

# Geopolitics and Asia's Little Divergence: State Building in China and Japan After 1850

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## Abstract

We provide a new framework to account for the diverging paths of political development and state building in China and Japan during the second half of the nineteenth century. The arrival of Western powers not only brought opportunities to adopt new technologies, but also fundamentally threatened the national sovereignty of both Qing China and Tokugawa Japan. We argue that these threats and opportunities produce an unambiguous tendency toward centralization and modernization for small states, but place conflicting demands on geographically larger states. We use our theory to study why China, which had been centralized for much of its history, experienced gradual disintegration upon the Western arrival, and how Japan, which was originally politically fragmented, rapidly unified and modernized during the same period. To further demonstrate the validity of our model, we apply it to two other historical episodes of state building: the unification of Anglo-Saxon England in the tenth century and the rise of Muscovy during the fifteenth century.

**Keywords:** China; Japan; Geopolitics; State Capacity; Political Fragmentation; Political Centralization; Economic Modernization

**JEL Codes:** H2, H4, H56; N30; N33; N35; N40; N43; N45

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## 1 INTRODUCTION

This paper revisits the question: why did Japan successfully build a modern state in the late nineteenth century, while China did not? Both China and Japan came under increasing threat from the Western powers during the nineteenth century. In response, Japan successfully undertook a program of state building and modernization; in China, however, attempts to modernize the state proved unsuccessful and the power of the central state was weakened. This transformation overthrew the Sino-centric international order of East Asia and set the stage for nearly a century of political turmoil in China, and the onset of sustained economic growth in Japan.

The divergence that took place between China and Japan after 1850 poses a conundrum to scholars studying the process of state building and modernization.<sup>1</sup> It is puzzling, first of all, from the perspective of the large literature that follows Charles Tilly in stressing the importance of external wars as engines of state building: both China and Japan were confronted with external threats in the second part of the nineteenth century, but only Japan embarked on a successful program of modernization.<sup>2</sup> Second, the dichotomous outcome we observe is at odds with what one might expect from a superficial assessment of the internal political histories of the two countries. China had a longer history of continuous statehood (Fukuyama, 2011) and the Qing state in 1800 was more centralized than was Tokugawa Japan. A third reason to revisit this particular case-study is that the initial East Asian divergence in state building was not driven by internal conditions such as the pressures of industrialization as in variants of the modernization hypothesis (Lipset, 1963; Boix, 2011) or by the threat of democracy as modeled by Acemoglu and Robinson (2000*b*, 2001, 2005), but was rather a response to radical changes in the external environment brought forth by the rise of the West.

To address this puzzle we develop a unified framework to account for China's and Japan's diverging paths of political development and for the difference that outsiders observed in their attitudes toward broad-based reforms in the second half of the nineteenth century. In doing so, we contribute to the literature on state building and the establishment of modern states.

Until fairly recently, the seminal contributions in this literature focused on Western Europe and it is only recently that scholars have considered the process of state formation and modernization

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<sup>1</sup>For conciseness, we use "1850" to represent the time point at which the break between premodern and modern eras occurred in China and Japan. Therefore, post-1850 represents the period after the First Opium War (1839–42) in China and the period after the Black Ship Incident (1853) in Japan. This treatment is akin to the historians' use of the "long eighteenth century" to represent the period from the Glorious Revolution (1688) to the battle of Waterloo (1815).

<sup>2</sup>This argument originated in the work of Hintze (1906, 1975) and was developed by Tilly (1975, 1985, 1990), Downing (1992), Ertman (1997), and Finer (1999) among others. It has recently been influential through the work of Besley and Persson (2011), Karaman and Pamuk (2013), Gennaioli and Voth (2015), and Nicholas et al. (2015). See Vu (2010*b*) for a survey.

in other parts of the world such as East Asia (Slater, 2010; Vu, 2010*a*; He, 2013) and Latin America (Centeno, 1997).<sup>3</sup> While there is an extensive literature on the developmental state in East Asia (e.g., Wade, 1990; Johnson, 1995; Haggard et al., 1997; Doner et al., 2005), this literature focuses largely on the post-1945 experience instead of on the original point of divergence in state building that took place in the second half of the nineteenth century.

