Meritocracy and Dual Leadership: Historical Evidence and an Interpretation*

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Abstract

This paper studies the origins of bureaucratic capacity, both empirically and theoretically. I apply textual analysis to Chinese historical records; from these records, I construct a novel dataset tracing the evolution of political institutions for over 1,300 years. The dataset uncovers a key empirical regularity: a meritocratic bureaucracy arose only after emperors established a strong "separation of powers" among provincial officials, an institution also correlated with a much lower frequency of revolts. To explain these findings, I construct a model where the central government faces a loyalty-competence trade-off: a competent governor can weaponize his competence to challenge the central government. I show that the central government resolves the trade-off by appointing a political governor and an economic governor to co-rule a province. Case studies further show that the separation between economic and political powers is an important hallmark in many stable autocracies.

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(Chinese 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...

Er'gang Luo (1984). *A Record of Green Standard Army*

所謂大小相制，明白的説，就是用大的來監督小的，複用小的來監督大的；小的給大的監督著了，便無法擅動，而大的事權確給小的分了，也有所牽掣而不得妄為，於是中央政府始得收通馭之功。

原來這個大小相制的原則，是清代國家機器中央集權的一個主要的原則。

–羅爾綱《綠營兵志》

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 are still questionable. The loyalty-competence trade-off has been diagnosed as a major mechanism behind the economic stagnation and political instability in many autocracies (Glazer, 2002; Egorov and Sonin, 2011; Svolik, 2012; Bai, Zhou, 2014).

However, there are many stable autocracies that operate a competent bureaucracy. Indeed, Samuel Finer's *History of Government* shows that Ancient Egypt and Imperial China are the two regimes with the longest longevity in world history. By historical standards, their central governments command strong control over provinces and their bureaucracies are also meritocratic (Finer, 1997a and 1997c, also Roland, 2018). Political meritocracy is also a cornerstone of modern Chinese polity. Local officials are promoted based on competence and performance[1], a practice that solves many incentive

[1]Political connections also play an indispensable role in promotion, but competence is equally important (Jia et al. 2016).

problems and fosters China's reform and growth (Roland and Qian 1998; Maskin et al 2000; Li and Zhou, 2005; Xu, 2011; Bai et al 2019).

An important feature of these stable autocracies is that their province is co-ruled by two governors. There is the main executive, and there is a second-ranked official monitoring the main executive and managing the economy. There are many examples of this second-ranked economic official, including governors in modern China, "mayors" in the New Kingdom Egypt, deputy governors in Russian Empire, and *defterdars* in Ottoman Empire (Finer, 1997a and Finer, 1997c). To streamline my terminology, I call such arrangement "power duality".

I hypothesize that power duality resolves the trade-off between loyalty and competence, allowing the autocrat to appoint competent officials. The hypothesis is investigated in detail for the rest of the paper, both empirically and theoretically. On the empirical side, I construct an original time-series dataset of rebellions, power duality, and political meritocracy in Imperial China for 1,300 years. I develop a novel methodology to construct time series data from Chinese historical records, which are mainly biographical texts. Then I apply a dictionary-based method popular in textual analysis. For each decade, I look at bureaucratic positions designed to check the main executive and count their frequency in those historical records. A similar methodology is applied to measure rebellions, while political meritocracy is proxied by the fraction of historical figures with degrees from the civil service exam. I find 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, so emperors only promote competent bureaucrats after they institutionalize strong checks against those bureaucrats. Such a lead-lag pattern is further confirmed by fitting the data into a simple Vector Error Correction Model, suggesting strong Granger causality between power duality and political meritocracy.

The long tradition of power duality in Imperial China wields enormous influence on modern China, manifested as the joint appointment of a party secretary and a governor to co-rule every province. So an in-depth analysis of power duality is also central to understanding one-party regimes. To do so, I formalize power duality to clarify its role in supporting meritocracy. In the benchmark model, the central government appoints only a secretary to govern a province. The secretary controls both economic power and political power, so he can provide generous public goods to gather support from the local population and mobilize the population to revolt against the central government. The process is micro-founded by a signaling mechanism, where only a "benevolent"

secretary provides lavish public goods. The province is more likely to revolt when the revolutionary stake is high, which is the case with a team of competent officials who produce a large surplus. Consequently, the central government staffs the provincial government with mediocre officials.

In the main model, the central government appoints both a secretary and a governor. The secretary still controls political power, while the governor controls the provision of public goods. It may look obvious that the secretary cannot access the signaling device, so revolts never happen. But the model actually allows substantial collusion opportunities between the secretary and the governor. The secretary can write credible side contracts, promising to share revolutionary benefits with the governor in exchange for public goods. There is also full commitment power in the sharing of revolutionary benefits, so the secretary and the governor fully trust each other. Still, any attempt to signal the secretary's "benevolence" 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 secretary offers a profitable side contract, it is always imitated by a "normal" secretary that does not care about the population. Thus, side contracts (and the related public goods) cannot help the population to meaningfully recognize a "benevolent" secretary. As I assume full *ex post* commitment power, the model identifies a new mechanism behind the enormous difficulty to organize collective action. When the signaling device is controlled by one official, to collude with him is inherently difficult for another official who needs to send signals to a third party.

Another version of the model features extremely weak power duality. The secretary completely dominates the governor and can command the action of the governor without any compensation[2]. Yet the governor still bears the bulk of the cost in public good provision[3]. Consequently, the secretary still cannot signal his benevolence because the signal is too cheap to be informative. Moreover, as the governor has no autonomy over public goods, weak power duality also hides the types of the governor. This is a distinct advantage because the governor is usually the best candidate to be the future secretary due to the governor's expertise and rich local knowledge. Thus, weak power duality also forestalls the governor's attempt to build a good reputation today and weaponize

[2]Thus, I don't even need to consider collusion problems.

[3]This is realistic as the governor always manages the everyday operation of the provincial government. Thus, the governor has to work on all the details for any public good provision.

it tomorrow as the future secretary. The analysis explains why the official controlling public goods is usually the second-ranked official in a province. It also rationalizes the "checks between the higher-ranked and the lower-ranked" by showing the many desirable properties of the arrangement.

The paper is related to many strands of literature. The paper contributes to the literature that constructs long-run time-series measurement for social phenomena, such as the historical evolution of regime types (the Polity IV Project), top income distribution (Piketty and Saez, 2003), and capital (Piketty and Zucman, 2013). 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 underexplored in quantitative works.

An influential literature investigates the separation of powers in democracies (e.g., Persson *et al.* 1997 and 2000; Laffont, 2000; Acemoglu *et al.* 2013; Dragu *et al.* 2014). Many papers show that a conflict of interest between politicians strengthens electoral accountability; the reliance on conflict of interests highlights the urgency to forestall any collusion among politicians in democracies. By detailed investigation of similar arrangements in autocracies, this paper shows that those arrangements operate in a manner drastically different from democracies[4]. As autocracies are usually permeated by informal arrangements, potential collusion can threat any schemes to divide and rule. I show that this overarching concern over collusion drives autocracies to design power duality with its unique features. The reasoning explains why there is a functional division of power into the political and the economic domains, and the dominance of the political governor over the economic governor.

Loyalty-competence trade-off is recognized as a key dilemma in autocracies (Glazer, 2002; Egorov and Sonin, 2011; Svolik, 2012; Bardhan, 2016). The trade-off should force autocracies to appoint many incompetent officials, contradicting the many cases where autocracies do build strong and competent bureaucracies. My paper contributes

[4]In a typical presidential democracy, the presidency and the legislature both wield substantial political and economic power, and they are not subordinate to one another. The American president appoints cabinet members and justices in the supreme court, but the appointment needs confirmation from the congress. The president enjoys executive power over a wide range of economic issues, but the congress decides bills of taxation and public spending. By contrast, an autocracy carefully calibrates a separation of political and economic powers, and the autocracy tolerates and even encourages the dominance of the political governor over the economic governor.

to the literature by proposing one institution that plays an especially prominent role in resolving the trade-off. To understand its prominent role, the theoretical section demonstrates the appealing features of power duality. The empirical section further confirms that competent officials are recruited only after Chinese emperors establish the power duality, highlighting the cornerstone status of the power duality in defending the central government.

A large literature debates over political meritocracy in China (e.g., Maskin *et al.* 2000; Li and Zhou, 2005; Shi *et al.* 2012; Jia, 2014; Persson and Zhuravskaya, 2014; Jia *et al.* 2015; Bai *et al.* 2019). The majority of those papers recognize that competence and performance play a significant role in the promotion of Chinese officials, while political connections are at least equally important. Promotion on competence poses an immediate puzzle to students of autocratic regimes, as autocratic regimes are severely threatened by conflicts within elites (Svolik, 2012). I explore the political foundations of political meritocracy and establish a causal link between party-state duality and political meritocracy, the two major political institutions in modern China.

The party-government relationship is at the heart of Chinese polity (Shirk, 1992 and 1993; Shambaugh, 2008; Guo, 2009). Shirk (1993) is the most important contribution to the topic, presenting an analytic narrative which my model is quite consistent with. While the literature emphasizes the delegation mechanism, my paper offers a novel interpretation of the party-state duality as an institution to solve the loyalty-competence trade-off, highlighting its crucial role in supporting political meritocracy. My paper is also the first to systematically investigate the historical origins of the party-state duality.

Political scientists always have a keen interest in one-party states. However, most of the important contributions focus on electoral authoritarian regimes (e.g., Magaloni, 2006), where elections are far more substantive than Chinese ones. The literature finds that one-party states are far more stable than other forms of autocracies (Magaloni and Kricheli, 2010), and sophisticated models have tried to establish the mechanisms (Svolik, 2012). I propose a new interpretation of party-state duality in one-party states, highlighting its role in not only regime stabilization but also state-building.

The rest of the paper is organized as follows. Section 2 provides more details on the textual sources and the statistical methodology. Section 3 presents the dataset and analyze it with some preliminary statistical exercises. In Section 4, I propose a model to explain and interpret the empirical patterns in Section 3. More case studies are provided in Section 5, and Section 6 concludes.

2 Data Sources and Methodology

I empirically document the evolution of power duality, rebellions, and political meritocracy in Imperial China over 1,300 years. 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. This is of intrinsic interests because Imperial China is one of the most durable historical regimes (Finer, 1997a). The political system of Imperial China also constitutes the foundation of modern Chinese polity (Lieberthal, 2005). Moreover, we show that these empirical patterns are highly informative to general theories of autocracies.

