A THEORY OF POWER STRUCTURE AND INSTITUTIONAL COMPATIBILITY: CHINA VS. EUROPE REVISITED

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Abstract
To better understand institutional differences across space and time, we propose a two-dimensional framework of the power structure among three players in society: the degree of absolute power of the Ruler over the Elites and the People, and the degree of asymmetry between the latter two in terms of their everyday rights and power. Within this framework, we show that a more absolutist Ruler prefers a more balanced Elite-People relationship. This theory helps in particular to reconcile views on the comparison between imperial China and premodern Europe that would seem contradictory in one-dimensional or two-estate frameworks: the Ruler's absolute power was weaker in Europe, whereas the Elite-People relationship was more balanced in China. Our approach also helps more generally to interpret specific institutions and other variations in power structures. (JEL: D02, N40, P50, D74)

1. Introduction

The influential literature on institutions and development categorizes societies as either inclusive, open-access, and equal, or extractive, limited-access, and unequal

(e.g., North 1989; North and Weingast 1989; Acemoğlu et al. 2001, 2005a,b; North et al. 2009; Acemoğlu and Robinson 2012; Cox et al. 2019). According to this view, imperial China should be seen as highly extractive compared to premodern Europe given its more absolutist political regime and its much weaker rule of law (Finer 1997a,b; Fukuyama 2011; Acemoğlu and Robinson 2019; Greif et al. 2020; Stasavage 2020). The comparative history scholarship, however, challenges this dichotomy, and it highlights institutional features of China that were more inclusive compared to Europe. For example, the access to elite status was primarily non-hereditary and governed by the civil service exam, peasants enjoyed a greater degree of freedom, and land ownership was less concentrated (e.g., Chao and Chen 1982; Finer 1997b; Tackett 2014; von Glahn 2016; Zhang 2017; see also the survey by Qian and Sng 2021). These views seem to contradict each other, sometimes casting doubt on the relevance of using institutions to explain different development trajectories across societies (e.g., Pomeranz 2000). They also bring about a general question in comparative studies of institutions: can a society be highly repressive in some institutional dimensions, but quite inclusive in others?

To reconcile these views and answer this question, we propose a novel framework that helps us categorize institutional differences and analyze the relationships among them. This framework takes on two dimensions of the power structure among three players in society. The three players are, first, the *Ruler,* the emperor or king; second, the *Elites,* primarily the lords in Europe and the bureaucrats in China; and, finally, the common *People.* Compared with the classic two-estate framework (e.g., Acemoğlu and Robinson 2005; North et al. 2009), considering three players makes it possible to distinguish the power relationship between the Ruler and the ruled from that between subsets of the ruled, i.e., the Elites and the People.[1]

The two dimensions are, first, the degree of *asymmetry between the Elites and People* in terms of their everyday power and rights, and, second, the *Ruler's absolute power* over the ruled. We define the Elite-People asymmetry as how the social surplus is distributed between them. We conceptualize the Ruler's absolute power as the degree of punishment of the ruled if they defy the Ruler, i.e., how much of the surplus the ruled receive is conditional on their submitting to the Ruler's will. New to the literature, this conceptualization relates to the main insight from the neo-Roman theory of liberty in political philosophy, i.e., there is liberty only when there is no possibility for one's civil rights to be dependent on the goodwill of someone else (e.g., Pettit 1997; Skinner 1998, 2022).

Using this framework, we first compare rich historical narratives on the power structures of imperial China and premodern Europe. On the one hand, European Rulers had less absolute power, and this was reflected in the greater strength of rule of law and property rights in Europe, as well as the Ruler's weaker ultimate ownership and

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1.   Some studies have incorporated the middle class, the selectorate, the military, or the clergy into the two-estate framework, but the focus has been on political agency, regime transition, provision of accountability, or secularization (e.g., Acemoğlu and Robinson 2005; Besley and Kudamatsu 2008; Acemoğlu et al. 2010; Auriol et al. Forthcoming).

control over land and population, in Europe compared to China. On the other hand, the People's everyday power and rights were more on par with the Elites in China. This can be seen, for example, in how access to elite status was governed, how much freedom the peasantry enjoyed, and the degree of inequality of land ownership. Our characterization of the differences in the power structure is the most relevant for the period between the 9th and 14th centuries, with persistence beyond. Geographically, our comparison is largely between the society in the historical core of imperial China, and the western–central European society where feudalism once prevailed.

Having these narratives in mind, we analyze the relationship between the two dimensions of the power structure in a simple game-theoretical model. We start with a Ruler, who prefers to maintain a particular status quo of autocratic rule, and a Challenger, who could try to alter it. The Challenger can be an external threat, a conspiring elite, or a rebellious domestic population. The Challenger's goal does not necessarily involve dethroning the Ruler. The challenge can be either armed or non-violent. Our model is thus sufficiently general to cover a wide range of threats that could destabilize an autocratic rule. In the model, we assume that the outcome of a challenge in altering the status quo depends on whether the Elites and People choose to side with the Ruler. In the model, a more symmetric Elite-People relationship is represented by less unequal payoffs if they do not defy the Ruler. We model a stronger absolute power of the Ruler as a greater proportional reduction in the payoffs to the ruled, i.e., a heavier punishment, if they unsuccessfully defy the Ruler.

Analysis of the model leads to a theory about the compatibility between the two dimensions of the power structure. In the analysis, we first take the level of the Ruler's absolute power as exogenous and analyze how it affects the Ruler's perspective about the Elite-People relationship. In a historical perspective, the Ruler's absolute power is determined by a set of slow-moving institutions that affect people's expectations, values, and beliefs (e.g., Roland 2004, 2008). It thus seems appropriate to start by taking this parameter as exogenous. We endogenize it later in two different settings, a static and a dynamic one.

We have defined the absolute power of the Ruler as the *conditionality* of the payoffs to the ruled if they submit to the Ruler's will. Given any non-zero level of such conditionality, the greater the payoff the People enjoy when they submit to the Ruler's will, the more they will lose if they defy, giving them a stronger incentive to stay loyal to the Ruler. We call this the *punishment* effect. Knowing that a stronger alliance between the Ruler and People worsens the prospect of a challenge to the Ruler, the Elites will be more willing to side with the Ruler too. We call this the *political alliance* effect. The Challenger would then be deterred from challenging the status quo, which stabilizes the autocratic rule. This creates an incentive for the Ruler to promote a more symmetric Elite-People relationship.

How do these effects depend on the degree of the Ruler's absolute power? Since a stronger absolute power implies greater conditionality, it will strengthen the initial punishment effect and thus strengthen the total stabilizing effect. The Ruler's incentive to promote a more symmetric Elite-People relationship will therefore be greater when the Ruler has greater absolute power. A more absolutist Ruler will thus push for a

more symmetric Elite-People relationship. This result suggests that stronger absolute power of the Ruler and a more symmetric Elite-People relationship are compatible. This reconciles the seemingly contradictory views in the literature on the institutional differences between imperial China and premodern Europe.

As we show in an online appendix, the insights and results from the theory are robust in a Markov game in which the ruled covet the Ruler's throne and all players take continuation values into consideration, among many other specific settings. We also show in another online appendix that the compatibility result holds in the other direction, too, i.e., the stabilizing effect of stronger absolute power of the Ruler is increasing in the level of symmetry between the Elites and People.

When we endogenize the level of the Ruler's absolute power, we derive a few additional implications about the power structure in the long run. For example, knowing that a more absolutist Ruler could grant more everyday power and rights to the People, the People may prefer a more absolutist Ruler in the first place, being less often defiant and enjoying their everyday power and rights under a more stable autocratic rule. The power structure of strong absolute power and less Elite-People asymmetry can thus be incentive-compatible for the People and, therefore, persistent.

In another extension, we allow the current political stability resulting from the existing power structure to influence the future power structure, creating a dynamic complementarity. This dynamic complementarity implies that, if there exist multiple steady states, then two societies that differ slightly in their power structure may diverge toward two different steady states, each following the same institutional compatibility, where one steady state has stronger absolute power of the Ruler, a more symmetric Elite-People relationship, and greater stability of autocratic rule. This highlights the importance of initial conditions and the potential for path dependence in the evolution of power structures.

We further discuss the implications of our theoretical results in the context of Chinese and European history. We explain how our theory can help to understand specific institutions, such as bureaucracy and the civil service exam in China, the development of cities in Europe, and other efforts by European Rulers to reduce the Elite-People asymmetry. We also discuss how our theoretical framework can be used for understanding variations and changes *within* Europe and China. Finally, we examine the auxiliary prediction from our model about the impact of the power structure on the stability of autocratic rule. Data show that autocratic rule was more stable in China than in Europe between the 9th and 14th centuries, when the differences in the power structure were the most prominent, with persistence in later centuries.

The paper is organized as follows. The rest of this section clarifies our position in the literature. Section 2 briefly presents historical narratives on the institutional differences between imperial China and premodern Europe in the power-structure framework. Section 3 presents the settings, analysis, and extensions of the model. Section 4 further discusses the implications of the theory. Section 5 concludes.

1.1. Position in the Literature

The political divergence between the unified autocratic rule of a dominant state in imperial China and fragmented post-Roman Europe has received much attention in comparative history and political economy (e.g., Finer 1997a,b; Scheidel 2019; Stasavage 2020). This is especially true given its implications for the economic divergence between the two (e.g., Rosenthal and Wong 2011; Mokyr 2016; Root 2020). While most notable explanations for the political divergence have focused on natural variables and their close derivatives, such as the environment, geography, and geopolitical conditions (e.g., Wittfogel 1957; Jones 1981; Diamond 1997; Turchin 2009; Dincecco and Wang 2018; Ko et al. 2018; Scheidel 2019; Fernández-Villaverde et al. 2023; Qian and Sng 2021), less attention has been paid in the economics literature to the role of power structures beyond the state-society balance (e.g., Acemoğlu and Robinson 2019). This is a significant gap in the literature, since the political divergence itself is related to the power structure across multiple players within society, affecting in turn economic trajectories (e.g., Scheidel 2019, p. 9), while current power structures are often rooted in historical ones (e.g., Bloch 1962b, p. 171–173; Yan 2009, p. 1–16). Our paper addresses this gap.

Against the backdrop of the political divergence, the literature has also focused on a few important institutional components, such as fiscal capacity (Gennaioli and Voth 2015; Ma and Rubin 2019), bureaucracy (Stasavage 2020), meritocracy (Huang and Yang 2021), and culture and the loci of cooperation (Greif and Tabellini 2010, 2017). That said, not much effort has been devoted to analyzing the relationships among various institutional components. Comparing societies along a single dimension leads to incomplete understanding, whether the dimension is inclusiveness (e.g., Acemoğlu and Robinson 2012), degree of open-access (e.g., North et al. 2009), or state-society balance (e.g., Acemoğlu and Robinson 2019). For example, why did China have more absolutist emperors and a weaker rule of law, while having predominantly non-hereditary access to elite status and a more landowning and freer peasantry, compared with medieval Europe?

We address this puzzle by focusing on the relationship between institutions that promote greater Elite-People symmetry in everyday power and rights and institutions that constrain the Ruler's absolute power. We show that a Ruler's incentive to promote the former is stronger if the latter is weaker. This result also implies that the more repressive a regime is in one institutional dimension, the more inclusive it can be in another dimension. Because of this, it is possible for the People to prefer a regime that is more repressive in one dimension, if they take into consideration its inclusiveness in the other dimension. To our knowledge, these implications are new to the broad literature on institutions and development, where a strong interdependence is expected between major components of pro-development institutions, such as rule of law and property rights on the one hand, and more open access to elite status on the other hand (e.g., North et al. 2009; Besley and Persson 2011, 2014; Acemoğlu and Robinson 2012).

Technological, demographic, geographical, and economic factors have been explored to explain the initial differences in the power structure between China and

Europe (e.g., McNeill 1982; Herlihy 1984; Roland 2020; Stasavage 2020).[2] Not focusing on the origins of these initial differences, we show that differences in the power structure can exhibit self-reinforcing dynamics over time, together with a persistent difference in autocratic stability. This dual divergence of the power structure and autocratic stability complements studies of the divergence of culture and its co-evolution with political institutions, adding to the comparative economic history literature (e.g., Greif and Tabellini 2010, 2017; Bisin and Verdier 2017; Greif et al. 2020; Acemoğlu and Robinson 2021a,b; Bisin et al. 2021; Mokyr and Tabellini 2023).