We contribute to both the literature on the Little Divergence between China and Japan that took place in the nineteenth century and to the wider Great Divergence debate (Wong, 1997; Pomeranz, 2000; Rosenthal and Wong, 2011). We demonstrate that the Great Divergence between China and Europe and the Little Divergence between China and Japan were not solely driven by economic factors such as technology, trade, and population as economic historians have emphasized but were decisively shaped by political and specifically, geopolitical, concerns.

We build on the literature that emphasizes Meiji Japan's commitment to emulate the West in implementing an ambitious and broad-based set of reforms and the lack thereof in China as key ingredients that contributed to the *Little Divergence* in Asia (Fairbank and Reischauer, 1989; Paine, 2003).<sup>4</sup> However, instead of attributing Japan's eagerness to embrace Western ideas and China's ambivalence toward political change and reform as exogenously determined, we argue that these observed societal attitudes were shaped by the interaction of external challenges and domestic constraints in both countries. In the spirit of realist scholars who emphasize the importance of external security and the international system in determining patterns of conflict and internal state building and of economic historians who have stressed the importance of geography, we build a model in which the respective needs to deal with external threats and provide internal order within the state interact to shape the acts of policymakers.<sup>5</sup>

Within the growing literature on state building in political science and economics (Vu, 2010*b*; Besley and Persson, 2011; McBride et al., 2011; Dincecco, 2015; Johnson and Koyama, 2015), we specifically build on the work of scholars including Paul Kennedy, Charles Tilly, Thomas Ertman, and Samuel Finer who have considered the role of war in state-building.<sup>6</sup> But for

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<sup>3</sup>Slater (2010) focuses on Southeast Asia while Vu (2010*a*) studies state formation in South Korea, Vietnam, China, and Indonesia. He (2013) provides a detailed study of the emergence of modern fiscal and financial systems in England, China, and Japan.

<sup>4</sup>As Mokyr (1990) put it, "Japan adopted European technology rapidly lock, stock, and barrel, while China tried for decades to import European arms while preserving its old social and economic institutions" (231).

<sup>5</sup>The emphasis on the importance of the state system and threats to it is evident in the work of Morgenthau (1948), Waltz (1979), and Mearscheimer (2001). Important recent contributions that apply a realist framework to historical examples from Asia and from antiquity include Hui (2004, 2005) and Eckstein (2011). The importance of geography can be found in classic contributions like Mahan (1890) and Mackinder (1904) and has been recently studied by Kaplan (2012); it is also stressed by economic historians such as Jones (1981, 2003) and has received recent emphasis in the work of Rosenthal and Wong (2011), Sng (2014), and Sng and Moriguchi (2014).

<sup>6</sup>See Kennedy (1987), Tilly (1990), Ertman (1997), and Finer (1999). They have pointed out how, under certain circumstances, external wars can lead states to invest in state capacity.

their analysis, these scholars with a few exceptions have drawn on the example of early modern Europe, as has more recent research in international relations and economics (Nexon, 2009; Hoffman, 2012, 2015; Gennaioli and Voth, 2015). Stasavage (2010) also points to the centrality of geography in his analysis of why representative institutions could be sustained in smaller European states but proved ineffective in larger polities. Finally, our analysis is related to Nicholas et al. (2015) who also emphasize the role played by external threats and warfare in supporting nation-building in late nineteenth-century Europe. Our approach differs from, and complements, these existing accounts. By placing the problem of state building in the context of a hostile external environment and explicitly modeling how geography shapes the threats that states face, we offer an alternative understanding of why external threats can lead some states to develop while others collapse.

The point we emphasize is that to the rest of the world, the rise of the West brought not only opportunities to adopt new technologies and practices, but was also associated with powerful threats to national sovereignty. Given these opportunities and threats, it is incentive compatible for rulers of relatively small and compact territories such as Japan to embark on a program of centralization and modernization but very costly for a large state like China to do so.

Specifically, for China, traditionally a land-based continental empire with a stronger military-political establishment in the north than in the south, the rise of European naval power demanded urgent actions to bolster coastal defense and strengthening the presence of the state in South China, at a time when the Chinese state was facing renewed pressure along its Inner Asian land frontier from the Russians (Hsu, 1965; Liu and Smith, 1980). The inefficiency of coordinating the twin responses from a single center on the one hand, and the central authority's unwillingness to concede too much autonomy to the provinces on the other contributed to the Qing dynasty's wavering between centralization and decentralization from the mid-nineteenth century through until the dynasty's collapse in 1912.