2.1 Data Sources

The primary textual source is the *Twenty-Five Histories* (*Ershiwu Shi* 二十五史). 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 probably 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* 史記). Regarding the content, the vast majority of the *Twenty-Five Histories* are biographies on imperial families, aristocrats, and politicians[5]. 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. For our purpose, I construct time series proxies for power duality and rebellions from the

[5]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.

Twenty-Five Histories [6].

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 [7]. As we will see, CBDB provides an accurate and direct measure of political meritocracy. The database's coverage starts with Tang Dynasty (618CE - 907CE), which is the reason I also focus our attention from 610 CE to 1910 CE for the *Twenty-Five Histories*.

2.2 The Methodology

Motivated by the account of Luo (1984), I aim to construct a consistent time-series measuring the "checks between the higher-ranked and the lower-ranked", or what I call power duality. I employ a dictionary-based method, the simplest and most intuitive approach in textual analysis (Grimmer and Stewart, 2013). The dictionary-based method requires us 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 *A Concise Dictionary of Historical Bureaucratic Positions in China* (沈起煒，徐光烈：簡明中國歷代官職辭典). I then identify bureaucratic positions that are established to check the main executive in a local jurisdiction. I construct two sets of bureaucratic positions. The first set consists of only three positions. All three positions satisfy the following criteria:

- The position should be a non-military politician with a strong check against the main executive.
- The position should be ranked lower than the main executive.
- The position should have permanent staffs and offices in its jurisdiction.

The criteria correspond to the definition of "the checks between the higher-ranked and the lower-ranked" in Luo (1984), cited at the beginning of this paper. The three keywords are:

[6] I focus on the history after 618 CE in this paper. So essentially, 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 Chinese titles are: 舊唐書, 舊五代史, 新唐書, 新五代史, 宋史, 元史, 明史, 清史稿). 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.)

[7] See detailed description here: https://projects.iq.harvard.edu/cbdb/home.

- *Tongpan* (通判), the surveillant against the prefecture mayor[8].
- *Buzheng*(布政), the (lieutenant) governor in charge of the fiscal revenue and local economy. It may also signify his office [9].
- *Ancha*(按察), the official in charge of monitoring and judicial affairs in a province. It may also signify his office [10].

As a robustness check, I construct a second set of bureaucratic positions. It includes other positions that have some elements of power checks and separations. Apart from the above three positions, I also include *Tidian-xingyu* (提點刑獄), *Tiju-changping* (提舉常平),*Xunfu* (巡撫)[11] and *Anfu* (安撫)[12]. 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 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. Another complication is that the *Twenty-Five Histories* use 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:

$$\text{Duality}_t = \frac{\text{number of keywords in decade t mentioned in } \textit{Twenty-Five Histories}}{\text{number of years in decade t mentioned in } \textit{Twenty-Five Histories}}. \tag{1}$$

[8] *Tongpan* was ranked lower than the mayor; yet all official documents required the joint signature of the mayor and the *tongpan* to be effective. *Tongpan* also directly wrote reports about the mayor to the emperor. The position's importance declined over time and gradually became a subordinate of the prefecture mayor.

[9] At the start of 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* 巡撫).

[10] At the start of 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.

[11] *Xunfu* is the governor of a province. I also include the governor because the governor ranks lower than the governor-general (*Zongdu* 總督). The governor-general usually administers more than one province and is the highest-ranked local official in the whole empire.

[12] *Tidian-xingyu* , *Tiju-changping*, and *Anfu* are province-level (路*Lu*) officials in Song Dynasty (960 CE to 1279 CE), constituting checks against *Zhuanyun-Shi* (轉運使) who was the main executive of a province.

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 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), 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 to 1645. If I just compare the raw numbers, I would conclude that checks and balances are much stronger in the decade 1636 to 1645 than the decade 1613 to 1622. This is highly misleading as the second decade features pivotal events in Chinese history: the fall of Ming Dynasty （1638 CE to 1644 CE) and the rise of 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 (1).

Next, I briefly discuss how I proxy rebellion and political meritocracy. For rebellions, I search the keywords rebellions (*pan* 叛)and chaos (*luan* 亂) and construct the variable in the same way as equation (1).

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 us the one year when the individual is most active. This second variable turns out to be very useful. I proxy political

meritocracy by the fraction of individuals with exam degrees in decade t. Specifically, I define:

$$\text{Meritocracy}_t = \frac{\text{the number of persons with degrees from civil exams in decade t}}{\text{the number of persons in CBDB most active in decade t}}. \tag{2}$$

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. This is because I want to measure the importance of degree holders relative to the whole political system, not only relative to their colleagues in the bureaucracy. Since aristocrats, consort families, and eunuchs can be immensely influential in ancient politics, I include all of them in the denominator.

The exercise is thoroughly descriptive. Yet in a few specifications, I do include some control variables. First, I construct proxies for the influence of aristocracy from the *Twenty-Five Histories*. I do so because a major explanation for the rise of Chinese meritocracy is the drastic decline of a powerful aristocratic network around 900 CE (Tackett, 2014). So I include a proxy for the importance of the aristocracy to deal with this competing explanation. Specifically, I count the frequency of prominent aristocratic names in the text and normalize it following equation (1). Second, I also count the frequency of *Yushi*, monitoring officials without an office in the locality. I then construct its proxy with equation (1). Controlling *Yushi* shows the importance of permanent office and staffs to consolidate the power of any surveillant against the main executive. Third, I also include data of climate and Sino-nomadic conflicts from Bai and Kung (2011).

3 The Evolution of Meritocracy and Power Duality

3.1 The Long-run Evolution, 610CE-1910CE

I present the data in the two figures. Figure 1 shows the time series of power duality and political meritocracy. Two key features are apparent: there is a strong correlation between power duality and political meritocracy; also, power duality rises and falls before political meritocracy. In the next section, I show that power duality does lead the evolution of political meritocracy, which should not be confused with causality.

The time series are also consistent with qualitative studies of politics in Imperial

China (e.g., the *Cambridge History of China*, and Samuel Finer's *A History of Government*). For the rest of the section, I synthesize historical narratives and discuss how different segments of the time series reflects those narratives.

Figure 1 shows that power duality was extremely weak until around 930 CE. 610 CE to 930 CE corresponds to Tang Dynasty (618 CE to 907 CE) and Five Dynasties (907 CE to 960 CE). Tang government appointed powerful officials to govern local units with almost no checks[13]. 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* 安史之亂). Those rebellions further crushed the central government's control of provinces, leading to two centuries without any checks and balances on local officials. The chaos and fragmentation culminated in the violent Five Dynasties, when frequent rebellions lead to an extremely high turnover of dynasties. Indeed, Figure 2 shows that rebellions were pervasive during the late Tang Dynasty and Five Dynasties.

Figure 1 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, 2014) that describe Tang Dynasty as dominated by the aristocracy. Although the civil service exam was introduced in 587 CE, each exam only awarded a few dozens of degrees in *Jinshi* (進士). Thus, degree holders staffed a tiny fraction of the bureaucracy. More problematically, 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, 2014). Tang bureaucracy was highly patrimonial and far from being meritocratic.

From Figure 1, one can identify a pivotal moment in Chinese history around 960 CE. Known as the "Tang-Song Transition", the few decades around 960 CE features the consolidation of political meritocracy and the emperor's successful attempt to reclaim political control.[14]. As China was thoroughly fragmented during the *Five Dynasties*, emperors of *Song* Dynasty launched decade-long campaigns to reunite China. In the process, Song emperors re-organized local provinces and put them under the firm control of the central government. Specifically, Song emperors weaved an elaborated web of

[13]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, neutralizing its original purpose.

[14]There is an equally important transition in the economic sphere around the same time. After the transition, agricultural outputs surged, commerce flourished throughout the empire, and manufacturing almost experienced a primitive industrial revolution (Von Glahn, 2016).

Figure 1: Meritocracy and Dual Local Leadership

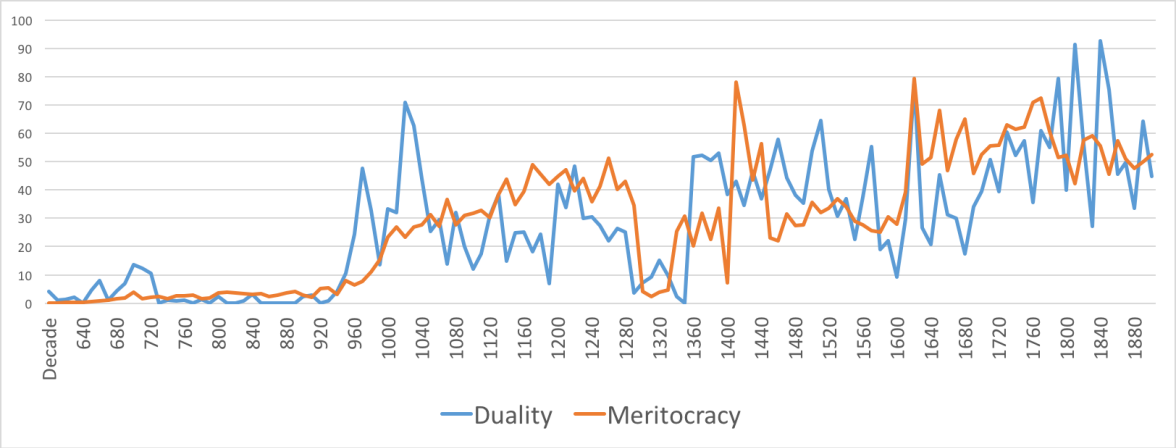
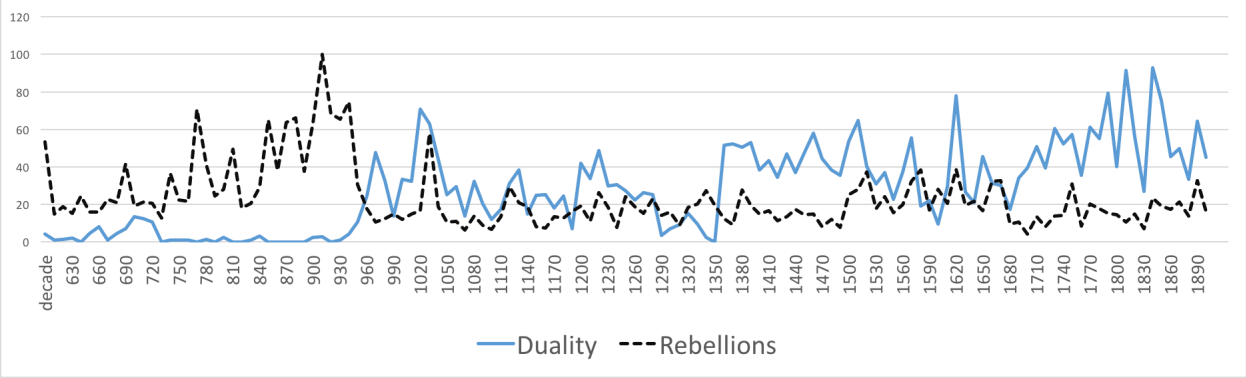


