The Sovereign's Dilemma: State Capacity and Ruler Survival in Imperial China*

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China's state development was shaped by elite network structures that characterized state–society relations, rather than representative institutions or bellicist competition. For the 2,000 years of its existence, its rulers faced the sovereign's dilemma: a coherent elite that could take collective action to strengthen the state could also overthrow the ruler. When elites were in geographically broad and densely interconnected networks, they preferred a strong state capable of protecting their far-flung interests, and their cohesiveness constituted a threat to the ruler's survival. Yet when elites relied on local bases of power and were not tightly connected, they instead sought to hollow out the central state from within; their internal divisions enabled the ruler to play competing factions against each other to secure his personal survival. This capacity–survival tradeoff explains China's historical state development and highlights the importance of elite social relations in understanding alternative paths of state development outside Europe.

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Why do some states endure for centuries, while others fall years after they were founded? Why are some strong, and others weak? Generations of remarkable social sciences scholarship have explored these questions.

Yet, much of our understanding of how the state as an organization develops is based on how states evolved in Europe. The centuries after the fall of the Roman Empire laid the foundation for Europe's distinctive path of political development.[1] Political fragmentation led to a dual transformation.[2] On the one hand, rulers' weak bargaining power vis-á-vis domestic elites gave rise to the creation of representative institutions, which provided an arena in which elites could bargain with the ruler nonviolently.[3] This institutional bargaining mechanism lengthened ruler survival and made European states more robust.[4] On the other hand, frequent (and increasingly expensive) interstate conflicts incentivized rulers to centralize state bureaucracy and tax effectively.[5] Together, these developments made European states stronger and more durable.

Representative institutions and bellicist competition, however, were born in a political geography that was unique to Europe.[6] For most of human history, the majority of the world's population has not been governed by a European-style state. Much of the literature, however, treats the European model as the benchmark and asks why states in other regions have failed to follow suit. Rather than treating non-European states as underdeveloped cases that will eventually converge to the European model, we should take these alternative patterns of state de-

[1] For more on how the fall of the Roman Empire influenced European political development, see Stasavage (2020) and Scheidel (2019).

[2] For a seminal discussion of these two political transformations in Europe, see Dincecco (2011).

[3] For a description of the rise of representative institutions and their role in state building in Europe, see North and Weingast (1989), Stasavage (2003), and Cox (2016). For a critique of this literature, see Boucoyannis (2015), who argues that representative institutions emerged when powerful rulers used them to compel nobles to meet in order to extract concessions from them.

[4] Using ruler duration as a proxy for political durability, Blaydes and Chaney (2013) shows that European leaders ruled for longer after the emergence of representative institutions.

[5] Tilly (1992), Spruyt (1994), and Blaydes and Paik (2016) discuss how interstate conflicts motivated state building in Europe.

[6] Stasavage (2016, 145) argues that the European experience may simply have been "an accident" triggered by the highly fragmented political geography created by the fall of the Roman Empire. Finer (1997, 5) likewise characterizes European state development as "highly idiosyncratic."

velopment seriously in their own right. Departing from the Euro-centric approach reveals new state development patterns and provides a new lens through which to analyze the processes involved.[7]

I examine the case of China to develop such a new approach to understanding alternative paths of state development. China accounts for a large share of the world's population and economy, and was a pioneer in state formation millennia ago. The Chinese state thus constitutes a useful, yet understudied, alternative to the Euro-centric literature.

Using original data I collected on historical taxation and ruler duration in imperial China, I first establish empirical patterns that suggest a fundamental difference between European and Chinese state development: While European states had increased their capacity to collect taxes and become more durable by the modern era, the Chinese state seemed to have gained durability at the expense of state capacity. Chinese emperors became increasingly secure, and their dynasties long-lasting. For example, from 1000 to 1900 CE, Chinese emperors on average stayed in power as long as European kings and queens. With the exception of the Yuan (1270–1368), every Chinese dynasty in the second millennium lasted for roughly 300 years – longer than the United States has existed. But China's fiscal capacity gradually declined during this period. In the 11th century, for example, the Chinese state (under the Song Dynasty) taxed over 15% of its economy. This percentage dropped to almost 1% in the 19th century (under the Qing Dynasty).

Exploring how the state maintained its durability *despite* declining capacity helps broaden our understanding of alternative paths of state development. China's different, but durable, patterns of state development demand a new approach that goes beyond simply testing Europe-generated theories in a non-European context.

I argue that rulers of states without representative institutions face a fundamental tradeoff that I term *the sovereign's dilemma*: a coherent elite that can take collective action to strengthen the state is also capable of revolting against the ruler.[8] This dilemma exists because strengthening

[7] Good examples of such scholarship include Herbst (2000), Centeno (2002), and Huang and Kang (2021).

[8] I borrow the term from Huntington (1968, 177), who dubs the tradeoff between success and survival the "king's dilemma." The sovereign's dilemma also echoes what Geddes (1996) calls the "politician's dilemma," in which

state capacity and enhancing ruler duration require different *elite social terrains*,[9] which are the ways in which central elites connect to local social groups – and each other. When central elites are in geographically broad and densely interconnected networks, they prefer to have a strong state that can protect their far-flung interests, but their cohesiveness constitutes a threat to the ruler's survival. When elites have a local power base and are not tightly linked, they will instead seek to hollow out the central state from within and prefer to provide order and public goods locally. Yet their internal divisions will enable the ruler to play competing factions against each other to secure his personal survival.

Building on social network theories, I characterize two ideal types of elite social terrains. A *star* network, which features coherent and geographically dispersed elite connections, promotes a strong state but threatens ruler survival. A *bowtie* network, characterized by fragmented and geographically concentrated elite connections, undermines state capacity but helps rulers stay in power for longer.

I evaluate the implications of the sovereign's dilemma in the context of China's state development during the imperial era. I use what Robert Bates, Avner Greif, Margaret Levi, Jean-Laurent Rosenthal, and Barry Weingast call "analytic narratives" to provide an overarching description of the development of the Chinese dynastic state.[10] I draw on historians' work as well as archival materials. I argue that China started with a star network and transitioned to a bowtie network. Medieval China was governed by a national elite embedded in a star network. A semi-hereditary aristocracy that consisted of several hundred noble clans monopolized government positions and formed a close-knit marriage network, which connected different corners of the empire. In the 9th century, a climate shock triggered mass violence, which eliminated the medieval aristocracy. Emperors in the subsequent dynasty exploited the power vacuum and reshaped the elite social terrain into a bowtie network. Sons of locally embedded landowning families en-

strengthening the state jeopardizes the ruler's chances of survival.

[9] My inspiration for the term "social terrain" comes from Bates (2017, 61), who uses *political terrain* to describe whether a polity is centralized or decentralized.

[10] Bates et al. (1998).

tered central politics through the civil service examination system. The emperors pitted elite factions against each other to consolidate their absolute rule. The bowtie network thus became a self-enforcing equilibrium in late imperial China. It contributed to the rulers' exceptional durability, but also weakened the state's capacity to extract resources. I complement my historical narratives with descriptive statistics that highlight broad historical patterns. I have collected and compiled a large amount of original data – most notably a dataset of all Chinese emperors and a longitudinal dataset of taxation from the 7th to the early 20th centuries.

The primary goal of this article is to take a preliminary step towards creating a framework to analyze China's long-term state development, which will enrich our understanding of varieties of state-building paths. I corroborate this framework with narrative and descriptive evidence, which, given the long time span covered in the study is both feasible and desirable. The evidence, however, is admittedly spartan. I leave out many details from any particular time period. Yet what my narrative lacks in specificity regarding individual dynasties it makes up for in generality that allows me to highlight fundamental relationships between the state and society over the long run.

My findings contribute to three literatures. First, the dominant perspective in analyzing long-term state development is still *state centered*.[11] This literature generally treats the state as a unitary actor that is independent of society.[12] The bellicists, for example, consider states as actors in the international arena and link external war with state building.[13] In the same vein, institutionalists equate the state with the ruler and examine how ruler–elite bargaining determines state-building outcomes.[14] I join state–society scholars and consider state–society interactions to be a driving force of state development.[15] However, I also advance the traditional state–society approach. While it assumes that the state and society are separate and competing entities, I emphasize the blurred boundary between the two and analyze how state–society

[11] Evans, Rueschemeyer, and Skocpol (1985).
[12] For instance, Skocpol (1985, 9).
[13] Tilly (1992), Spruyt (1994), and Blaydes and Paik (2016).
[14] Bates and Lien (1985), Levi (1988), and North and Weingast (1989).
[15] Migdal (1988), Shue (1988), Perry (1993), and Migdal, Kohli, and Shue (1994).

linkages through elite networks drive state development.[16] In this sense, I join an emerging elite-centered literature on state building.[17] While most of these studies emphasize elite competition, I focus on elite social relations.

