.1104, Weber (1978)). The re-organization of Diocletian indeed stabilized the empire and ended the Crisis of the Third Century.

In terms of bureaucratic capacity, “[t]he later Roman Principate, and especially the Diocletian Monarchy” is appraised as one of the six primary examples of “relatively clearly developed and quantitatively large bureaucracies” (pp.964, Weber (1978)), along with ancient Egypt, the Roman Catholic Church, Imperial China, modern European states, and modern capitalist enterprises.

**The Ottoman Empire** The third example is Islamic states, the most successful being the Ottoman Empire. “In later periods of Oriental history, especially under the Islam, the separation of the office of the military (*emir*) from that of the tax collector and tax farmer (*'amil*) became a firm principle of all strong governments” (pp.1044, Weber (1978)). On the flip side, “the mortgaging or seizure of the tax administration by the troops...ended naturally either in the disintegration of the empire or rise of the benefice system” (pp.1044, Weber (1978)). The Ottoman Empire takes the principle to its extreme. As the head of a *Timar* province (a province proper), the governor (*pasha*) “was assisted – but also counter-checked – by two *defterdars* (treasurers), one handling *timar* matters and the other administering the revenues pertaining to the central treasury. These men were independent, having been appointed by the government, and worked to their superiors in the respective *defterdar* department in Istanbul” (pp.1192-1193, Finer (1997b)). The governor does not control the judicial power either, a power that is vested to the judicial *kadis*. The *kadi* also further constrains the fiscal power of the governor. “The Ottoman *kadi* not only dispensed justice but also supervised the way the sultan’s decrees were being carried out. As such he became the comptroller of financial affairs with the duty of informing the central government of any irregularities” (pp.1193, Finer (1997b)). As if this is still not enough, “[a] third major provincial official was the *hazine defterdari* (the treasury *defterdar*). Like the *kadi* he was appointed by the central government. He was wholly independent of the governor. His task was to protect the interests of the treasury and in doing this he was free to communicate directly with his superiors in the capital. There was, however, a limit on these constraints on the governor, since he could dismiss both a *kadi* or a *hazine defterdari*—but had to inform the government if he did so” (pp.1193, Finer (1997b)).

The elaborated check on governors preserves “the body of [Ottoman] Empire free off faction and rebellion” (pp.1194, Finer (1997b)). Concurrently, the Ottoman Empire builds a meritocratic government through the slavery institution of *devshirme*. *Devshirme* “was a levy or, as I prefer to call it, a cull of the male children of the Christians in the European provinces. In every village the local *kadi* and *sipahi* summoned all male children between

the ages of 8 and 20 along with their fathers, and chose the ones they thought were fit” (pp.1183, Finer (1997b)). Then the “most promising were selected as *ich oghlans* (pages) and assigned to the palace schools at Pera, Edirne (Adrianople), or Istanbul. Under the very harsh discipline of eunuchs, they lived in dormitories, with every minute of their day accounted for. Here they were instructed in the Muslim faith and learned Arabic and Persian [later military training would be added]...Then a second selection was made. The cleverest went to the Greater and the Lesser Chambers of the sultan’s palace... Finally, after a third selection, the most able of these went to the Chambers for personal service to the sultan and the remainder joined the *sipah* cavalry. This was a nursery for future provincial *beylerbeyis* [governors], headships of departments in the Outer Palace, and senior commanderships in the *kapikulu* regiments” (pp.1183-1184, Finer (1997b)). Therefore, the selection of Ottoman governors is extremely rigorous and meritocratic. Per the logic of our model, it is no wonder that the sultan has to impose elaborated constraints on these highly competent governors.<sup>7</sup>

**Unsolved puzzles in the qualitative literature** Even though the positive correlation between power duality, regime stability, and bureaucratic capacity is well documented in the qualitative literature, previous scholars rarely elaborate on the mechanism. Why is it particularly important to separate economic power and political power? Weber offers a simple explanation. “The military official then had to rely for procurement upon the civilian administration which was independent from him, and the latter in turn needed the military official’s co-operation for maintaining its power” (pp.1042, Weber (1978)). In other words, these two powers are two necessary inputs for a province to revolt against the central government, broadly consistent with the setup of my model. But his brief explanation lacks details, henceforth leaving key puzzles unsolved. Specifically, Weber did not explain how the power duality is still so effective even though the two governors can easily collude, an action that is extremely difficult for the central government to prevent. Collusion would indeed neutralize many other separation-of-powers institutions (Persson et al. (1997); Laffont (2000)). Therefore collusion is no small matter in the analysis of political institutions, especially so for autocracies (Acemoglu et al. (2004)). Also, Weber and Finer both document that economic governors are sometimes ranked lower than the political governor. It is even less clear how a political governor can be checked by an economic governor who is formally dominated by the political governor. To solve these puzzles, I reinterpret economic power as a device to signal benevolence to the mass population via public goods. The next section

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<sup>7</sup>The Ottoman Empire features prominently in the first economics paper on loyalty-competence trade-off (Egorov and Sonin (2011)). The paper focuses on the tension between the Sultan and the ministers in the central government, rather than between the Sultan and the provincial governments. Also, the paper did not discuss how the trade-off is solved through a separation between economic power and political power.

is devoted to arguing that this is indeed a fundamental mechanism behind the loyalty-competence trade-off, also showing how my interpretation solves above puzzles.

## **3.2 Autocratic “welfarism” as a central mechanism behind the loyalty-competence trade-off**

For my model to capture a first-order mechanism, autocrats should worry a lot that their governors may signal their benevolence through local public goods. Is this such a paramount concern for autocrats? Based on previous works (especially pp.1106-1107, Weber (1978)), this section argues that generous provision of public goods is a constitutive strategy of autocratic survival because the public good provision commands a special congruence with the core legitimation strategy of autocracies. But an autocrat can only provide public goods in an enduring manner through a bureaucracy (Stasavage (2020)). A bureaucracy always attempts to build their own reputation of a strong “welfare ideology” among the population, an autonomous action that wins the popularity for bureaucrats rather than the autocrat.

### **3.2.1 The dilemma in autocratic welfarism**

As a necessary tool to consolidate power, an autocrat needs to provide generous public goods to construct an alliance with the lower strata of the society. Such an alliance would break up the autonomy of the higher strata, be it the nobility, the clergy, or the bourgeois. “Against the dangerous aspirations of the privileged status groups, patriarchalism plays out the masses who everywhere have been its natural following” (pp.1106-1107, Weber (1978)). This crucial insight is recently formalized by Jia et al. (2021). Equally important is the mechanism. Generous public goods are so essential for autocratic endurance because they are indispensable for an autocrat to legitimize himself in front of the mass population. Max Weber raises this crucial point with unsurpassed clarity. “The ‘good king’ ... was the ideal glorified by mass legend. Therefore, patriarchal patrimonialism must legitimate itself as a guardian of the subjects’ welfare in its own and in their eyes. The ‘welfare state’ is the legend of patrimonialism, deriving....from the authoritarian relationship of father and children. The ‘father of the people’ (*Landesvater*) is the ideal of the patrimonial states. Patriarchalism can therefore be the carrier of a specific welfare policy, and indeed develops it whenever it has sufficient reason to assure itself of the good will of the masses” (pp.1107, Weber (1978)). Therefore, an autocrat must build up a reputation of a “good king” through generous public goods. But the lethal threat to this legitimation strategy is the logistics difficulty and span of control problem in the provision of *local* public goods, even in moderately sized autocracies (Qian (1994); Mann (2012)). The autocrat is forced to delegate discretion over public good

provision to local governors (as formalized by Assumption 3), allowing the later to build up the image of “good” governors (Proposition 1). Providing generous public goods, a governor will be acclaimed as the “father” of the population, not the autocrat. To summarize, the problem is so severe for the autocrat because a governor is himself a “petty dictator” over his province, henceforth a mirror image of the central autocrat at the provincial level (pp.197-199, Lieberthal (2004)). Therefore, provincial governors are the main competitors against the autocrat for the image of the “father of the people.” My model attempts to capture this fundamental tension in autocratic welfarism by focusing on *signaling the benevolence through public good provision*.

The autocrat is further threatened by the necessarily strong “welfarist ideology” of the bureaucracy, an ideology that operates independently from the “welfarism” of the autocrat. A fully Weberian bureaucracy provides public goods in its effort to level social differences, inattentive to the the legitimation effort of the autocrat. As a “normal ‘spirit’ of rational bureaucracy,” officials tend to “conduct their administrative tasks in a **materially** utilitarian manner in the interests of the welfare of those subjects over whom they rule...This tendency... finds support on the part of all those subjects who are **not** included in those strata [that are privileged]” (pp.353-354, Weber (2019); bold font in the original). The “welfare ideology” also permeates a patrimonial bureaucracy that is less developed than the Weberian ideal type of rational bureaucracy. For example, towards “the subjects the Confucian ethic developed a theory of the welfare state which was very similar to, but much more consistent than that of the patrimonialist theoreticians of the Occident in the age of enlightened absolutism and also that of the theocratically and spiritually accentuated edicts of the Buddhist king Asoka” (pp.1050, Weber (1978)). The intrinsically strong welfare ideology of the bureaucracy can be interpreted as a large  $\mu$  in our model, or a high probability that the governor is benevolent. A large  $\mu$  produces an especially stark trade-off between loyalty and competence. Recall that in Proposition 1, the autocrat choose competence  $W$  to maximize:

$$[1 - \mu\pi F(W)]W, \tag{17}$$

where  $\mu\pi F(W)$  is the probability of a revolt. If  $\mu$  is sufficiently small so that most governors are selfish, the autocrat still appoints a bureaucracy with the highest competence  $\bar{W}$  because the loyalty concern is second-order. But a strong welfare ideology that permeates the bureaucracy would substantially raise the prior belief  $\mu$ , forcing the autocrat to appoint a mediocre bureaucracy.

To summarize, a synthesis of my model and the qualitative literature (especially Weber (1978)) show that the provision of local public goods, along with the mutually-supporting



welfare ideology, is a central mechanism that drives the stark loyalty-competence trade-off in autocracies.