Our paper also contributes to the literature on the strategies that a ruling class can use to fend off challenges to its rule. On this general subject, Bueno de Mesquita et al. (2003) analyze how the incentive structure for political survival depends on the size of the selectorate and of the winning coalition among them. Our analysis suggests that an absolutist Ruler can co-opt the People and thus secure his autocratic rule by making the People's power and rights more comparable to that of the Elites. This can be done, for example, by promoting meritocratization. Our analysis is novel in the sense that these strategies provide ex-ante committed payoff schedules instead of ad-hoc policies (e.g., Acemoğlu et al. 2004) and do not involve shifting decision-making power (e.g., Acemoğlu and Robinson 2000, 2001, 2005). Moreover, the disciplining incentives for the ruled rely mainly on the current power structure, which is not external to the incumbent ruler (e.g., Padró i Miquel 2007).

Conceptually the closest to us in this thread of literature, Persico (2021) shows in a general model for political regimes that, as long as civil liberties are imperfectly protected, a politician will always have an incentive to promise equal treatment across citizens, in an effort to win their coordinated support.[3] Concurrently and independently developed, our paper and the paper by Persico (2021) complement each other: we focus on the compatibility within the power structure and its implications for political stability, whereas Persico (2021) focuses on policy treatment and provision of public goods. He also provides examples of egalitarian rhetoric and policies in modern illiberal regimes, which mirror imperial China in our historical comparison.

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2.   McNeill (1982) argues that the military advantage of heavily armored calvary in medieval Europe allowed those who controlled these resources to become an elite group, while the early availability of crossbows in China canceled such advantage, favoring the Ruler's authority. Herlihy (1984) postulates that changing population patterns were behind the rise and loosening of serfdom in medieval Europe. Roland (2020) suggests that homogeneous conditions of agricultural production across the middle and lower basin of the Yellow River during the earliest Chinese dynasties (17th–3rd centuries BC) favored centralized coordination and specialization, contributing to the forming of a statist system in which the ruled were the subjects of the Ruler. In medieval Europe, by contrast, Stasavage (2020) argues that the practice of dispersed, extensive agriculture made it difficult for a centralized system to operate.

3.   The imperfect protection of civil liberty in Persico (2021) is similar to our notion that the everyday power and rights of the ruled are conditional on the Ruler's will, whereas equal treatment across citizens – offered in order to secure their coordinated support, as in Persico (2021) – is similar to the more symmetric Elite-People relationship in our context with the political alliance effect involved.

2. Power Structure in Historical Narratives

2.1. Scope and Focus

In this section, we discuss historical narratives on the institutional differences between imperial China and premodern Europe along the two dimensions of the power structure discussed above. By "China," we consider the society in "the historical core of imperial China," i.e., "the traditionally agrarian part of China south of the Great Wall and east of the Tibetan Plateau" (Fernández-Villaverde et al. 2023, p. 8, 12). By "Europe," unless clarified otherwise, we follow Bloch (1962a,b), Finer (1997b, p. 855–1051), and Blaydes and Chaney (2013), i.e., we consider the Romano–Germanic influenced or assimilated society in western and central Europe where feudalism once prevailed. This society was "[h]emmed in by these three blocs, Mohammedan, Byzantine, and Slav" and "comprised principally the British Isles, the Scandinavian countries, France, Germany, Italy, and northern Spain" (Bloch 1962a, p. xxvi; Finer 1997b, p. 855).[4]

The most relevant period for the power-structure differences was the 9th through 14th centuries, with persistence beyond. This period covered the rise and decline of feudalism in Europe (e.g., Bloch 1962a,b; Ganshof 1952), with the Black Death taking place in the middle of the 14th century. In imperial China, political institutions had largely been stable since the Tang dynasty (618–907), after the swings during the eight preceding centuries (e.g., Yan 2009).

Admittedly, important variations and changes in the power structure existed across polities and over time within China and Europe. Still, "over and above" these variations and changes, historians have emphasized "the predominant quality of a common civilization" in Europe and the "evolving axis" or "theme" of the institutional and cultural characteristics of Chinese society during the period on which we focus (e.g., Bloch 1962a, p. xxvi; Yan 2009, p. 11–12). We follow this insight in our narratives in this section. We try to identify the "ideal type" of the different power structures of imperial China and premodern Europe. The relevance of our model to variations and changes within Europe and China is discussed in Section 4.

We summarize the historical narratives in Table 1, and we elaborate on them below.

2.2. Absolute Power of the Ruler

The first difference is that Chinese Rulers enjoyed a stronger absolute power than their European counterparts. In other words, the everyday power and rights of the ruled were more dependent on the Ruler's will in China than in Europe. This difference is reflected in the relative strength of the rule of law and in the ultimate ownership and control over the most important assets in historical societies: land and population.

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4. Following Blaydes and Chaney (2013), "Europe" by this definition covered all countries under the section "The Barbarian West" and the subsections "The British Isles," "France," "The Low Countries," "Italy," "The Iberian Peninsula," "The German-speaking States," "Scandinavia," and "Crusader States" under the section "Europe" in Morby (1989).

TABLE 1. Power structure in imperial China and premodern Europe.

	China	Europe	Examples of references
Absolute power of the Ruler			
Strength of rule of law	Ruler less constrained by law	Ruler constrained by Church and law	Bloch (1962b), Anderson (1974), Unger (1977), Mann (1986), Finer (1997a,b), Tamanaha (2004), Fukuyama (2011), Acemoğlu and Robinson (2019), Greif et al. (2020)
Ultimate ownership of land	Reserved for Ruler; confiscation legitimate when Ruler deemed it necessary	Confiscation highly constrained; Ruler expected to "live of his own"	Chao and Chen (1982), Levi (1988), Finer (1997b), Wang (2000), Hsing (2011)
Ruler's control over population	Ruled considered Ruler's subjects; harsh penalty against disloyalty	Limited control; much less harsh punishment against disloyalty	Bloch (1962a), Lander (1961), Levenson (1965), Anderson (1974), Mann (1986), Finer (1997a,b), Ormrod (2000), Boucoyannis (2021)
Elite-People Asymmetry in everyday power and rights			
General comparison	Much less unbalanced	Elites a supreme class; oppressive to the poor	Bloch (1962b), Lü (1944), Weber (1978)
Hereditary vs. non-hereditary access to elite status	Non-hereditary, elite status governed through civil service exam	Hereditary nobility	Kemp (1970), Finer (1997b), Wickham (2009), Yan (2009), Parish (2010), Tackett (2014), Hsing (2011), Wen et al. (2023)
Inequality in land ownership	Mostly free and landowning peasantry; land ownership less concentrated	Serfdom common in Middle Ages; land ownership much more concentrated	Esherick (1981), Chao and Chen (1982), Beckett (1984), Finer (1997a), Wickham (2009), Tackett (2014), von Glahn (2016), Zhang (2017)
Inheritance rule	Partible inheritance	Primogeniture increasingly more common	Cecil (1895), Goody et al. (1976), Goldstone (1991), Bertocchi (2006), von Glahn (2016), Fernández (2021)

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2.2.1. Strength of Rule of Law.   As noted by many scholars, Chinese emperors were less constrained by the rule of law (Finer 1997a,b; Stasavage 2016; Acemoğlu and Robinson 2019; Ma and Rubin 2019, p. 227; Greif et al. 2020). As put by Finer (1997a,b, p. 455, 836), "even the higher mandarins" were "subjects not citizens" and had only "duties not rights." As observed by Fukuyama (2011, p. 290) and Unger (1977, p. 104), "law was only the positive law that [the emperor] himself made" and it "could be as general or as particular as the policy objectives of the rulers might require."[5]

In contrast, European Rulers faced strong constraints from the Christian church (Mann 1986; Fukuyama 2011; Johnson and Koyama 2019; Scheidel 2019; Greif et al. 2020). In many cases, because of the pope's power to delegitimize and excommunicate them, "[k]ings …could not defy the Pope for very long" (Southern 1970, p. 130).[6] The king also faced much tighter legal constraints. In the famous words of Bracton (1968, vol. 2, p. 33), "[t]he king must …be under the law, because law makes the king." Having emerged from the 9th-century customary law, a man's right to judge and resist when his king had acted unlawfully had been repeatedly recognized by significant legal documents throughout the Middle Ages (Bloch 1962b, p. 172–173).[7] Importantly, this right was "not subject to the king's justice" and "not upon the desires of the king" (Tamanaha 2004, p. 26).[8] After all, "[i]n principle, the highest superordinate level of the feudal hierarchy in any given territory of Western Europe was necessarily different not in kind, but only in degree, from the subordinate levels of lordship beneath it," such that "[t]he monarch …was bound by reciprocal ties of fealty, not a supreme sovereign set above his subjects" (Anderson 1974, p. 151).

To be sure, we are not implying that Chinese Rulers had unconstrained power. Instead, these narratives highlight the qualitative difference in the absolute power between Chinese and European Rulers. To maintain legitimacy, the Chinese Ruler had the obligation to act benevolently toward the ruled and to follow the "Mandate of Heaven" (e.g., Zhao 2009). That said, Stasavage (2016, p. 148) notes that "the concept of a Mandate of Heaven never extended to obtaining consent, nor did it involve assembling representatives to achieve this goal". Finer (1997a, p. 462) also notes: "[i]deally, government must be of the people, for the people; but, emphatically,

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5.   For example, the founding emperor of the Ming dynasty created "law beyond the law" when he was frustrated by his own Great Ming code, while insisting that only he could use the newly created law (Brook 2010, p. 87). Unger (1977, ch. 2) discusses the characteristics of law in imperial China in detail.

6.   Famous examples include the dramatic scenes of Henry IV of Germany at Canossa, Henry II of England at Canterbury, John of England at Dover, and the destruction of the family of Frederick II of the Holy Roman Empire.

7.   Bloch (1962b, p. 173) raises examples of "the English Great Charter of 1215; the Hungarian 'Golden Bull' of 1222; the Assizes of Jerusalem; the Privilege of the Brandenburg nobles; the Aragonese Act of Union of 1287; the Brabantine charter of Cortenberg; the statute of Dauphiné of 1341; the declaration of the communes of Languedoc (1356)."

8.   For more extensive discussion on the rule of law, see Finer (1997b), Tamanaha (2004), Fukuyama (2011), Vincent (2012), Fernández-Villaverde (2016), Acemoğlu and Robinson (2019), and Greif et al. (2020).

Mencius never for a moment hints that it can ever be by the people. Very much the reverse. …Nor did a dissatisfied populace have the right to rebel."[9]

In addition, administrative constraints could limit the absolute power of the Ruler, and Chinese Rulers faced principal-agent problems, as any autocrat does. The size of China's territory contributed to these problems, which became increasingly severe in the late imperial era (e.g., Sng 2014; Ma and Rubin 2019). That said, the absolute power of the emperor was reflected in his undisputable right to assign, rotate, and demote administrators at will, which underpinned any sustainable decentralizing solutions to the principal-agent problem in the Chinese context (e.g., Xu 2011).

2.2.2. Ultimate Ownership of Land.   The difference in the Ruler's absolute power between China and Europe was also reflected in the ultimate ownership of land and control of the population. While land could be owned by individuals on a regular basis in China, the ultimate ownership was always reserved for the Ruler. It was thus always legitimate for the emperor to re-centralize ownership when he deemed it necessary (Chao and Chen 1982; Wang 2000; Hsing 2011). Even before the Qin dynasty unified China in 221 BC, land confiscation from the noble families and landed gentry had been a common practice of Chinese Rulers to raise revenue for military projects (Ebrey and Walthall 2013).[10] Depending on the emperor's will, there were systematic persecutions against Buddhism, Manichaeism, and other religions, resulting in large-scale confiscation of temple properties (de Groot 1903, p. 15–95).

In contrast, when European Rulers needed revenues, they could usually not confiscate land from the Elites or the Church, at least between the 9th and 14th centuries, and this was especially the case in continental Europe, where "kings' de facto control over land was confined to the royal demesne" (Boucoyannis 2021, p. 30).[11] Instead, they had to exchange rights or resources with revenues. Levi (1988, p. 99) states it clearly: "[d]uring the medieval period, a monarch was expected to 'live of his own' (*vivre du sien*). That is, funds for the monarch were to come from royal lands and customary dues. …Should monarchs need more, even if it was to fund a campaign on behalf of the country as a whole, they had to obtain assent to some form of 'extraordinary' taxation. They could neither expropriate property at will nor rely on a regular levy."[12]

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9.   Perry (2008) further contrasts the Anglo-American right to rebel against the Ruler's tyranny with the People's right to protest against poverty in the Chinese tradition.

10.   Among famous early examples, Duke Xiao of the Qin state confiscated land from the feudal nobles in the 340s BC, sharing it among the peasants. In 114 BC, Emperor Wu of Han confiscated land from nobles and merchants to raise additional revenue to fund the Han–Xiongnu War.

11.   European Rulers became more capable of expropriating Church property as their absolute power grew, but this took place mainly in the 16–18th centuries, and especially during the Reformation. One may also notice that this was often accompanied by a more balanced Elite-People relationship, consistent with Proposition 3 below, as in the English example (Heldring et al. 2021).