Figure 2: Rebellion and Dual Leadership



checks and balances to ensure the loyalty of local bureaucrats. Among them, the creation of the position of *Tongpan* was a signature move. As briefly discussed before, *Tongpan*'s approval was necessary for any decisions of the prefecture mayor. *Tongpan* also wrote reports about the mayor and sent them directly to the emperor. At the provincial level (*Lu* 路), emperors also appointed several officials to divide the power of the main executive. Besides, emperors institutionalized mandatory rotation and a term limit of three years on local bureaucrats. Other institutions to ensure absolute loyalty includes the empowerment of troops in the capital relative to troops stationed in local provinces, as well as the appointment of powerful deputy prime minsters to weaken the prime minister. Such a complicated network of checks and balances did the trick. Figure 2 shows a secular decline of rebellions after 1,000 CE. After the Tang-Song Transition, dynasties were never overthrown again by officials until the very end of Imperial China.

Figure 1 also clearly documents the rise of political meritocracy. The aristocracy class that used to dominate the bureaucracy was wholly destructed by peasant revolts in the late Tang Dynasty (Tackett, 2014). Instead of re-establishing the aristocracy to staff the government, Song emperors reformed the civil service exam to be the main vehicle of political selection. The reformed exam awarded hundreds of candidates with *Jinshi* degree, in contrast to a few dozens in Tang Dynasty. To eliminate cronyism, any interactions between the examiners and examinees were forbidden and persecuted. The result was a highly meritocratic government: around 40% of the persons mentioned in CBDB had a degree from the exam and almost all prestigious scholars served in the bureaucracy. We can also eyeball a lead-lag pattern in Figure 1: Song emperors only staffed the government with degree holder after a quick introduction of power duality.

In Figure 1, a clear interruption lasts from 1280 CE to 1360 CE, roughly the reign of *Yuan* Dynasty (1271CE to 1368 CE). As the first dynasty established by an ethnic minority, Yuan oscillated between the two governance models, Mongol or *Han* Chinese. Despite repeated attempts, the dynasty never nearly 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.

Figure 1 shows a quick recovery of power duality institutions after 1360 CE. For *Ming* Dynasty (1368CE to 1644CE), the founding emperors immediately re-established strong checks and balances. All provincial governments were divided into three branches

Figure 3: Meritocracy and Dual Local Leadership, Alternative Measure

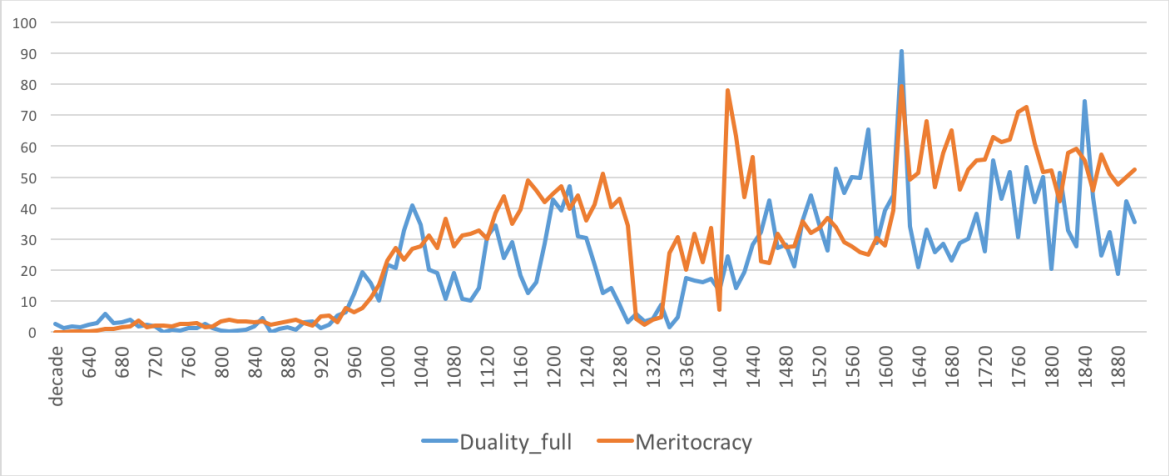
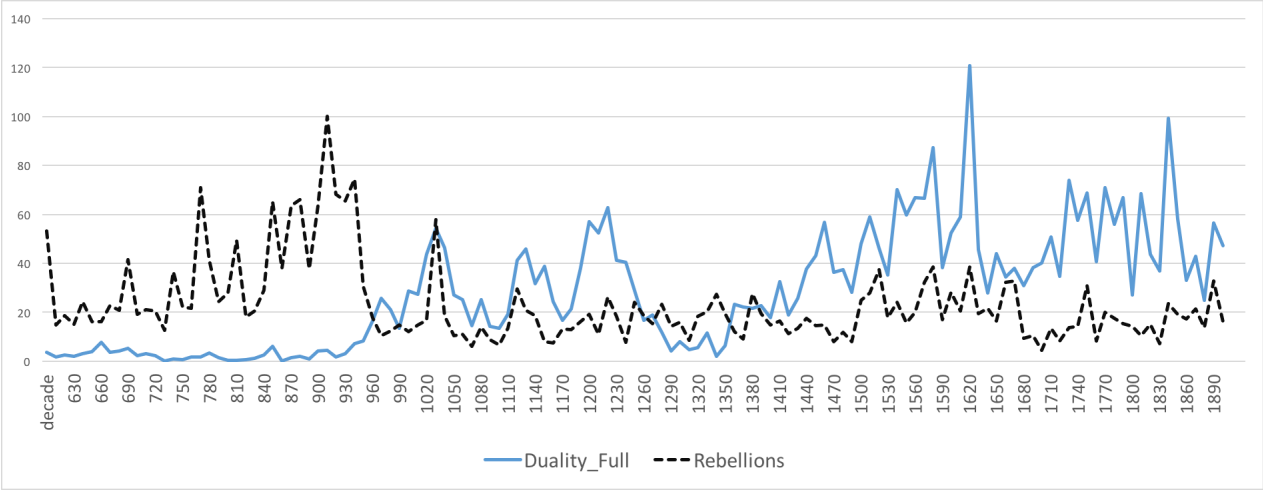


Figure 4: Rebellion and Dual Leadership, Alternative Measure



headed by different officials: the civilian branch (Chengxuan-Buzheng-Shi-Si 承宣佈政使司), the judicial branch (*Tixing-Ancha-Shi-Si* 提刑按察使司), and the military branch (Duzhiui-Shi-Si 都指揮使司). The emperor also appointed two chief executives to co-direct the civilian branch. The system was designed to explicitly constrain provincial governments. But such a fragmented system also lead to a coordination problem; so later on, Ming Dynasty appointed governors (*Xunfu* 巡撫) for coordination. Started as a temporary position, the governor gradually became the *de facto* head of the provincial government. *Qing* Dynasty (1636CE to 1912 CE) continued Ming institutions with some significant changes. Among others, the Qing government consolidated the positions of governors and governor-generals (*Zongdu* 總督). The governor and the governor-general were independent, so the two positions were strongly checking on each other. The consolidation of governors and governor-generals finalized the intricate network of checks and balances. Figure 1 also documents the re-emergence of the civil service exam after 1368 CE as the cornerstone of political selection. Starting from Ming Dynasty, the civil service exam continued its dominance until the end of Imperial China.

Figure 3 and Figure 4 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.

3.2 Preliminary Statistical Analysis

To summarize the data quantitatively, I present some statistical exercises. The statistical exercises aim at a succinct summary of the empirical patterns in the time-series data. There is no attempt to establish causality.

Specifically, I want to more precisely document the long-run correlation between time-series proxies for meritocracy and dual leadership. To document long-run correlations, I need to employ cointegration analysis (Engle, Granger, 1987). Cointegration analysis can discover a key empirical pattern between two or more time series: they "can move together so closely over the long run that they appear to have the same trend component; that is, they appear to have a common trend" (Stock and Watson, 2012).

Co-integration analysis proceeds in three steps. The first step tests whether time-series variables have unit roots through the Dickey-Fuller test. Intuitively, a time-series variable with a unit root is persistent. Only variables with a unit root can have a

Table 2: The Dickey-Fuller Test of Co-integration

Dickey-Fuller Statistic	lag 0	lag 1	lag 2	lag 3
first index of dual leadership	-7.583	-5.758	-4.639	-4.174
second index of dual leadership	-5.861	-4.196	-3.568	-3.567

Critical value of the adjusted Dickey-Fuller test 10%: -3.03, 5%: -3.37, 1%: -4.07.

long-run correlation with other variables.

I implement the Dickey-Fuller test and find that proxies for political meritocracy and dual leadership have a unit root, but not so for the rebellion proxy. This is consistent with the intuition that political institutions should be highly persistent. The frequency of rebellions, however, is not a "stock" variable and should not be persistent.

The second step is the Dickey-Fuller Test of Cointegration, which detects any long-run correlation between two time-series variables with unit-roots. Denote Y_t as a proxy for meritocracy and X_t as a proxy for dual leadership. First, I estimate

$$Y_t = \theta_0 + \theta_1 X_t + z_t. \tag{3}$$

Then I run an adjusted Dickey-Fuller test on $\hat{z}_t$, the residual from fitting $Y_t = \theta_0 + \theta_1 X_t + z_t$:

$$\hat{z}_t = \hat{\theta_0} + \hat{\theta_1} X_t - Y_t. \tag{4}$$

If $\hat{z}_t$ does not have a unit root, it implies a cointegration between Y_t and X_t.