### 3.2.2 A separate economic governor is tailored to “welfarist” autocracies

Since provision of local public goods is a central mechanism behind the loyalty concern, a natural solution is to separate the provision of public goods from the chief executive of a provincial government. As discussed before, it is difficult to explain how such a simple arrangement can be so effective without a formal model. Many such separation-of-powers institutions easily break down when officials can collude with each other (Persson et al. (1997); Laffont (2000)). The collusion problem is even more severe in autocracies than in democracies for two reasons. First, formal institutions are weaker in autocracies (Acemoglu et al. (2004); Acemoglu et al. (2008)). Therefore, formal separation of powers in autocracies are especially vulnerable to informal interactions between officials. Second, historically autocracies controlled much larger territories than democracies (Stasavage (2020)). The autocrat cannot constantly monitor collusion between governors of a distant province (Sng (2014)). Therefore, it is necessary to investigate collusion behaviors within separation-of-power institutions in autocracies.

The formal model in Section 2 clarifies why a political governor and an economic governor cannot collude to build a benevolent image for the political governor even when the collusion contract is flexible and fully credible. As discussed in detail before, collusion fails because the compensation to the economic governor must be financed through *ex post* returns from a successful revolt. Therefore, the political governor signals at zero *ex ante* cost before the revolt succeeds. By cheapening public good provision for the political governor, the appointment of an economic governor deprives the political governor of the crucial signaling device. The appointment only breaks down if the political governor can provide *ex ante* compensation to the economic governor before a revolt. The political governor cannot pay the economic governor upfront precisely because the political governor cannot directly access government departments with the most economic rents, most of which are under the direct control of the economic governor. Therefore, the appointment of a separate economic governor can fully preempt revolts that are organized through signaling by public good provisions, an insight that is otherwise difficult to obtain without formal analysis.

## 3.3 Administration of justice as public good provision

Public goods are not restricted to economic ones. Indeed, an essential public good is internal pacification (Hobbes (1994); Weber (2004)). As we will see, this point offers the key clue

to explaining why it is sometimes not sufficient to only separate economic power from the political governor. Indeed, apart from economic power, the administration of justice is also frequently separated from the political governor and delegated to another official. Max Weber noted that “[i]n most patrimonial states, but also in the Roman Principate it has been usual for the administration of justice and the civil aspect of finance to be separate from the military establishment, at least in the lower reaches” (pp.283, Weber (1978)). Apart from the Roman Empire, the separation of judicial power is also salient in the other historical autocracies discussed in Section 3.1. In the New Kingdom of ancient Egypt, the local judicial power is controlled by the *genbet* councils (pp.189, Finer (1997a)). In the Ottoman provinces, justice were administered by *kadis* (pp.1193, Finer (1997b)). The recent high-profile legal reform in China also boosts the independence of local courts from *local* governments (Liu et al. (2022)). Why does an autocrat also separate judicial power from the political governor? Interpreted through our model, it is necessary to deny the political governor direct control of judicial power because administration of justice is an essential public good.

At the minimum, an enduring government must provide external defense and internal pacification (Hobbes (1994); Weber (2004)). Internal law and order are facilitated by administration of justice (pp.79, Finer (1997a)), so the provision of justice is an essential public good. As a constitutive feature of legal codes in autocracies, they dictate exceedingly brutal punishment on the convicted and suspects (pp.57-84, Durkheim (1964); Guriev and Treisman (2020)). The brutality reflects the immense challenge to detect crimes from the perspective of the central government. To achieve crime deterrence, the central government has to compensate the primitiveness of surveillance technology with brutal punishment (Becker (1968); pp.32-69, Foucault (2012); Guriev and Treisman (2020)). The code also requires many civil lawsuits to be processed as harsh crime prosecution (pp.168, pp.181-182 Shapiro (2013)). The harsh *de jure* law clashes with the popular demand for a “proportional” treatment of the prosecuted (pp.189-191 De Montesquieu (1989)). As Shapiro (2013) has shown, the local judicial official can choose to administer the law in a far more benevolent manner than the *de jure* law, satisfying the popular demand. Instead of directly applying the harsh *de jure* law without much investigation, the *local* judicial official can acquire high-quality information about the prosecuted. Such information acquisition would impose considerable cost on the judicial official, but would allow him to achieve lenient administration of justice (pp.167-169, pp.171-174, Shapiro (2013)). Therefore, the lenient administration of justice is also a powerful device for an official to signal his benevolence to the mass population. The judicial power should be separated from the political governor, following the same logic as the necessity to separate the economic power. Otherwise the political governor could convince the population of his benevolence either by a lenient administration of justice or by a generous provision of

economic public goods. Supported by the energized population, the political governor could then revolt against the central government.

## 4 Power duality and meritocracy in Imperial China

This section devotes to Imperial China, one of the most important historical autocracies (pp.31, Finer (1997a)) and the foundation of modern Chinese regime (pp. 3-36, Lieberthal (2004)). Therefore, the experiments of Imperial China with power duality and a meritocratic bureaucracy are of intrinsic interest to understand the fundamental logic of autocracies. Even more important, Imperial China keeps written historical records that are arguably the longest and the most continuous. As we will see, these historical records provide a unique opportunity to construct long time series data. The data would allow me to empirically document the evolution of power duality, regime stability, and political meritocracy in Imperial China for over 1,300 years. The empirical exercise with Imperial China is also another case study, though more systematic than those about ancient Egypt, the Roman Empire, and the Ottoman Empire in Section 3.1.

More specifically, the contribution of the empirical exercise is two-fold. On the methodology side, I manage to extract information from the single most important historical records of Imperial China and transform those biographical records into time-series data. The methodology allows the construction of time series for any keywords from those historical records, a feature useful for many other research projects on historical autocracies. On the substantive side, I document the long-run evolution of foundational political institutions in Imperial China. These empirical patterns are broadly consistent with my theory in Section 2 and Section 3.

### 4.1 Data Sources

The primary textual source is the *Twenty-Five Histories* (*Ershiwu Shi*). The *Twenty-Five Histories* is the official historical record of Imperial China, written over a span of over two thousand years. The common practice is for a dynasty to appoint a team of eminent historians and assign them the task to write the history for the prior dynasty. With 44 million characters, the *Twenty-Five Histories* is the most important source for Imperial China and has been exhaustively studied by historians. Apart from its canonical status, the key advantage of the *Twenty-Five Histories* is the uniformity of its structure and language. The structure follows the highly respected convention launched by its first installment, the *Record of the Grand Historian* (*Shiji*). Regarding the content, the majority of the *Twenty-Five His-*

*ories* are biographies on imperial families, aristocrats, and politicians.<sup>8</sup> All installments are written in Classical Chinese, a language extremely uniform in its grammar and vocabulary for over two thousand years. Such uniformity in content and language provides a unique opportunity to construct consistent time-series variables that span two millennia, at least more consistent than those that could be constructed through the historical sources of other major ancient languages. For our purpose, I construct time series proxies for power duality and rebellions from the *Twenty-Five Histories*.<sup>9</sup>

The second data source is the *China Biographical Database*(CBDB), a large database about historical figures from Imperial China maintained by Academia Sinica, Harvard University, and Peking University.<sup>10</sup> As we will see, CBDB provides an accurate and direct measure of political meritocracy. The database’s coverage starts with the Tang Dynasty (618CE - 907CE), which is the reason I also focus our attention from 610 CE to 1910 CE for the *Twenty-Five Histories*.

## 4.2 The Methodology

I aim to construct a consistent time-series measuring the local separation between political power and economic power, as well as the local separation between political power and judicial power. I employ a dictionary-based method, the simplest and most intuitive approach in text analysis (Grimmer and Stewart (2013)). The dictionary-based method requires me to identify keywords most relevant to power duality from a dictionary and count their frequency in the textual sources. To do so, I read the entries in Shen and Xu (1984), *A Concise Dictionary of Political and Bureaucratic Positions in Imperial China*. I then identify positions that separate significant economic power or judicial power from the chief executive in a local jurisdiction. I construct two sets of political positions. The first set consists of only three positions. All three positions satisfy the following criteria:

- The position should be a strong check against the main executive.
- The position should mainly control economic power or judicial power.

The three keywords are:

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<sup>8</sup>For an example, see the table of content for *the Record of the Grand Historian*:[https://en.wikipedia.org/wiki/List\\_of\\_Records\\_of\\_the\\_Grand\\_Historian\\_chapters](https://en.wikipedia.org/wiki/List_of_Records_of_the_Grand_Historian_chapters).

<sup>9</sup>I focus on the history after 618 CE in this paper. The installments I include are *Old Book of Tang*, *Old History of the Five Dynasties*, *New History of the Five Dynasties*, *New Book of Tang*, *History of Song*, *History of Yuan*, *History of Ming*, and *Draft History of Qing*. The word count of these installments is around 17.7 million characters, 40% of the total word count of the *Twenty-Five Histories*. I have extended the methodology to 140 BCE, the year when the official reign-name system was created (<https://www.britannica.com/topic/nianhao>.)

<sup>10</sup>See detailed description here: <https://projects.iq.harvard.edu/cbdb/home>.

- *Tongpan*, the vice prefect of a prefecture, holding sweeping economic power.<sup>11</sup>
- *Buzheng*, the (lieutenant) governor in charge of the fiscal revenue and local economy. It may also signify his office.<sup>12</sup>
- *Ancha*, the commissioner in charge of judicial power and monitoring in a province. It may also signify his office.<sup>13</sup>

As a simple robustness check, I construct a second set of bureaucratic positions. It includes other positions that have some elements of separation between political power and economic power or judicial power. Apart from the above three positions, I also include *Tidian-xingyu*, *Tiju-changping*, *Anfu*,<sup>14</sup> and *Xunfu*.<sup>15</sup> For the full description of all positions in the dictionary, I refer readers to the appendix.

With the keywords in mind, I now need to identify them in the text and link them to the years they are mentioned. Were the *Twenty-Five Histories* a chronicle, the task would be simple. Since the *Twenty-Five Histories* is mostly a massive collection of biographies, I need to develop an algorithm to do so. First, I identify the keyword in the text. Then I search forward to any mention of years and match the keyword to the year nearest to the keyword in the text. A small complication is that the *Twenty-Five Histories* use the Chinese Reign-era System instead of the Gregorian Calendar, a problem solved by standard tables that translate different calendar systems.

Then I construct the proxy of power duality as:

$$\text{Duality}_t = \frac{\text{number of keywords in decade } t \text{ mentioned in } \textit{Twenty-Five Histories}}{\text{number of years in decade } t \text{ mentioned in } \textit{Twenty-Five Histories}}. \quad (18)$$

The ratio is also multiplied by 1,000 for easy reading and comparison. The subscript  $t$  denotes a specific decade. I construct the proxy for each decade between 610 CE and 1910 CE. Following the common practice in the dictionary-based method (Grimmer and Stewart (2013)),

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<sup>11</sup>*Tongpan* was second ranked in the prefecture; yet all official documents required the joint signature of the mayor and the *tongpan* to be effective. The position gradually became subordinate to the mayor, but the position always controls substantial economic power over tax revenue and public good provision.