12.   See also Anderson (1974, p. 151) and Finer (1997b, p. 887) for a similar observation. Besides, when Louis XIV managed to tax the nobility, the taxes were levied only at the end of his reign, and were insignificant in size and subject to numerous exemptions (McCollim 2012). Expropriations did happen,

2.2.3. Ruler's Control over the Population.   As everyone was a subject of the Ruler in China, the Ruler could reward or punish anyone arbitrarily, reflecting his absolute power (Levenson 1965, p. 39; Finer 1997a, p. 455). Consistent with the emphasis of Confucianism on the loyalty of the ruled to the Ruler (Greif et al. 2020), one person's rebellion, treason, or even slight disobedience, regardless of her social status, would be punished extremely harshly, usually leading to eradication of the whole family line (Finer 1997b, p. 778).[13] Sometimes mere suspicion from the Ruler could guarantee the calamity, as shown in the fall of Princess Taiping in 713.[14] Following the Legalist tradition in Chinese political philosophy, the absolute right to override the bureaucracy, control its personnel, and impose harsh punishment on the ruled allowed the Ruler to control society, despite sometimes significant administrative constraints (e.g., Watson 1964; Sng 2014).

In contrast, in feudal Europe, "[i]t was in general considered that [unfree men] could only be tried …by the lord to whom they were personally bound," such that the king, if not their overlord, did not have direct judicial control over them; "free men were …subject only to the jurisdiction of the public courts," but "these courts had for the most part fallen into the hands of the magnates" (Bloch 1962b, p. 91–92). At the time, "[j]ustice was a universal demand, but ruler preponderance occurred only rarely": in continental Europe, "without power over the nobility, rulers had limited access to the populations under noble jurisdiction" (Boucoyannis 2021, p. 19–20); even in England, where royal power was considered to be stronger (e.g., Strayer 1970; Finer 1997b; Stasavage 2020; Boucoyannis 2021), in 1294, Edward I, in exchange for noble support for the French war, "had called off the general eyre, a special judicial commission sent out periodically to tour the shires," leaving control of the local population largely under noble jurisdiction, too (Ormrod 2000, p. 273). In all, "[t]he monarch …was a feudal suzerain of his vassals [and] would have no direct political access to the population as a whole" (Anderson 1974, p. 151).

Although loyalty was also emphasized in Europe and enforced through mechanisms such as oaths, treason was punished much less harshly than in China. First, although execution of the traitor and attainder could apply, the family was seldom killed, and the attainder would often later be reversed (e.g., Lander 1961).[15] Second, it was common in the feudal system for a vassal to have two or more overlords (Bloch 1962a) and, when in conflict, he could simply choose which one to follow (e.g.,

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but mostly under eminent domain (Reynolds 2010); in case of serious crimes like treason, the nature of the crime had to be determined by law, not merely based on the Ruler's will (Lander 1961).

13.   In a famous case, when Fang Xiaoru, a prominent minister, refused to write an inaugural address for Emperor Yongle of Ming, the emperor sentenced 873 people to death, including Fang's family, kinfolk, friends, and students, before having Fang himself executed.

14.   In 713, Emperor Xuan of Tang, merely suspecting that his aunt Princess Taiping had been planning a coup, forced her to commit suicide and executed several dozen of her extended family and allies. Literary inquisitions for *potentially* subversive attitudes to the Ruler were also conducted at a frequency and scale much more significant than in Europe (e.g., Xue 2021).

15.   For example, during the reigns from Henry VI to Henry VII of England, 64% of the attainders were eventually reversed (Lander 1961, p. 149).

Cantor 1964, p. 202; Tuchman 1978; Mann 1986). Eventually, as Finer (1997b, p. 881) observes, the Ruler's control over the population was "abysmal" and he "could not always count on the fidelity of the vassal," precisely because his lack of ability to punish them: "after all, [they were] in possession of his lands and what could he do if defeated?"

2.3. *Elite-People Asymmetry in Their Everyday Power and Rights*

The power structures of imperial China and premodern Europe were also different in the relationship between the Elites and People. In the words of Bloch (1962b, p. 167), the disparity between "[a] subject peasantry" and "the supremacy of a class of specialized warriors" was one of "the fundamental features of European feudalism," and his final verdict on the system emphasizes its oppressiveness towards the poor (Bloch 1962b, p. 173). In contrast, prominent Chinese historian Lü Simian (1944, p. 347) summarizes the scenario in imperial China elegantly: "once the father or elder brother takes the throne, the sons and younger brothers," who are princelings themselves, "will become mere commoners" in terms of their power and rights. Weber (1978, p. 1047) observes that "[i]n practice some impure vocations were hereditary; [o]therwise there is not a trace of a caste system or of other status or hereditary privileges" in the Chinese Empire, "apart from an unimportant titular ennoblement which was granted for several generations." This difference in the Elite-People relationship was reflected in differences in, for example, the dominance of the hereditary versus non-hereditary access to elite status, inequality in land ownership, and the inheritance rule.

2.3.1. Hereditary vs. Non-hereditary Access to Elite Status.   In medieval Europe, elite status was governed primarily by hereditary nobility. As Finer (1997b, p. 879–880) explains, "lineage [was] much more important than initiation," while "the very right to be a vassal (i.e. to hold a fief) [was] confined to those already noble!" Government positions, especially in courts and the army, were largely reserved for aristocrats. Although ordinary peasants routinely performed military service as a privilege in the early Middle Ages, this was not the case later on and military service was reserved for knights and higher titled nobles (for more discussion, see, e.g., Wickham 2009). Access to priesthood and religious orders was not forbidden to commoners, but even after the Gregorian reform in the 11th century, "the abolition of …the hereditary ecclesiastical benefice" had remained a "formidable task" in western Christendom until as late as the 13th century (Kemp 1970, p. 1; Parish 2010, p. 88–92).

In contrast, as early as in the 5–4th centuries BC, the Warring States in China had started to abolish hereditary titles and make elite status open to the common people and dependent solely on military merit (Yan 2009, p. 23–24), while at the same time strengthening the absolute power of the Ruler. To facilitate the fluid exchange between the Elites and the People, the Sui dynasty (581–619) established the civil service exam to regulate elite status, and the exam system was greatly developed during the Tang dynasty (618–907). Notably, the exam was in principle open to almost all adult males.

Elite status gained via success in the exam could not be inherited. Data from tomb epitaphs from the Tang dynasty show that, as the exam system developed, "the effect of family pedigree on career advancement in the bureaucratic system decreased over time, [while] the effect of passing the *Keju* [exam] had been increasing over time" during this period (Wen et al. 2023, p. 7). Following the destruction of the aristocratic clans during the fall of Tang (Tackett 2014), elite status in China had been governed mainly by the exam system, while "feudalization, appropriation and the clientele attached to an office …were contained" (Weber 1978, p. 1049). Sustained by "a culture of merit," the resulting Chinese elites were "more diffuse [and] justified …on the basis of talent and education" instead of hereditary titles (Tackett 2014, p. 3, 5). This "would constitute one of the most striking distinctions between Chinese and Western societies over the course of the subsequent millennium" (Tackett 2014, p. 5).[16]

It may be worthwhile to comment here on the difference between the perceived and realized access to elite status. First, there is a lack of comparative historical evidence on the realized difference in access to elite status between imperial China and premodern Europe for the 9–14th centuries, when our characterization of the power structures was the most relevant. We thus do not take a strong stand on this subject.[17]

Second, we emphasize in our framework the perceived difference in the access to elite status, which is largely shaped by different formal institutional arrangements. The belief in society about the realized access to elite status can affect the stability of autocratic rule. For example, Bai and Jia (2016) show empirically that China's abolition of the civil service exam in 1905 caused an increase in revolutionary activities against the Qing court, contributing to the end in 1912 of not only the Qing dynasty but also of the imperial era. One interpretation for such evidence is that the People's belief in the alliance with the Ruler was temporarily broken when the abolition of the civil

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16. Hsing (2011, p. 47) comments that "compared to other major premodern civilizations," helped by the civil service exam, "China had the most open-access and fluid society with the least hue of a class system."

17. In medieval Europe, with the system of hereditary aristocracy, the most visible path of social preferment for commoners was the Church, which could have been comparable to the civil service exam in China. Nevertheless, it was still mainly the landowners, patricians, or clerics themselves, if allowed, who sent their children to the clergy, since only they needed to cut down the numbers of heirs *and* could afford losing precious family labor (Herlihy 1973; Barrow 2015). During the Avignon papacy, non-prebendary clerics could also petition the pope for minor benefices (Tihon 1925), but only "a small proportion of these expectancies took effect" (Zutshi 2000, p. 671). Also, the career prospects of these minor benefices were quite modest (Meyer 1990, p. 326), and "many of the poor clerks would already have links with the religious houses against whose patronage they received provision" (McDonald 1992, p. 347). All in all, the relevance of ecclesiastical careers to commoners was limited in practice. Herlihy (1973) identifies three main patterns of social mobility in medieval Europe, and ecclesiastical careers were not among them. For later periods, only scattered evidence for China and England is available. Ho (1959) documents that, during 1752–1938, 78%–88% of Cambridge students came from elite families, whereas between the 13th and 19th centuries, only 50%–65% of the highest degree holders (Jinshi) in the Chinese civil service exam system came from elite families; Clark (2014, p. 86) shows that the surname-approach estimate of the intergenerational correlation of elite status for England during 1380–1858 is about 0.81–0.85, whereas Hao and Clark (2012) show that the estimate from the same approach for Zhejiang and Jiangsu in China during 1645–1810 is about 0.81–0.89. These results suggest that during the studied periods, the realized social mobility in China was comparable to that in England, if not significantly higher.

service exam shut down the primary formal access of the commoners to elite status. This changed people's perception of their chance of advancement.

2.3.2. Inequality in Land Ownership.   In imperial China, peasants "were mostly free" (Finer 1997a, p. 205), "land-owning peasantry had been the main agent and form of agricultural production," and they "had mostly enjoyed the freedom of choice" (Chao and Chen 1982, p. 192–193).[18] In contrast, in early-medieval Europe, mostly between the 8th and 10th centuries, small peasants were gradually expropriated by rich aristocrats as well as by the Church, so that peasants gradually fell entirely under the control of landlords. This happened in many ways, as documented by Wickham (2009): first, in the aftermath of the Viking incursions, some landlords became richer and acquired more land, usually from poor peasants, either through payment or expropriation. Tenant peasants faced higher rents and greater control over their labor. They gradually became subject to the judicial control of landlords and completely lost their freedom, becoming feudal serfs. A main escape route for peasants was to flee to the cities, a process that accelerated with the Black Death, but those living in the countryside remained heavily under the control of landlords until much later.[19] In 17th-century England, around 70% of the land was still owned by landlords and gentry (Beckett 1984). Almost all scholars on China would agree that the corresponding number remained below 45% from the 6th century to the modern period (e.g., Esherick 1981; Chao and Chen 1982).[20] Even during the Tang dynasty when aristocratic families still had considerable political influence, they "did not maintain large landed estates over multiple generations" (Tackett 2014, p. 12).

2.3.3. Inheritance Rule.   The differences in land ownership concentration are related to differences in inheritance rules. China gradually switched from primogeniture to partible inheritance in the Qin and Han dynasties (221 BC–220), while primogeniture was becoming more common in the majority of medieval European countries (Cecil 1895; Goody et al. 1976; Bertocchi 2006; Fernández 2021; von Glahn 2016, p. 57, 324, 336; Huning and Wahl 2021). The effect of these rules on elite privilege is intuitive: partible inheritance makes it more difficult for elite families to accumulate assets over generations. As Goldstone (1991, p. 380) observes, in China, "land was generally divided among heirs, and over a few generations such division could easily diminish the land holdings of gentry families. At the same time, peasants, who could purchase …full title to their lands, might expand their holdings through good luck or hard work. Thus the difference between the gentry and the peasantry was not landholding per se, but rather the cultivation, prestige, and influence that came from success in the imperial exams."

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18.   See von Glahn (2016, p. 218, 297, 324) for a similar observation from the mid-late Tang dynasty on.

19.   It is important to note that the stronger property rights in land in Europe mainly concern whether the rights of landlords were independent of the arbitrary will of the Ruler, not whether small peasants enjoyed rights in their everyday life.