Second, my findings also contribute to the recent literature on authoritarian politics. While the dominant view is that formal institutions bolster authoritarian durability, I highlight the importance of state–society relations in prolonging rulers' tenure. While popular arguments often associate state capacity with the stability of authoritarian regimes,[18] I examine the conditions under which state capacity and regime durability are incompatible. As an ancient autocracy, and probably the most durable one in human history, imperial China did not develop any of the political institutions, such as legislatures and parties, that past studies argue help autocrats hold onto power.[19] Faced with economic and fiscal decline, Chinese emperors at the time could not claim "performance legitimacy" either.[20] Its extraordinary durability instead relied on an elite social structure that facilitated rulers' "divide-and-conquer" strategies and collaboration between the state and social groups.

Lastly, I contribute to the literature on China's historical state development. A static origin story has dominated popular understandings of the Chinese state. Starting with Karl Marx, and popularized by Karl Wittfogel, this story features an "oriental state" that was formed to control floods and manage irrigation.[21] Historians' earlier work, by contrast, examined China's political development through the lens of dynastic cycles. According to this view, Chinese history simply exhibited repetitions of recurring patterns.[22] Recent social science scholarship on China's state development has focused on either the beginning or the end – state formation during the Qin era (221–206 BCE) or state collapse during the Qing (1644–1911 CE). The scholars who study

[16] For pioneering works that examine state–society linkages, see Evans (1995) and Levitsky and Way (2010). Grzymala-Busse and Luong (2002) undertake a seminal effort to analyze the blurred boundary between the state and society.
[17] Geddes (1996), Kurtz (2013), Soifer (2015), Garfias (2018), and Beramendi, Dincecco, and Rogers (2019).
[18] E.g., Slater (2010).
[19] See, e.g., Magaloni (2006), Gandhi (2008), and Svolik (2012).
[20] Zhao (2009).
[21] Wittfogel (1959).
[22] For discussions and critiques of the dynastic cycle theory, see Skinner (1985) and Fairbank (1983).

the beginning treat China's early state formation as finite, completed process without examining how the state was sustained and how it changed over the next two millennia.[23] The scholars who study the end focus on China's declining fiscal capacity without discussing the system's exceptional durability.[24] It is time to account for the entire trajectory of China's state development and to consider these seemingly contradictory trends – longer ruler duration and declining fiscal revenues – not as paradoxes, but as interconnected manifestations of an underlying political equilibrium. Only when we take a holistic view can we start to explore the conditions that led to different outcomes in the country's political development.[25]

The rest of the article is organized as follows. The next section elaborates on the central arguments that elite social terrains shape state development, and exogenous shocks provide opportunities for rulers to reshape this terrain. The third section uses descriptive statistics to illustrate some stylized facts about China's state development, focusing on changes in ruler duration and fiscal capacity. The fourth section offers a narrative on the two phases of China's state development. The first phase features strong state capacity but short ruler durations; the second phase is characterized by long ruler durations and low state capacity. An exogenous shock led to mass violence, which facilitated the transition from the first to the second phases when the ruler was able to exploit the power vacuum to reshape the elite social terrain. The last section concludes by discussing the broader implications of my findings.

THE ARGUMENT

I argue that the network structure of state–society relations shapes the level of state capacity and how long a ruler stays in power. I focus on one aspect of state–society relations, the elite social terrain: the ways in which central elites connect to local social groups (and each other). I draw

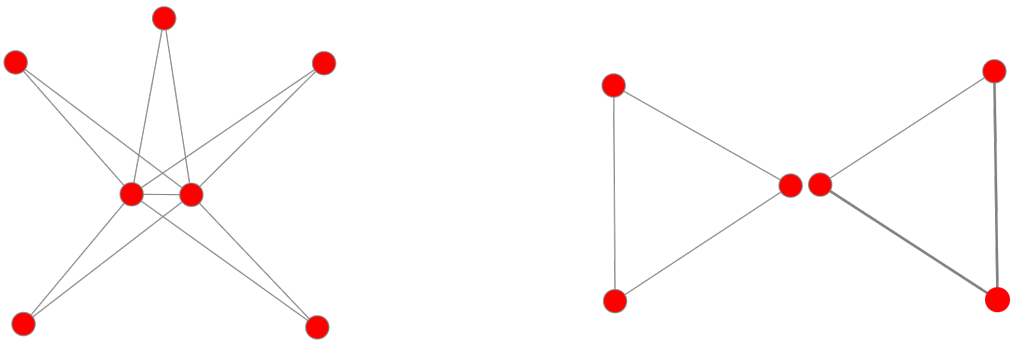
[23] E.g., Hui (2005) and Zhao (2015).

[24] He (2013), Sng (2014), Sng and Moriguchi (2014), Bai and Jia (2016), Zhang (2017), Koyama, Moriguchi, and Sng (2018), Ma and Rubin (2019), and Chen and Mattingly (2021). One notable exception is Huang and Yang (2020), which explains the Chinese system's "longevity mechanisms" by examining the civil service examination system.

[25] Recent social science works that take a long-term view of China's state development include Fukuyama (2011) and Dincecco and Wang (2018).

on social network analysis to analyze two network structures – i.e., stereotypical ways in which individuals in a hierarchy are connected with each other: a *star network* in which a coherent core connects everyone in the periphery[26] and a *bowtie network* in which members of a fragmented core connect their own peripheral communities.[27]

Figure 1 illustrates these two ideal types of elite social terrains. The central nodes are state elites, defined as politicians who work in the central government and can influence government policies. Each peripheral node represents a local social group, such as a clan, in a specific geographic location. The edges denote connections, which can take multiple forms, such as membership, social ties, or family ties.[28]



(a) Star Network (b) Bowtie Network

Figure 1: Two Ideal Types of Elite Social Terrain

Central elites are agents of their connected social groups; they seek to influence government policies to provide the best services to their groups at the lowest cost. Each central elite is only interested in the welfare of his or her connected groups, not necessarily that of the whole nation. Central elites can use a variety of governance structures to provide services to their connected

[26] Wasserman and Faust (1994, 171).
[27] Broder et al. (2000, 318).
[28] The number of nodes and ties in the graphs is plotted for aesthetic considerations and does not carry theoretical significance.

social groups. The most popular such structures are public-order institutions, such as the state, and private-order institutions, such as clans, tribes, or ethnic groups.[29] Whether elites cooperate with each other or clash over their preferred policies depends on the type of networks in which they are embedded.

In a star network, each central elite directly connects all social groups located in dispersed geographic areas. The central elites are also connected with each other: because elites link various social groups, their networks are likely to be overlapping, generating lateral ties between the elites. In a bowtie network, each central elite is connected to a set of social groups in a concentrated geographic area, but not to any social groups in distant areas. Nor are the central elites connected with each other: because elites' social relations are localized, they are also less likely to be in each other's social networks.

The two forms of elite social terrains are archetypes; the reality is messier. The vertical dimension of elite social terrains (geographic dispersion vs. concentration) conditions elite preferences regarding the ideal level of state capacity, while the horizontal dimension (cohesion vs. division) conditions ruler survival. Together, they capture the basic characteristics of elite social structures that can produce important implications for state development outcomes.

THE STAR NETWORK

Central elites embedded in the star network have a strong incentive to use the state (rather than private-order institutions) to provide services to their connected social groups. Two considerations drive elites' choices.

The first is an economic consideration. In the star network, elites are connected to multiple social groups that are geographically dispersed. It is more efficient to rely on the central state to provide services because it enjoys economies of scale and scope.[30] With a strong central state,

[29] For discussions of how private-order institutions provide protection and justice, see Gambetta (1996) and Greif (2006).

[30] Alesina and Wacziarg (1998) and Ferejohn and Rosenbluth (2010).

it is much cheaper to cover an additional territory in which a connected social group is located than to rely on the social group to provide its own security and justice.

The second consideration that drives elites' choices is social. Tribes, clans, and ethnic groups that are concentrated in a certain locality often care a lot about their local interests but little about national matters. They oppose paying taxes to the central state, because the state will use these funds to provide services to all parts of the country, so these specific social groups would end up paying for services that benefit others. These geographically defined social groups hence create regional cleavages that produce distributive conflicts. Nevertheless, if central elites can connect multiple social groups that are geographically dispersed, as in a star network, this social network will cross-cut regional cleavages.[31] These cross-cutting cleavages incentivize the central elites to aggregate the interests of multiple localities and groups and scale them up to the national level. The star network therefore transcends local interests and fosters a broad state-building coalition.[32]

The star network, however, represents a centralized and coherent elite that threatens ruler survival for two reasons. First, the elites are embedded in a centralized structure in which they can use their cross-cutting ties to mobilize a wide range of social forces across regions. Second, the cooperative relations among elites make them a coherent group – and thus able to overcome collective action and coordination problems if they decide to rebel against the ruler. Therefore in this scenario, the ruler is more likely to be challenged by the elites.

THE BOWTIE NETWORK

In the bowtie network, where elites only need to service a few groups in a relatively confined area, private service provision is more efficient because the marginal costs of funding private institutions to service a small area are lower than the taxes that elites would be required to pay

[31] For a seminal discussion of cross-cutting versus reinforcing social cleavages, see Lipset and Rokkan (1967).