<sup>12</sup>At the start of the Ming Dynasty (1368 CE to 1644 CE), the position was created as one of the three positions with the highest rank in provincial governments. Later on, the position became subordinate to the governor (*Xunfu*), but remains second ranked in a province.

<sup>13</sup>At the start of the Ming Dynasty (1368 CE to 1644 CE), the position was consolidated as one of the three positions with the highest rank in provincial governments. Later on, the position became subordinate to the governor, but remains third ranked in a province.

<sup>14</sup>*Tidian-xingyu*, *Tiju-changping*, and *Anfu* are province-level (*Lu*) officials in the Song Dynasty (960 CE to 1279 CE), constituting checks against *Zhuanyun-Shi* who was the main executive of a province.

<sup>15</sup>*Xunfu* is the governor of a province. I also include the governor because the governor ranks lower than the governor-general (*Zongdu*) The governor-general usually administers more than one province and is the highest-ranked local official in the whole empire.

Table 1: An Example of Normalization for Duality

	# keywords	# years mentioned	duality index
decade 1613-1622	8	253	31.6
decade 1636-1645	100	3997	25.0

the variable measuring duality is a ratio. The numerator counts the three bureaucratic positions mentioned in decade  $t$ . The denominator counts the number of years in the decade  $t$  that is mentioned in the *Twenty-Five Histories*. The denominator is a key normalization to ensure that the duality proxy is comparable for two different decades. The normalization is necessary because some decades are pivotal historical moments that get extensively covered in historical records, while other decades are less important and got much less coverage. Table 1 gives an example. We can see that the decade 1613 CE to 1622 CE only see 8 counts of duality keywords (the first three bureaucratic positions). By comparison, duality keywords are mentioned 100 times in the decade 1636 CE to 1645 CE. If I just compare the raw numbers, I would conclude that the local separation of powers is much stronger in the decade 1636 CE to 1645 CE than the decade 1613 CE to 1622 CE. This is highly misleading as the second decade features pivotal events in Chinese history: the fall of the Ming Dynasty (1638 CE to 1644 CE) and the rise of the Qing Dynasty (1636 CE to 1912 CE). This point is illustrated in the second column. The first decade is mentioned 253 times in the *Twenty-Five Histories*, while the second decade is mentioned 3,997 times. When I put the second column in the denominator and normalize the raw count, I find that if anything, the first decade observes slightly stronger power duality (31.6 versus 25.0). I also construct a duality index with the second set of keywords with the same methodology as Equation (18).

Next, I briefly discuss how I proxy rebellions and political meritocracy. For rebellions, I search the keywords rebellions (*pan*) and chaos (*luan*) and construct the variable in a similar way as Equation (18).

I measure political meritocracy with CBDB. Each entry of the database is an individual along with his attributes. For each individual, I know whether he has a degree from the civil service exam. Also, CBDB informs me the one year when the individual is the most active. I proxy political meritocracy by the fraction of individuals with exam degrees in decade  $t$ . Specifically, I define

$$\text{Meritocracy}_t = \frac{\text{the number of persons with degrees from civil exams in decade } t}{\text{the number of persons in CBDB most active in decade } t}. \quad (19)$$

The ratio is also multiplied by 100 for easy reading and comparison. For each decade  $t$ , the numerator counts the number of persons recorded in CBDB who have degrees from the civil

service exam. The denominator counts the number of all persons recorded in CBDB for each decade. In the denominator, I include not only bureaucrats but also aristocrats, consort families, eunuchs, etc. I do so because I want to measure the importance of degree holders relative to all players who have political influence, not only relative to other politicians and bureaucrats who are formally employed by the government. Since the aristocrats, consort families, and eunuchs can be immensely influential in politics, I include all of them in the denominator.

### 4.3 The evolution of power duality, regime stability, and political meritocracy in Imperial China, 610CE-1910CE

I present the data in the two figures. This section discusses Figure 2 in detail, which shows the time series of power duality and political meritocracy. Two key features are apparent: there is a strong positive correlation between power duality and political meritocracy; also, power duality rises or falls before political meritocracy rises or falls, consistent with several key historical episodes that power duality predated the civil service exam. For the rest of the section, I synthesize historical narratives and discuss how different segments of the time series reflect those narratives.

Figure 2 shows that power duality was extremely weak until around 930 CE. 610 CE to 930 CE corresponds to the Tang Dynasty (618 CE to 907 CE) and the Five Dynasties (907 CE to 960 CE). The Tang government appointed powerful officials to govern local units with almost no checks.<sup>16</sup> It is not surprising that such unchecked officials launched many rebellions, including the massive *An-Shi* Rebellion (755 CE to 763 CE, *Anshi zhi Luan*). Those rebellions further crushed the central government's control of provinces, leading to two centuries with no significant constraints local officials (detailed discussion in pp.464-560, Twitchett and Fairbank (1978)). The chaos and fragmentation culminated in the Five Dynasties when frequent rebellions lead to an extremely high turnover of dynasties. Indeed, Figure 3 shows that rebellions were pervasive during the late Tang Dynasty and the entire duration of Five Dynasties.

Figure 2 also shows that political meritocracy was very weak from 610 CE to approximately 960 CE. This is consistent with many historical studies (e.g. Tackett (2020)) that describe the Tang government as dominated by the aristocracy. Although the civil service exam was introduced in 587 CE, each exam only awarded a few dozens of the degree in *Jinshi*. Thus, degree holders staffed a tiny fraction of the bureaucracy. More problemati-

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<sup>16</sup>The Tang government did dispatch monitoring officials to evaluate local officials. But the monitoring position was created rather late (733CE). After the *An-Shi* Rebellion (755CE to 763 CE), local military leaders concurrently held the monitoring position, fully neutralizing its original purpose.

Figure 2: Meritocracy and Dual Local Leadership

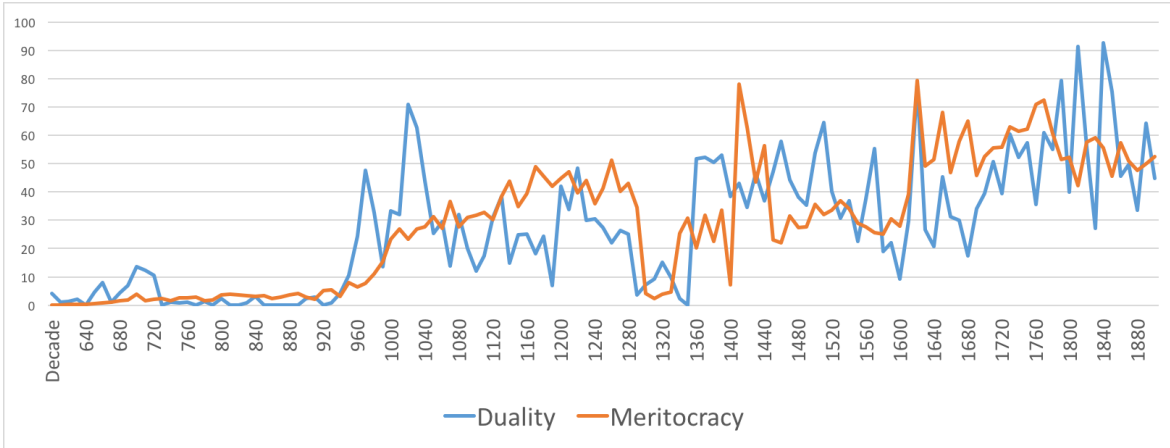
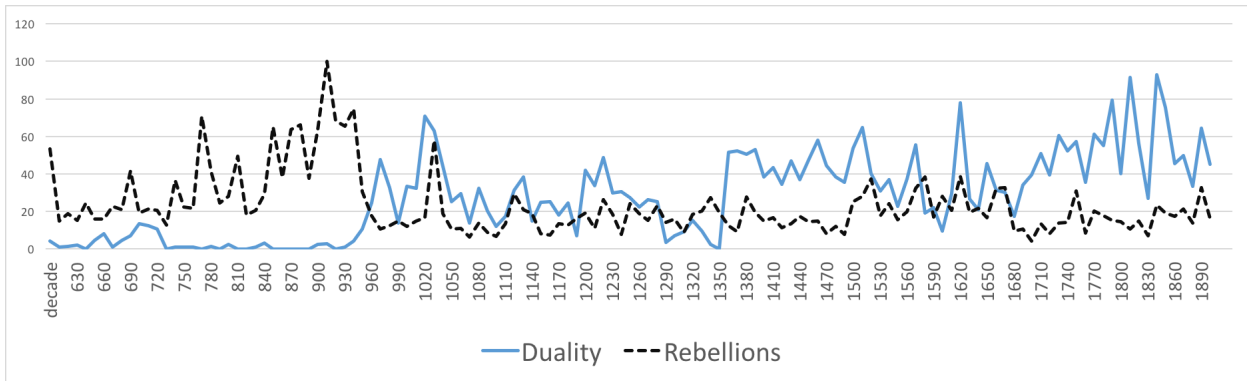


Figure 3: Rebellion and Dual Leadership



cally, the exam was permeated by cronyism. Recommendations from high aristocrats and bureaucrats were decisive in a candidate’s prospect in the exam, a practice in sharp contrast to later dynasties. As a consequence, densely networked aristocrats held a near-monopoly on the civil service exam (Tackett (2020)). Largely captured by hereditary nobility, the Tang bureaucracy was far from being meritocratic.

From Figure 2, one can identify a pivotal moment in Chinese history around 960 CE. Known as the “Tang-Song Transition” (pp.19-21,Chaffee and Twitchett (2015); also see Kuhn (2011)), the decades around 960 CE featured the consolidation of political meritocracy and the emperor’s successful attempt to reclaim political control. As China was thoroughly fragmented during the Five Dynasties, emperors of the Song Dynasty launched decade-long campaigns to reunite China. In the process, Song emperors re-organized local governments and put them under the firm control of the central government. Song emperors weaved an elaborated web of checks and balances to ensure the loyalty of local governments. Among them, the creation of the position of *Tongpan*, or the vice prefect, was a signature move. The



approval of the vice prefect was necessary for any policies of the prefecture mayor. The vice prefect also carved out substantial economic power from the mayor.<sup>17</sup> At the provincial level (*Lu*), emperors also appointed several officials to divide the power of the main executive, especially his economic power and judicial power. Besides, emperors mandated rotation and a term limit of three years on local officials (more detailed discussion in Chapter 1 and Chapter 2 of Chaffee and Twitchett (2015)). Such a complicated network of checks and balances did the trick. Figure 3 shows a secular decline of rebellions after 1,000 CE. After the Tang-Song Transition, dynasties in our data-set were never overthrown by their own officials until the very end of Imperial China.