20.   For comprehensive coverage of the many works on England and China, see Zhang (2017).

3. Comparative Institutional Analysis

With these historical narratives in mind, we now introduce our model. We assume that there is a Ruler (R), who prefers a certain status quo of autocratic rule. The nature of the status quo is open to interpretation. For example, it can be a peaceful, unified autocratic rule across the territory. There is also a Challenger (C), who is unhappy about the status quo and can challenge it. This Challenger could be one or a group of nobles, lords, or bureaucrats, or some common people who are under R's rule, or a foreign threat, for example, a foreign king or nomadic invader. The challenge may or may not seek to dethrone R, and it may be violent or not. With such flexibility in interpretation, the model is sufficiently general to accommodate different types of threats to autocratic rule, such as external conflicts, elite revolts, coups, or secessions, popular uprisings, independence wars, and other non-violent attempts to alter the status quo, with or without a competing claim over the ruling position.

Besides R and C, we assume that there are also the Elites (E), i.e., the nobles, lords, and bureaucrats, and the People (P), which includes peasants and urban commoners, in the model. When interpreting E and P, depending on the identity of C, we exclude the initial challenger from E and P. For example, if C were a group of elites, then E would be the other elites; if C were a group of members of the commoners, then P would be the other members of the commoners.

We assume that both E and P have the agency to help R preserve the status quo, and we interpret E and P's actions as whether all significant members of each estate actively side with and fully support R to preserve the status quo or not, focusing on the alliance across R, C, E, and P. Naturally, unanimous actions were rare in reality, both within the elites and common people. Nevertheless, the model can be easily extended to analyze the collective action or coordination problem within each estate, on which a few studies have focused (e.g., Myerson 2008; Shadmehr and Bernhardt 2011).

There are two stages in the model. At Stage 2, C, E, and P play a game related to the stability of the status quo of autocratic rule, while taking the power structure as given. Stage 1 is about R's design of the power structure. For reasons discussed in Section 1, we assume that, at Stage 1, R takes the level of his absolute power as given and chooses the degree of asymmetry between E and P in their everyday power and rights, while foreseeing how C, E, and P will play at Stage 2. Across the two stages, we assume that all players maximize their own expected payoff. Given the two-stage structure, we will introduce and analyze Stage 2 first and then move back to Stage 1.

Relevance of the People. We have included the People in the model and assumed that they are relevant to the survival of the status quo of autocratic rule. As we show below, this setup creates the political alliance effect, i.e., C and E will take P's strategy into account when deciding whether to challenge the status quo and facilitate the challenge, respectively.

A concern may arise about whether this setup is realistic. Were the common People relevant in autocratic politics, especially in medieval Europe? In response to that concern, we first provide in Online Appendix A historical examples where the People's

position was critical in determining the outcome of a conflict, an important type of threat to autocratic stability in both Europe and China.

Second, our model is able to explain as an equilibrium outcome the fact that autocratic stability in Europe looked largely reliant on the Elites but not the People. Analysis in Section 3.1.2 suggests that if the Elite-People relationship is extremely asymmetric, as in medieval Europe, then it will be rare for the People to actively support the Ruler when called upon, making their action seemingly irrelevant and the Elites' behavior apparently decisive.

Finally, one may also note that even if we did not observe any significant move of the People in reality, it would not suggest that the People were irrelevant. On the contrary, they may have been influential in the off-equilibrium path, which we could not observe but may have been instrumental in supporting the observed outcome as an equilibrium.

3.1. Stage 2: Stability of Autocratic Rule

3.1.1. Setting.   Figure 1 presents the setting of Stage 2. Nature (N) first randomly draws a state of the world $x \geq 0$, following the exogenous cumulative distribution function $F(x)$. The random variable x will appear later as the cost born by P if she sides with R.

Given x, C will decide whether to challenge the status quo. If C does not challenge, then C will get her default payoff 0; E will get her exogenous status quo payoff $a > 0$; P will get βa, where $\beta \in [0, 1]$ measures the power symmetry between E and P in the status quo and is exogenous at this stage; R will get the exogenous total surplus π, net of the sum of E and P's status quo payoffs $(1 + \beta)a$, which is $\pi - (1 + \beta)a$ in total. Intuitively, we assume that $\pi - 3a \geq 0$, so that for any $\beta \in [0, 1]$, R's status quo payoff $\pi - (1 + \beta)a$ is never lower than P's status quo payoff βa. Stage 2 then ends there.

If C does challenge, instead, then E will decide whether to side with R. If E sides with R, then the status quo will survive. Stage 2 will end there with R, E, and P all getting their status quo payoffs, respectively, while the failed challenge will incur an exogenous loss $y > 0$ to C, leaving her the payoff $-y$.

If E does not side with R, instead, then it will be P's turn to decide whether to side with R. If P decides to side with R, then the state of the world x comes in as the cost incurring to P for the choice, while the status quo survives. In this scenario, C will still get $-y$ for the failed challenge; R will still get his status quo payoff $\pi - (1 + \beta)a$; P will get her status quo payoff βa but net of the cost x, which is $\beta a - x$ in total; E will now suffer a punishment because she has not sided with R, getting only γa instead of her status quo payoff a, where $\gamma \in [0, 1]$ is exogenous. A lower γ means that R has stronger absolute power to punish its subjects who have defied him. For simplicity, we assume that the destroyed part of E's status quo payoff, $(1 - \gamma)a$, evaporates and is not going to R; assuming otherwise would complicate Stage 1 with few additional insights. Stage 2 then ends there.

If P does not side with R either, then R will be left on his own. N will then determine randomly whether the status quo will survive. With exogenous probability $p \in (0, 1)$,
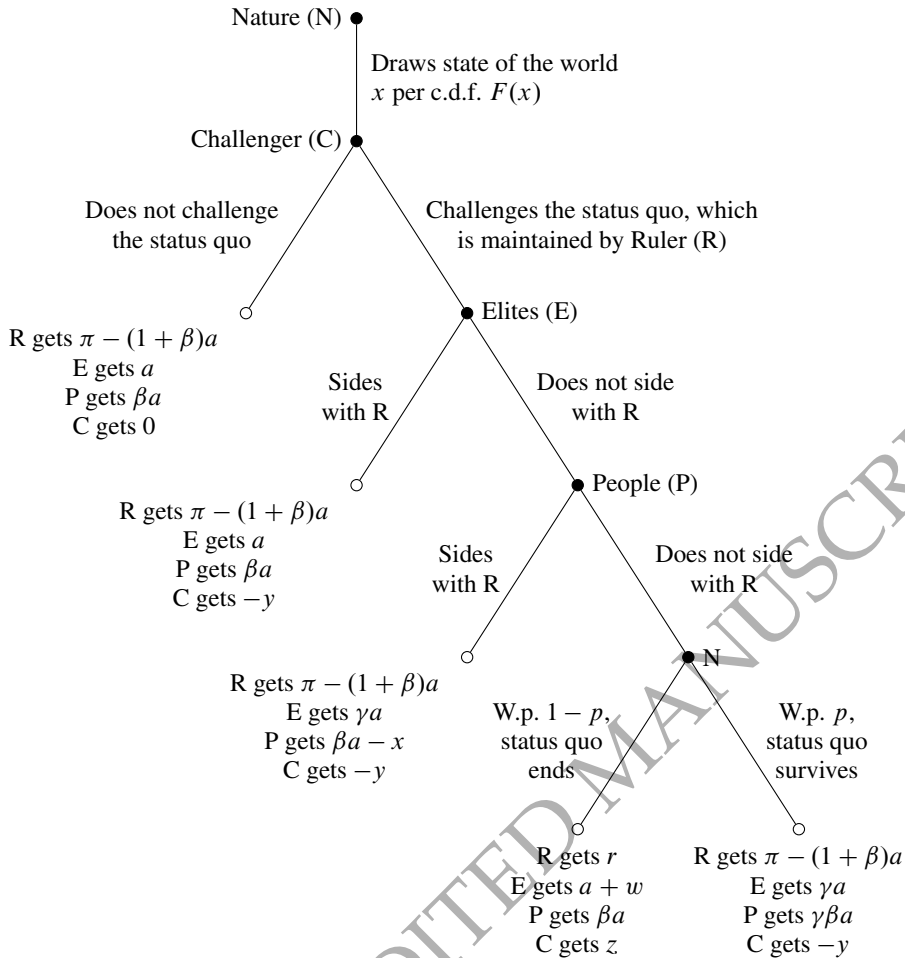
FIGURE 1.   Stage 2: Stability of autocratic rule. $x \geq 0, a > 0, \pi - 3a \geq 0 > r, 0 \leq \beta \leq 1, 0 \leq \gamma \leq 1,$
$0 < p < 1, w > 0, y > 0, z > 0.$

the status quo will survive, and C will still get $-y$ for the failed challenge; R will still
get his status quo payoff $\pi - (1 + \beta)a$; E and P will be punished, getting γa and $\gamma \beta a$,
respectively; as above, we still assume that the destroyed parts $(1 - \gamma)a$ and $(1 - \gamma)\beta a$
evaporate and are not going to R. Stage 2 then ends there.

   With probability $1 - p$, the status quo will end, leaving C with an exogenous prize
$z > 0$ and R an exogenous reservation payoff r, where we assume, intuitively, $r < 0$,
so that R would always prefer the status quo to survive. P will still get her status quo
payoff βa, while E will now get an exogenous incentive $w > 0$ for having not sided
with R, in addition to her status quo payoff a, so her total payoff will be $a + w$. Stage
2 then ends there.

   We assume that N's draws of x and whether the status quo will survive on R's own
are mutually independent. About the informational environment, we assume that in

Stage 2 there is complete and perfect information. We will thus use backward induction to solve for subgame perfect equilibria.

For simplicity, we assume that, when indifferent, E and P will side with R and C will not challenge. This assumption rules out mixed strategies. Insights from our results will remain if mixed strategies are allowed.

Before analyzing Stage 2, we make a few remarks:

Power structure, from historical narratives to the model. Given the historical narratives in Section 2, when formalizing the power structure, we have to make a choice. One option is to model the exact mechanism of each specific institution, for example, each specific constraint on the Ruler, the exact ownership of land, various methods of control of the population, hereditary versus non-hereditary access to elite status, degree of freedom of peasants, and the specific inheritance rule. The other is to focus on the general implications of these institutions on the power relationship among the Ruler, Elites, and People. Since the first option would involve modeling many institutional details that cannot easily be summarized in a stylized model, and since we can summarize the implications of all these institutions on the power structure in a general way, we opt for the second option.

When doing so, for one dimension of the power structure, we read the degree of symmetry between the Elites and People in their everyday power and rights as about the distribution of the social surplus in the status quo, π. Given that the Elites' status quo payoff is a, the People's would be βa, with the Ruler receiving the rest of the surplus, $\pi - a - \beta a$. The parameter $\beta \in [0, 1]$ thus indicates the degree of symmetry in the Elite-People relationship. Applying this to the comparison between imperial China and premodern Europe, China would have a higher β, i.e., a more symmetric Elite-People relationship, compared to Europe.

For the other dimension, we read the absolute power of the Ruler as to what degree the distribution of the social surplus is conditional on the ruled submitting to the will of the Ruler. We assume that when the Ruler has survived a challenge to his rule, he could punish the defiers by having them enjoy only $\gamma \in [0, 1]$ of their status quo payoff, i.e., γa for the Elites and $\gamma \beta a$ for the People. The parameter γ thus indicates negatively the degree of the aforementioned conditionality, i.e., the absolute power of the Ruler. Comparing imperial China and premodern Europe, Europe would have a higher γ, i.e., less absolutist Rulers, than China.

Potential dependence of P on E. One may consider that P's everyday power and rights may be conditional on E's will, too, i.e., P depends on E to some extent. In Online Appendix B, we explore an extension in which P will be punished if P and E end up on different sides when called upon. We show that as long as P's dependence on E is not too large, the main results of our analysis will remain; if otherwise, then R will not be able to influence P's behavior by adjusting the E-P relationship, so R will no longer have any incentive to build a political alliance with P.

Alternative sequences of moves. In the current setting, we have assumed that C, E, and P move sequentially. As we will show, this has the advantage of simplicity when we highlight the political alliance channel, through which the power structure affects E and C's equilibrium strategies via P's equilibrium strategy. The political alliance

channel always exists, unless P moves strictly earlier than both C and E, which is unrealistic because naturally C the Challenger must be among the first to move. Any other sequence of moves, for example, C, E, and P moving simultaneously, E and P moving simultaneously after C, or C, P, and E moving sequentially, would not affect the insights of our analysis. To confirm this point, we explore two examples of these alternative sequences in Online Appendix C.

Alternative approach to model the E-P relationship. About the payoffs, an alternative approach is to assume that E and P's status quo payoffs are $(1 - \beta') a'$ and $\beta' a'$, respectively, where $\beta' \in [0, 1/2]$ measures the E-P symmetry and $a' > 0$ measures the sum of their status quo payoffs, instead of a and βa, respectively, as in our current approach.