Table 2 lists the Dickey-Fuller statistic with different lags for the two indices of dual leadership. The null hypothesis is that z_t is a random walk (a random walk time-series has a unit root). The critical value of the adjusted Dickey-Fuller test is also listed. The Dickey-Fuller test is one-sided, so if the statistic is smaller than the critical value, the null hypothesis is rejected. We can see that in most cases, the null hypothesis is rejected. This implies that z_t is stationary, so the correlation between political meritocracy Y_t and power duality X_t is not spurious. Statistical evidence supports the conjecture that meritocracy and dual leadership are correlated in the long run.

In the third and last step, I want to see whether there is a lead-lag relation between power duality and political meritocracy. Power duality X leads political meritocracy Y if a shock to X_t is followed by a change in Y_{t+1}, or stronger dual leadership means that political selection in the future becomes more meritocratic.

To document lead-lag relations for cointegrated variables, the statistical tool is the Vector Error Correction Model (VECM). It applies to time-series variables with unit roots and is an extension of the Vector Autoregression Model (VAR). I run the following specification:

$$\begin{cases} \Delta Y_t = \beta_{10} + \beta_{11}\Delta Y_{t-1} + ... + \beta_{1p}\Delta Y_{t-p} + \gamma_{11}\Delta X_{t-1} + ... + \gamma_{1p}\Delta X_{t-p} + \alpha_1 \hat{z_{t-1}} + u_{1t}, \\ \Delta X_t = \beta_{20} + \beta_{21}\Delta Y_{t-1} + ... + \beta_{2p}\Delta Y_{t-p} + \gamma_{21}\Delta X_{t-1} + ... + \gamma_{2p}\Delta X_{t-p} + \alpha_2 \hat{z_{t-1}} + u_{1t}. \end{cases} \tag{5}$$

For both political meritocracy Y_t and power duality X_t, I take the first difference and include up to p lags of both variables in the specification. Moreover, the lagged residual from the last period $\hat{z_{t-1}}$ also appears on the right-hand side of the specification.

α_1 and α_2 are the key coefficients in the VECM model. They quantify the direction of lead-lag adjustment when the system is taken out of equilibrium relationship. Assume that in the data-generating process, $\alpha_1 < 0$ and $\alpha_2 = 0$. This implies that X leads Y. To see it, suppose we start from an equilibrium relationship in the last period so that $z_{t-1} = 0$. Now a shock hits the system so that X_t increases. As $z_t = Y_t - \theta_0 - \theta_1 X_t < 0$, the system deviates from equilibrium. As $\alpha_1 < 0$, $\Delta Y_{t+1} \approx \alpha_1 z_t > 0$. Thus, Y_{t+1} increases, but because $\alpha_2 = 0$, $\Delta X_{t+1} \approx \alpha_2 z_t = 0$. In a word, an increase in X_t is accompanied by an increase in Y_{t+1} but no change in X_{t+1}.

The same argument goes if Y_t decreases. In this case, $z_t = Y_t - \theta_0 - \theta X_t < 0$ so that Y_t increases but there is no change in X_{t+1}. Intuitively, Y moves to restore the equilibrium relationship when there is a shock to the system, suggesting (but far from proving) a causal chain from X to Y.

If $\alpha_1 = 0$ and $\alpha_2 < 0$, similar argument concludes that Y_t leads X_t.

The regression results are listed in Tables 3 and 4 for the two indices of dual leadership. The coefficients listed are α. α_1 is the coefficient on z_{t-1} for the equation where the first difference in meritocracy (D.meritocracy in the tables) is the dependent variable. α_2 is the coefficient on z_{t-1} for the equation where the first difference in dual leadership (D.duality in the tables) is the dependent variable. Stability denotes whether the system converges to an exogenous shock, given the estimated coefficients. Column (1) applies Johansen's VECM procedure (Johansen, 1991), a standard package in VECM analysis. A drawback is that Johansen's procedure does not allow for the inclusion of control variables, so I run VECM in Column (2) and in Column (3), adding control variables such as climate, Sino-nomadic conflicts, and monitoring officials without res-

Table 3: Meritocracy and the First Measure of Dual Leadership

	(1) Johansen's VECM	(2) VECM	(3) VECM
D. meritocracy			
Lag z	-0.0962	-0.256**	-0.287**
	(0.04677)	(0.0719)	(0.0810)
D. duality			
Lag z	0.283***	0.216	0.164
	(0.06787)	(0.114)	(0.111)
Controls	No	No	Yes
AIC	2021.9	1989.0	1866.3
Lags	3	4	4
stability	stable	stable	stable
N	128	128	118

Table 4: Meritocracy and the Second Measure of Dual Leadership

	(1) Johansen's VECM	(2) VECM	(3) VECM
D. meritocracy			
Lag z	-0.350***	-0.329***	-0.348***
	(0.0846)	(0.0792)	(0.0810)
D. duality			
Lag z	0.0323	0.0395	0.0135
	(0.0338)	(0.0314)	(0.0269)
Controls	No	No	Yes
AIC	1653.8	1653.8	1535.8
Lags	3	4	4
stability	stable	stable	stable
N	128	128	118

In both Tables 2.3 and 2.4, standard errors are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ (compared to the adjusted Dickey-Fuller critical values). Lags are selected based on AIC. All specifications include time trends.

idence in the local jurisdiction. The lags are chosen by Akaike's Information Criterion (AIC). All columns actually have the same number of lags because Column (1) lists the number of lags at level, while Columns (2) and (3) list the number of lags in first difference.

We can see that the regression results strongly favor that power duality leads the evolution of meritocracy while meritocracy does not lead power duality. This is a statistical summary of what we can intuitively detect from Figure 1 and Figure 3 that dual leadership leads the movement of meritocracy. For many centuries, the Chinese polity established strong meritocracy only after the consolidation of power duality.

3.3 Party-government duality in Modern China

The historical practice of power duality and political meritocracy profoundly influences political institutions in modern China. The influence is especially apparent in the dual appointment of a party secretary and a governor to co-rule a province. The provincial secretary is the first-ranked official in the province. He is the head of the provincial party committee, which includes departments of organization, propaganda, united front, and the committee of law and politics. The party also directly controls mass organizations[15]. Among the party departments, the organization department is in charge of all major personnel decisions at the prefecture level. It also controls the huge network of party branches that permeate every social organization. The propaganda department controls media and conducts extensive censorship. Thus, the provincial secretary wields huge political power and a formidable capacity of mobilization.

The governor is the second-ranked provincial official and is subordinate to the secretary. Formally, the governor serves as the head of the provincial government *and* the first-ranked deputy secretary of the provincial party committee. The most important feature of the governor is that all major economic departments are under his leadership[16]; so the secretary does not directly manage the economy. There is indeed no economic department within the party committee's jurisdiction at all[17]. Following the

[15]These include the Labor Union, the Women's Union, and the Communist Youth League, etc.

[16]For example, the governor controls the departments of education, industry, agriculture, business, construction, communication, public finance, science and technology, reform and development, and human resource and social welfare.

[17]This feature is particularly striking when we compare the party-state structure in China with its counterpart in the Soviet Union. The Soviet secretary directly controlled many economic departments within the party committee, which significantly undermined the governor's role in economic management (Hough, 1969).

party-government duality in modern China, the following models label the main executive as "the secretary", and the official in charge of the economy as "the governor". The label applies to any pair of officials where the main executive manages political affairs, with a second-ranked official managing the economy. Thus, the model also encompasses the aforementioned historical cases.

4 A Model of Power Duality and Meritocracy

I present a stylized model to clarify the causal mechanism between power duality and political meritocracy. I address two puzzles. First, Why does the regime specifically separate economic power and political power? I demonstrate that the specific separation of powers works well even with abundant opportunities for collusion. Second, how can the "lower-ranked" be an effective check against the "higher-ranked"? I then argue that it is indeed optimal to implement a "check between the higher-ranked and the lower-ranked".

4.1 The Benchmark Model

In the benchmark case, I adopt a signaling/reputation model. A central government staffs a provincial bureaucracy. A more capable bureaucracy produces higher economic output, which is taxed by the central government. Then the provincial secretary may provide public goods to build up a good reputation; the population, observing public goods, decide whether to revolt under the leadership of the secretary. A successful revolt forces the central government to return tax revenues to the province, and the secretary distributes the returned revenue. If the secretary builds up a good reputation, the central government faces a severe trade-off between loyalty and competence: a more competent bureaucracy produces more output and tax revenue, which also tempts the population to revolt if the population receive public goods. Generous public goods convince the population the secretary will distribute the returned revenue to the population.

Essentially, the secretary signals his "benevolence" through public goods. Signaling underpins important works in political economy, such as models of populism and electoral accountability (Besley, 2006; Acemoglu et al. 2013). Prior research has pointed out that signaling can lead to pandering or populist leaders in democracy. I uncover another serious problem with signaling: it facilities communications between local offi-

cials and the population and solves their collective action problem, constituting a huge threat to the central government. The threatened government chooses incompetent officials, which reduces economic outputs.

4.1.1 Setup

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

1. Appointment stage: In the appointment stage, the Center chooses $W \in [0, \bar{W}]$, the competence of the provincial authority. Specifically, W is the amount of economic surplus the provincial authority can produce. The competence W is affected by the competence of all its members, including the provincial secretary and other lower-ranked bureaucrats. The Center can choose the competence of the whole bureaucracy because the Center can adjust the way to recruit bureaucrats. As discussed before, Imperial China consolidated civil service exam approximately one thousand years ago, thus improving the competence of the entire bureaucracy. Recently in the 1990s, China also re-introduced the civil service exam to improve bureaucratic quality [18].

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

The status-quo payoff of the secretary is Q. Payoff to the Center is

$$R \equiv \lambda W, \tag{6}$$

Payoff to the population is $(1 - \lambda)W$. As the population never loses $(1 - \lambda)W$ in any outcome, it is without loss of generality to assume that $\lambda = 1$.

[18] Moreover, among all bureaucrats, the Center can choose the competence of the secretary with even higher precision. Thi is because the Center is well informed about the competence of top officials. For example, the Central Organizational Department of the Chinese Communist Party keeps detailed records of backgrounds and achievements for top officials; the Center also conducts many interviews with their colleagues and subordinates. With such detailed information and a large pool of candidates, the Center enjoys high flexibility in choosing the secretary's competence.

2. Signaling stage: The secretary choose to provide $e(k)$ amount of public goods, which cost the secretary k. The cost k can be interpreted as efforts from secretary. The amount of public goods $e(k)$ increases with efforts k. Also, the secretary is free to choose any amount of public goods $e(k) \in [0, e(\bar{k})]$. In other words, the secretary can choose any "effort" level $k \in [0, \bar{k}]$. We will see that $\bar{k}$, the maximum amount of public goods, is a key parameter.