Figure 2 also documents the rise of political meritocracy. The aristocracy that used to dominate the bureaucracy was wholly destroyed by peasant revolts in the late Tang Dynasty (Tackett (2020)). Instead of re-establishing the aristocracy to staff the government, Song emperors reformed the civil service exam to be the main vehicle of political and bureaucratic selection. After the reform, each exam awarded hundreds of candidates with the *Jinshi* degree, in contrast to a few dozens in the Tang Dynasty. To eliminate cronyism, social interactions between the examiners and examinees were forbidden and prosecuted (more discussion in Chapter 5 of Chaffee and Twitchett (2015)). The result was a highly meritocratic government: around 40% of the persons mentioned in CBDB had a degree from the exam. We can also eyeball a lead-lag pattern in Figure 2: Song emperors only staffed the government with degree holders after the consolidation of power duality.

In Figure 2, a clear interruption lasts from 1280 CE to 1360 CE, roughly the reign of the Yuan Dynasty (1271CE to 1368 CE). As the first dynasty established by an ethnic minority that ruled over the entire China proper, the Yuan Dynasty oscillated between the two governance models, Mongol or *Han* Chinese. Despite repeated attempts, the dynasty never fully restored the civil service exam or the power duality to their former maturity. Throughout the Yuan Dynasty, political power was concentrated in the hands of Mongol aristocrats who faced feeble checks. The number of degree holders was small, and they usually could not hold important positions reserved for Mongol aristocrats (more discussion in Chapter 5 to Chapter 8 of Twitchett et al. (1978)).

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<sup>17</sup>The description from pp.147 in Chaffee and Twitchett (2015): “At the prefectural level, many financial activities were handled not by the prefect but by the vice prefect (*t’ung-pan* [an alternative spelling of *tongpan*]). The post of vice prefect was a Sung invention, first implemented in 963 as a check especially on military prefects whose total loyalty to the government was questionable. (Vice prefects were sometimes called *chien-chou* or “prefectural supervisor.”) Vice prefects enjoyed approximate equality with prefects: they were permitted to memorialize the throne directly on prefectural affairs and their endorsement (*chien-shu*) was required on reports from the prefect. With the progress in demilitarizing the local administration, the original function of the vice prefects declined in importance. In its place, they came to specialize increasingly in financial matters, acquiring an expertise that reinforced their independence vis-à-vis the prefects.”

Figure 4: Meritocracy and Dual Local Leadership, Alternative Measure

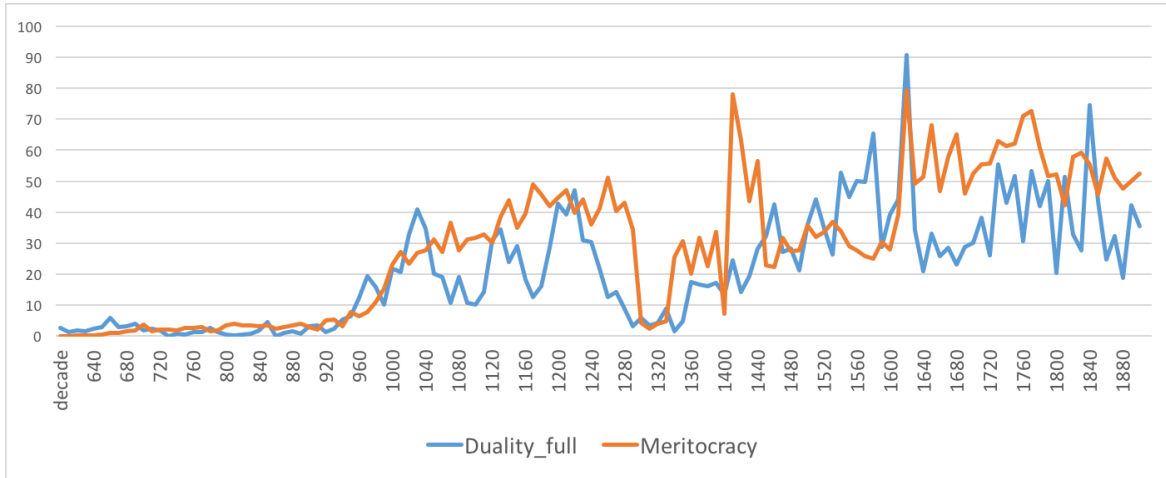


Figure 5: Rebellion and Dual Leadership, Alternative Measure

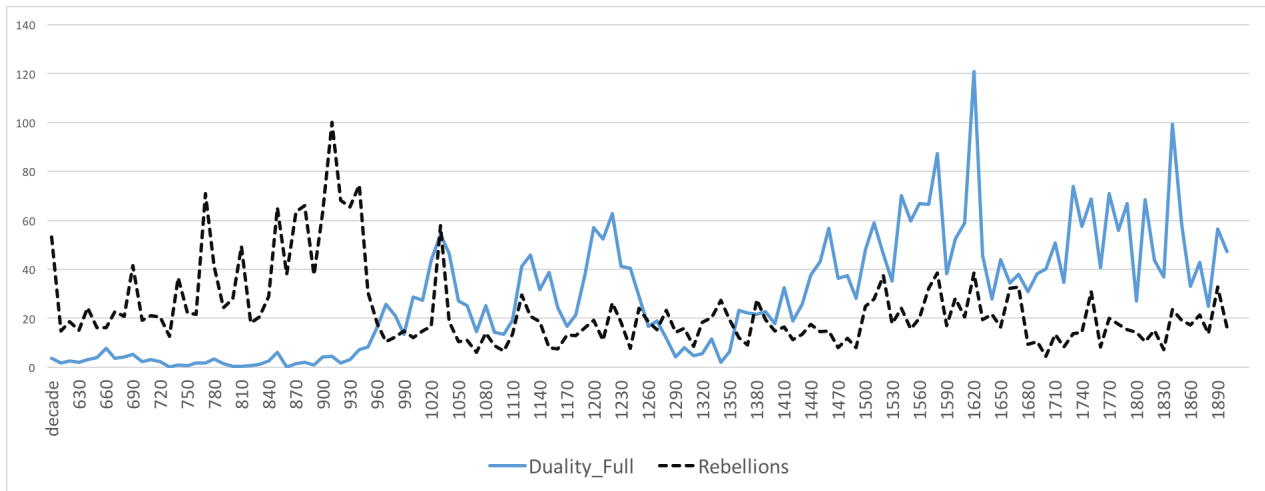


Figure 2 shows a quick recovery of power duality institutions after 1360 CE. For the Ming Dynasty (1368CE to 1644CE), the founding emperor immediately re-established a strong local separation of powers. All provincial governments were divided into three branches headed by different officials: the civilian branch (*Chengxuan-Buzheng-Shi-Si*), the judicial branch (*Tixing-Ancha-Shi-Si*), and the military branch (*Duzhiui-Shi-Si*). The emperor also appointed two chief executives to co-direct the provincial civilian branch. The system was designed to explicitly constrain provincial governments (more details in pp.72-102, Twitchett and Mote (1998)). After the separation of powers among the three branches were firmly established, the subsequent emperors fully restored the civil service exam to its former dominance in political and bureaucratic selection (more details in pp.29-54, Twitchett and Mote (1998)). The Qing Dynasty (1636 CE to 1912 CE) largely continued Ming institutions, though with some significant changes. Among others, the Qing government consolidated the “duality” between governors and governor-generals (*Zongdu*). The governor and the governor-general were strongly checks against one another, and their economic powers were further carved out by the lieutenant governor. Er’gang Luo, a prominent historians of Qing Dynasty, summarizes the system well. “(The Qing regime) uses the higher ranked official to monitor the lower ranked one. At the same time, (the regime) also uses the lower-ranked to monitor the higher-ranked. The lower-ranked cannot execute his power freely because he is monitored by the higher ranked. The high ranked is also constrained and cannot do whatever he wants. This is because his power is divided and delegated to the lower-ranked. As a consequence, the central government exerts effective control. ... The checks between the higher-ranked and the lower-ranked is a fundamental principle of statecraft in Qing China...”(pp.248, Luo (2011). Translation is by myself). The intricate network of checks and balances was concurrent with a strong civil service exam, which continued its dominance until the very end of Imperial China (Bai and Jia (2016)).<sup>18</sup>

## 5 Conclusion

Autocracies face a distinct challenge in building state capacity. A competent bureaucracy fosters fiscal capacity and economic expansion (Besley and Persson (2009)), but its competence may also erode the discretionary power of the autocrat. This paper investigates how an autocracy solves this loyalty-competence trade-off by power duality, or appointing a political governor and an economic governor to co-rule the same province. First, through a formal model, I interpret power duality as an institution to deprive the political governor a

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<sup>18</sup>Figure 4 and Figure 5 used the second set of keywords as the measure of power duality. The other two time-series variables are the same as before. We can see very similar patterns in the two figures.

crucial device to signal his benevolence through public good provision. Unable to provide public goods to rally popular support, the political governor cannot threaten the central government. The formal model shows why power duality is robust to collusion and power asymmetry between the two governors. Second, I present qualitative case studies, documenting that autocracies widely adopt the local separation between political power and economic power to preempt revolts. I also synthesize my formal model and fundamental insights from the Weberian social theory of political domination, arguing that signaling through public good provision is indeed a major mechanism through which local governors organize their revolts against central government. Third, to further investigate the relevance of my theory, I construct long time-series data for power duality, regime stability, and political meritocracy for 1,300 years in Imperial China. The time series data are extracted from the most important historical records of Imperial China, the first ever such attempt in social sciences.

Power duality is not a panacea to all the dilemmas of the autocrat. Power duality is designed to constrain *local* governors, who necessarily control the discretion over *local* public goods. Without a separate economic governor, the chief governor could weaponize provision of public goods, directing the mass population to revolt against the central government. These mass revolts organized through public good provision are a paramount concern because of the intrinsic tendency of any patrimonial bureaucracy towards mass “welfarism,” further colliding with the autocrat’s effort to build a benevolent image as the “father of the people.” But autocrats also face threats that do not require the conspirators to mobilize the mass population (pp.41-43, Finer (1997a)). As a recent paper shows (Li et al. (2022b)), it is precisely the unconstrained power of the autocrat to persecute other elites that attracts the elites to violent attack the autocrat, attacks that are intrinsically unavoidable in autocracies. For these attacks that do not require the direct mobilization of the mass population, they cannot be preempted by a local separation between political power and economic power.