Comparing the two approaches, first, as shown in Proposition 1 below, C and E will follow P's strategy in equilibrium in Stage 2, and all further results depend only on how γ and β or β' would affect P's best strategy in the equilibrium. Since P's status quo payoffs have the same form in the two approaches, i.e., either βa or $\beta' a'$, the two approaches will thus deliver the same theoretical results.

That said, as shown in Proposition 1, the current approach helps us show that greater everyday power and rights of the People, i.e., a higher βa, which can be brought by a more symmetric Elite-People relationship, i.e., a higher β, can raise political stability even without directly hurting the Elites, i.e., not lowering a. As shown in Section 3.2 below, the current approach will also create a political–economic trade-off for R in Stage 1, making R's problem non-trivial. This is achieved without the help of any additional modeling device that would be necessary if the alternative approach were adopted.[21]

C and E's additional incentives to the power structure. As mentioned, C can be an outsider or an elite member or part of the people; the incentive for E not to side with R also depends on the specific context.[22] Thus, for generality and simplicity, we model any incentives of C and E that are additional to the power structure via the exogenous variables w, y, and z that are added to C and E's payoffs.

On the robustness of this approach, first, modeling these incentives as multiplicative terms would not affect our results, since Proposition 1 below will suggest that in the focal equilibrium, these additional incentives are irrelevant at the margin.

Second, one may suggest that these additional incentives can still be endogenous to the power structure characterized by β and γ, and the potential endogeneity may depend on whether R will be replaced after a successful challenge, and also on C and

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21. On the empirical side, there is little historical evidence comparing the Elites' power and rights between imperial China and premodern Europe, making it difficult to generate empirical implications about a or a'.

22. For example, E could hope to replace R in the challenge, or simply to get more power, rights, or other economic interests, or even to secede from the Ruler, without necessarily taking the ruling position; similarly, C could hope to replace R, or to secede from R, or simply to loot a great fortune in the challenge.

E's identities.[23] In light of this, in Online Appendix D, we endogenize these additional incentives by collapsing C and E into a single player E under the autocratic rule, making her look forward infinitely in a Markov game, and allowing her to replace R if her challenge succeeds. We show parallel results in the online appendix to the results in the main text.

P's additional incentive to the power structure. P's incentive not to side with R depends also on the specific context, for example, P's level and prospect of income, R's level of legitimacy, whether and how severely R is in a crisis, and whether P has an opportunity to revolt, all of which can be affected in turn by many random factors, and there can always exist an additive component in the incentive. We thus model this random, additive component in addition to the power structure as a single, exogenously drawn, state-of-the-world variable, i.e., the random cost x added to P's payoff when he sides with R. Modeling it alternatively as a reward for not siding with R would not affect our analysis.[24]

Revolution. One may entertain the idea that C may impose a new power structure after successfully toppling the status quo. In particular, P may act as C and wipe out R and E after a successful revolution, enjoying the surplus π without any conditionality. In Online Appendix E, we explore this alternative setting and show that all insights from the baseline model remain.

Potential commitment problems. Finally, one may propose two different types of commitment problems to be present within this stage. The first type concerns the credibility of the specified payoffs. On this issue, we consider the power structure as a social contract that is, once settled at Stage 1, difficult to break at Stage 2. As the specified payoffs are based on the settled power structure, we assume away commitment problems about these payoffs from this stage. We discuss in Section 3.3 the implications if the power structure can be changed between two repeatedly played Stages 2.

The other type concerns the credibility of any contract that R, C, E, and P could write among themselves at Stage 2, taking the power structure as given. We understand that this type of commitment problems can be severe: any threat R or C can exert upon E and P depends on the status quo's own survival or the success of C's challenge, respectively, and any reward R or C can promise to E and P is not too credible, since the need for cooperation will disappear once the status quo survives or C's challenge succeeds, respectively (e.g., Myerson 2008; Egorov and Sonin 2011). Given this understanding, we have chosen not to focus on the possibility of contracting among R, C, E, and P at Stage 2. That said, by Proposition 2 below, one can interpret R choosing a higher β at Stage 1 as an implicit contract between R and P where R grants more everyday power and rights to P in exchange for support. When players

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23.   For example, if C or E is to replace R after a successful challenge, then w or z will be endogenous to the power structure; if C is a lord or governor under R's rule, then y will depend on the power structure.
24.   Also, note that any incentive behind P's choice that is conditional on the outcome of the challenge, i.e., the fate of R's autocratic rule, is included in the power structure via the difference between $\gamma\beta a$ and βa.

are bargaining over other potential contracts, the power structure can also serve as the basis of their bargaining power. The severity of this type of commitment problems may be endogenous to the power structure. A more explicit exploration on contracting among R, C, E, and P could be interesting for future research.

3.1.2. Equilibrium Characterization.   We start the backward induction from P's strategy. In any subgame perfect equilibrium, P will side with R if and only if

$$\beta a - x \geq (1 - p) \cdot \beta a + p \cdot \gamma \beta a, \tag{1}$$

i.e., the cost of siding with R is not greater than the probability-adjusted punishment for not siding with R in case that C's challenge fails:

$$x \leq p \cdot (1 - \gamma)\beta a \equiv \hat{x}. \tag{2}$$

As mentioned when introducing the players of the model, one may note here that if the power structure has an extremely asymmetric relationship between E and P, i.e., if β is close to zero, then the critical threshold $\hat{x}$ will be extremely low, i.e., in equilibrium P will almost never actively help R out when called upon, making R largely reliant on E. P may thus look irrelevant to the fate of the status quo, but E must still consider P's strategy when solving for his own best strategy.

Now consider E's best strategy while expecting P's strategy in equilibrium, i.e., to side with R if and only if $x \leq \hat{x}$. When $x \leq \hat{x}$, P would side with R, so E will side with R; when $x > \hat{x}$, P would not side with R, so E will not side with R if and only if

$$a < (1 - p) \cdot (a + w) + p \cdot \gamma a, \tag{3}$$

i.e., the incentive for not siding with R is greater than the probability-adjusted punishment in case C's challenge fails:

$$w > \frac{p}{1 - p} \cdot (1 - \gamma)a. \tag{4}$$

This analysis implies that if this condition does not hold, then in any subgame perfect equilibrium, E will always side with R, so that it will be impossible for the status quo to end. Such equilibria are empirically irrelevant, as in reality the chance for the status quo to end was always strictly positive. Such equilibria are also theoretically trivial, in the sense that E will always side with R regardless of the state of the world. Therefore, to narrow our focus on empirically more relevant and theoretically less trivial scenarios, we assume $w > a \cdot p/(1 - p)$ so that for any $\gamma \in [0, 1]$, in any subgame perfect equilibrium, E will not side with R if and only if $x > \hat{x}$.

Under this assumption, consider now C's strategy while expecting these strategies of E and P in equilibrium. When $x \leq \hat{x}$, E would side with R, so C will not challenge the status quo; when $x > \hat{x}$, E and P would not side with R, so C will challenge the status quo if and only if

$$0 < (1 - p)z - py, \tag{5}$$

i.e., the prize from a successful challenge is greater than the probability-adjusted loss from a failed challenge:

$$z > \frac{p}{1-p} \cdot y. \tag{6}$$

This analysis implies that if this condition does not hold, then in any subgame perfect equilibrium, C will never challenge the status quo. Similar to the discussion above, such equilibria are empirically irrelevant and theoretically trivial. Therefore, to further narrow our focus on empirically more relevant and theoretically less trivial scenarios, we further assume $z > y \cdot p/(1-p)$ so that in any subgame perfect equilibrium, C will challenge the status quo if and only if $x > \hat{x}$.

Note that under the two assumptions we have introduced, we have found the unique strategy of each player in any subgame perfect equilibrium, so these strategies constitute a unique subgame perfect equilibrium. To summarize:

PROPOSITION 1.   *If $w > a \cdot p/(1-p)$ and $z > y \cdot p/(1-p)$, then for any $\beta \in [0, 1]$ and $\gamma \in [0, 1]$, there exists a unique subgame perfect equilibrium at Stage 2, in which C will challenge the status quo if and only if $x > \hat{x}$, E will not side with R if and only if $x > \hat{x}$, and P will not side with R if and only if $x > \hat{x}$, where $\hat{x} \equiv p \cdot (1 - \gamma)\beta a$.*

This equilibrium is indeed theoretically non-trivial, since in the equilibrium, whether C will challenge the status quo and start a challenge and whether E and P will side with R all depend on the state of the world. This equilibrium is also empirically relevant, since in the equilibrium, a challenge of the status quo can happen and E and P may not side with R, i.e., the probability of challenge $1 - F(\hat{x})$ can be strictly positive and the survival probability of the status quo

$$S = 1 - \left(1 - F(\hat{x})\right) \cdot (1 - p) \tag{7}$$

can be strictly lower than one. Therefore, to focus on this equilibrium, from now on we assume that the condition in Proposition 1 holds, i.e., $w > a \cdot p/(1 - p)$ and $z > y \cdot p/(1 - p)$.

3.1.3. Impact of Power Structure on Autocratic Stability.

PROPOSITION 2.   *At Stage 2, a higher β and a lower γ decrease the probability of challenge and increase the survival probability of the status quo of autocratic rule in equilibrium.*

Proof. By Proposition 1, the probability of challenge is $1 - F(\hat{x})$ and the survival probability of the status quo is $S = 1 - \left(1 - F(\hat{x})\right) \cdot (1 - p)$. A higher $\hat{x}$ lowers $1 - F(\hat{x})$ and raises S. Since a higher β and a lower γ raise $\hat{x} \equiv p \cdot (1 - \gamma)\beta a$, the proposition follows.   □

Intuition. The intuition of Proposition 2 deserves more discussion. In the model, β and γ influence the stability of the status quo in equilibrium by their impacts on P, E,

and C's equilibrium strategies. We discuss each of these impacts. First, the impacts of β and γ on P's strategy in equilibrium are straightforward: by Equation (2), P's strategy hinges on the comparison between her cost x for siding with R and the probability-adjusted punishment $\hat{x} \equiv p(1 - \gamma)\beta a$ for not siding with R in case C's challenge fails; both a higher β and a lower γ impose a heavier punishment $(1 - \gamma)\beta a$, making P more willing to side with R in equilibrium. We can say that these impacts work through a generic, *punishment* channel.

Second, the impact of γ on E's strategy in equilibrium generally goes through two channels. The first is again the punishment channel: a lower γ imposes a heavier punishment $(1 - \gamma)a$ on E in case C's challenge fails, making E more willing to side with R *given any strategy of P*, including the one in equilibrium. The second, which is new, is a strategic, *political alliance* channel: a lower γ makes P more willing to side with R in equilibrium, lowering the chance for C's challenge to succeed and, therefore, making E more willing to side with R in the first place. This channel exists because P is relevant to whether the status quo can be preserved. Therefore, through both channels a lower γ makes E more willing to side with R in equilibrium.

In the specific case of Proposition 2, under the condition $w > a \cdot p/(1 - p)$, E always prefers "both herself and P not siding with R" to "herself siding with R", and further to "herself not siding with R while P siding with R." Meanwhile, P will always either side with or not side with R, and her decision solely depends on x, so E does not face strategic uncertainty about P. Therefore, a heavier punishment upon E brought by a lower γ would not change the fact that E's best response to P's strategy in equilibrium is to "follow" P's strategy, i.e., to switch between to side or not to side with R at $x = \hat{x}$. Therefore, the punishment channel is muted and we observe only the political alliance channel.

Finally, the impact of β on E's strategy and the impacts of β and γ on C's strategy in equilibrium go only through the political alliance channel: β does not affect E's payoffs at any ending node of the game, and β and γ do not affect C's payoffs at these nodes. A higher β, however, makes E more willing to side with R by making P more willing to side with R in equilibrium. Also, a higher β and a lower γ make C more reluctant to challenge by making P and E more willing to side with R in equilibrium.

To summarize, Proposition 2 reveals that both a higher β and a lower γ will make P more willing to side with R. E will thus be more willing to side with R. Therefore, C will be more reluctant to challenge the status quo in the first place. The probability of challenge is then lowered and the status quo becomes more stable. In our specific setting, a generic punishment channel appears in β and γ's impacts on P's strategy. It exists in γ's impact on E's strategy but is muted, with only a strategic political alliance channel visible. Only the political alliance channel is present in β's impact on E's strategy and in β and γ's impacts on C's strategy. All these make the impacts of β and γ on political stability come only from their impacts on P's switching threshold $\hat{x}$, providing much simplicity for the result.

Proposition 2 thus highlights the critical role of an alliance between R and P in stabilizing autocratic rule. This proves crucial in R's design of the power structure at Stage 1, as we will see below. Also, by Proposition 2, compared with Europe, a higher

β and a lower γ make autocratic rule more stable in China. We will return to this implication in Section 4.