[32] This mechanism is closely related to the argument of Jha (2015), which shows that overseas shareholding aligned the incentives of different elites during England's Civil War (1642–1648) and knitted together a pro-reform coalition in favor of parliamentary supremacy.

to support the central state. In addition, social networks in this case *reinforce* existing regional cleavages. The central government then becomes an arena in which these elites compete to attract national resources to serve local interests. Elites in the bowtie network would oppose strengthening the central state because such policies would divert resources from social groups to the state and weaken their local power bases.

The bowtie network, however, facilitates ruler survival. Central elites can mobilize some (regionally based) social groups against the ruler. But it is easier for the ruler to quell challenges that are concentrated in certain areas. In addition, the lack of a dense network among elites provides what the sociologist Ronald Burt calls "structural holes" that allow the ruler to divide and conquer. As Burt argues, if parts of a community are not directly connected with one another (i.e., structural holes separate them), an outside player can gain an advantage by playing the clusters against each other.[33] In this scenario, the ruler is more likely to establish absolute rule to dominate the elites.

SOCIAL TERRAINS MAKE THE STATE, AND VICE VERSA

For each network type, the central elites find it in their best interest to maintain the status quo. Elites embedded in the star network prefer to strike a Hobbesian deal with the ruler to pay taxes in exchange for centralized protection. The central state provides an institutional commitment device between the elites and their social groups. Supporting state building allows the elites to credibly commit to protecting their group members because it is harder for the central state, compared with private-order institutions, to exclude specific members as beneficiaries from a distance. The star network also strengthens the bargaining power of the elites vis-á-vis the ruler because elites embedded in cross-regional networks can credibly threaten the ruler. The ruler, facing a nationally connected elite, must commit to using the state to provide public goods rather than to prey on the society. In the bowtie network, however, elites prefer to delegate state functions to their social groups, which can provide private services at a much lower price than

[33] Burt (1992, 47).

paying taxes to the national government. But the elites in the bowtie network still have an interest in keeping the state "afloat." A state with a minimum level of capacity can help protect social groups from existential threats such as external invasions and large-scale natural disasters.

The ruler, however, faces the sovereign's dilemma: state capacity vs. personal survival. He seeks to maximize state capacity, which can best be achieved by facilitating the creation of a star network. But he also seeks to maintain his grip on power, which is easier if elites are fragmented, as in the bowtie network. Depending on the initial conditions, the ruler either attempts to strengthen the state or to maximize personal survival, but not both. A coherent elite helps strengthen the state, but threatens his survival.

Exogenous shocks, however, can disrupt an equilibrium and provide opportunities for the state to reshape elite social relations. I assume the ruler has a "first-mover advantage," which he can exploit to reshape elite social terrain in his favor to ensure his own survival – even if this involves creating an elite network that is detrimental to state strength.

A polity can suffer from various exogenous shocks. Over the long term, the most important shock to dynasties is climate change, which leads to large-scale conflict.[34] Cold weather, for example, increases the likelihood of mass violence, since famine becomes more likely.[35] Large-scale violence can in turn destroy or weaken the old elite. If the old elite threatens the ruler's personal survival, he may take advantage of this power vacuum to recruit a new elite that is more fragmented and less threatening. A fragmented elite, however, will lead to a weak state.

In sum, social terrains make the state, and vice versa. While elite social terrains generate certain state development outcomes, the state (led by the ruler) can exploit exogenous shocks to reshape them, which can create new types of networks.

[34] Burke, Hsiang, and Miguel (2015).
[35] Zhang et al. (2006).

CAPACITY VS. SURVIVAL IN CHINESE HISTORY

In this section, I use original data I collected on taxation and rulers to highlight the sovereign's dilemma in China's state development. I identify the turn of the first millennium as a watershed moment that signaled a change in political development patterns. In the first phase, the state became stronger at the expense of ruler duration. In the second phase, the opposite occurred: rulers stayed in power longer, but state capacity declined.

FISCAL CAPACITY

We can analyze state capacity by examining either *fiscal policies* (were they designed to strengthen or weaken state capacity) or the actual *amount of taxes collected* (the most popular measure of state capacity). To levy taxes, the state needs accurate information (e.g. on land, economic production, and population), a bureaucracy to collect the taxes, and an infrastructure to transport the tax payments, all of which require a certain level of capacity.[36]

Figure 2 depicts China's fiscal development from 0 to 1900. The upper panel presents the evolution of major fiscal policies.[37] I code each policy according to whether historians consider it to be state strengthening (+1), neutral (0), or state weakening (-1).[38] The graph plots the moving average of these policies.

While fiscal policies on paper can indicate whether the government intended to increase taxation, to explore their impacts in practice I analyze actual tax amounts. The lower panel presents per capita taxation (in *dan* of rice, the most commonly used form of tax payment in imperial China),[39] based on estimates from a variety of archival and documentary materials.[40]

[36] See Levi (1988) and Besley and Persson (2009).

[37] I collect data on China's major fiscal policies from the *History of Finance in Imperial China* edited by Wang (1981). Appendix Table A1-1 lists these major fiscal policies and my codings.

[38] I consider a policy that increased (decreased) tax extraction to be state strengthening (state weakening); I coded those that maintained the status quo as neutral.

[39] I translate all tax amounts into *dan* of rice to maintain purchasing power parity. One *dan* is approximately 60 kilograms.

[40] Appendix Section Sources for Historical Taxation and Population lists all the sources I used to obtain estimates of historical taxation and population.

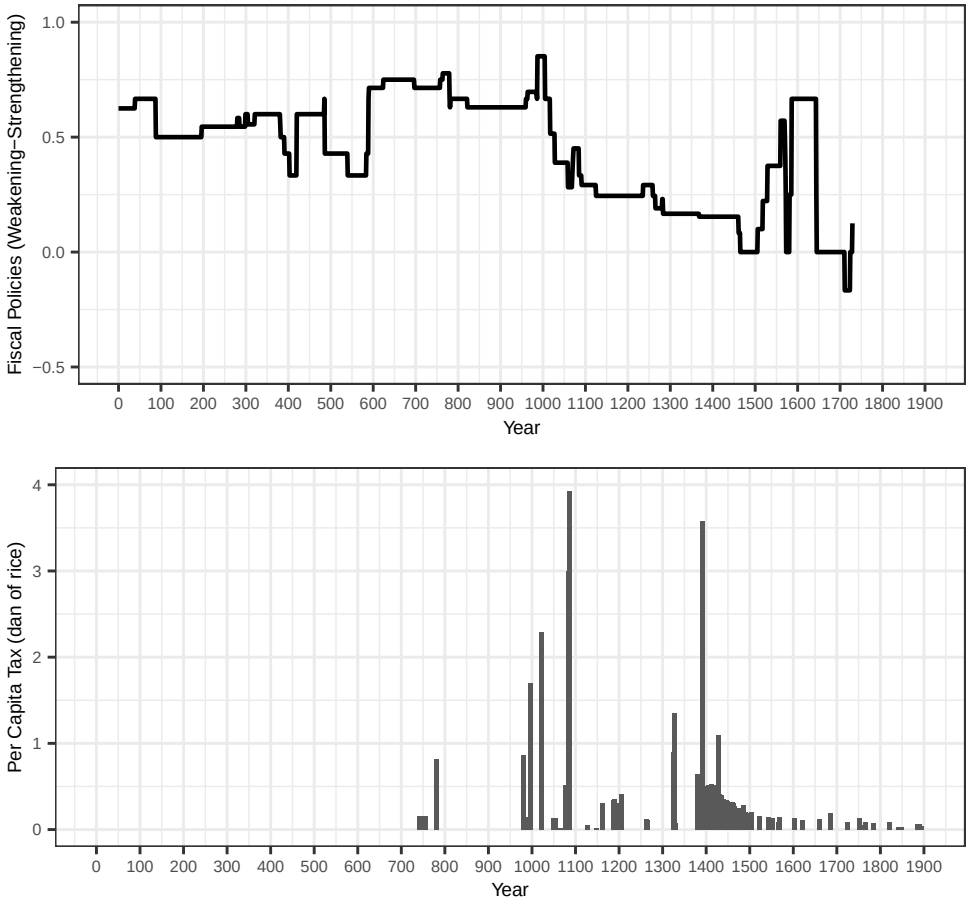


Figure 2: Fiscal Policies and Per Capita Taxation (0–1900)

Both graphs demonstrate that China's fiscal capacity peaked in the 11th century, started to decline afterwards (with transitory increases), and diminished toward the end of the period.

A popular argument that can be traced back to Adam Smith and was more explicitly stated by Thomas Malthus is that China's development failure in the late imperial era had demographic roots: its population was too large for its economy to support.[41] Indeed, the population tripled from 150 million in 1700 to 450 million in 1900.[42] This Malthusian narrative, however, cannot fully explain the low taxation in the late imperial era because while the population growth mainly

[41] Malthus (1992 [1806], 41, 183–4).
[42] Lavely and Wong (1998, 719).

occurred after 1700,[43] China's per capita taxation started to decline much earlier – in the Song and Ming times. Nor can this demographic theory explain why the imperial state failed to adjust its tax policies accordingly. Recent estimates show that Chinese real personal incomes between the mid-18th and mid-19th centuries remained relatively stable, despite a dramatic increase in population.[44] This suggests that there were more people from whom the Chinese state could have extracted, if it had been able to adjust its fiscal policies.