In any case, as I have discussed in Section 2.2, a competent and stable government may produce the worst outcome for the mass population in an autocracy. The competence of provincial governments primarily benefits the autocrat, while the full pacification of provinces eliminates all the opportunities for the mass population to reclaim the surplus captured by the autocrat. In general, more efforts are warranted to investigate the counter-intuitive welfare properties of seemingly desirable institutions in autocracies.

For more future work, I am investigating the economic foundations of power duality. The research question is, what is the economic structure that allows a central government to maintain the local separation between economic power and political power? Max Weber has argued that a less marketized economy tends to weaken the organizational “rationality” of bureaucracy (pp.963-969, Weber (1978)). I develop from Weber’s insights, yet uncovering a

novel micro-mechanism different from Weber’s. I show that central planning naturally empowers the political governor because central planning allocates economic resources through political lobbying and bargaining (Kornai (1992); Roland (2016)). Meanwhile, a market economy naturally empowers the economic governor. Because the economic governor does not manage political affairs, the economic governor can devote more attention to helping local firms in market competition (see the supporting role of *local* governments, for example, in Bai et al. (2020)). Weber’s insight provides the crucial clue to understand the divergence between China and Soviet Union in their duality institutions, where the party-government duality is much stronger in China than in Soviet Union.<sup>19</sup> Per the logic of this paper, the stronger power duality in China supports the practice to promote competent *local* politicians (Li and Zhou (2005); Jia et al. (2015)), a practice that is critical for China’s economic reforms and development (Maskin et al. (2000); Xu (2011)). Therefore, understanding the economic foundations of power duality will inform how China fuses the defining Communist institution (a Leninist party) and the defining capitalist institution (a market economy), a fusion of two previously incompatible institutions (Kornai (1992)). This seemingly improbable fusion can provide novel insights on theories of capitalism.<sup>20</sup>

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<sup>19</sup>As a salient feature of all Communist regimes, China and Soviet Union appoint a party secretary and a governor to co-rule all local jurisdictions. Party secretaries in both China and Soviet Union are in charge of political power. But in Soviet Union, local secretaries also directly manage the economy through a whole array of economic departments in the local party committee (Hough (2013)), hollowing out the economic power of Soviet governors. By contrast, most economic departments are directed by governors in China, strengthening the position of Chinese governors against local party secretaries (Shirk et al. (1993)).

<sup>20</sup>See, for example, the “interstitial” emergence of qualitative new institutions in Mann (2012). Also see Milanovic (2019), which contrasts “liberal meritocratic capitalism” (e.g., United States) with “political capitalism” (e.g., post-reform China).

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## A Proofs

**Proposition 1.** *A revolt happens with probability  $\mu\pi F(W)$ , which increases with competence  $W$ . So the Center chooses the competence  $W$  that satisfies:*

$$W^* = \arg \max_W [1 - \mu\pi F(W)]W. \quad (8)$$

*That is, the Center avoids the most competent officials and appoints mediocre officials to staff the provincial authority.*

*Proof.* We can simplify the game at the signaling stage. First, it is a dominant strategy for the benevolent governor to provide public goods at the maximum level  $\bar{k}$ . This is because of Assumption 2 that  $\gamma e'(k) - 1 > 0$  for all  $k \in [0, \bar{k}]$ ; together with  $e(k=0) = 0$ , Assumption 2 also implies that  $e(\bar{k}) - \bar{k} > 0$ . Second, because the benevolent governor chooses  $\bar{k}$ , for a normal governor, the decision over public good provision is reduced to a binary choice: either the normal governor also provides  $\bar{k}$ , or the normal governor provides no public goods. Any public good spending  $k \in (0, \bar{k})$  is strictly dominated by  $k = 0$ : with  $k \in (0, \bar{k})$ , the governor bears a strictly positive cost of public goods; yet the population infers that the governor is not benevolent and will not launch any revolts, so the normal governor gets the revolt benefit  $R$  with zero probability. Therefore, he is strictly better off by providing no public goods. Alternatively, the normal governor can provide public goods at  $\bar{k}$  to imitate the benevolent governor. Denote a normal governor's decision to provide public goods as  $\sigma$ ,  $\sigma \in \{0, 1\}$ . If a normal governor provides public goods at  $\bar{k}$ ,  $\sigma = 1$ . If a normal governor does not provide public goods,  $\sigma = 0$ .

At the stage to divide the pie, the normal governor keeps  $R$ , the benefit from revolts, all to himself because

$$R + Q - \bar{k}\mathbb{1}\{\sigma = 1\} > Q - \bar{k}\mathbb{1}\{\sigma = 1\}. \quad (20)$$

The left-hand side is the payoff to a normal governor who keeps  $R$ , and the right-hand side is the payoff to a normal governor who awards  $R$  to the population.

For a benevolent governor, he awards  $R$  to the population because

$$R + Q + [\gamma e(\bar{k}) - \bar{k}] < \gamma R + Q + [\gamma e(\bar{k}) - \bar{k}]. \quad (21)$$

Back to the mobilization stage, both types lead a revolt launched by the population. For a normal governor, he does so because:

$$R + Q - \bar{k}\mathbb{1}\{\sigma = 1\} > Q - \bar{k}\mathbb{1}\{\sigma = 1\}. \quad (22)$$

The left-hand side is the payoff if he leads the revolt. He knows that in the pie-division stage he is able to capture  $R$ . The right-hand side is the payoff if he does not lead the revolt. Similarly, for a benevolent governor,

$$\gamma R + Q + [e(\bar{k}) - \bar{k}] > Q + [e(\bar{k}) - \bar{k}]. \quad (23)$$

Denote  $\hat{\mu}$  as the population's belief that the governor is benevolent after the opportunity of revolt arises. Denote the public good received by the population as  $\hat{k}$ . The population launches a revolt if and only if:

$$\begin{aligned} \hat{\mu}[R - c + e(\hat{k})] + (1 - \hat{\mu})[-c + e(\hat{k})] &\geq e(\hat{k}), \\ \hat{\mu}R &\geq c. \end{aligned} \quad (24)$$

By contradiction, suppose that the normal governor also provides public goods at  $\bar{k}$ , in that case:

$$\hat{\mu} = \frac{\mu\pi}{\mu\pi + (1 - \mu)\pi} = \mu. \quad (25)$$

So the population never launch a revolt because of Assumption 2:

$$\hat{\mu}R < c.$$

But then the normal governor finds it undesirable to provide public goods at  $\bar{k}$ :

$$Q - \bar{k} < Q. \quad (26)$$

We obtain a contradiction, and it cannot be a PBE strategy for the normal governor to provide public goods.

Consider the strategy that the normal governor does not provide any public goods. In this case:

$$\hat{\mu} = \frac{\mu\pi}{\mu\pi} = 1. \quad (27)$$

The population launches a revolt if:

$$R \geq c, \quad (28)$$

so the probability of a revolt is  $F(R)$ .

We need to check that it is indeed not desirable for the normal governor to provide public goods at  $\bar{k}$ :

$$Q - \bar{k} + \pi F(R)R < Q, \text{ or } \bar{k} > \pi F(R)R, \quad (29)$$

which is guaranteed by Assumption 3.

Thus, in the unique PBE, the normal governor does not provide public goods, the benevolent governor provides public goods at  $\bar{k}$ , and the probability of revolts is:

$$\mu\pi F(R). \quad (30)$$

Because  $R = \lambda W = W$ , the Center's payoff is:

$$[1 - \mu\pi F(W)]W. \quad (31)$$

□

**Proposition 2.** *In all pure-strategy Perfect Bayesian Equilibria, the province never revolts and the Center appoints a provincial government with the highest competence  $\bar{W}$ .*

*Proof.* It is easy to see that the normal governor does not voluntarily provides public goods. Otherwise, the voluntary provision precludes any opportunity for the political governor to signal his benevolence or contract with the normal economic governor, so the normal economic governor receives no return from costly public good provision. We can focus on the situation where the economic governor refuse to voluntarily provide public good, which happens with probability  $1 - \mu$ .

Suppose  $\eta < 1$ . Then in the pie-division stage, the political governor's best responses are the same as in the benchmark model. Specifically, the normal political governor keeps  $(1 - \eta)R$ , the benefit from revolts, all to himself. For a benevolent political governor, he awards  $(1 - \eta)R$  to the population:

$$(1 - \eta)R + Q + \gamma e(k) < \gamma(1 - \eta)R + Q + \gamma e(k). \quad (32)$$

Back to the mobilization stage, both types of political governors lead any revolts launched by the population. Specifically, for a benevolent political governor,

$$\gamma(1 - \eta)R + Q + e(k) > Q + e(k). \quad (33)$$

Similarly, for a normal political governor,

$$(1 - \eta)R + Q > Q. \quad (34)$$

If  $\eta = 1$ , then both the normal and the benevolent political governors are indifferent between keeping and awarding the benefits, and both types are indifferent between leading

and abstaining a revolt launched by the population. The population never revolt, and all players get their status-quo payoffs.

Denote  $\hat{\mu}$  as the population's belief that the political governor is benevolent. The population launches a revolt if and only if

$$\begin{aligned} \hat{\mu}\{R - c + e(k)\} + (1 - \hat{\mu})\{-c + e(k)\} &\geq e(k), \\ \hat{\mu}R &\geq c. \end{aligned} \tag{35}$$

To an economic governor who did not voluntarily provide public goods, the political governor can offer a credible side contract. Suppose that a PBE strategy profile is

$$\{\eta_b, \eta_m\}, \tag{36}$$

where  $\eta_b$  is the promise from a benevolent political governor, and  $\eta_m$  is the promise from a normal political governor.

With a specific  $\eta$ , the maximal effort  $k$  that can be demanded from the normal economic governor is:

$$\hat{k}(\eta) = \pi F[\hat{\mu}(\eta)(1 - \eta)R] \eta R. \tag{37}$$

where the posterior belief  $\hat{\mu}(\eta)$  is a function of  $\eta$ , the promised share from the political governor to the economic governor. We investigate all the possible pure strategies  $\{(\eta_b, \eta_m)\}$  to see whether they can constitute PBE strategies.

**1.** First, consider strategies  $\eta_b \in (0, 1 - \frac{c}{R})$  and  $\eta_m \in (0, 1 - \frac{c}{R})$ . Therefore,  $F[(1 - \eta_b)R] > 0$  and  $F[(1 - \eta_m)R] > 0$ .