3.2. Stage 1: Design of the Power Structure

3.2.1. Setting.   This stage characterizes how R's incentive to promote the symmetry between E and P depends on the level of his absolute power. As discussed in Section 1, we assume that R at this stage simply chooses β, while foreseeing the equilibrium at Stage 2 and taking γ as given. This is to say that, given the distinction between β and γ, we do not allow any change in β to be translated into a change in γ. In Section 3.3 we discuss an extension that would allow such a link in dynamics. Here R's program is

$$\max_{\beta} \quad V^R \equiv (\pi - (1 + \beta)a) \cdot S + r \cdot (1 - S), \tag{8}$$

$$\text{subj. to:} \quad 0 \le \beta \le 1, \quad S = 1 - (1 - F(\hat{x})) \cdot (1 - p), \quad \hat{x} = p \cdot (1 - \gamma)\beta a, \tag{9}$$

where V^R is R's expected payoff from Stage 2. Without loss of generality, we also assume that the state of the world x has a uniform distribution in the relevant range, i.e., $F(x) \equiv fx$ over $x \in [0, pa]$, where $f \in (0, 1/pa]$ is a constant. As we establish in Online Appendix F, the main result is robust as long as the probability density is not diminishing too quickly, which we do not find unreasonable.

3.2.2. Institutional Compatibility.

PROPOSITION 3.   *At Stage 1, given γ, R's optimal choice of β is:*

- *if $\gamma \ge \bar{\gamma} \equiv 1 - 1 / (\pi - a - r)(1 - p)f$, then R will choose $\beta^* = 0$;*
- *if $\gamma \le \underline{\gamma} \equiv 1 - 1 / (\pi - 3a - r)(1 - p)f$, then R will choose $\beta^* = 1$;*
- *if $\underline{\gamma} < \gamma < \bar{\gamma}$, then R will choose*

$$\beta^* = \frac{1}{2a} \cdot \left(\pi - a - r - \frac{1}{(1 - \gamma)(1 - p)f} \right) \in (0, 1), \tag{10}$$

which is strictly decreasing over $\gamma \in [\underline{\gamma}, \bar{\gamma}]$. Therefore, R's choice β^* is weakly decreasing over $\gamma \in [0, 1]$.

Proof.   By $S = 1 - (1 - F(\hat{x})) \cdot (1 - p)$, $\hat{x} = p \cdot (1 - \gamma)\beta a$, and $F(x) = fx$ over $x \in [0, pa]$, the marginal impact of β on stability S is

$$\frac{dS}{d\beta} = (1 - p) \cdot \frac{dF(\hat{x})}{d\beta} = (1 - p)pf \cdot a \cdot (1 - \gamma). \tag{11}$$

The marginal impact of β on R's expected payoff V^R is thus

$$\begin{aligned}
\frac{dV^R}{d\beta} &= (\pi - (1 + \beta)a - r) \cdot \frac{dS}{d\beta} - aS \\
&= (\pi - (1 + \beta)a - r) \cdot (1 - p)pf \cdot a \cdot (1 - \gamma) - aS.
\end{aligned} \tag{12}$$

Observe that the second-order marginal impact of β on V^R is, for any $\gamma \in [0, 1)$,

$$\begin{aligned} \frac{d^2 V^R}{d\beta^2} &= -a \cdot (1-p)pf \cdot a \cdot (1-\gamma) - a \cdot \frac{dS}{d\beta} \\ &= -2a \cdot (1-p)pf \cdot a \cdot (1-\gamma) < 0, \end{aligned} \tag{13}$$

which suggests $dV^R/d\beta$ is strictly decreasing over $\beta \in [0, 1]$.

We can now solve the program by three cases:

- if $dV^R/d\beta|_{\beta=0} \le 0$, i.e., $\gamma \ge 1 - 1/(\pi - a - r)(1-p)f \equiv \bar{\gamma}$, then $\beta^* = 0$;
- if $dV^R/d\beta|_{\beta=1} \ge 0$, i.e., $\gamma \le 1 - 1/(\pi - 3a - r)(1-p)f \equiv \underline{\gamma}$, then $\beta^* = 1$;
- if $dV^R/d\beta|_{\beta=0} > 0$ and $dV^R/d\beta|_{\beta=1} < 0$, i.e., $\underline{\gamma} < \gamma < \bar{\gamma}$, since $dV^R/d\beta$ is continuous over $\beta \in [0, 1]$, then $\beta^* \in (0, 1)$ must uniquely solve the first-order condition

$$\frac{dV^R}{d\beta}|_{\beta=\beta^*} = 0. \tag{14}$$

By $S = 1 - (1 - F(\hat{x})) \cdot (1-p)$, $\hat{x} = p \cdot (1-\gamma)\beta a$, and $F(x) = fx$ over $x \in [0, pa]$, again, this first-order condition is equivalent to

$$(\pi - (1 + 2\beta^*)a - r) \cdot (1-p)f(1-\gamma) - 1 = 0, \tag{15}$$

which derives

$$\beta^* = \frac{1}{2a} \cdot \left(\pi - a - r - \frac{1}{(1-\gamma)(1-p)f} \right). \tag{16}$$

Now consider comparative statics and focus on the case in which $\underline{\gamma} < \gamma < \bar{\gamma}$. One can see the strict monotonicity by the solution, while a more general approach is to examine how γ affects $dV^R/d\beta$. To do that, first note that

$$\frac{dS}{d\beta} = (1-p)pf \cdot a \cdot (1-\gamma), \tag{17}$$

which is proportional to $1 - \gamma$, i.e., the stabilizing effect of a greater E-P symmetry is governed by R's absolute power, and we have

$$\frac{\partial^2 S}{\partial \gamma \partial \beta} = -(1-p)pf \cdot a. \tag{18}$$

Second, by $S = 1 - (1 - F(\hat{x})) \cdot (1-p)$, $\hat{x} = p \cdot (1-\gamma)\beta a$, and $F(x) = fx$ over $x \in [0, pa]$, we have

$$\frac{dS}{d\gamma} = (1-p) \cdot \frac{dF(\hat{x})}{d\gamma} = -(1-p)fp\beta a. \tag{19}$$

Therefore, by $\beta \in [0, 1]$ and $\pi - 3a \ge 0 > r$, we have

$$\begin{aligned} \frac{\partial^2 V^R}{\partial \gamma \partial \beta} &= (\pi - (1 + \beta)a - r) \cdot \frac{\partial^2 S}{\partial \gamma \partial \beta} - a \cdot \frac{dS}{d\gamma} \\ &= -(\pi - (1 + \beta)a - r) \cdot (1-p)pf \cdot a + a \cdot (1-p)fp\beta a \\ &= -(1-p)pfa \cdot (\pi - (1 + 2\beta)a - r) \\ &\le -(1-p)pfa \cdot (\pi - 3a - r) < 0, \end{aligned} \tag{20}$$

i.e., a lower γ will shift $dV^R/d\beta$ strictly up. Since $dV^R/d\beta$ is continuous and strictly decreasing over $\beta \in [0, 1]$, a lower γ will thus strictly raise β^*, i.e., the value of β that uniquely solves the first-order condition $dV^R/d\beta = 0$. The proposition is then proved. $\qquad\square$

Intuition. The intuition of Proposition 3 is as follows. A more symmetric E-P relationship, i.e., a higher β, has two effects on R's expected payoff, V^R. Politically, it stabilizes the status quo so that R will have a higher probability to enjoy her status quo payoff, i.e., $dS/d\beta > 0$. Economically, it gives more status quo payoff to P so that R's status quo payoff will become smaller, i.e., $d(\pi - a - \beta a)/d\beta < 0$. These two effects thus constitute a political–economic trade-off. When choosing the degree of the E-P symmetry, β, R needs to balance the two sides of this trade-off at the margin, i.e., to solve the first-order condition $dV^R/d\beta = 0$, whenever possible.

Therefore, how a weaker absolute power of R, i.e., a higher γ, affects this optimal choice depends on how it affects the two sides of this trade-off. That said, since R's reservation payoff is sufficiently low, i.e., $r < 0 \leq \pi - 3a$, R's concern of stability is so important that we can just focus on the political side when doing comparative statics, i.e., how a higher γ affects the stabilizing effect of a higher β.

This stabilizing effect of greater E-P symmetry is indeed governed by the absolute power of R: a weaker absolute power suggests that P will not lose much status quo payoff if punished for not helping R against a challenge. Any additional status quo payoff would thus not make P much more loyal to R. It will thus not make E much more loyal toward R, and C not be much more reluctant to challenge. The key assumption that leads to this intuition is that the punishment on P, i.e., $(1 - \gamma)\beta a$, is multiplicative between $1 - \gamma$ and β. We find this assumption uncontroversial, since in reality, those who have more would often be more concerned about losing what they have, when punished for defiance.

Therefore, as illustrated in Figure 2, a weaker absolute power of R, i.e., a higher γ, will weaken the stability concern in R's trade-off, leading R to choose a lower degree of E-P symmetry, i.e., a lower β^*. In particular, if his absolute power is sufficiently weak, i.e., $\gamma \geq \bar{\gamma}$, he will make the E-P relationship as asymmetric as possible, i.e., $\beta^* = 0$; at the other end, if R is sufficiently absolutist, i.e., $\gamma \leq \underline{\gamma}$, he will make the E-P relationship as symmetric as possible, i.e., $\beta^* = 1$.

Further analysis. A few questions can be further raised on Proposition 3. For example, would the institutional compatibility hold the other way around, i.e., would a more symmetric Elite-People relationship magnify the stabilizing effect of the absolute power of the Ruler? How would the Ruler choose the Elites' status quo payoff (a) if he had a chance, and how would a affect the Ruler's political–economic trade-off discussed above? What is the role of the Ruler's capability of preserving the status quo on his own (p)? We explore these questions in Online Appendix G, trying to analyze further while keeping the main text focused.
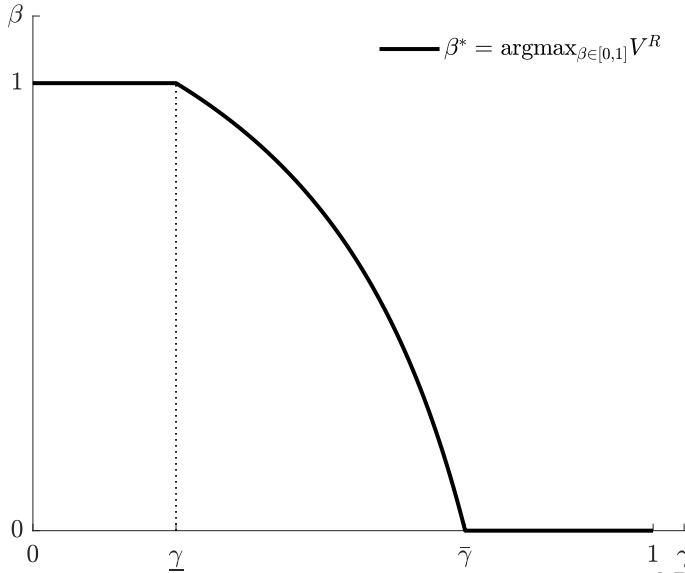
FIGURE 2.   Ruler's choice β^* as a function of γ, an example. Specification: $\pi = 30, a = 7, r = -0.1,$ $p = 0.5, x \sim U[0, pa]$.

3.3. Extensions: Endogenizing Absolute Power

So far we have taken the level of the absolute power of the Ruler γ as exogenous. Here we introduce two extensions in which we endogenize γ and derive additional implications.

3.3.1. People's Perspective on the Ruler's Absolute Power.   One may argue that γ would eventually depend on the legitimacy that P has granted to R in the first place. Along this argument, if before Stage 1 P has an opportunity to choose γ, will P always prefer a higher γ, i.e., a less absolutist Ruler?

COROLLARY 1.   *If P could choose γ before Stage 1, then P would prefer any $\gamma < \underline{\gamma}$ over any $\gamma > \bar{\gamma}$.*

Proof. Given the β–γ power structure, P's expected payoff in equilibrium at Stage 2 is

$$
\begin{aligned}
V^P &= \gamma \beta a \cdot \left(1 - F(\hat{x})\right) \cdot p + \beta a \cdot \left(1 - \left(1 - F(\hat{x})\right) \cdot p\right) \\
&= \beta a \cdot \left(1 - \left(1 - F(\hat{x})\right) \cdot (1 - \gamma) \cdot p\right).
\end{aligned}
\tag{21}
$$

By Proposition 3, if $\gamma > \bar{\gamma}$, R will choose $\beta^* = 0$; if $\gamma < \underline{\gamma}$, R will choose $\beta^* = 1$. Note that $V^P|_{\gamma < \underline{\gamma}, \beta=1} > 0 = V^P|_{\gamma > \bar{\gamma}, \beta=0}$. The corollary is then proved. $\square$

The intuition is as follows. On the equilibrium path at Stage 2, P will never side with R when called upon. Therefore, she will receive either her status quo payoff βa or her post-punishment payoff $\gamma \beta a$. Given a sufficiently high $\gamma > \bar{\gamma}$, R will choose $\beta^* = 0$ at Stage 1, so P will receive a zero payoff; any sufficiently low $\gamma < \underline{\gamma}$ will induce R to choose $\beta^* = 1$, granting P a strictly positive payoff. P will then prefer any sufficiently low $\gamma < \underline{\gamma}$ over the sufficiently high $\gamma > \bar{\gamma}$ before Stage 1.