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

3. Mobilization stage: An opportunity of revolts arises with probability $\pi \in (0, 1]$. If there is no opportunity, a normal secretary's payoff is

$$Q - k, \tag{7}$$

and the population obtains $e(k)$. For a benevolent secretary, the payoff is

$$Q + \gamma e(k) - k. \tag{8}$$

The population may launch a revolt with cost c. Th cost c follows the distribution $F(\cdot)$:

$$c \sim F(\cdot),\ c \in [\underline{c}, \bar{c}]. \tag{9}$$

The secretary decides whether to sponsor and lead the revolt.

If the population launches a revolt and the secretary does not lead, the revolt fails. The secretary's payoff is equation (7) and (8) the population gets $e-c$. If the population did not launch a revolt and the secretary revolts by himself, it also fails. The Center sacks the secretary, so a normal one gets $-k$ and a benevolent one gets $\gamma e(k) - k$.

4. Divide the pie: If the secretary leads the population, the revolt succeeds. Consequently, the Center loses its surplus R and has to return it to the province. The secretary decides whether to award R to the population or keep it to himself. If a normal secretary keeps the surplus, he obtains

$$R + Q - k. \tag{10}$$

If he awards R to the population, he obtains

$$Q - k. \tag{11}$$

Apparently a normal secretary keeps all the surplus to himself. By contrast, if a benevolent keeps R, he obtains

$$R + Q + \gamma e(k) - k,\ \gamma > 1. \tag{12}$$

If a benevolent secretary rewards R to the population, he obtains

$$\gamma R + Q + \gamma e(k) - k,\ \gamma > 1. \tag{13}$$

Apparently a benevolent secretary wants to award R to the population.

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

Assumption 1.

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

Assumption 1 is standard. Intuitively, it guarantees that the population will not launch a revolt unless they update their belief on the secretary's benevolence[19]. So the secretary has to send some costly signal.

Assumption 2.

$$\forall k,\ \gamma e(k) - k > 0\ \textit{and}\ \gamma e'(k) - 1 > 0.$$

Assumption 2 is also standard. It says that more public goods are always desirable for the benevolent secretary. Thus, Assumption 2 is similar to the "commitment type" assumption in the reputation literature. It is also empirically plausible, as public goods are usually under provided in developing countries.

Assumption 3.

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

Assumption 3 says that the Center authorizes the secretary some discretion over public good provision. The assumption is realistic in autocracies with large territories; because of information asymmetry and limited capacity, it is impractical for the Center to make every decision.

[19]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.

The solution concept is pure-strategy Perfect Bayesian Equilibrium (PBE). By solving the game, I formalize the loyalty-competence trade-off.

4.1.2 The Loyalty-Competence Trade-off

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

$$W^* = \arg\max_W [1 - \mu\pi F(W)]W. \tag{14}$$

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, recognizing that a benevolent secretary always provides public good at the maximum level $\bar{k}$. This is because of Assumption 2 ($\gamma e'(k) - 1 > 0$). Thus, for a normal secretary, the decision over public good provisions is reduced to a binary choice: either the normal secretary also provides $\bar{k}$, or the normal secretary provides no public goods. If the normal secretary provides any $k \in (0, \bar{k})$, the secretary bears some cost of public goods; yet the population infer that the secretary is not benevolent and will not launch any revolts, so the normal secretary gets the revolutionary benefit R with zero probability. Thus, he is strictly better off by providing no public goods. Alternatively, the secretary can provide public goods at $\bar{k}$ to imitate the benevolent secretary. Denote the secretary's decision to provide public good as σ, $\sigma \in \{0, 1\}$. If the secretary provides public goods at $\bar{k}$, $\sigma = 1$.

At the pie-division stage, the normal secretary keeps R, the benefit from revolts, all to himself:

$$R + Q - \bar{k}\mathbb{1}\{\sigma = 1\} > Q - \bar{k}\mathbb{1}\{\sigma = 1\}. \tag{15}$$

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

For a benevolent secretary, he awards R to the population:

$$R + Q + [\gamma e(\bar{k}) - \bar{k}] < \gamma R + Q + [\gamma e(\bar{k}) - \bar{k}]. \tag{16}$$

Back to the mobilization stage, it is obvious that both types of secretary do not revolt if the population did not launch one. Also, both types lead any revolt launched by population. For a normal secretary, he does so because:

$$R + Q - \bar{k}\mathbb{1}\{\sigma = 1\} > Q - \bar{k}\mathbb{1}\{\sigma = 1\}. \tag{17}$$

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 benevolent secretary,

$$\gamma R + Q + [e(\bar{k}) - \bar{k}]\mathbb{1}\{\sigma = 1\} > Q + [e(\bar{k}) - \bar{k}]\mathbb{1}\{\sigma = 1\}. \tag{18}$$

Denote $\hat{\mu}$ as the population's belief that the secretary is benevolent after the opportunity of revolt arises. The population launches a revolt if:

$$\hat{\mu}\Big\{R - c + e(\bar{k})\mathbb{1}\{\sigma = 1\}\Big\} + (1 - \hat{\mu})\Big\{ - c + e(\bar{k})\mathbb{1}\{\sigma = 1\}\Big\} \geq e(\bar{k})\mathbb{1}\{\sigma = 1\}, \text{ or}$$

$$\hat{\mu}R \geq c. \tag{19}$$

At the signaling stage, recall that the benevolent secretary always provides public good at $\bar{k}$ as

$$\gamma e(k) - k > 0 \text{ and } \gamma e'(k) - 1 > 0. \tag{20}$$

Suppose that the normal secretary also provides public good at $\bar{k}$, in that case:

$$\hat{\mu} = \frac{\mu\pi}{\mu\pi + (1 - \mu)\pi} = \mu. \tag{21}$$

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

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

But then the normal secretary finds it undesirable to launch a revolt:

$$Q - \bar{k} < Q. \tag{22}$$

So we obtain a contradiction, and it cannot be a PBE strategy for the normal secretary to provide public goods.

Suppose that the normal secretary does not provide any public goods. In this case:

$$\hat{\mu} = \frac{\mu\pi}{\mu\pi} = 1. \tag{23}$$

The population launches a revolt if:

$$R \geq c, \tag{24}$$

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

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

$$Q - \bar{k} + \pi F(R)R < Q, \text{ or } \bar{k} > \pi F(R)R, \tag{25}$$

which is guaranteed by Assumption 3.

Thus, in the unique PBE, the normal secretary does not provide public goods, the benevolent secretary provides public goods, and the probability of revolts is:

$$\mu\pi F(R). \tag{26}$$

So the Center's payoff is:

$$[1 - \mu\pi F(W)]W. \tag{27}$$

□

In the unique equilibrium, only benevolent secretary provides public goods at $\bar{k}$. Observing $e(\bar{k})$ amount of public goods, the population infer that the secretary is benevolent and revolt with probability $F(W)$. As the secretary is benevolent with probability μ and revolt opportunity arises with probability π, the probability of revolt at Stage 1 is $\mu\pi F(W)$. Thus, the benchmark model is a simple application of the signaling model. Public goods are an informative signal because they cost the normal secretary much more than the benevolent secretary.

The population is more likely to revolt if the provincial authority has a higher level of competence W. This is because the population expects a higher revolutionary return when the provincial authority produces more surplus. In the model, this is because the tax revenue returned by the Center to the province is higher with more competent bureaucracy. In an analogous setup, tax collection happens at the end of the game, and the Center cannot collect tax if the revolt is successful. Again, when the

provincial authority produces more economic outputs, the population are more likely to revolt since it becomes more valuable to prevent the tax collection. This constitutes a stark dilemma for the Center. The Center benefits from higher tax revenue when the Center staffs a competent provincial government; but with a more competent provincial government, the secretary finds it easier to organize revolts against the Center.

4.2 Strong Power Duality Supports Political Meritocracy

In this section, I extend the above model by adding the governor, who makes the decision on the public good provision. With the governor controlling the signaling device, it may look obvious that the secretary cannot signal his benevolence. But I actually allow strong collusion behaviors between the secretary and the governor. Specifically, the secretary can write a credible side contract: if a revolt is successful, the secretary can credibly transfer a fraction of tax revenue R to the governor in exchange for public goods $e(k)$. The secretary is free to choose the fraction to be transferred and the secretary has full *ex post* commitment power. Surprisingly, the secretary still cannot signal his benevolence at all. Even with strong collusion between the governor and the secretary, the Center avoids any revolts and pushes for political meritocracy.

4.3 Setup

The timing of the game is very similar. The key difference is that the governor decides whether to provide public goods. As said, I allow the secretary to credibly transfer benefits from successful revolts to the governor.

1. Appointment stage: This stage is the same as the appointment stage in the benchmark model, except that the governor also has two types.

Specifically, there are two types of the secretary and the governor, normal or benevolent. They are both benevolent with probability μ, and the two probabilities are independent. Only the officials themselves know their types, and this is the only source of asymmetric information.

The Center chooses W, the amount of economic surplus the provincial authority can produce. The secretary and the governor get a status-quo payoff of Q and the payoff to the Center is $R \equiv \lambda W$. The payoff to the population is normalized to $(1-\lambda)W$. Without loss of generality, set $\lambda = 1$.

2. Voluntary provision of public goods: The governor choose whether to provide public goods at cost $k \in [0, \bar{k}]$. The population values public goods as $e(k)$, and the provision of public goods cost the governor k. The normal secretary and governor do not value public goods, while the benevolent secretary and governor value it at $\gamma e(k)$, $\gamma > 1$.

3. Public good provision with compensation (collusion stage): The secretary can write a credible side contract. The secretary promises to transfer benefits from the revolt to the governor in exchange for a specific amount of public goods $e(k)$. Specifically, the secretary can choose to transfer any ηR to the governor, $\eta \in [0, 1]$.

4. Mobilization stage: An opportunity of revolts arises with probability π. If there is no opportunity, the payoff to a normal secretary or a normal governor is Q. The population obtains $e(k)$. For a benevolent secretary, the payoff is

$$Q + \gamma e(k). \tag{28}$$

Similarly, for a benevolent governor, the payoff is:

$$Q + \gamma e(k) - k. \tag{29}$$

The population may launch a revolt with cost c. The revolutionary cost c follows the distribution $F(\cdot)$. The secretary decides whether to lead the revolt. If the population launches a revolt and the secretary does not lead it, the revolt fails and the population gets $e - c$.