**1.1.** Consider  $\eta_b \neq \eta_m$ . Then  $\hat{\mu}(\eta_b) = 1$  and  $\hat{\mu}(\eta_m) = 0$ . The payoff to a normal political governor is:

$$U_m(\eta_m) = Q + \pi F[\hat{\mu}(\eta_m)(1 - \eta_m)R](1 - \eta_m)R = Q. \tag{38}$$

To understand the payoff, the first term  $Q$  is the status-quo payoff, and the second term  $\pi F[\hat{\mu}(\eta_m)(1 - \eta_m)R](1 - \eta_m)R$  is the expected payoff from a successful revolt. For the expected payoff,  $\pi$  is the probability of a revolt opportunity,  $F[\hat{\mu}(\eta_m)(1 - \eta_m)R]$  is the probability that the population will launch a revolt, and  $(1 - \eta_m)R$  is the surplus captured by the normal political governor after he pays the normal economic governor. Notice that  $\hat{\mu}(\eta_m)(1 - \eta_m)R$  is the expected surplus that the population will receive, where  $\hat{\mu}(\eta_m)$  is the posterior belief that the political governor who promises  $\eta_m$  is benevolent, and  $(1 - \eta_m)R$  is the surplus that the population will receive after a benevolent political governor pays the normal economic

governor. Notice that  $\hat{\mu}(\eta_m) = 0$  because the normal political governor chooses a strategy  $\eta_m$  different from  $\eta_b$ , the strategy of a benevolent political governor.

Consider a single deviation. If the normal political governor chooses  $\eta_b$ , his payoff is:

$$U_m(\eta_b) = Q + \pi F[\hat{\mu}(\eta_b)(1 - \eta_b)R](1 - \eta_b)R = Q + \pi F[(1 - \eta_b)R](1 - \eta_b)R > Q. \quad (39)$$

So the normal political governor wants to deviate to  $\eta_b$ . The considered strategies cannot be PBE strategies.

**1.2.** Consider  $\eta_b = \eta_m \in (0, 1 - \frac{\underline{c}}{R})$ . Denote  $\tilde{\eta} \equiv \eta_b = \eta_m$ . Then  $\hat{\mu}(\tilde{\eta}) = \mu$ . The probability of revolt is  $\pi F[\hat{\mu}(\tilde{\eta})(1 - \tilde{\eta})R] = \pi F[\mu(1 - \tilde{\eta})R] < \pi F(\mu R) = 0$ . So  $\hat{k}(\tilde{\eta}) = 0$ . The payoff to a normal political governor is:

$$U_m(\tilde{\eta}) = Q + \pi F[\hat{\mu}(\tilde{\eta})(1 - \tilde{\eta})R](1 - \tilde{\eta})R = Q. \quad (40)$$

If the normal political governor chooses any other  $\eta' \neq \tilde{\eta}$ , then  $\hat{\mu}(\eta') = 0$ . The probability of revolt is zero, so the payoff to the normal political governor is still  $Q$ . The normal political governor has no incentive to deviate.

For a benevolent political governor, his payoff from  $\tilde{\eta}$  is:

$$U_b(\tilde{\eta}) = Q + \pi F[\hat{\mu}(\tilde{\eta})(1 - \tilde{\eta})R](1 - \tilde{\eta})\gamma R + \gamma e(k = 0) = Q. \quad (41)$$

If the benevolent political governor deviates to any other  $\eta' \neq \tilde{\eta}$ ,  $\hat{\mu}(\eta') = 0$ . The probability of revolt is zero, and  $\hat{k}(\eta') = 0$ . So the payoff to the benevolent political governor is also  $Q$ . The benevolent political governor has no incentive to deviate.

So any  $\eta_b = \eta_m \in (0, 1 - \frac{\underline{c}}{R})$  are PBE strategies, and the equilibrium posterior beliefs are  $\hat{\mu}(\eta_b) = \hat{\mu}(\eta_m) = \mu$  and  $\hat{\mu}(\eta') = 0$  for  $\eta' \neq \eta_b$ . There is no revolt in these PBEs.

**2.** Consider strategies  $\eta_b \notin (0, 1 - \frac{\underline{c}}{R})$  or  $\eta_m \notin (0, 1 - \frac{\underline{c}}{R})$ .

**2.1** Consider  $\eta_b \in [1 - \frac{\underline{c}}{R}, 1]$  and  $\eta_m \in [1 - \frac{\underline{c}}{R}, 1]$ . Then the probability of revolt  $\pi F[\hat{\mu}(\eta)(1 - \eta)R] \leq \pi F[(1 - \eta)R] = \pi F(\underline{c}) = 0$ , so  $\hat{k}(\eta_b) = \hat{k}(\eta_m) = 0$ . The political governors transfer too much surplus to the economic governor that the share received by the population is too small to justify revolts. For a normal political governor, his payoff is:

$$U_m(\eta_m) = Q + \pi F[\hat{\mu}(\eta_m)(1 - \eta_m)R](1 - \eta_m)R = Q. \quad (42)$$



If the normal political governor deviates to any  $\eta' \neq \eta_m$ ,  $\hat{\mu}(\eta') = 0$  and his payoff is again  $Q$ . If he deviates to  $\eta_b$ ,  $\hat{\mu}(\eta_b) = 1$ , but again  $F[\hat{\mu}(\eta_b)(1 - \eta_b)R] = F[(1 - \eta_b)R] < F(\underline{c}) = 0$ . So there is no incentive for the normal political governor to deviate.

For a benevolent political governor, his payoff is also  $Q$ . If he deviates to any other  $\eta'$ , then  $\hat{\mu}(\eta') = 0$  and his payoff is also  $Q$ . There is also no incentive to deviate.

So any  $\eta_b \in [1 - \frac{c}{R}, 1]$  and  $\eta_m \in [1 - \frac{c}{R}, 1]$  are PBE strategies. There is no revolt in equilibrium.

**2.2.** Consider  $\eta_b = \eta_m = 0$ . Denote  $\tilde{\eta} = \eta_b = \eta_m = 0$ . Then  $\hat{\mu}(\tilde{\eta}) = \mu$ . The probability of revolt is  $\pi F(\hat{\mu}(\tilde{\eta})(1 - \tilde{\eta})R) \leq \pi F(\mu R) = 0$ . So  $\hat{k}(\tilde{\eta}) = 0$ . The payoff to the normal political governor is:

$$U_m(\tilde{\eta}) = Q + \pi F[\hat{\mu}(\tilde{\eta})(1 - \tilde{\eta})R](1 - \tilde{\eta})R = Q. \quad (43)$$

Any other  $\eta'$  yields a payoff of  $Q$ . The normal political governor has no incentive to deviate.

The payoff to the benevolent political governor is:

$$U_b(\tilde{\eta}) = Q + \pi F[\hat{\mu}(\tilde{\eta})(1 - \tilde{\eta})R](1 - \tilde{\eta})\gamma R + \gamma e(0) = Q. \quad (44)$$

Any other  $\eta'$  yields a payoff of  $Q$ . The benevolent political governor has no incentive to deviate.

So  $\eta_b = \eta_m = 0$  are PBE strategies.

**2.3.** Consider  $\eta_b = 0$  and  $\eta_m \in [1 - \frac{c}{R}, 1]$ . Then  $\hat{\mu}(\eta_b) = 1$  and  $\hat{\mu}(\eta') = 0$  for any  $\eta' \neq \eta_b$ . The payoff to the normal political governor is:

$$U_m(\eta_m) = Q + \pi F[\hat{\mu}(\eta_m)(1 - \eta_m)R](1 - \eta_m)R = Q. \quad (45)$$

If the normal political governor chooses  $\eta_b = 0$ , the probability of revolt is  $\pi F(\mu R) > 0$ , and the payoff to the normal political governor is:

$$U_m(\eta_b) = Q + \pi F(R)R > Q. \quad (46)$$

So the considered strategies are not PBE strategies.

**2.4** Suppose that  $\eta_b \in [1 - \frac{\epsilon}{R}, 1]$  and  $\eta_m = 0$ . Then  $\hat{\mu}(\eta_b) = 1$  and  $\hat{\mu}(\eta') = 0$  for any  $\eta' \neq \eta_b$ . The payoff to the normal political governor is:

$$U_m(\eta_m) = Q + \pi F[\hat{\mu}(\eta_m)(1 - \eta_m)R](1 - \eta_m)R = Q. \quad (47)$$

If the normal political governor chooses  $\eta_b$ :

$$U_m(\eta_b) = Q + \pi F[\hat{\mu}(\eta_b)(1 - \eta_b)R](1 - \eta_b)R = Q + \pi F[(1 - \eta_b)R](1 - \eta_b)R = Q. \quad (48)$$

If the normal political governor deviates to any other  $\eta'$ , the payoff is also  $Q$ . So the normal political governor has no incentive to deviate.

For the benevolent political governor, the probability of revolt at  $\eta_b$  is zero, as  $F((1 - \eta_b)R) = 0$ . So  $\hat{k}(\eta_b) = 0$ . So the benevolent political governor gets

$$U_b(\eta_b) = Q + \pi F[\hat{\mu}(\eta_b)(1 - \eta_b)R](1 - \eta_b)R + e(0) = Q + \pi F[(1 - \eta_b)R](1 - \eta_b)R = Q. \quad (49)$$

If the benevolent political governor chooses any other strategy  $\eta'$ ,  $\hat{\mu}(\eta') = 0$ , so the probability of revolt is still zero, and  $\hat{k}(\eta') = 0$ . By deviating to  $\eta'$ , the benevolent political governor gets:

$$U_b(\eta_b) = Q + \pi F[\hat{\mu}(\eta')(1 - \eta')R](1 - \eta')R + e(0) = Q. \quad (50)$$

So the benevolent political governor has no incentive to deviate. The considered strategies are PBE strategies. In these PBEs, the probability of revolt is zero.

**2.5** Suppose that  $\eta_b \in (0, 1 - \frac{\epsilon}{R})$  and  $\eta_m = 0$ . Then  $\hat{\mu}(\eta_b) = 1$  and  $\hat{\mu}(\eta') = 0$  for  $\eta' \neq \eta_b$ . The payoff to the normal political governor is:

$$U_m(\eta_m) = Q + \pi F[\hat{\mu}(\eta_m)(1 - \eta_m)R](1 - \eta_m)R = Q. \quad (51)$$

If the normal political governor chooses  $\eta_b$ , he gets:

$$U_m(\eta_b) = Q + \pi F[(1 - \eta_b)R](1 - \eta_b)R > Q. \quad (52)$$

The considered strategies are not PBE strategies.