To clarify, we focus on the extreme case to highlight that it is not always the case that P will prefer a high to a low γ; instead, P may tolerate a quite absolutist R. We will return to this in Section 4 when discussing the persistence of the power structure in China.

3.3.2. Allowing Current Stability to Shape Future Power Structure.   One may also argue that R may want to invest in a stronger absolute power, but such endeavour may rely on his current strength to succeed. Along this thinking, in Online Appendix H, we consider a dynamic setting in which Stage 2 gets played repeatedly over different periods. In each period, the power structure is determined in two steps: first, higher initial stability of autocratic rule leads to a stronger current absolute power of the ruling position; second, R takes the current absolute power as given and follows Proposition 3 to choose the degree of E-P symmetry.

In this setting, the more stable R's autocratic rule today, the stronger the absolute power of the ruling position tomorrow; with a stronger absolute power, R tomorrow will also choose a more symmetric Elite-People relationship. With a stronger absolute power and a more symmetric Elite-People relationship, by Proposition 2, the autocratic rule tomorrow will be even more stable, thus creating a dynamic complementarity between autocratic stability and the power structure.

As we show in Online Appendix H, if multiple steady states of (β, γ, S) exist, by this dynamic complementarity, these steady states can be sorted uniquely, i.e., a stronger absolute power of R, a more symmetric Elite-People relationship, and a higher autocratic stability are always associated with each other in one steady state when comparing any two different steady states. There can thus be a dual divergence of the power structure and autocratic stability from slightly different initial conditions. In particular, in the political divergence of imperial China and premodern Europe, any early difference between the power structures and autocratic stability of the two societies may persist or even widen over time. Here we summarize the implication as follows:

COROLLARY 2.   *Consider two societies, one of them having had a lower γ, a higher β, and a higher S at an early time. These two societies may diverge towards different steady states, and in their respective steady states, the aforementioned society will feature a lower γ, a higher β, and a higher S, compared to the other.*

4. Implications of Results

In this section, we further discuss the implications of our theoretical results. In addition to the general comparison between imperial China and premodern Europe in Section 2, we discuss how our results can help us understand some specific institutions and variations in power structures within China and Europe. Guided by Proposition 2, we also briefly discuss the stylized facts comparing autocratic stability between the two societies.

4.1. Europe

4.1.1. Push for Less Elite-People Asymmetry.   Proposition 2 implies that greater Elite-People symmetry (a higher β) would help to stabilize an autocratic rule through a strategic alliance between the Ruler and People against the Elites. Consistent with this implication, Weber (1978) observes that "monarchs throughout the ages, from ancient Mesopotamia up to Imperial Germany, have been welfare-minded because they needed the support of the lower strata against the higher; …the stability of monarchy rests in part on the ruler's ability to balance" the "lower" and the "higher strata" (Roth 1978, p. xxxix). Premodern Europe was not an exception; Orwell (1947, p. 17) once commented that the idea of the Ruler and the People "being in a sort of alliance against the upper classes" is "almost as old as history."

Furthermore, Proposition 3 implies that a more absolutist Ruler (a lower γ) would prefer a smaller degree of Elite-People asymmetry (a higher β). This implication is consistent with many anecdotes that the rise of a more absolutist king in Europe was often accompanied by his push to raise the status of the commoners, as a counterweight against aristocratic power. For example, during the reign of Louis IX of France, "the revival of royal power …favoured the personal freedom of the peasantry …because this meant gaining the support of the peasants and limiting seigneurial powers" (Sivéry 1999, p. 43–44, 49); in Tudor England, when the dissolution of the monasteries (1536–1541) indicated a rise of the Ruler's absolute power under Henry VIII, the gentry, who were commoners, also had their power and rights grow relative to the peerage, who were the Elites (Heldring et al. 2021).

Moreover, Proposition 3 implies that the effectiveness of the Ruler's efforts toward a smaller degree of Elite-People asymmetry hinges on whether the "social power and honor" granted to the lower strata "were entirely dependent" on the Ruler (Weber 1978, p. 1043). For example, compared with his predecessors who were "only the preserver of law [a]ccording to the graduated constitution of the medieval world," Frederick II of the Holy Roman Empire was deemed "the creator of law" in the Constitutions of Melfi, enjoying a greater degree of absolute power (Kantorowicz 1957, p. 230–231). He "selected …men …from every rank" into his service (Kantorowicz 1957, p. 235). Most importantly, this was done "by a special act of the Emperor's grace"; "[t]hese officials …held their posts not as a beneficium, a fief to possess, but as an officium, a service to fulfil"; "their offices are not transferable" and 'no[t] hereditary'"; "[t]he official remains an official, as long as the Emperor considers him worthy, …irrespective of his personal

worthiness or unworthiness" (Kantorowicz 1957, p. 235). All in all, the elevation of these commoners was conditional purely on the will of the emperor himself. As a result, Frederick II was "effective" in "co-opt[ing] whom [he] please[d]" and "imping[ing] on private powers" (Levenson 1965, p. 40).

4.1.2. Cities in Medieval and Early Modern Europe.   The logic of the argument above applies to one significant aspect of the Ruler's efforts toward a more symmetric Elite-People relationship in medieval and early modern Europe, i.e., the issuing of charters that granted certain rights to the People in cities against local Elites.[25] Consistent with Proposition 2, these charters could help stabilize the Ruler's rule. For example, "Philip [II of France] knew that in recognizing a commune, he was binding the citizens of that town to him. At critical moments in the reign the communes …proved staunch military supporters. …From the point of view of the communes …the king was their natural ally, a counter to the main opponents of their independence, the Church or the magnates" (Bradbury 1998, p. 236). Louis VII had the same insight and "gave encouragement to the commune movement and received reciprocal support from the communities, at the expense of local lords" (Bradbury 1998, p. 32).[26]

By Proposition 3, however, this stabilizing effect would be more limited if the Ruler's absolute power were weaker. Because a European Ruler was generally constrained by his own charters, he would find it difficult to punish the cities by retracting the granted rights. Because of this, granting more power and rights to cities might not help a not-so-absolutist Ruler in creating a political alliance with urban commoners to secure his position. In this sense, when a Ruler in Europe freed a city from its feudal lords, he ran the risk of freeing it also from himself. Notable examples can be found during the rise of cities and boroughs in England and the free imperial cities in the Holy Roman Empire.[27] Therefore, under the generally weak absolute

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25.   One may note that Chinese cities differed from European cities in nature; "the paradigmatic medieval towns of Europe which practised trade and manufactures were self-governing communes, enjoying corporate political and military autonomy from the nobility and the Church," while "in China, vast provincial agglomerations were controlled by mandarin bureaucrats resident in a special district, [i.e., the city,] segregated from all commercial activity" (Anderson 1974, p. 150), and these bureaucrats "were centrally appointed" within a "highly centralized governing structure" since as early as the Han dynasty (Noreña 2015, p. 197–198). We thus do not apply our interpretation of European cities to Chinese cities.

26.   On the economic consequences of cities freeing peasants from local lords, see Cox and Figueroa (2021).

27.   In England, in May 1215, facing rebelling barons, King John chartered the right of Londoners to elect their own mayor, together with other rights, "[i]n a last attempt to win the city" (Williams 1963, p. 6). This proved futile: in June, still, "discontent citizens joined the barons in enforcing the signing of Magna Carta; the Mayor [of London] was the only commoner whose name appeared among the signatories" (Porter 1994, p. 25–26). Magna Carta eventually extended the city rights by confirming in Article 13 that "the city of London [and] all other cities, boroughs, towns, and ports shall have all their liberties and free customs" (McKechnie 1914, p. 241). Angelucci et al. (2022, p. 3441–3443) also document that "[b]eginning in the twelfth century, some merchant towns and the king entered a mutually beneficial agreement …that granted [them] autonomy in tax collection and law enforcement," but "over the subsequent centuries [these] self-governed towns strengthened the role of Parliament …as a check vis-à-vis the Crown." Similarly, in the Holy Roman Empire, "the free towns had been winning valuable privileges in addition to those which they

power of European Rulers, the European population that enjoyed cities' privileges was relatively small at the eve of the modern times (e.g., Cantor 1964; de Vries 1984, p. 76; Bairoch et al. 1988; Boucoyannis 2021, p. 19).

4.1.3. Regional Variation.   One may want to test Proposition 3 across regions within Europe. We are not aware of data that systematically characterize power structures across localities. Nevertheless, some comparative historical narratives can shed light on the subject.

One example is the comparison between England and France in the 10–11th centuries. In France, "princes were entitled to act as partners in ruling," so that "any historian looking at tenth-century history from the ruler's point of view is bound to …compare unfavourably the [French] kings' authority against that wielded by …their contemporary kings in …England" (Dunbabin 1999, p. 376). In terms of the Elite-People asymmetry, following "the collapse of the Carolingian Empire in the 9th century," there was a rise of "the duchies and marquisates," who "presided over an increasingly articulated vassalage system with a servile peasantry beneath it" (Anderson 1974, p. 156, 161; Dunbabin 1999, p. 376). In particular, in northern France, which has been long considered to be the archetype of feudal society (e.g., Bloch 1962a), "[h]arsh seigneurial jurisdictions over an enserfed rural mass, which had lost any popular courts of its own, prevailed virtually everywhere" (Anderson 1974, p. 156), and this was due to "pragmatism on the part of the kings" (Dunbabin 1999, p. 376). This significant asymmetry between the Elites and People as an almost conscious choice by kings who had a weak absolute power is consistent with Proposition 3.

"In England, by contrast, a centralized [form of] feudalism was imported …by the Norman conquerors, and systematically implanted from above, in a compact land that was only a quarter the size of France," which resulted in a greater absolute power of "[t]he monarchy [who] possessed a relatively advanced and coordinated administrative system, with royal taxation, currency and justice effective throughout the country" (Anderson 1974, p. 158–159). At the same time, "[t]he peasantry were by …the mid 11th century …generally semi-dependent tenants," and "in the North-Eastern areas of former Danish settlement …allodial plots of 'sokemen' were more numerous," indicating a less asymmetric Elite-People relationship. This comparison with the power structure in France is consistent with Proposition 3.[28]

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already possessed, and the wealthier among them, like Lübeck and Augsburg, were practically *imperia in imperio,* waging war and making peace, and ruling their people without any outside interference," even from the Emperor (Holland 1911, p. 342).

28. One may add 10th-century Germany into the comparison. In terms of the absolute power of the Ruler, the feudal relationship between the German king and his vassals retained more of a flavor of "pure subordination" or being "half-servile" (Bloch 1962a, p. 180), and Dunbabin (1999, p. 376) rates the absolute power of the kings in East Francia as similar to the kings in England and stronger than the kings in West Francia. In terms of the Elite-People asymmetry, "the distinction between military service and the cultivation of the soil, the real foundation …of the cleavage between classes" of the nobility and peasantry, was much less significant in Germany than in France, to the extent that warriors of Henry I of East Francia "were themselves genuine peasants, cultivating the soil with their own hands" (Bloch 1962a,

Consistent with Corollary 2 and Online Appendix H on the dynamics of the power structure, this pattern of differences between England and France persisted through the Middle Ages. In England, compared with other European countries, "an allodial peasantry with strong communal institutions persisted well after the onset of stable hierarchical differentiation in rural society," and "the peculiar combination of a highly centralized State and a resilient popular justice ...distinguished mediaeval England thereafter" (Anderson 1974, p. 155, 160). Eventually, by the end of the Middle Ages, "greater numbers of the peasantry achieved free status, [whereas] law and order was becoming more concentrated in the hands of royal justices" (Challet and Forrest 2015, p. 286). By contrast, "France was, in this respect, moving at a slower pace than England, given the resistance that the Crown encountered when encroaching on the territory of provincial dukes and princes" (Challet and Forrest 2015, p. 286). In particular, consistent with Proposition 2, the French power structure had led to "precarious ...royal control exercised from Paris, ...all too evident ...inner instability," and eventually "prolonged civil wars" throughout the 14–16th centuries (Anderson 1974, p. 158).