If the population did not launch a revolt and the secretary revolts by himself, it also fails. The Center sacks the secretary, so a normal secretary gets 0 and a benevolent secretary gets $e(k)$.

5. Divide the pie: If the secretary leads the revolt, it succeeds. Consequently, the Center loses R and has to return it to the province. After paying the governor, the secretary decides whether to award economic surplus $(1-\eta)R$ to the population or keep it to himself. If a normal secretary keeps the surplus, he obtains:

$$(1 - \eta)R + Q. \tag{30}$$

If he awards the surplus to the population, he obtains Q. By contrast, if a benevolent secretary keeps all benefits $(1-\eta)R$, he obtains

$$(1-\eta)R + Q + \gamma e(k),\ \gamma > 1. \tag{31}$$

If the benevolent secretary awards $(1-\eta)R$ to the population, he obtains

$$\gamma(1-\eta)R + Q + \gamma e(k),\ \gamma > 1. \tag{32}$$

To simplify the analysis, I introduce two additional assumptions. The first one is similar to Assumption 2:

Assumption 4. *The benevolent governor always provides public goods at $\bar{k}$.*

Thus, I restrict our attention to equilibria where the benevolent governor always provides public goods at $\bar{k}$. This is again in line with the reputation literature, where a "behavioral" type is committed to one action. I will verify that it is indeed optimal for the benevolent governor to provide public goods at $\bar{k}$ in those equilibria.

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

As with most models employing Perfect Bayesian Equilibrium, I need to restrict off-equilibrium beliefs. If η' is reached with probability zero, neither types of secretaries choose η'. With Assumption 5, the population believe that a secretary who offers such a contract η' cannot be benevolent.

We are ready to state the main proposition:

Proposition 2. *The normal governor never provides public goods, and the province never revolts. Consequently, the Center appoints a provincial authority with the highest competence $\bar{W}$.*

Proof. Suppose $\eta < 1$. Then in the pie-division stage, the secretary's best responses are the same as in the benchmark model. Specifically, the normal secretary keeps $(1-\eta)R$, the benefit from revolts, all to himself.

For a benevolent secretary, he awards $(1-\eta)R$ to the population:

$$(1-\eta)R+Q+\gamma e(k)<\gamma(1-\eta)R+Q+\gamma e(k). \tag{33}$$

Back to the mobilization stage, it is obvious that both types of secretary do not revolt by themselves if the population did not launch a revolt. Also, both types lead any revolt launched by population. Specifically, for a benevolent secretary,

$$\gamma(1-\eta)R+Q+e(k)>Q+e(k). \tag{34}$$

Similarly, for a normal secretary,

$$(1-\eta)R+Q+e(k)>Q+e(k). \tag{35}$$

If $\eta=1$, then both the normal and the benevolent secretary 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 secretary is benevolent. The population launches a collective action if:

$$\hat{\mu}\Big\{R-c+e(k)\Big\}+(1-\hat{\mu})\Big\{-c+e(k)\Big\}\geq e(k),\ \text{or}$$

$$\hat{\mu}R\geq c. \tag{36}$$

I have assumed that the signaling stage, the benevolent governor always provide public goods at $\bar{k}$.

The normal governor has no incentive to provide any public goods without compensation from the secretary. So if the governor did not provide public goods by himself, the secretary now comes in to offer a credible side contract. Suppose a PBE strategy profile is η_b, η_m: η_b is the promise from a benevolent secretary, and η_m is the promise from a normal secretary.

With a specific η, the maximum effort k that can be demanded from the normal governor is:

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

Let us analyze the equilibrium.

1. First, suppose that η_b and $\eta_m>0$, and $F[(1-\eta)R]>0$. So $\eta_b,\ \eta_m\in(0,1-\frac{c}{R})$.

In this case, $\hat{k}(\eta) > 0$.

1.1. Suppose that $\eta_b \neq \eta_m$. Then $\hat{\mu}(\eta_b) = 1$ and $\hat{\mu}(\eta_m) = 0$. The payoff to the normal secretary is:

$$U_m(\eta_m) = Q + \mu\pi F[\overbrace{\hat{\mu}(\eta_m)}^{=0}(1-\eta_m)R](1-\eta_m)R = Q.$$

If the normal secretary deviates to η_b, his payoff is:

$$U_m(\eta_b) = Q + \mu\pi F[\overbrace{\hat{\mu}(\eta_b)}^{=1}(1-\eta_b)R](1-\eta_b)R = Q + \mu\pi F[(1-\eta_b)R)](1-\eta_b 0R > Q.$$

So the normal secretary wants to deviate, this cannot be a PBE.

1.2 Suppose that $\eta_b = \eta_m \in (0, 1 - \frac{c}{R})$. Denote $\tilde{\eta} = \eta_b = \eta_m$. Then $\hat{\mu}(\tilde{\eta}) = \mu$. The probability of revolt is $\mu\pi F[\hat{\mu}(\tilde{\eta})(1-\tilde{\eta})R] = \mu\pi F[\mu(1-\tilde{\eta})R] < \mu\pi F(\mu R) = 0$. So $\hat{k}(\tilde{\eta}) = 0$. The payoff to the normal secretary is:

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

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

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

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

If he 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 secretary is also Q. The benevolent secretary has no incentive to deviate.

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

There are other cases to consider:

2.1 Suppose that $\eta_b,\ \eta_m \in [1-\frac{c}{R}, 1]$. Then the probability of revolt $\mu\pi F[\hat{\mu}(1-\eta)R] < \mu\pi F[(1-\eta)R] = \mu\pi F(\underline{c}) = 0$, so $k = 0$. The secretaries transfer too much surplus to the governor that the share received by the population is too small to justify revolts.

For a normal secretary, his payoff is:

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

If the normal secretary deviates to any $\eta' \neq \eta_m$, $\hat{\mu}(\eta') = 0$ and his payoff is again Q. If he deviates to η_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 secretary to deviate.

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

So any η_b, $\eta_m \in [1 - \frac{c}{R}, 1]$ is also a PBE. But notice again there is no revolt in equilibrium. Both secretaries credibly promise too much to the governor so that the population get too little to justify revolts.

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

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

Any other η' gives a payoff of Q. The normal secretary has no incentive to deviate.

The payoff to the benevolent secretary is:

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

Any other η' gives a payoff of Q. The benevolent secretary has no incentive to deviate.

So $\eta_b = \eta_m = 0$ is also a PBE strategy.

2.3 Suppose that $\eta_b = 0$, $\eta_m \in [1 - \frac{c}{R}, 1]$. Then $\hat{\mu}(\eta_b) = 1$, any other $\hat{\mu}(\eta') = 0$. The payoff the the normal secretary is:

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

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

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

So this is not a PBE strategy.

2.4 Suppose that $\eta_b \in [1-\frac{c}{R}, 1], \eta_m = 0$. Then $\hat{\mu}(\eta_b) = 1$, any other $\hat{\mu}(\eta') = 0$. The payoff to the normal secretary is:

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

If he deviates to η_b:

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

If the normal secretary deviates to any other η', the payoff is also Q. So the normal secretary has no incentive to deviate.

For the benevolent secretary, the probability of revolt at η_b is zero, as $F((1-\eta_b)R) < 0$. So $\hat{k}(\eta_b) = 0$. If he deviates to any other strategy η', $\hat{\mu}(\eta') = 0$, so the probability of revolt is zero, and $\hat{k}(\eta_b) = 0$. If the benevolent secretary chooses η_b, he gets:

$$U_b(\eta_b) = Q + \mu\pi \underbrace{F[\overbrace{\hat{\mu}(\eta')}^{=1} \overbrace{(1-\eta_b)R}^{<\underline{c}}]}_{=0}(1-\eta_b)R + e(k|k \leq \hat{k}(\eta_b)) = Q.$$

If he deviates to any other η', he gets:

$$U_b(\eta_b) = Q + \mu\pi F[\overbrace{\hat{\mu}(\eta')}^{=0}(1-\eta')R](1-\eta')R + e(k|k \leq \hat{k}(\eta')) = Q.$$

So the benevolent secretary has no incentive to deviate. This is a PBE.

Notice that in any PBE, the probability of revolt is zero.

2.5 Suppose that $\eta_b \in (0, 1-\frac{c}{R}), \eta_m = 0$. Then $\hat{\mu}(\eta_b) = 1$, any other $\hat{\mu}(\eta') = 0$. The payoff to the normal secretary is Q. If he deviates to η_b, he gets:

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

This is not a PBE.

2.6 Suppose that $\eta_b = 0, \eta_m \in (0, 1-\frac{c}{R})$. Then $\hat{\mu}(\eta_b) = 1$, any other $\hat{\mu}(\eta') = 0$. The payoff to the normal secretary is Q. If he deviates to η_b, he gets:

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

This is not a PBE.

2.7 $\eta_b \in (0, 1 - \frac{c}{\bar{R}}), \eta_m \in [1 - \frac{c}{\bar{R}}, 1]$. Same analysis as in 2.5.

2.8 $\eta_b \in [1 - \frac{c}{\bar{R}}, 1], \eta_m \in (0, 1 - \frac{c}{\bar{R}})$. The normal secretary gets Q, if he deviates to any other strategy, he also gets Q. Same for the benevolent secretary. This is a PBE.

Notice that the normal governor find it optimal to not provide public good in the signaling stage. If he does so, the best he can do is to imitate the benevolent governor and chooses $k' = \bar{k}$. Both types of secretaries infer that the governor is benevolent and does not offer any compensation to the normal governor, making him worse off than not providing any public goods.

I have assumed that the benevolent governor always provides public good at $\bar{k}$. Suppose that the benevolent governor provides any other $k \neq \bar{k}$. If $k \neq 0$, the belief of the secretary on the governor's type is off-equilibrium. Restrict the belief $\hat{\mu}(\text{benevolent governor}|0 < k < \bar{k}) = 0$. If the benevolent governor chooses $k = 0$, $\hat{\mu}(\text{benevolent governor}|k = 0) = 0$. With the belief that the governor must be normal, the secretaries choose η as outlined above. In the second stage, the benevolent governor rejects the offer and chooses $k = \bar{k}$, and this does not change equilibrium outcome.