**2.6.** Consider  $\eta_b = 0$  and  $\eta_m \in (0, 1 - \frac{\epsilon}{R})$ . Then  $\hat{\mu}(\eta_b) = 1$  and  $\hat{\mu}(\eta') = 0$  for any  $\eta' \neq \eta_b$ . The payoff to the normal political governor is

$$U_m(\eta_m) = Q + \pi F[\hat{\mu}(\eta_m)(1 - \eta_m)R](1 - \eta_m)R = Q. \quad (53)$$

If the normal political governor chooses  $\eta_b$ , the normal political governor gets:

$$U_m(\eta_b) = Q + \pi F(R)R > Q. \quad (54)$$

The considered strategies are not PBE strategies.

**2.7.** Consider  $\eta_b \in (0, 1 - \frac{\epsilon}{R})$  and  $\eta_m \in [1 - \frac{\epsilon}{R}, 1]$ . Then  $\hat{\mu}(\eta_b) = 1$  and  $\hat{\mu}(\eta') = 0$  for  $\eta' \neq \eta_b$ . The payoff to the normal political governor is:

$$U_m(\eta_m) = Q + \pi F[\hat{\mu}(\eta_m)(1 - \eta_m)R](1 - \eta_m)R = Q. \quad (55)$$

If the normal political governor chooses  $\eta_b$ , he gets:

$$U_m(\eta_b) = Q + \pi F[(1 - \eta_b)R](1 - \eta_b)R > Q. \quad (56)$$

The considered strategies are not PBE strategies.

**2.8** Consider  $\eta_b \in [1 - \frac{\epsilon}{R}, 1]$ ,  $\eta_m \in (0, 1 - \frac{\epsilon}{R})$ . Then  $\hat{\mu}(\eta_b) = 1$  and  $\hat{\mu}(\eta') = 0$  for  $\eta' \neq \eta_b$ . The normal political governor gets

$$U_m(\eta_m) = Q + \pi F[\hat{\mu}(\eta_m)(1 - \eta_m)R](1 - \eta_m)R = Q. \quad (57)$$

If the normal political governor chooses  $\eta_b$ ,

$$U_m(\eta_b) = Q + \pi F[\hat{\mu}(\eta_b)(1 - \eta_b)R](1 - \eta_b)R = Q + \pi F[(1 - \eta_b)R](1 - \eta_b)R = Q \quad (58)$$

because  $F[(1 - \eta_b)R] = 0$ . If the normal political governor chooses other  $\eta'$ ,  $\hat{\mu}(\eta') = 0$ . His payoff is:

$$U_m(\eta') = Q + \pi F[\hat{\mu}(\eta')(1 - \eta_b)R](1 - \eta_b)R = Q. \quad (59)$$

The normal political governor has no incentive to deviate.

For the benevolent political governor, his payoff by choosing  $\eta_b$  is

$$U_b(\eta_b) = Q + \pi F[\hat{\mu}(\eta_b)(1 - \eta_b)R](1 - \eta_b)\gamma R + \gamma e(0) = Q. \quad (60)$$

If he chooses any  $\eta' \neq \eta_b$ , his payoff is:

$$U_b(\eta') = Q + \pi F[\hat{\mu}(\eta')(1 - \eta')R](1 - \eta')\gamma R + \gamma e(0) = Q. \quad (61)$$

The considered strategies are PBE strategies. Gather **1.1** to **2.8**, which exhausts all possible combination of  $\eta_b$  and  $\eta_m$ , there is no revolt in any PBE. □

**Proposition 4.** *In the unique pure-strategy Perfect Bayesian Equilibrium, both normal and benevolent political governors provide public goods at  $\bar{k}$ . Consequently, there is no revolt and the Center appoints a provincial government with the highest competence  $\bar{W}$ .*

*Proof.* It is a dominant strategy for the benevolent political governor to provide public goods at  $\bar{k}$ . Denote the normal political governor's decision to provide public goods as  $\sigma$ ,  $\sigma \in \{0, 1\}$ . If the normal political governor provides public goods,  $\sigma = 1$ .

In the pie-division stage and mobilization stage, the political governor's best responses are the same as in the benchmark model.

Denote  $\hat{\mu}$  as the population's belief that the political governor is benevolent. The population launches a revolt if:

$$\hat{\mu}R \geq c. \tag{62}$$

By contradiction, suppose that it is a PBE strategy that the normal political governor does not provide public goods. Therefore, following  $k = 0$ ,  $\hat{\mu} = 0$ . The normal political governor wants to deviate and provide public goods at  $\bar{k}$ :

$$Q + \pi F(R)R > Q. \tag{63}$$

so the considered strategy cannot be a PBE strategy.

Consider the strategy that the normal political governor also provides public goods at  $\bar{k}$ . Observing  $\bar{k}$ , the population believes that the political governor is benevolent with probability  $\mu$ , so the population does not revolt. It is indeed weakly optimal for the normal political governor to provide public goods at  $\bar{k}$ . The considered strategy is a PBE strategy<sup>21</sup>. □

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<sup>21</sup>In fact, suppose that the normal political governor provides with public goods with probability  $\hat{x}$ . As long as  $F(\hat{\mu}R) = F(\frac{\mu}{\mu+(1-\mu)\hat{x}}R) = 0$ , or

$$\hat{x} \geq \frac{\mu}{1-\mu} \left( \frac{R}{c} - 1 \right),$$

the population does not revolt, and it is a PBE strategy.

## B Full entries of bureaucratic positions

In this appendix, I cite the full entries of the bureaucratic positions mentioned in the paper from *A Concise History of Bureaucratic Positions in Historical China* (沈起煒，徐光烈：簡明中國歷代職官辭典). Rough translation from Chinese to English is supplied by myself.

### *Tongpan*

The name of a bureaucratic position. Song Dynasty (960 CE to 1279 CE) appointed *Tongpan* to all prefectures to strengthen controls over them. *Tongpan* assisted the prefecture mayor in local governance. The signature of *Tongpan* was necessary for any public documents to be effective, including documents about military and civilian administration, hydraulic projects, household registration, taxation, and corvée labor, judicial affairs, and so on. *Tongpan* was also endowed with power to monitor officials, which earned *Tongpan* another name *Jianzhou*<sup>22</sup>. Ming (1368 CE to 1644 CE) and Qing (1636 CE to 1912 CE) Dynasties appoints *Tongpan* to all prefectures, who administered grain transportation, hydraulic projects, *tuntian*<sup>23</sup>, horse shepherding, defense over river and sea, etc. The Qing Dynasty also appointed another official called *Zhoupan* to each prefecture, who administered grain affairs, hydraulic projects in river and sea, etc.

**通判**: 官名。宋為加強控制地方而置於各州、府，輔佐知州或知府處理政務，凡兵民、水利、戶口、賦役、獄訟等州府公事，須通判連署方能生效，並有監察官吏之權，號稱“監州”。明、清各府置通判，分掌糧運、水利、屯田、牧馬、江海防務等事。清各州另有州判，分掌糧務、水利、防海、管河等事。

### *Buzheng(-Shi)*

A bureaucratic position. In the early Ming Dynasty (1368 CE to 1644 CE), institutions of the Yuan Dynasty (1271 CE to 1368 CE) were preserved and provincial governments (*Xing Zhongshu Sheng*) were set up everywhere. In 1376 CE, provincial governments were re-established as “the Offices of the *Buzheng Shi*”, and the provincial governor (*Canzhi Zhengshi*) became *Buzheng Shi*. Starting from 1381 CE, two *Buzheng Shi* were appointed to govern each province. In 1428 CE, it was fixed that there were thirteen Offices of the *Buzheng Shi* apart from the two capitals. *Buzheng Shi* was appointed as the chief executive of a province, with the alternative name *Fansi* and the honorary name *Fangbo*. Subordinates of *Buzheng Shi* were called *Fanxian*. After the institution of the governor (*Xunfu*) and

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<sup>22</sup> *Jianzhou* literally means “monitoring the prefecture (mayor)”.

<sup>23</sup> See <https://en.wikipedia.org/wiki/Tuntian>: “The *tuntian* system was a state-promoted system of agriculture.”

the governor-general (*Zongdu*) was consolidated, the power and the rank of *Buzheng Shi* gradually declined. The Qing Dynasty (1636 CE to 1912 CE) continued to appoint *Buzheng Shi*, who controlled civilian governance, land taxation, and household registration of the whole province. *Buzheng Shi* was assigned as a subordinate to the governor and the governor-general. One *Buzheng Shi* was appointed to each province, except Jiangsu Province with two. In Jiangsu, one *Buzheng Shi* stationed in Suzhou and the other in Jiangning (Nanjing today), dividing the governance of the prefectures and counties of Jiangsu Province.

**布政使**：官名。明初，沿元製，於各地置行中書省。太祖洪武九年（1376），改各行中書省為承宣布政使司，改原行中書省參知政事為布政使。十四年（1381），增設為左右布政使各一人。玄宗宣德三年（1428），除南北兩京外，全國定為十三承宣布政使司，以布政使為一省最高行政長官，別稱藩司，尊為方伯，下屬稱藩憲。總督巡撫之製建立後，布政使權位漸輕。清沿置，掌全省民政、田賦與戶籍等事，為總督巡撫屬官。每省一人，唯江蘇省兩人，一駐蘇州（今蘇州市），一駐江寧（今南京市），分轄本省府、州縣。

### *Ancha(-Shi)*

A bureaucratic position. In 711 CE, the central government appointed *Ancha-Shi* for ten *dao*<sup>24</sup> to evaluate bureaucratic governance and performance. In 732 CE, the position was renamed as *Caifang-Shi*. In 1199 CE, Jin Dynasty<sup>25</sup> reassigned the Office of *Tixing* as the Office of *Ancha*, with the leader of the office called *Ancha-Shi*. In 1215 CE, Jin Dynasty abolished *Ancha-Shi* and assigned *Jiancha-Caifang-Shi* instead. (*Ancha-Shi*) was in charge of legal trials as well as the prisons, the review of legal documents, and the correction of judicial errors. The position also inspected corruption and illegal behaviors of bureaucrats, prohibited private production of salt or alcohol yeast, and encouraged agricultural production. Early Yuan Dynasty (1271 CE to 1368 CE) appointed the Office of *Tixing-Ancha*. The bureau was later changed into the Office of *Suzheng-Lianfang*, with the leader renamed *Suzheng-Lianfang-Shi*. Ming Dynasty (1368 CE to 1911 CE) appointed *Ancha-Shi* to all provinces as the chief official in charge of judicial affairs, criminal laws, and censoring other officials. *Ancha-Shi*, *Buzheng-Shi*, and Du-Zhihui-Shi were in charge of civilian affairs, judicial affairs, and military respectively. The three positions were jointly called “Three Offices”. Branches of the Office of *Ancha* were also appointed to monitor and censor at a more local level. Since the mid-Ming Dynasty, provinces were assigned with governors and governor generals, and *Ancha-Shi* gradually became their subordinate. The Qing Dynasty continued the governance practice of the Ming Dynasty. *Ancha-Shi* were also appointed to all provinces, with the alternative names *Nietai*, *Niesi*, or *Lianfang*. In 1911 CE, the position

<sup>24</sup>Local administrative units for monitoring purposes.