We see a similar pattern using tax revenue as a share of gross domestic product (GDP), which measures the extent to which the state can extract from total economic output. Figure 3 compares taxation as a share of GDP from 1000 to 1900 in China vs. England.[45] Again, the share peaked in the 11th century, and then started to decline. By the start of the 19th century, while England taxed 15–20% of its GDP, China taxed only 1%.

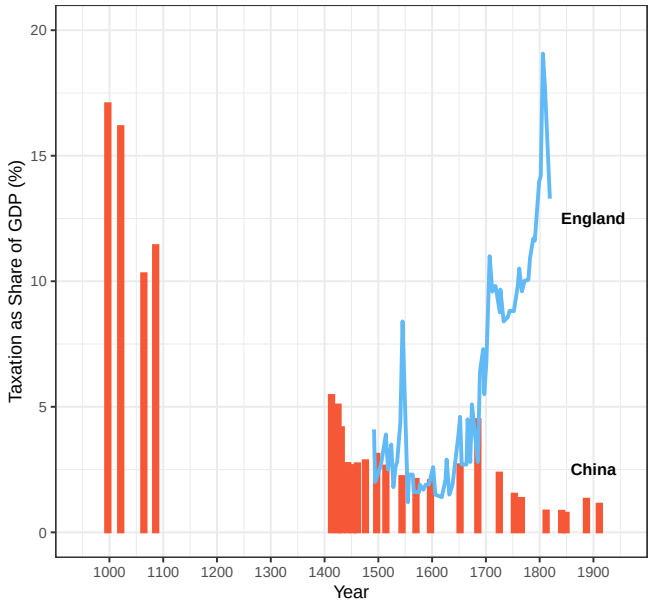


Figure 3: Taxation as a Share of GDP: China vs. England (1000–1900)

[43] According to Lavely and Wong (1998, 719), China's population grew by 29% in the 15th century, 40% in the 16th century, and 0% in the 17th century.
[44] Rosenthal and Wong (2011, 48–49).
[45] I obtain the data from Guo (2019) and Stasavage (2020, 160).

As Lisa Blaydes and Eric Chaney demonstrate, how rulers ended their reigns is an informative indicator of political stability and ruler–elite relations.[46] Here, I rely on an original dataset I collected on all Chinese emperors from 221 BCE to 1912.[47]

Of all 282 Chinese emperors, half died peacefully, while the other half exited office unnaturally. Of these unnatural exits, about half were deposed by the elite (murdered, overthrown, forced to abdicate, or forced to commit suicide).[48]

Figure 4 displays the moving average of the probability of being deposed by elites. Emperors from the 10th century onward were significantly less likely to be deposed – an indication that the rulers had strengthened their power vis-á-vis the elite.

China achieved a remarkable level of political durability in the second millennium. The upper panel of Figure 5 plots the moving average of ruler duration in China, Europe, and the Islamic World.[49] Chinese rulers were just as secure as European rulers, and both outperformed their Islamic counterparts.

The lower panel of the figure depicts the moving average of the probability of being deposed for rulers in China, Europe, and the Islamic world. For Chinese emperors, this probability declined to less than 30% after the 17th century; for European kings and queens, it remained around 30% until the 19th century. Islamic rulers' probability of being deposed reached almost 60% in the 18th century.

AN ANALYTICAL NARRATIVE OF CHINESE STATE DEVELOPMENT

In this section, I provide a narrative account of China's state development, drawing on primary and secondary sources. In the first phase of state development, from roughly the beginning

[46] Blaydes and Chaney (2013).
[47] My primary sources are *Chronologies of Chinese Emperors and Their Families* edited by Du (1995) and *The Complete Biographies of Chinese Emperors* edited by Qiao et al. (1996).
[48] Appendix Table A1-2 provides a breakdown by type of exit.
[49] For European and Islamic monarchs, my main sources are McNaughton (1973), Morby (1989), Blaydes and Chaney (2013), and Kokkonen and Sundell (2014).

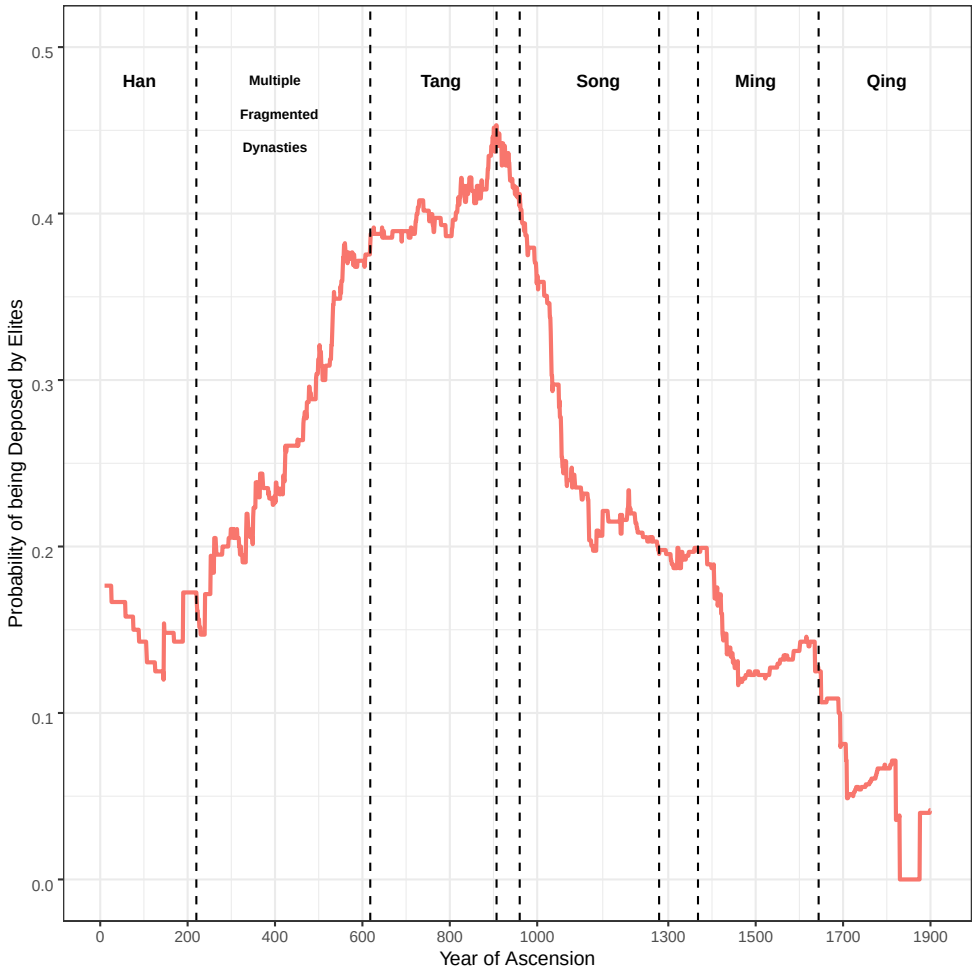


Figure 4: Probability of Ruler Deposal by Elites (0–1900)

of the common era to the 9th century, a star network was created. An aristocracy gradually emerged during the Han Dynasty (202 BC–220 CE) and consolidated its power. During the Tang times (618–907 CE), the aristocracy dominated central politics. This aristocracy was a semi-hereditary caste that consisted of several hundred noble clans. These families formed a close-knit marriage network in which status endogamy persisted for centuries. Through marriage alliances made in the capitals, the aristocracy connected different corners of the empire. The social terrain that formed among the Tang aristocratic families hence resembled a star network – a coherent center connected to the periphery. The Tang aristocrats had a vested interest