Another example is the contrast between 13th-century northern and southern Italy. In the north, "as Frederick II's efforts to reimpose imperial authority failed, monarchical power was recreated at the local level," and "[b]y 1300 most cities of northern Italy were under signorial rule; nearly all of those that were not ...soon followed" (Dean 1999, p. 458). Notably, these Rulers "were masters, not lords of their cities, [and held] arbitrary power" (Dean 1999, p. 458). Consistent with Proposition 3, it was also there that many features of a smaller degree of Elite-People asymmetry were seen: "mounted military service was compulsory for all male citizens above a set level of wealth, ...knighthood as a means of entry into aristocratic society [was] open even to former serfs, [and] it remained possible for new families to enter the patriciate by adopting the chivalric values of the urban nobility"; "the fiscal privileges attendant upon nobility [were] reduced, ...making nobility more than ever a matter of values and style," as "the partible inheritance customs ...acted to dissolve ...powerful noble lordships" (Stacey 1999, p. 22–23).

In the south, "by contrast, ...knighthood [was] more often restricted to the descendants of knights"; "[u]rban life itself was far less developed, and the structures of rural lordship were more securely in the hands of a territorialised nobility," helped by "[i]nheritance customs [of] indivisibility" (Stacey 1999, p. 22–23). In addition, "[t]ax exemptions on feudal property became more securely established" (Stacey 1999, p. 23). Consistent with Proposition 3, this greater asymmetry between the Elites and People in the south was maintained under a weak absolute power of the king, despite the legacy of Frederick II in the Constitutions of Melfi; there was a "consistent difficulty" of competing claims of "the right to grant the [Sicilian] kingdom's crown" between the "assemblies of barons, ...leading townspeople, [and] the papacy

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p. 180), and "a free allodial peasantry" still existed (Anderson 1974, p. 162). All these are consistent with Proposition 3, too.

…throughout the thirteenth, fourteenth and fifteenth centuries"; in particular, "the recognition by the Norman kings of papal overlordship …was reactivated in the late thirteenth century under Charles I and II of Anjou" (Abulafia 1999, p. 499). Most kings of Sicily had thus been yearning for a stronger absolute power, while under "continued pressure" not only "from papal armies," but also from other "candidate[s] for the Sicilian throne …on the papal shortlist" (Abulafia 1999, p. 506–508).

4.2. China

4.2.1. Bureaucracy and Civil Service Exam.   Our model can help us understand specific institutions without explicitly modeling them in detail. One such example is the Chinese bureaucracy with the civil service exam, the hallmark of the institutions of imperial China (e.g., Finer 1997a,b).

In our power-structure framework, we can read the institution primarily as the Ruler raising β by generalizing access to elite status, which created the prospect of a stronger alliance between the Ruler and People. In China, the idea that a Ruler–People alliance against the Elites strengthened autocratic stability, which is consistent with Proposition 2, can be traced to no later than *Han Feizi* from the 3rd century BC, which is the most representative text in the Chinese Legalist tradition (Watson 1964, p. 87; Hsing 2011, p. v).

By Proposition 3, Chinese Rulers would have a greater incentive to expand the rights of the People when they enjoyed stronger absolute power (a lower γ). This is consistent with the fact that the civil service exam was first introduced during the Sui dynasty (581–619) and greatly developed during the Tang dynasty (618–907), when the absolute power of the Ruler had recovered from the low level during the Six Dynasties period (220–589) (Yan 2009).

Given the bureaucratic system, the Elites became mainly bureaucrats who were appointed by the Ruler. They thus became further reliant on the Ruler for legitimacy, making their everyday power and rights more conditional on the Ruler's will, i.e., further strengthening the Ruler's absolute power. This is consistent with the observation that, after the introduction of the civil service exam, each bureaucrat faced a higher probability of being purged by the emperor (Chen et al. 2022).

By Proposition 2, autocratic rule would become more stable under the combination of consolidated generalized access to elite status and even stronger absolute power. Consistent with this implication, as shown in Online Appendix I, the risk of deposition for a Chinese Ruler in a given year was generally low starting in the 8th century, compared to the period before. Not only that, but Corollary 1 suggests that such a power structure can be incentive compatible: the People might have been satisfied with the power structure under the resulting stability, without too much appetite for stronger rule of law or property rights against the Ruler. We have thus provided an explanation for the persistence of the institutional arrangement and of the induced power structure of imperial China.

4.2.2. Dynastic Cycles in Chinese History.   A significant pattern in Chinese history is that of the dynastic cycles. In brief, students of Chinese history often observe that each dynasty started with a relatively stable autocratic rule, but over generations experienced declining power of the emperor, increasing dominance of the elites over the emperor and common people, increasing concentration of land ownership, and decreasing effectiveness of governance, eventually slipping into chaos and leading to the end of the dynasty (e.g., Skinner 1985; Dillon 1998).[29]

Our model can guide us to interpret this observation. We start by noting that the founding emperor of each dynasty often enjoyed strong absolute power, i.e., a low γ. One reason was that he was bestowed with a high level of legitimacy by receiving the Mandate of Heaven to be the new Ruler (e.g., Zhao 2009; Jiang 2011). By Proposition 3, he would have been more willing to restrict the asymmetry between the Elites and People, maintaining a relatively high β. As a result of the power structure of a high β and a low γ, by Proposition 2, the stability of autocratic rule would have been relatively high. Over generations, however, an increasing number of precedents placed further constraints on the emperors. All these led to a decline of the Ruler's absolute power, i.e., a higher γ. By Proposition 3, again, the later emperors would be less willing to enforce a more symmetric Elite-People relationship, leading to a lower β. The power structure of a lower β and a higher γ would then result in less stability of the autocratic rule and, eventually, a downward spiral toward its collapse.

4.3. China vs. Europe: Autocratic Stability

Proposition 2 states that stronger absolute power of the Ruler and a more symmetric relationship between the Elites and People, as in imperial China compared to premodern Europe, imply greater stability of autocratic rule. Empirically, the stability of autocratic rule can be proxied by multiple measures. In Online Appendix I, we examine three measures, i.e., the share of the population in the respective continent that was controlled by the largest polity, the Ruler's risk of deposition, and the number of wars. Overall, these measures support the observation that unified autocratic rule was generally more stable in imperial China (e.g., Finer 1997a,b; Scheidel 2019; Stasavage 2020). This was especially true between the 9th and 14th centuries, when the characterized differences in the power structures were the most prominent, with persistence in later centuries.

In particular, the risk of deposition for a Chinese Ruler in a given year declined rapidly from the high level in the 6th century, i.e., the late Southern and Northern Dynasties period, to a lower level in the 7–8th centuries, i.e., the Sui dynasty and the early and mid-Tang dynasty. As discussed above, this decline happened at the same time that the absolute power of the Ruler initially recovered from a historical low and was then further strengthened, especially after a large number of aristocrats were killed

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29.   For some explorations of modeling the dynastic cycle with a focus on the demographic dynamics, see Usher (1989), Chu and Lee (1994), and Turchin (2003).

during three decades of extreme violence at the end of the Tang dynasty, while the civil service exam was introduced and greatly developed (e.g., Yan 2009; Tackett 2014; Wen et al. 2023).[30] These correlations are consistent with Propositions 2 and 3.

Our interpretation does not deny that there exist more exogenous differences than those in the power structure between China and Europe. For example, China is more mountainous and has a high-productivity, traversable core geographical region, compared with the less rugged multi-core geography in Europe (e.g., Hoffman 2015; Fernández-Villaverde et al. 2023). In light of this, we are not claiming that the power-structure differences were the sole cause of the difference in autocratic stability between China and Europe. Instead, we hope to show the usefulness of the power-structure approach in interpreting the differences in institutions *and* autocratic stability between imperial China and premodern Europe.

5. Conclusion

We provide a power-structure framework to reconcile a series of views on the institutional differences between imperial China and premodern Europe that are seemingly contradictory in the light of the literature on institutions and development. We focus on two dimensions of the power structure: the degree of absolute power of the Ruler, and the degree of asymmetry in everyday power and rights between the Elite and the people. In that framework, Chinese Rulers had more absolute power, while the relationship between the Elites and People was more asymmetric in Europe.

Seeing that the Ruler's absolute power is about the conditionality of the power and rights of the ruled on the Ruler's will, a more symmetric Elite-People relationship will strengthen the political alliance between the Ruler and the People. This, in turn, will create more loyalty to the Ruler, deterring potential challenges, and thereby stabilizing the autocratic rule. Moreover, the Ruler's incentive to promote a more symmetric Elite-People relationship depends on the Ruler's absolute power. A more absolutist Ruler can thus be compatible with a more symmetric Elite-People relationship. In other words, a society can be repressive in one institutional dimension but inclusive in another – a new result in the literature.

This comparative institutional theory also helps us understand specific institutions, variations and changes within China and Europe, as well as the greater stability of autocratic rule in imperial China.

Admittedly, our theory is highly stylized, as we capture the power structure with only two parameters, and we examine the stability of autocratic rule as the only outcome of the power structure. That said, our framework can be applied to understand other political, economic, and social outcomes.

For example, on the one hand, the too-stable autocratic rule and lack of spatial competition in imperial China may have hindered economic and scientific innovation

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30. Yan (2009, p. 240–245) discusses the cultural and institutional elements behind the Northern dynasties-led changes in the Chinese power structure in the 6–8th centuries.

(e.g., Rosenthal and Wong 2011; Mokyr 2016; Desmet et al. 2020). On the other hand, given the power structure in premodern Europe, the profit from innovations flowed primarily to the Elites, while the lack of pro-People institutions could not maintain a sufficiently stable social order for sustainable growth until early modern days (e.g., Greif and Iyigun 2013; Greif et al. 2013). It would be worthwhile to model explicitly the interplay among the power structure, endogenous growth, and political and social stability.

As another example, on the one hand, the Chinese Legalist tradition had emphasized the absolute power of the Ruler. On the other hand, Confucianism has "made protecting and promoting the people's livelihood the cornerstone of statecraft" (Perry 2008, p. 39). Also, the apparent dominance of Confucianism in China was reflected in the content of the civil service exam. This is all consistent with a relatively balanced Elite-People relationship. Our Proposition 2 explains why Chinese Rulers had promoted the Confucianism–Legalism confluence as the dominant political culture (e.g., Qin 1998; Yan 2004; Zhao 2015); Proposition 3 sees Legalism as the more fundamental influence. Corollaries 1 and 2 explain why such a culture may have been accepted by the People and persisted over time.

Finally, more insights can be gained if one applies our power-structure framework to other parts of the world. For example, as characterized by Weber (1978, p. 1065–1067), Tsarist Russia featured a "disconnected juxtaposition of landed nobility and patrimonial officialdom," and "the situation was the same as in the late Roman and Byzantine empire, in their Babylonian, Persian and Hellenistic predecessors and Islamic successors." This characterization places these cases as intermediate between imperial China and medieval Europe along both power-structure dimensions, which is consistent with Proposition 3.[31] As another example, Blaydes and Chaney (2013) show that Christian kings in western Europe enjoyed greater political stability than Muslim sultans between the 9th and 15th centuries. This difference can be explained in our framework. Lords in feudal Europe owned land and military forces on a regular basis, suggesting a high status quo payoff a to the Elites, while Mamlukism in the Muslim world was designed to remove elite Mamluks "from the luxuries of settled life" (Blaydes and Chaney 2013, p. 23), suggesting a low a. As shown in Online Appendix G, a lower a in our model would decrease the stability of autocratic rule because the Elites would have a smaller stake in the status quo. These examples suggest that our

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31. For example, in Tsarist Russia, "political power proper and social prestige were – wholly in accordance with the Chinese pattern – dependent solely upon office holding or directly upon court connections," but "[t]he forfeiture of aristocratic patents because of failure to take an office" was not always practiced, and "[w]ell-established status convention" often "limited the Tsar considerably in the selection of his highest-ranking administrative officials and army leaders" (Weber 1978, p. 1065–1066). This resulted in stronger conditionality of the everyday power and rights of the ruled on "the ruler's favor" that "no Occidental ruler could" enjoy, but such conditionality was still weaker than in the Chinese case (Weber 1978, p. 1065–1066). At the same time, "[s]ince the existing nobility had no office monopoly and since no landed property qualification but – at least theoretically – an educational qualification was required," the Elite-People relationship "seemed to approximate the Chinese conditions;" however, "the Russian aristocratic title entailed among other privileges the exclusive right of owning land settled with serfs" (Weber 1978, p. 1065–1066).

power-structure approach can be useful for comparative studies of institutions, and that extending it beyond our two dimensions can be helpful. In addition, incorporating regime transition into the framework could be fruitful in furthering comparative studies on endogenous dynamics of power structures (e.g., Acemoğlu and Robinson 2000, 2001; Acemoğlu et al. 2012, 2015; Li et al. 2023). We thus hope that our study opens new avenues for future research.

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