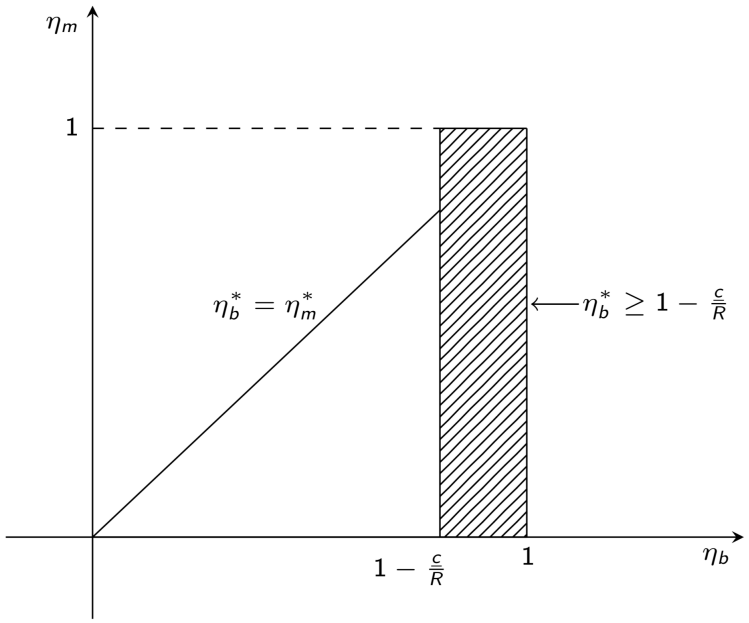
□

Proposition 2 formalizes the intuition that power duality completely forestalls revolts. The normal governor finds it too costly to provide any public goods. This leaves only the benevolent governor to provide public goods, which reveals full information about the benevolence of the governor. However, it tells the population nothing about the benevolence of the secretary. Yet the population wants to learn about the secretary rather than the governor because it will be the secretary who leads the revolt and distributes revolutionary benefits. Consequently, the population refuses to revolt. As revolts are completely forestalled, the Center will appoint the most competent provincial authority.

At first glance, the collusion stage may provide an informative signal for the benevolence of the secretary. If a benevolent secretary chooses a specific collusion contract η different from a normal secretary, the contract η tells the population about the secretary's type. However, Proposition 2 shows that such a signal cannot lead to any revolts. Figure 5 shows all side contracts η_b and η_m that can constitute a PBE. There are two cases to consider.

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

Figure 5: Equilibrium Side Contracts



cannot be informative. Suppose that the benevolent secretary chooses η_b and the normal secretary chooses η_m different from η_b and that η_b brings the benevolent secretary strictly positive return. Then the revolt must succeed with some probability. If the revolt never succeeds, the benevolent secretary cannot capture any tax revenue and return it to the population. Neither will the normal governor provide any public goods because the secretary can only compensate the normal governor with a successful revolt. But given that η_b leads to some successful revolts, the normal secretary also wants to choose η_b. Thus, we must have a pooling equilibrium. But with pooling equilibrium on η, the population still cannot tell the difference between the benevolent secretary and the normal secretary. So the population do not want to revolt in equilibrium.

In the second case, the game does admit separating equilibrium, but only when the benevolent secretary chooses such a high transfer to the governor η_b that the population's return $(1 - \eta_b)R$ cannot recoup the cost of revolts (the shaded area in Figure 5). In this case, the population knows that the secretary is benevolent but still does not revolt.

The no-revolt result looks surprising: a very high level of flexibility is allowed in the side contracts between the secretary and the governor. But still, it is not flexible enough to facilitate effective collusion. Specifically, the secretary faces a limited ability to pay the governor. The secretary can fully commit to paying the governor with the

surplus to be returned from the Center. However, the secretary cannot pay the governor upfront. He must rely on the returned tax revenue from successful revolt to compensate the governor. This imposes an upper limit on how much the secretary can pay:

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

The maximum public goods the secretary can demand $e(k)$ must cost the normal governor less than $\pi F[\hat{\mu}(1-\eta)R]\eta R$. To understand the upper limit, notice that $\hat{\mu}(\eta)$ is the population's posterior belief of the secretary's type and $(1-\eta)R$ is how much the population can obtain from a successful revolt led by a benevolent secretary. So $\pi F[\hat{\mu}(\eta)R(1-\eta)R]$ is the probability of a revolt, and ηR is the promised transfer from the secretary to the governor.

To better understand the no-revolt result, it is instructive to investigate the upper limit on k in details. Notice that with Assumption 5, any off-equilibrium belief $\hat{\mu}(\eta)$ must be 0. Also, because I focus on pure strategies, even the on-equilibrium belief $\hat{\mu}(\eta)$ can only take three values: 0, μ, or 1. With $\hat{\mu}(\eta) = 0$ or $\hat{\mu}(\eta) = \mu$, the population's belief on the secretary's benevolence is too low to justify costly revolts. With $\hat{\mu}(\eta) = 1$, there are two cases. First, the normal secretary also wants to choose the same η with the benevolent secretary so $\hat{\mu}(\eta) = 1$ cannot be the posterior belief in equilibrium. Second, the normal secretary does not want to choose the same η; but given that choosing any other η' only allows the normal secretary to earn the status-quo payoff, it must be the case that the population revolts with probability zero even if $\eta = 1$. That is, the benevolent secretary must offer too much transfer to the normal governor so that the population cannot recoup the cost of revolt. An exhaustive analysis concludes that in any Perfect Bayesian Equilibrium, it must be the case that:

$$\pi F[\hat{\mu}(\eta)(1-\eta)R]\eta R = 0. \tag{38}$$

Side contracts are fully bound by the seemingly innocuous constraint that the secretary has to finance the payment to the governor through successful revolts. The constraint is binding because PBE strongly limits the belief $\hat{\mu}(\eta)$ and the profitability of any side contracts. Thus, it is impossible for the benevolent secretary to meaningfully reveal his benevolence.

By contrast, if a secretary can pay the governor upfront without any constraints, the benevolent secretary pays the governor the full cost $\bar{k}$, the normal secretary pays nothing to the governor, and the benevolent secretary fully reveals his type. Yet it is

realistic to assume that compensation to the governor cannot be directly financed from the secretary's own pocket. In the environment of the model, the strongly autonomous governor directly manages the economy. Thus, the secretary's economic rents are probably not too large, especially compared with the huge cost of working on lavish public goods at $e(\bar{k})$.

This is the full force of power duality at work. The secretary has the means to mobilize and organize the population through extensive party organizations and propaganda apparatuses, and he can even collude with the governor with substantial flexibility. But he still cannot credibly communicate with the population. Equally important, the analysis clarifies the foundation of the collusion-proof results. As the normal governor demands compensation that can only be financed through successful revolts, the necessary compensation severely limits signaling opportunities for the secretaries.

4.4 Weak Power Duality Still Supports Political Meritocracy

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

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

Proposition 3. *In the uniqiue pure-strategy PBE, both the normal and benevolent secretaries provide public goods. Furthermore, there is no revolt and the Center appoints a provincial authority with the highest competence* $\bar{W}$.

Proof. The benevolent secretary always provides public good at $\bar{k}$. Denote the secretary's decision to provide public good as σ, $\sigma \in \{0, 1\}$. If the secretary provides public good, $\sigma = 1$.

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

Denote $\hat{\mu}$ as the population's belief that the secretary is benevolent. The population launches a collective action if:

$$\hat{\mu}R \geq c. \tag{39}$$

At the signaling stage, the benevolent secretary always provides public goods. For the normal secretary, if he does not provide public goods, $\hat{\mu} = 0$. Notice that the normal secretary finds it desirable to provide public goods, so this cannot be a PBE:

$$Q + \mu\pi F(R)R > Q. \tag{40}$$

If the normal secretary also provides public goods, $\hat{\mu} = 1$. The population never revolt. Notice that the normal secretary finds it weakly optimal to do so. This is a PBE[20].

□

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

I can also relax the assumption that the governor bears the full cost of public good provision. Specifically, I can assume that the normal secretary also values public goods at $\eta' e(k)$, but the "benevolence parameter" $\eta' < 1$. So the normal secretary will keep the returned tax revenue R to himself. Also, assume that:

$$k' = \arg\max_k \gamma' e(k) - k \tag{41}$$

is an interior solution ($0 < k' < \bar{k}$). Now suppose that the secretary bears a β fraction of the total cost k. Then I have a $\bar{\beta} \in (0, 1)$, as long as $\beta \leq \bar{\beta}$:

$$\bar{k} = \arg\max_k \gamma' e(k) - \beta k. \tag{42}$$

[20]In fact, suppose that the normal secretary provides with public good with probability $\hat{x}$. As long as $F(\hat{\mu}R) = F(\frac{\mu}{\mu+(1-\mu)\hat{x}}R) = 0$, or

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

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

When the secretary does not bear too much cost of public good provision, the normal secretary also provides public goods that cost $\bar{k}$.

There is a key advantage of such asymmetric power duality: it also hides the type of the governor. As the governor is the second-ranked official in a province, he is the best candidates to serve as secretaries in the future. But if the governor has full discretion over public good provision, he can freely signal his benevolence. When the governor is promoted to be the secretary, he can take full advantage of his good reputation and organize successful revolts. By implementing asymmetric power duality, the Center also eliminates the governor's capacity to lead revolts as a future secretary.

The no-revolt result is preserved even if the governor is strong with some probability, as long as the probability is not high enough. Heuristically, suppose the governor is strong with probability ξ. Observing public goods provided at $e(\bar{k})$, the population's posterior belief on a benevolent governor is:

$$\frac{\xi\mu + (1-\xi)\mu}{\xi\mu + (1-\xi)} = \frac{\mu}{\xi\mu + (1-\xi)}. \tag{43}$$

A sufficient condition to guarantee no revolt from the governor is:

$$\frac{\mu}{\xi\mu + (1-\xi)} R < \underline{c}, \tag{44}$$

$$\xi < \frac{1}{1-\mu}(1 - \frac{\mu R}{\underline{c}}). \tag{45}$$

To summarize, the revolt-free result is robust to small perturbation of the governor's strength ξ and cost-sharing between the two officials β.

5 Case Studies

5.1 Historical Regimes

Power duality plays an important role in many historical regimes. Finer's *A History of Government* argues that controlling local officials is a key problem for any autocracy. Finer (1997a) and Finer (1997c) show that the New Kingdom Egypt, Ottoman Empire, the Russian Empire, and the Spanish Colonial Empire all established institutions that followed the principle of "checks between higher-ranked and lower-ranked".