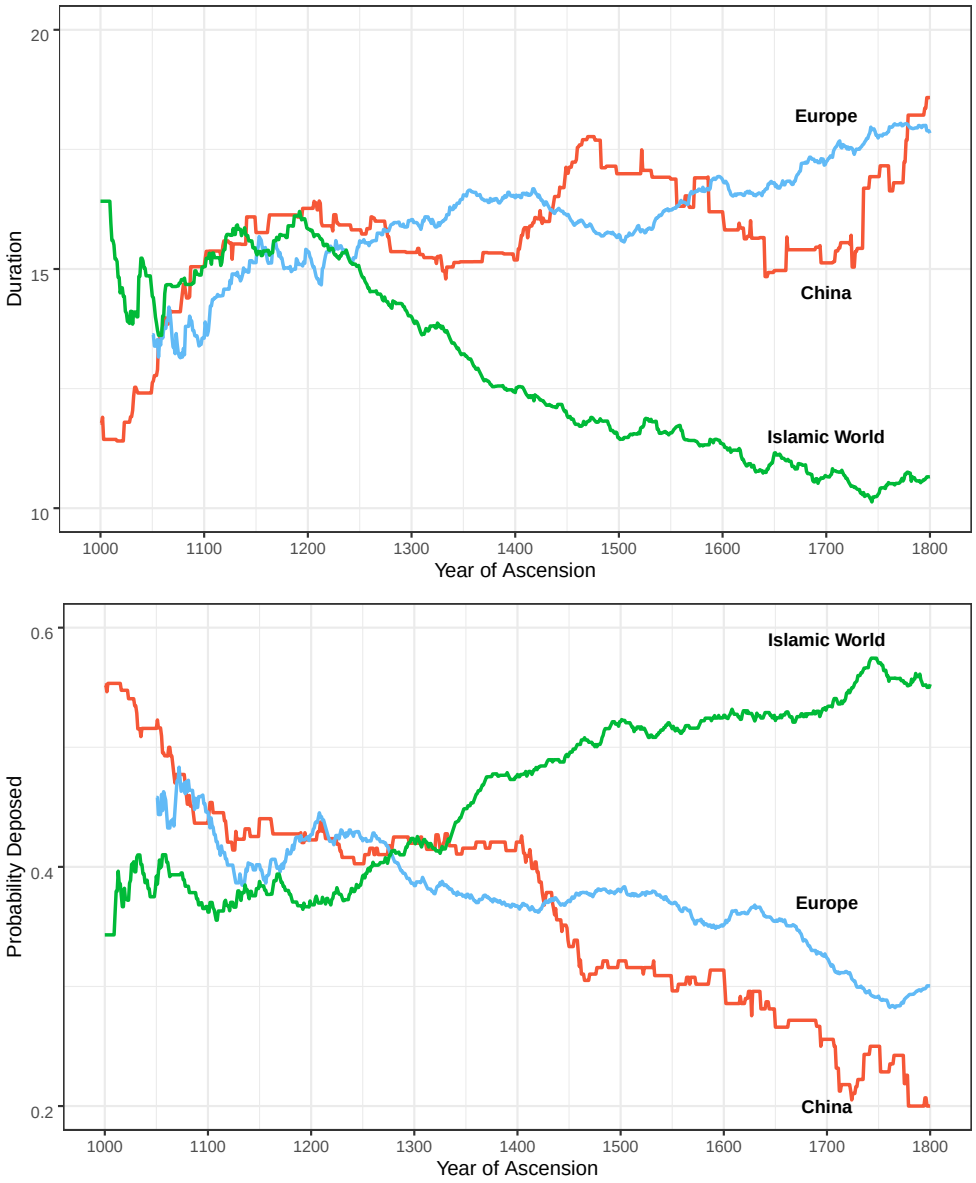


Figure 5: Ruler Survival in China, Europe, and the Islamic World (1000–1800)

in strengthening the state to protect their kinship networks, which spanned the entire empire. They nearly unanimously implemented a historic fiscal reform – the Two-Tax Reform – which influenced the country's fiscal development for the next millennium. Aristocratic interests constituted a credible check on monarchical power by institutionalizing the office of the chief coun-

cilor (宰相), which was almost on a par with the emperor. It was a rare time in Chinese history when the emperor ruled *with* the elites.

In the late 9th century, severely cold weather induced a mass rebellion that stormed the capitals and physically destroyed the aristocracy, leading to the second phase of state development, which lasted for almost a millennium after the mid-10th century. Starting in the Song era (960–1276 CE), the emperors exploited the power vacuum left by the Tang aristocracy to reshape the elite social terrain. They expanded the civil service examination system to identify bureaucratic talent on a relatively meritocratic basis. With their competitiveness and focus on learning, the examinations brought selected members of local gentry families to the center and prevented them from forming a new aristocracy. The national elites in this era thus resemble a bowtie network, representing local interests. They sought to influence central policies to benefit their home societies and kin groups. Despite severe external threats from the steppe nomads, the elites in this era sought to maintain a state with mediocre strength. The emperors exploited the fragmented and localized elite to establish an absolute monarchy at the expense of a much-contracted state.

Figure 6 summarizes the timeline of China's state development.

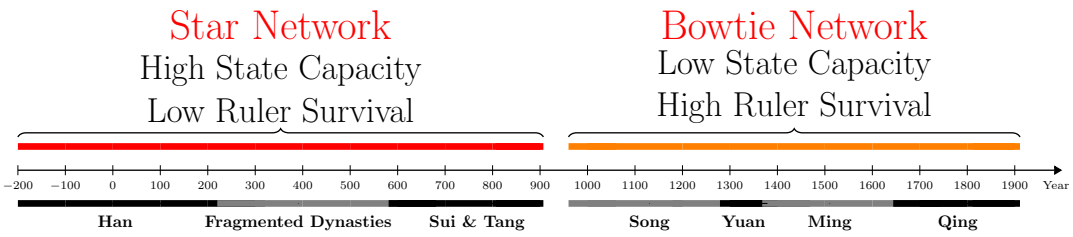


Figure 6: Timeline of China's State Development

THE STAR NETWORK BEFORE THE 10TH CENTURY

A star-like network emerged during the Han Dynasty. Han emperors' policy of recruiting Confucian scholars into the bureaucracy created a class of scholar-bureaucrats who exploited their

political power to strengthen their economic power. They invested these resources into educating their sons and further consolidating their families' political power.[50] In 220 CE, the new ruler of the Wei regime introduced a political selection mechanism called the nine-rank arbiter system (九品中正) to gain the cooperation of powerful families.[51] The arbiter – a local notable – classified candidates for office into nine ranks of character and ability. The system rapidly became an instrument to perpetuate the power of a narrow social class.[52] Birth, status, and office holding became inseparably bound, and many aristocratic families began to form.[53]

In the late 5th century, the nomadic ruler Xiaowen (471–499) placed elite Chinese clans into one of four classes, depending on their ancestors' ranking.[54] Government positions were awarded based on the ranking of the applicant's clan, which consolidated the self-perpetuating aristocracy.[55]

These eminent families were similar enough to aristocracies elsewhere, such as the medieval European nobility, to merit the description "aristocrat." But their eagerness to be associated with the imperial court in order to perpetuate their social status countered any tendencies for aristocratic families to become feudal lords with proprietary control over sections of the country.[56] Many of the great clans managed to maintain their elite status for five, six, or even seven hundred years. The secret to their success was family practices that sustained a continuous descent line. While the medieval European church engaged in a vigorous campaign against aristocratic reproductive behavior by prohibiting endogamy, adoption, polygyny, concubinage, divorce, and remarriage,[57] men in imperial China could take as many concubines as they could afford.[58] Wealthier elites reproduced faster than their poorer counterparts because they could afford

[50] See Yu (2003 [1956]).
[51] Ebrey (1978, 17).
[52] Johnson (1977, 22).
[53] Ebrey (1978, 18).
[54] These four categories were labelled simply A (甲), B (乙), C (丙), and D (丁), and known collectively as the "Four (categories of) Clans" (四姓). See Johnson (1977, 28).
[55] Johnson (1977, 55).
[56] Ebrey (1978, 2).
[57] Goody (1983, 123).
[58] Ebrey (1986, 2).

more concubines and support more children. The most successful clans therefore reproduced more quickly, allowing them to occupy an ever greater share of government positions.[59] While in Europe a 50% rate of attrition among aristocratic families every century was common,[60] the same group of great clans dominated China for centuries [61].

By the Tang period, the aristocratic families had become a status group that was sustained by marital exclusiveness. The core male members of the aristocratic clans congregated in the capital cities of Changan and Luoyang and often held office for successive generations.[62] Their geographic proximity to the emperor certainly helped them obtain desirable positions. But as the historian Nicolas Tackett pointed out, the key to their political success was their social network. The geographic concentration of dominant political elites in the two capitals both reinforced and was reinforced by a tightly knit and highly circumscribed marriage network. Members of this network constituted the dominant political elite who monopolized power during the late Tang era. The social capital embedded in the capital-based elite marriage network allowed these elites to control both bureaucratic recruitment and appointment to the highest posts.[63] For example, there are countless examples of chief councilors intervening to promote a clansman, son-in-law, or sister's son.[64]

With capital elites moving throughout the empire to serve in top local positions, the Tang political center maintained a colonial-like relationship with other parts of the empire. Capital-based bureaucrats were sent to all corners of the empire, monopolizing all of the top civilian posts for 3–4 year tenures.[65]

The marriage network that was facilitated by capital interactions and regional rotations also created a colonial-like relationship. A central family located in the capital connected through

[59] Tackett (2014, 44).
[60] Stone (1965, 79).
[61] Ebrey (1978).
[62] Tackett (2014, 84).
[63] Tackett (2014, 25–6).
[64] Tackett (2014, 133–4).
[65] Tackett (2014, 182).

marriage ties with multiple families with home bases in the provinces to form a star network.[66]

STATE STRENGTHENING AND RULER SURVIVAL IN THE STAR NETWORK

State Capacity Before the 10th century, most of China's fiscal policies were designed to increase central taxation, and taxation continuously increased during this period. A key fiscal reform during this period was the Two-Tax Reform in the Tang era. This reform, introduced in 779 to address the fiscal shortfall after the An Lushan Rebellion (755–763),[67] aimed to change a flat tax based on public land tenure into a progressive tax that recognized private property. The central state imposed a new land tax, collected based on the amount of land under cultivation, levied in two installments (in summer and autumn).[68]

The tax was costly for the political elites expected to implement it, but only three of 141 major officials publicly expressed opposition to the reform.[69] Why did the overwhelming majority of political elites, big estate owners themselves, support (or at least acquiesce to) a reform that increased their tax burden?