<sup>25</sup>*The History of Jin* is not in our text corpus.

was renamed *Tifa-Shi*.

**按察使**：官名。唐睿宗景雲二年（711），置十道按察使，分別考核各地吏治。玄宗開元二十年（732），改稱採訪使。金承安四年（1199），改提刑司為按察司，長官為按察使。玄宗貞祐三年（1215），廢按察使，改派監察採訪使。掌審察刑獄、照刷案牘、糾察。濫官污吏與豪偉不法者，並察違犯私鹽、酒麴等禁令者，兼勸課農桑。元初，置提刑按察司，後改肅政廉訪司，長官提刑按察使亦改稱肅正廉訪使。明各省置提刑按察使，為一省司法長官，掌一省刑名按劾，與布政使、都指揮使分掌一省民政、司法、軍事，合三司，並置按察分司，分道巡察。明中期以後，各地多設總督、巡撫，按察使漸成其屬官。清沿明製，各省置提刑按察使，別稱臬台、臬司、廉訪。清末宣統三年（1911）改稱提法使。

### **Ti(dian)-Xing(yu)**

A bureaucratic position, abbreviated for *Tidian-Xingyu-Gongshi* or *Tidian-Xingyu*. The Song Dynasty (960 CE to 1279 CE) appointed the position to all provinces (*Lu*). The position was in charge of judicial affairs, criminal laws and prisons, monitoring of local officials, and the encouragement of agricultural production. Contemporary official documents called the position *Xian* and the office *Xiansi*. In 1077 CE, a *Tidian-Xingyu* for the capital area was appointed. The Jin Dynasty<sup>26</sup> appointed *Tixing-Shi*, later changed into *Ancha-Shi*. Ming (1368 CE to 1644 CE) and Qing (1644 CE to 1912 CE) Dynasties appointed *Ancha-Shi* to all provinces.

提刑：官名。提點刑獄公事簡稱，或稱提點刑獄。宋置於各路，主管所屬各州司法、刑獄、監察地方官員並勸課農桑。時公文用語稱“憲”，其官署稱憲司。宋神宗熙寧十年（1077）又置提點京畿刑獄。金有提刑使，後改按察使。明、清則在各省設提刑按察使。

### **Tiju-Changping(-Si)**

The name of an office, in short *Cangsi*. The office managed the *Changping* Granary, the policy of *Mianyi*, markets, harbors, hydraulic engineering, etc. The office sold or bought grains to stabilize the grain price, a policy based on the year's harvests. It also collected the “tax to exempt corvée labor” based on the amount of personal property and paid officials' salaries based on the responsibility of each position. The office also bought products with sluggish sales and resold them later to stabilize the price. Besides, the office also monitored local officials. In 1069 CE, the central government appointed the office and its main executive to *Hebei* and *Shaanxi*. Soon afterwards, the central government established the office for all other provinces. In 1086 CE, the office was merged with the Office of *Tidian-Xingyu*. In

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<sup>26</sup> *The History of Jin* is not in our text corpus.

1094, the office of *Tiju-Changping* was reestablished.

提舉常平司: 官署名。簡稱倉司。掌常平倉、免役、市易、坊場、河渡、水利等事。按收穫豐歉而糴糶食糧，按財產多少而徵收免役錢，按職役輕重而給吏祿。收買滯銷商品，再行出售，以平物價。並監察地方官吏。北宋神宗熙寧二年（1069），先派官提舉河北、陝西路常平，旋諸路皆置提舉官。哲宗元祐元年(1086)，併其職掌於提點刑獄司，哲宗紹聖元年（1094）復置。

## Xunfu

A bureaucratic position. Northern Zhou Dynasty (557 CE to 581 CE) and early Tang Dynasty (618 CE to 907 CE) assigned officials to “inspect and resolve problems” in localities, “inspecting and resolving” being the literal meaning of *Xunfu*. The post of “inspecting and resolving” was temporary and *Xunfu* did not become the name of a bureaucratic position. In the Ming Dynasty (1368 CE to 1644 CE), *Xunfu* was first mentioned in 1391 CE when the *Yiwen* Crown Prince was assigned to “inspect and resolve problems” for Shaanxi Province. It was also a temporary post. In 1430 CE, the central government promoted Yu Qian, a monitoring official (*Jiancha Yushi*), to be a deputy minister. Yu Qian was concurrently assigned to “inspect and resolve problems” for the Beijing Capital Area, the Nanjing Capital Area, Shandong Province, etc. This is the beginning of appointing *Xunfu* to provinces. In 1453 CE, Geng Jiuchou “inspected and resolved problems” for Shaanxi as a Deputy Minister of Justice. As his official documents should not be reviewed by the Office of *Ancha*<sup>27</sup>, the post concurrently held the title of Du-Yushi (“monitoring officials from the capital”). For officials who served as *Xunfu*, their ranks were based on their original posts as *Xunfu*, still a temporary post, did not come with ranks. In the Qing Dynasty (1644 CE to 1912 CE), *Xunfu* ranked at the deputy minister level. *Xunfu* inspected bureaucratic governance, supervised civilian affairs, and dealt with criminal laws and justice. If the post of *Xunfu* was assigned to an official who was serving as a deputy minister, the official would receive another title of Deputy Minister of Defense and *You-Fu-Du-Yushi*. If the post of *Xunfu* was assigned to an official who was serving as a Grand Secretariat, *Fu-Du-Yushi*, *Qinggyuan*, or *Buzheng-Shi*, the official would receive the title of *You-Fu-Du-Yushi*. If the post of *Xunfu* was assigned to *Zuo-Xuan-Du-Yushi*, *Siping-Jingtang*, *Ancha-Shi*, etc., the official would receive the title of *You-Jian-Du-Yushi*. The official who would serve as *Xunfu* would receive the title of the Minister of Defense only if the official had exceptional experience or performance records. Usually, one *Xunfu* was assigned to each province, and *Xunfu* was ranked lower than *Zongdu*. *Zongdu*, the governor-general, usually administered two or three provinces. The governor-generals of Sichuan and Zhili only administer one province, so *Xunfu* were not assigned to

<sup>27</sup>There is ambiguity in interpretation for this sentence.



these two provinces. In 1885 CE, the Province of Taiwan was created. The *Xunfu* of Fujian Province was reassigned as the *Xunfu* of Taiwan Province. The administration of Fujian Province was reassigned to the Governor-General of Zhejiang and Fujian.

**巡撫**：官名。北周與唐初均有派官至各地巡撫之事，系臨時差遣，“巡撫”亦未成為官名，明巡撫之名，始見於洪武二十四年（1391）命懿文太子巡撫陝西，亦係臨時差遣。宣德五年（1430），升監察御史于謙等為侍郎，巡撫兩京、山東等地，各省專設巡撫自此始。景泰四年（1453），耿九疇以刑部侍郎巡撫陝西，文移不得徑下按察司，特改為都御史，自此成為製度。而任巡撫者，品秩均依原官，巡撫本身無品秩，與一般官職不同，仍帶有差遣性質。清巡撫為從二品官，掌視察吏治，檢查民政，處理刑獄。巡撫由侍郎授者，帶兵部侍郎、右副都御史銜；由學士、副都御史及卿員、布政使等官授者，均為右副都御史；由左僉都御史、四品京堂、按察使等官授者，均為右僉都御史。資望特高者亦可加兵部尚書銜。巡撫一般每省一員，地位次於兼轄二、三省的總督。直隸、四川兩省總督都只轄一省，故不設巡撫。光緒十一年（1885），台灣建省，改福建巡撫為台灣巡撫，閩事歸閩浙總督兼。

## Anfu-Shi

A bureaucratic position. Early Sui Dynasty (581 CE to 619 CE) created the Grand *Anfu-Shi*, a position held concurrently by military generals. Early Tang Dynasty (618 CE to 907 CE) assigned ministers to inspect regions suffering from natural disasters; those ministers were called *Anfu-Shi* or *Cunfu-Shi*. Song Dynasty (960 CE to 1279 CE) assigned *Anfu-Shi* to important regions, with *Anfu-Shi* concurrently holding the position of *Jinglue-Shi* and *Mabu-Jundu-Zongguan*. The post controlled the civilian and military affairs of a province. If the post was concurrently held by a prefecture mayor, the post is abbreviated as *Shuai*. If the post was held by an official with his rank above the minister level, the official was also called the Grand *Anfu-Shi*. Liao Dynasty<sup>28</sup> (907CE to 1125 CE) assigned *Anfu-Shi* to the Han Branch of the central government, and to both Khitan Branch and Han Branch of frontier regions. Jin Dynasty<sup>29</sup> (1115 CE to 1234 CE) also appointed *Anfu-Shi* to important regions. The Yuan Dynasty (1271 CE to 1368 CE) only appointed the position to Southwest China where ethnic minorities lived. Ming (1368 CE to 1644 CE) and Qing (1636 CE to 1912 CE) Dynasties appointed *Anfu-Shi* as military officers in the ethnic minority regions in Southwest China. The positions survived even into the Republic of China (1911 CE to 1949 CE).

**安撫使**：官名。隋初曾置安撫大使，為行軍主帥兼職。唐初派大臣巡視水旱災害地區，稱安撫使或存撫使。宋於重要地區置安撫使，多兼經略使、馬步軍都總管，主管一路

<sup>28</sup> *History of Liao* is not in our text corpus.

<sup>29</sup> *History of Jin* is not in our text corpus.

軍事與民政，以知州兼任，簡稱帥，如以二品以上大臣擔任，即稱安撫大使。遼南面京官與南、北面邊防官均有安撫使，金亦於重要地區置安撫使。元僅置於西南少數民族地區，參用土官。明、清安撫使為武職土官。入民國後，仍有存者。