In the New Kingdom Egypt, "since 'mayors' were responsible only for the tax col-

lection, other services such as assessments, public order, and the like must have been carried out by central agents stationed in the localities, and scattered references in the inscriptions and papyri bear out this inference"(Finer, 1997a). Finer (1997a) appraises New Kingdom Egypt as " altogether a quite remarkable achievement. It was incomparably in advance of any one of its contemporaries. " For Ottoman Empire, Finer (1997c) asks: "what care (do) the Turks take to preserve the body of their Empires free of faction and rebellion?" The first answer proposed by Finer is that "governors...shared some of their authority with the *defterdars* (fiscal governor), the chief *kadi*, and the Janissary commanders. In addition, the *timars* (provinces) were now allocated by the palace, so governors could not build a local power-base" (Finer, 1997). On the competence side, Ottoman officials are recruited and trained by the institution of *Devshirme*, a coercive but meritocratic system of political selection (Fukuyama, 2011).

For the other two examples, Catherine the Great decreed that each Russian *guberniya* (province) selected "a governor, plus a deputy governor in charge of finance. The governor did not himself issue orders. In the fashion of the day, he presided over a collegiate board which did this – the governor, his deputy, and two appointed councillors" (Finer, 1997c). As for the Spanish Colonial Empire, "(Viceroyalties) were ... immense, and tiers of intermediate officers were necessarily interposed between the viceroys and the cabildos at the base. Such were the presidents, and the captains-general, who enjoyed very great discretion. They did not take their orders from the viceroy as one would expect, but directly from the Crown which appointed and removed them, and it was to the Crown they reported; so that they often acted in disregard of the viceroy" (Finer, 1997c). Although details vary, a general pattern does emerge: different from liberal democracy, "separation of power" in autocracy does not emphasize too much on strong checks and balances. Instead, the regime usually relies on a lower-ranked official who controls everyday management of the economy. We need to pay much more attention to this category of such institution to deepen our understanding of authoritarianism.

5.2 Case Studies from Communist Regimes

At the heart of my theory is that the population strongly support local officials who aggressively redistribute or provide public goods. This is one of the most important themes in Chinese political history. Ever since Imperial China, leaders of many rebellions redistributed land to peasants, an action that helps those leaders gather strong

support from peasants. Many dynasties declined or fell as a result of such rebellions. The Chinese Communist Party (CCP) is the modern master of such tactics. The CCP systematically enforced "land reform" in its revolutionary bases during the second and third Chinese Civil Wars (1927-1937; 1945-1949), winning strong support from peasants and sealing its final victory (Pepper, 1999). Mao Zedong himself stated that "Our party must bring tangible benefits to the people. Only then will the masses support us and oppose the *Kuomintang* [21]attacks. Otherwise, the masses will be unable to see clearly which of the two parties, the *Kuomintang* or the Communist Party, is good and which is bad"(Mao, 1945; translated and cited by Pepper, 1999). Mao explicitly identifies redistribution and public good provision as a signaling device.

Bo Xilai, the former Chongqing secretary, reincarnated the old tactic. An informative survey article is Zhao (2012). During Bo's tenure as the provincial secretary (2007-2012), he advocated the "Chongqing Model" that emphasized social and economic equality. Among other things, the administration provided generous public goods. "Chongqing spent more than half of all government expenditures on improving public welfare, particularly the livelihood of workers and farmers" (Zhao, 2012). Cheap public housing was extensively built, a large number of city "Hukou" was granted to peasants, and the whole bureaucracy was mobilized to meet the needs of grass-root residents. The intense propaganda of Maoist and socialist values also complemented public good provision. Consequently, the Bo Xilai administration enjoyed enormous popularity, in particular among low-income households. The Bo Xilai Saga still has many details that remain unclear, such as whether Bo did intend to challenge the central leadership, but such rumors were widespread, and it was accepted that Bo at least aspired to rely on his popularity in Chongqing to sit in the Standing Committee of the CCP Politburo[22].

However, during the months when the police chief of Chongqing defected and the Bo Xilai Incident erupted, the popularity of Bo's policy did not transform into real support for Bo from the population. There was no public rally or protest to support Bo, who was eventually taken into custody and sent to prison. The saga reveals that disloyalty of provincial officials is still a major concern for central leaders in China, but at the same time, even an extremely artful official such as Bo was constrained by the system to transform popularity to mass support. This is quite consistent with my theory. It is well known that Bo Xilai was an unusually powerful and ambitious official with a

[21] *Kuomintang* is the party that ruled the Republic of China from 1927 to 1949 and the main rival of CCP during the Chinese Civil Wars

[22] This is the supreme decision-making group in China.

princeling background; so Bo might completely dominate the governor of Chongqing. But even with such a weak governor, power duality can fully forestall revolts. In the end, the Bo Xilai administration provided public goods aggressively, but the population remained immobilized in Bo's endeavor to challenge the central authority.

For other examples, Vietnam has a history of a party-state relationship that parallels the Chinese experience. An excellent survey is Tran (2004). Following the establishment of central planning, the Vietnamese Communist Party (VCP) took comprehensive control of economic management, and the government's power was substantially undermined. The economic performance of Vietnam was very poor during the central planning decades, and consequently, Vietnam began the *Doi Moi* Reform in 1986. Among other things, the government gained significant power and autonomy in economic policymaking and political meritocracy started to emerge [23]. The experience of Vietnam provides another example of how dual leadership provides a foundation of meritocratic political selection.

It is important to note that the party-state relationships in modern China and Vietnam are an outlier among Communist Regimes. The Soviet Union has a party-state relationship quite different from post-reform China or Vietnam. A local party committee in the Soviet Union had many economic departments, such as agriculture, education, construction, industry, transportation, light and food industry, trade and financial organs (Nough, 1969). This gives the Soviet local secretaries direct access to economic power. Indeed, before the market reforms, Chinese and Vietnamese party secretaries also directly managed the economy (Shirk, 1993; Tran, 2004). In a companion paper, I analyze the economic origins of different in party-state relationships. I argue that the vibrant market economy in post-reform China and Vietnam empowers governors in several ways that renders it necessary to delegate economic policymaking. By contrast, in a planned economy such as the Soviet Union or pre-reform China, delegation of economic power to the government would generate large efficiency loss, which is easily avoided in a market economy.

6 Conclusion

Autocracies face a distinct challenge in building state capacity. A competent bureaucracy can foster fiscal capacity and economic growth, but its competence can also desta-

[23]This reaches a landmark in the Tenth National Congress of the VCP in 2006, when almost all revolutionary cadres stepped down from leadership and a new generation of officials took control.

bilize autocratic regimes. This paper focuses on how such loyalty-competence trade-off is resolved by separation of economic power and political power. The empirical section investigates an important case in political history. It finds that Chinese emperors never institutionalize meritocratic recruitment of officials unless strong checks have been established against those officials. A few other case studies also reveal strong correlation between such "power duality" and political meritocracy in regimes as diverse as Ancient Egypt, Ottoman Empire, and Modern China, all of which appoint both a local chief executive and a second official to manage the economy.

It looks surprising that such a simple institution can strongly constrain the local chief executive. Thus, I investigate the institution with a micro-founded model. In line with the literature, the chief executive can win support from the local population by a generous provision of public good through a signaling mechanism. Backed by the population, the local chief executive can successfully revolt against the central government. Yet when another official controls public good provision, the two officials cannot send signals even when they fully trust each other. Specifically, collusion contracts are allowed with full *ex post* commitment power. But any profitable side contract written by a benevolent chief executive will be imitated by a selfish (normal) executive, so the population cannot distinguish the two types of chief executives. Even when the chief executive completely dominates the official who provides public goods, the signal remains uninformative because the chief executive still does not bear a large cost of public good provision. Thus, the institution is robust to flexible side contracts and different power relations among local officials. Power duality works well even if two officials actively attempt to collude. Neither can power duality be undermined by a chief executive who wields enormous power over his subordinates.

More broadly, autocracies do create institutions to deal with their many dilemmas. But as informal interactions play a far more prominent role in autocracies than in democracies, formal institutions in autocracies are more vulnerable to manipulations. This paper look at how the configuration of power separation can change a lot when collusion is taken seriously. In general, autocracies needs to more actively incorporate informal interactions into the design of any formal institutions. It is important to investigate why autocracies are able to create foundational institutions in some cases but not the others. Also, it is important to emphasize that such institutions protecting the autocrat are not designed to benefit the population. In our context, power duality has two opposing effects on the welfare of the population. Power duality allows the central government to appoint competent bureaucrats, which also benefits the population. But

the central government can safely extract more surplus from the population, which hurts the population. The ambiguous welfare effect of "good" institutions in autocracies is probably a general property that also needs more attention.

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Appendix: Full entries of the 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*[24]. 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*[25], horse shepherding, defense over river and sea, etc. 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。宋為加强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 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 another name *Fansi* and an honorary name *Fangbo*. Subordinates of *Buzheng Shi* were called *Fanxian*. After the institution of the governor (*Xunfu*) and the governor-general (*Zongdu*) was consolidated, the power and the rank of *Buzheng Shi* gradually declined. 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

[24] *Jianzhou* literally means "monitoring the prefecture (mayor)".

[25] See https://en.wikipedia.org/wiki/Tuntian: "The *tuntian* system was a state-promoted system of agriculture."

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*[26] to evaluate bureaucratic governance and performance. In 732 CE, the position was renamed as *Caifang-Shi*. In 1199 CE, Jin Dynasty[27] 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 corruptions 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. Qing continued the governance practice of Ming. *Ancha-Shi* were also appointed to all provinces, with the alternative names *Nietai*, *Niesi*, or *Lianfang*. In 1911 CE, the position 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，

[26]Local administrative units for monitoring purposes.

[27]*The History of Jin* is not in our text corpus.

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*. 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. Jin Dynasty[28] 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

[28] *The History of Jin* is not in our text corpus.

merged with the Office of *Tidian-Xingyu*. In 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，按財産多少而徵收免役錢，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 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*[29], 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 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 recieve 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

[29]There is ambiguity in interpretation for this sentence.

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 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 Zheijiang 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[30] (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[31] (1115

[30] *History of Liao* is not in our text corpus.
[31] *History of Jin* is not in our text corpus.

CE to 1234 CE) also appointed *Anfu-Shi* to important regions. 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。