The answer lies in the social terrain of the Tang elites, who formed aristocratic clans. Their dispersed kinship network allowed them to internalize the gains of state strengthening to others from regions far from their own. The central state could dramatically reduce the marginal costs of servicing larger areas by exploiting economies of scale. The dispersed network therefore transcended elites' personal interests and aligned the incentives of a broad coalition in favor of the fiscal reform.

Ruler–Elite Relations Contrary to the popular view that a despotic monarchy dominated China for thousands of years, for a long time the Chinese ruler was weak vis-á-vis the central elite. The

[66] Chinese elites usually had multiple concubines and hence a large number of sons and daughters. They could intermarry with capital elites *and* local elites.

[67] The An Lushan Rebellion was an armed conflict between the Tang government and various regional powers led by the military governor An Lushan. The rebellion and subsequent disorder significantly weakened Tang's control of northeastern regions.

[68] Twitchett (1970, 40).

[69] Li (2002, 124, 283, 327).

medieval aristocracy effectively checked the monarchy's power. From the fall of the Han Dynasty to the founding of the Tang, Chinese emperors shared power with the dominant aristocratic families: the rulers exploited aristocratic social capital to govern society.[70]

During the Tang times, the aristocracy institutionalized its power. Official genealogies identified the empire's most prominent clans, guided the nobility's marriage choices, and provided the emperors with a list of families from which bureaucrats were chosen. These genealogies, compiled by state officials, consistently ranked the imperial clan lower than the most prominent aristocratic families.[71] Infuriated, Tang emperors banned the most prominent clans from intermarrying, which only made them more sought after.[72]

The coherence of the Tang aristocracy checked the ruler's power. For example, the office of the chief councilor was elevated during this period. It started as an informal body of advisors to the emperor; chief councilors were drawn from the central ministers. In the early 8th century, the office became a formal government organ that competed with monarchical power.[73] Recall from Figure 4 that Tang rulers were the most likely to be overthrown by the elite. The Tang aristocrats' interconnectedness and geographic concentration facilitated collective action and coordination against the throne. Official histories recorded multiple coup attempts, some of which succeeded.[74] In my dataset of Chinese emperors, 5 of the 12 late-Tang emperors who ascended after the An Lushan Rebellion were toppled by a coup.[75]

[70] See Tian (2015 [1989]) and Johnson (1977).
[71] Wechsler (1979, 212–3).
[72] Tackett (2014, 35).
[73] Dalby (1979, 590–1). The aristocratic effort to increase bureaucratic power did not fully succeed. See Dalby (1979, 591).
[74] Dalby (1979, 601, 634).
[75] These five were Xianzong (805–820), Jingzong (824–826), Wuzong (840–846), Zhaozong (888–904), and Aidi (904–907). According to the official histories, eunuchs played an important role, with aristocratic acquiescence, in leading these coups. See Dalby (1979, 635).

During the late Tang period, China – and much of the Northern Hemisphere – experienced an unusually severe period of cold, dry weather.[76] The prolonged period of drought ignited rebellions in multiple places. Huang Chao, a salt merchant, gradually united disparate rebel forces and captured the capital city of Changan in 880.[77] During two years of occupation, the rebels killed all the aristocrats in the city.[78] After the central nodes were removed, the star network collapsed.

The succeeding Song emperors seized the opportunity to reshape the elite social terrain. They began to rely on an expanded civil service examination system to recruit bureaucrats.[79] Candidate numbers grew dramatically, as did the exams' competitiveness. E.A. Kracke and Ping-ti Ho have demonstrated the meritocratic nature of the examination system and how it increased social mobility.[80] While in the Tang era several hundred aristocratic clans held all the offices, the exam system during the Song period significantly broadened the social basis of bureaucratic recruitment. Although locally powerful families enjoyed an advantage in grooming their sons for the exam, they still needed to compete with thousands of other families across the country to obtain the advanced scholar degree required to gain entry to the highest echelon of the bureaucracy.

Naito Konan dubbed the changes during the 9th and 10th centuries the "Tang–Song transition."[81] Historians have reached a near consensus that the turn of the millennium marks a watershed in Chinese history.[82] This transition was so significant that historians usually divide China's imperial period into two eras: the early imperial era from Han (202 BCE – 220 CE) to

[76] Tackett (2014, 240). Appendix Figure A1-1 presents a time series of temperature anomalies from 0 to 1900 CE using data from Ge et al. (2013).
[77] Somers (1979, 745).
[78] Tackett (2014, 218).
[79] Chaffee (1995, 16).
[80] Kracke (1947) and Ho (1964).
[81] Naito (1992 [1922]).
[82] See Chen (2017) for a recent review of the literature.

Tang (618–906) and the late imperial era from Song (960–1216) to Qing (1644–1911).[83]

THE BOWTIE NETWORK AFTER THE 10TH CENTURY

The Tang–Song transition first and foremost involved the transformation of the elite social terrain.[84] During the Tang Dynasty, office holding was the single most important determinant of family status. All elite families sought to place as many of their sons in the bureaucracy as possible. Building a marriage coalition with other powerful families at the national level provided insurance against uncertainties (such as the death of an important family patron) and represented the most effective way to exploit the patronage system.

During the Song era, the expanded exam system made it more competitive to obtain a bureaucratic position. Thus pursuing a bureaucratic career became a risky investment with uncertain returns. Meanwhile, rising trade, marketization, and urbanization gave men more occupational options. Consolidating a local power base with solid properties and close-knit networks with other powerful neighbors became the best way to perpetuate elite families' status.

When the elites scattered and married locally, multiple communities emerged with their own centers connected to their own neighbors but not with other parts of the network.[85] The historian Beverly Bossler remarks that in the Song era the "center had disappeared, and the network had instead numerous regional nodes."[86] This resembles a bowtie network in which each central node connects with its own community, but different communities are not connected.

STATE WEAKENING AND RULER DURATION UNDER THE BOWTIE

State Capacity Starting in the 11th century, most fiscal policies started to weaken the state's capacity to extract revenue. This is puzzling, given the growing external threats. The Northern Song Dynasty faced existential threats from the Khitan and Tangut nomadic tribes in the North.

[83] See, for example, Ebrey (1978, 1).
[84] For a more detailed discussion, see Hymes (1986, 115–7).
[85] Historians call the localization process "the localist turn" among Chinese elites. See Hartwell (1982) and Hymes (1986).
[86] Bossler (1998, 93).

Faced with a situation in which a war could break out at any moment, why did the elites not "make the state?"

They tried to, but failed. In 1069 the Song ruler introduced the New Policies, which were the brainchild of one of his cabinet members, Wang Anshi. These policies, which became known as the Wang Anshi Reform, had the goal of "enriching the nation and strengthening its military power."[87] The philosophy of the New Policies was to expand the scope of state power to intensify its participation in the market economy, which would generate a surplus that the state could use to meet its fiscal and military needs.[88]

In the first decade of the New Policies, the Song state's revenues dramatically increased. This explains the brief peak in China's fiscal revenue around the year 1086, as shown in Figure 2. The bowtie network, which was gradually formed during the early Song era, created a strong anti-reform sentiment.

The state-building coalition was not strong enough to sway a significant number of the Song central elites who were embedded in local vested interests. Many politicians opposed the reform. They viewed local elite families as competing with the state to provide various services. They considered kinship institutions to be the most efficient way to protect their family interests. Politicians also feared that a stronger state threatened their family interests because state strengthening increased the personal costs to them, through taxation.[89]

After Wang Anshi's retirement and the death of the emperor, the opposition leaders completely abolished the reform. Before long, the Northern Song state was significantly weakened and defeated by the Jurchen in 1127.

The state remained relatively weak after the Song era. As the central elites became more locally oriented, centralized state-strengthening reforms became politically impossible. The government, however, still made periodic attempts to improve its tax collection methods. In the mid-Ming period (circa 1570s), a powerful grand secretary advocated a new method called the

[87] Liang (2009 [1908], 165).
[88] Deng (1997, 48).
[89] Sima (1937 [1086], 42: 543–5) and Li (1979 [1177], 179: 48).

Single Whip, which simplified taxation by combining the labor levy and land tax.[90] But the Single Whip was implemented in a decentralized manner, delayed by a coalition of local elites and their representatives in the national government.[91] The policy took more than 100 years to roll out throughout the country, and was still incomplete when the Ming Dynasty collapsed.[92]

The Manchu conquest in the mid-17th century brought in a new class of elites – the Manchu Eight Banners. The Eight Banners was a unique Manchu military organization that emerged during military campaigns; it was sustained by a close-knit elite network.[93] Early Qing rulers achieved a level of centralization that was unusual in late imperial China. They enforced policies to diminish the gentry's power and privileges, simplified tax collection by merging land and labor taxes, and delineated central and local revenues.[94] This explains the brief surge in state revenues in the late 17th century.

The state-strengthening momentum, however, did not last. With the deterioration of the Eight Banners and the increasing corruption and ineptitude of the Manchus,[95] later Qing rulers increasingly relied on the civil bureaucracy, which was staffed by members of the narrowly interested gentry.[96] Due to political opposition from the bureaucracy, the Qing government did not carry out any cadastral surveys during its 267-year rule; it relied on the late Ming records with infrequent and minor revisions carried out by officials at the provincial and local levels.[97] As a result, the Qing revenues could not keep up with the rapid population growth and the growing external and internal threats after the First Opium War.[98] When local military groups declared independence in 1911, the Qing government was too broke to hold the country together.[99]

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[90] Huang (1974, 117–8).
[91] Huang (1974, 45).
[92] Liang (1989, 485–555).
[93] Elliott (2001).
[94] Zelin (1984).
[95] Elliott (2001, 129).
[96] Elliott (2001, 40) and Xi (2019).
[97] Wang (1973, 27).
[98] Shi and Xu (2008, 55).
[99] Kuhn (1970) and Wakeman (1975).

Ruler–Elite Relations The demise of the medieval aristocracy changed the relationship between the ruler and the central elites. If the Tang emperors were first among equals, rulers after the Song started to dominate the central elite. The rise of absolute monarchy was a key element of what Naito Konan termed the "Tang–Song transition."[100]

Song emperors filled the post-Tang power vacuum by relying on expanded civil service examinations to select bureaucrats. Landowning elite families enjoyed a human capital advantage, but there were so many participants in the examinations that the process was competitive and the outcome uncertain. Even the most powerful families struggled to ensure one member per generation obtained office.[101] The establishment of palace examinations, in which the emperor ranked top candidates after a face-to-face interview, further strengthened the monarch's personal authority to select bureaucrats.[102]

The transition from a star network to a bowtie network marked the fragmentation of the central elite during the Song era. Robert Hartwell observed "the diminished cohesiveness among the elite lineages" in Song times.[103] With a fragmented elite, the emperor used a "divide-and-conquer" strategy to dominate the bureaucracy. For example, the Song emperors fragmented military control by separating the Military Affairs Commission (枢密院), which maintained monarchical control over military matters, from the Ministry of War (兵部), a civilian-controlled organ in charge of military policy making.[104] The Song rulers also reorganized the top echelon of the bureaucracy by dividing the authority of the office of the chief councilor, which centralized executive power during the Tang times, into three executive branches.[105]

During the Wang Anshi Reform, Emperor Shenzong kept both reformers and opponents of the reform in court to play them against each other. "Although the Emperor did not seriously doubt Wang [Anshi]'s loyalty," James Liu speculates, "he was probably afraid that by giving Wang

[100] Naito (1992 [1922]).
[101] Kracke (1947) and Ho (1964).
[102] Chaffee (1995, xxii).
[103] Hartwell (1982, 405).
[104] Smith (2009, 461).
[105] Smith (2009, 462).

too much power he might arouse the disloyalty of other leading officials."[106] For many years during the New Policy era the emperor retained Wen Yanbo, Wang's firm opponent, as head of the Military Affairs Commission, and ignored Wang's complaints about him.[107] Shenzong used the same strategy for other major opposition leaders. As the personnel minister Zeng Gongliang advised the emperor: "it is important to have people of different opinions stirring each other up, so that no one will dare to do wrong."[108] Keeping the critics and dissenters close, the emperor stated, would "broaden what he hears and sees."[109]

The Wang Anshi Reform was a watershed event in Song history. After its failure, Song central politics became increasingly factionalized. The monarchy was the biggest beneficiary of elite fractionalization. As James Liu argues, "The more bitter the power struggle among the bureaucrats became, the greater was the probability of their depending upon the support of the emperor, of their playing into the hands of those around the emperor and in the palace, and of their helping, by design or by force of circumstances, the growth of absolutism."[110]

As a result, political factions were a prominent feature of Song political life.[111] Although earlier dynasties also had political factions, they were more persistent in the Song era and more closely integrated into the dynasty's political structures.[112]

Ming emperors further consolidated their absolute power. In 1380, the Ming founding emperor abolished the entire upper echelon of the central government, including the chief councilor, and concentrated power securely in his own hands.[113] He then brought the ministries under his direct supervision.[114]

China's autocratization was completed during the Qing era. The Grand Council (军机处), which was established in the late 17th century and evolved into a permanent privy council,

[106]Liu (1959, 92).
[107]Liu (1959, 92).
[108]Li (1979 [1177], 213: 5169).
[109]Smith (2009, 367).
[110]Liu (1959, 60).
[111]Bossler (1998, 62).
[112]Hartman (2015, 46).
[113]Hucker (1998, 75).
[114]Hucker (1998, 75).

expanded its sphere of authority to all arenas of imperial policy. The council remained a personal "star chamber" or "kitchen cabinet" granting private advice to the throne. Its members were overwhelmingly Manchu and were often drawn from the emperor's closest circle of relatives and friends.[115]

WHY WAS THE BOWTIE SELF-ENFORCING?

The bowtie network proved to be exceptionally durable. If we characterize state–society relations under the Tang Dynasty as a state-dominant direct rule, the Song era facilitated a state–society partnership in which entrenched local elites bargained, but also collaborated, with the state. This partnership became a self-reinforcing equilibrium that contributed to the exceptional durability of imperial rule in the second millennium.

The civil service examinations played a crucial role in shaping this partnership between the state and society. As Peter Bol points out, during the Song era the examination system was transformed from an institution for recruiting civil officials into one that allowed local elites to claim the privilege of belonging to a relatively homogenous social elite. When most sons of existing gentry families neither passed the examinations nor gained official rank, they needed a new mechanism to prove they were still part of the elite. The examination system gave the gentry throughout the empire a universal mechanism for educating the next generation in what it meant to be a literati, perpetuating their families in the local elite, and controlling the membership therein.[116] The examinations therefore created a channel of state legitimation and a myth of meritocracy that kept the bowtie together.

To maintain their membership in the elite over generations, local gentry families invented a new form of organization. In 1050, Fan Zhongyan – a Northern Song politician – created the first trust-based lineage. Wealthy members of the Fan lineage donated 1,000 or so *mu* (approximately 90 soccer fields) of paddy fields. The annual rents provided Fan's relatives and their

[115] Rowe (2009, 40–1).
[116] Bol (1990, 168–171).

descendants with regular support: equal daily grants of grain and annual winter clothing, housing, an education for the boys, financial support for examination candidates, and marriage and funeral expenses. A designated clan member served as the manager of the landed trust endowment, its revenue, and its grant distribution. The trust was intended to be permanent, and its property inalienable.[117]

The trust-based lineage increasingly crowded the countryside of southern China and became the model large kinship organization from the late 12th century onward.[118] Such lineage organizations helped secure the long-term survival of gentry families as a unified kinship group. With their entrenched local power base and local interests at heart, the gentry elite from the Song era onward became what Robert Hymes calls "local advocates." They intervened directly and openly with local and central officials to influence the course of local events and government actions.[119]

Nevertheless, the gentry also depended on the state and could not afford to separate from it. Sukhee Lee shows that connectedness to – rather than independence from – the state granted the gentry prestige and safeguarded their local prominence. Some families occasionally obtained offices, which brought privileges, including exemption from taxes and services.[120] This partnership with the state emerged under the Song Dynasty and was reinforced in the Yuan era, when the gentry elite had to collaborate and bargain with an ethnically alien regime.[121] The partnership, when it finally consolidated during the Ming and Qing eras, was key to imperial China's durable rule.

[117]McDermott (2013, 134).
[118]McDermott (2013, 115).
[119]Hymes (1986, 127–8)
[120]Lee (2009, 52).
[121]Lee (2009, 207).

CONCLUSION

Europe and China pursued very different paths of state development from the 7th to the 20th centuries. In Europe, the fall of the Roman Empire created a large number of small kingdoms. Political fragmentation gave rise to representative institutions and interstate competition, which made European states stronger and more durable. China started as a centralized state. Violence, rather than making the Chinese state, destroyed its centralized social network. Chinese rulers reshaped the elite social terrain by recruiting localized elites into the bureaucracy. The rulers were able to dominate these localized elites, but China's fiscal capacity started to decline. The Chinese state thus gained durability at the expense of state capacity.

Social science research has generally assumed there is a positive link between state capacity and state durability. According to this logic, a strong state enables the ruler to quell mass rebellions, defeat outside enemies, and provide public goods. However, as I have shown, most rulers were toppled by elites.[122] In states without representative institutions, there is an inherent tension between state capacity and state durability because strengthening capacity and lengthening durability require different elite social structures. An elite that can take collective action to strengthen the state is also capable of revolting against the ruler.

I document this capacity–survival tradeoff and use it to explain China's long-term state development. My findings shed light on important issues related to state building in the developing world. Many countries in Africa, Asia, Latin America, and the Middle East have weak states.[123] The policy interventions carried out by the international community, such as the World Bank and the International Monetary Fund, focus on strengthening state capacities.[124] But the Chinese experience implies that rulers may need *incentives* to build state capacity, as doing so where institutions are weak may compromise their personal survival. Lessons from Chinese history indicate that state building should go beyond a narrow focus on strengthening capacities to re-

[122] This is consistent with the estimates by Svolik (2009, 478), who show that more than two-thirds of modern authoritarian leaders who lose power via non-constitutional means are removed by government insiders.
[123] Fukuyama (2014).
[124] Evans and Rauch (1999).

shape elite social structures to make them more compatible with a strong state.

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ONLINE APPENDIX

THE SOVEREIGN'S DILEMMA: STATE CAPACITY AND RULER SURVIVAL IN IMPERIAL CHINA

HISTORICAL FISCAL POLICIES

Table A1-1: Major Fiscal Policies in China (221 BCE – 1911 CE)

Year	Dynasty	Policy Name (English)	Policy Name (Chinese)	Coding
216 BCE	Qin	Self-Report of Cultivated Land	黔首自实田	1
202 BCE	Western Han	Separation of Royal and Government Treasuries	财政皇室与政府分开	0
196 BCE	Western Han	Local Government Reporting of Fiscal Account	上记制度	1
120 BCE	Western Han	State Monopoly of Salt and Iron	盐铁官营	1
119 BCE	Western Han	Merchants' Property Tax	算缗	1
110 BCE	Western Han	Price Adjustment and Stabilization	均输	1
110 BCE	Western Han	Price Equalization and Standardization	平准	1
98 BCE	Western Han	State Monopoly of Alcohol	酒专卖	1
81 BCE	Western Han	Abolishment of State Monopoly of Alcohol	废除酒专卖	1
39	Eastern Han	Cadastral Survey	度田令	1
88	Eastern Han	Abolishment of State Monopoly of Salt and Iron	废除盐铁官营	-1
196	Eastern Han	Military Agro-Colonies	屯田制	1
280	Western Jin	State Allocation of Land	占田法	1
280	Western Jin	Household Tax	户调制	1
321	Eastern Jin	Commercial Tax	估税	1
485	Northern Wei	Public Land Tenure (Equal-Field System)	均田令	1
486	Northern Wei	(Lower) Household Tax	租调制	-1
584	Sui	Public Land Tenure (Equal-Field System)	均田制	1
590	Sui	Military Agro-Colonies	兵农合一	1
624	Tang	Public Land Tenure (Equal-Field System)	均田令	1
624	Tang	Land and Household Tax	租庸调	1
758	Tang	State Monopoly of Salt	盐专卖	1
764	Tang	State Monopoly of Alcohol	酒专卖	1
780	Tang	Abolishment of Public Land Tenure (Equal-Field System)	废除均田制	-1
780	Tang	Abolishment of State Monopoly of Salt	废盐专卖	-1
780	Tang	Two-Tax Reform	两税法	1
782	Tang	State Monopoly of Tea	茶专卖	1
960	Northern Song	Two-Tax	两税	1
960	Northern Song	State Monopoly of Salt	盐专卖	1
960	Northern Song	State Monopoly of Tea	茶专卖	1
960	Northern Song	State Monopoly of Alcohol	酒专卖	1
960	Northern Song	State Monopoly of Alum	矾专卖	1
964	Northern Song	Centralization of Fiscal Revenue	集中财权	1
1005	Northern Song	Alteration of State Monopoly of Tea	改变茶专卖	-1
1017	Northern Song	Abolishment of State Monopoly of Salt	取消盐专卖	-1
1028	Northern Song	Abolishment of State Monopoly of Alum	取消矾专卖	-1
1059	Northern Song	Abolishment of State Monopoly of Tea	废止茶专卖	-1
1069	Northern Song	Rural Credit (Green Sprout)	青苗法	1
1069	Northern Song	Price Adjustment and Stabilization	均输法	1
1070	Northern Song	Labor Service Fee	免役法	1
1071	Northern Song	Cadastral Surveys and Equitable Tax	方田均税法	1
1072	Northern Song	State Trade	市易法	1
1085	Northern Song	Abolishment of Rural Credit (Green Sprout)	废除青苗法	-1
1085	Northern Song	Abolishment of Price Adjustment and Stabilization	废除均输法	-1
1085	Northern Song	Abolishment of Labor Service Fee	废除免役法	-1
1085	Northern Song	Abolishment of State Trade	废除市易法	-1
1085	Northern Song	Abolishment of Cadastral Surveys and Equitable Tax	废除方田均税法	-1
1236	Yuan	State Monopoly of Salt	盐专卖	1
1368	Ming	Military Agro-Colonies	屯田	1
1368	Ming	Salt Tax (Abolishing Salt Monopoly)	盐税	-1
1581	Ming	Single Whip (Absorbing Household Tax in Land Tax)	一条鞭法	1
1644	Qing	Returning to Ming Tax Quota	正赋	-1
1644	Qing	Salt Tax (Returning to Ming Tax Rate)	盐课	-1
1645	Qing	Allocation of Land to Eight-Banner and Manchu Nobility	圈地令	-1
1711	Qing	Freezing Labor Service Quota	永不加赋	-1
1724	Qing	Melting Fee	耗羡归公	1
1729	Qing	Absorbing Household Tax in Land Tax	摊丁入亩	1

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EXITS OF CHINESE EMPERORS

Table A1-2: Exit of Chinese Emperors (221 BCE–1911 CE)

Cause	Method of Exit	Frequency	Percent
Health	Natural Death	152	53.90%
Elites	Murdered by Elites	34	12.09%
	Deposed by Elites	24	8.51%
	Forced by Elites to Abdicate	17	6.03%
	Committed Suicide under Pressure from Elites	1	0.35%
	Subtotal	76	26.95%
Civil War	Deposed in Civil War	20	7.09%
	Died in Civil War	10	3.55%
	Committed Suicide during Civil War	1	0.35%
	Forced to Abdicate facing Internal Threats	1	0.35%
	Subtotal	32	11.34%
External War	Committed Suicide during External War	4	1.42%
	Forced to Abdicate facing External Threats	3	1.06%
	Subtotal	7	2.48%
Family	Murdered by Son	5	1.77%
	Murdered by Concubine	1	0.35%
	Subtotal	6	2.12%
Other	Elixir Poison	4	1.42%
	Volunteer to Abdicate	4	1.42%
	Accidental Death	1	0.35%
	Subtotal	9	3.19%
	Total	282	100%

CHINA'S HISTORICAL TEMPERATURE

A temperature anomaly is defined as a departure in temperature from the 1851–1950 average. Positive numbers indicate warmer-than-normal temperatures, and negative numbers colder-than-normal temperatures. The dots represent temperature anomalies at the decade level, while the line represents the locally weighted smoothing. Consistent with global evidence from the Northern Hemisphere, China's surface temperature fluctuated considerably during the study period: three warm intervals during 1–200, 551–760, and 951–1320, and four cold intervals in 201–350, 441–530, 781–950, and 1321–1900.

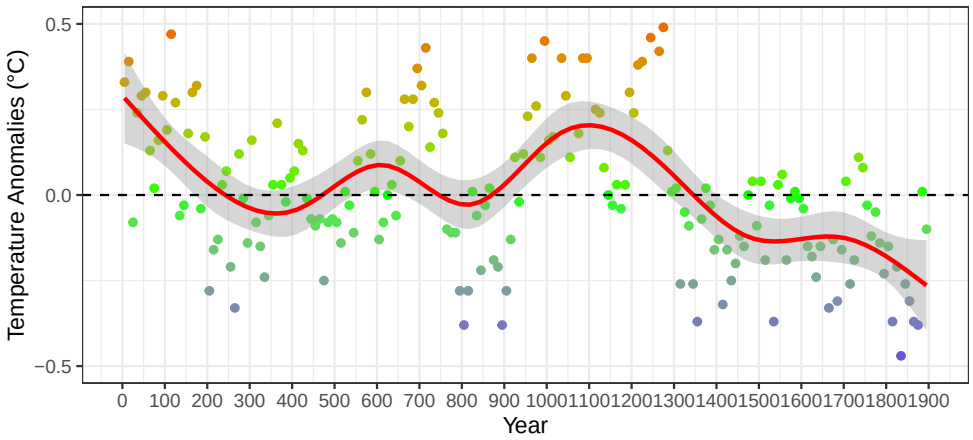

Figure A1-1: Temperature Anomalies (0–1900)