Furthermore, to take full advantage of the new economic and technological possibilities, a state of China's size needs to decentralize and allow provincial authorities to take the lead in implementing reforms such as building schools and roads that serve local needs. However, decentralization may generate collective action problems in defense and diplomacy. Here again, the rise of the West meant that Chinese policymakers were confronted with conflicting objectives. Eventually, the contradictions grew beyond the Qing rulers' ability to manage and China broke apart, entering a period of fragmented warlord rule.

Dealing with the challenge of the West was not easy for Japan either. Like the leaders of Qing China, the Japanese ruling elite reacted to the mid-nineteenth century crisis under huge uncertainty (Jansen, 2000; He, 2013). But as an island state, Japan's national and local objectives

of security and reform were broadly congruent; the contradiction between political centralization and local state building did not exist. Indeed, it did not take long for the Japanese elites to reach a consensus over what had to be done politically to confront the mid-nineteenth century crisis: the feudal system of the Tokugawa period (1603–1867) had to be replaced by a centralized government so that Japan could pool its limited resources to mount a coordinated response to the threat of Western imperialism and secure the political stability required to initiate and sustain a program of industrialization. While reformists and ultraconservatives in China fought ferociously on whether or not to pursue reform, the antagonistic Shogunate and anti-Shogunate forces who fought the civil war between 1863 and 1868 shared the objective of national unification. Once the war was over, the victorious anti-Shogunate forces readily abandoned their anti-West rhetoric and accelerated the program of Westernization that had begun in the late Tokugawa period.<sup>7</sup>

The model we develop in this paper allows us to study how geopolitics generate systematic tendencies toward state centralization or state decentralization. In our model, the robustness of centralization and decentralization is influenced by the nature of external threats. The model predicts that a singular external threat generates a systematic tendency toward centralization. However, powerful threats from multiple fronts have a differential impact on small and larger states. They produce an unambiguous tendency toward centralization for a small state, but for a large state they can lead to the decentralization of political authority and eventual disintegration.

In addition, our model highlights the spatial dimension of state building. The literature on state capacity often contains the implicit assumption that state building is a spatially uniform process: state capacity, once built, applies throughout the country. But in reality, the state is not omnipresent—it is usually more effective in some locations (e.g., in and around the capital city) than in others (e.g., in peripheral regions).<sup>8</sup> This makes maintaining effective control a more complicated task in a large country than in a small one, which will have implications on their respective abilities and willingness to pursue socioeconomic reforms.

The basic intuition of our model is as follows: the sudden emergence of powerful external threats exposes the resource constraint of small states. This would cause the weakest of these states to wither, but it would energize others like Japan to push for political centralization (i.e., resource pooling) and reform (resource augmentation) in order to survive. By contrast, resource scarcity is less of a concern for very large states like China. Instead, they face difficult organizational tradeoffs unknown to their smaller counterparts. For them, the simultaneous arrival of strong external threats and reform opportunities generates conflicting demands. On the one

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<sup>7</sup>As Duus (1998, 85) points out, “The Meiji Restoration brought to power new leaders not so very different from those they had overthrown.”

<sup>8</sup>Michalopoulos and Papaioannou (2014), for instance, provide evidence that in many African countries, the reach of central government does not extend into the periphery where ethnic level institutions have a greater impact on developmental outcomes than national institutions.

hand, the opportunities entice them to decentralize extensively to facilitate local implementation of reform. On the other hand, substantial decentralization generates free rider problems in defense. Given the dilemma, uncertainty over the magnitude of the threats and the returns to reform can cause constant wavering and indecision, as witnessed in post-1850 China.

The structure of the rest of the paper is as follows. We first provide a historical account on how China, which had been a centralized empire for much of its history, experienced gradual disintegration upon the arrival of the West while Japan rapidly unified and invested in state capacity during the Meiji Restoration in Section 2. In Section 3 we introduce a model. Section 4 links the model with the history and provides novel insights into the problems facing states outside Europe as they sought to modernize in the face of the Great Divergence.

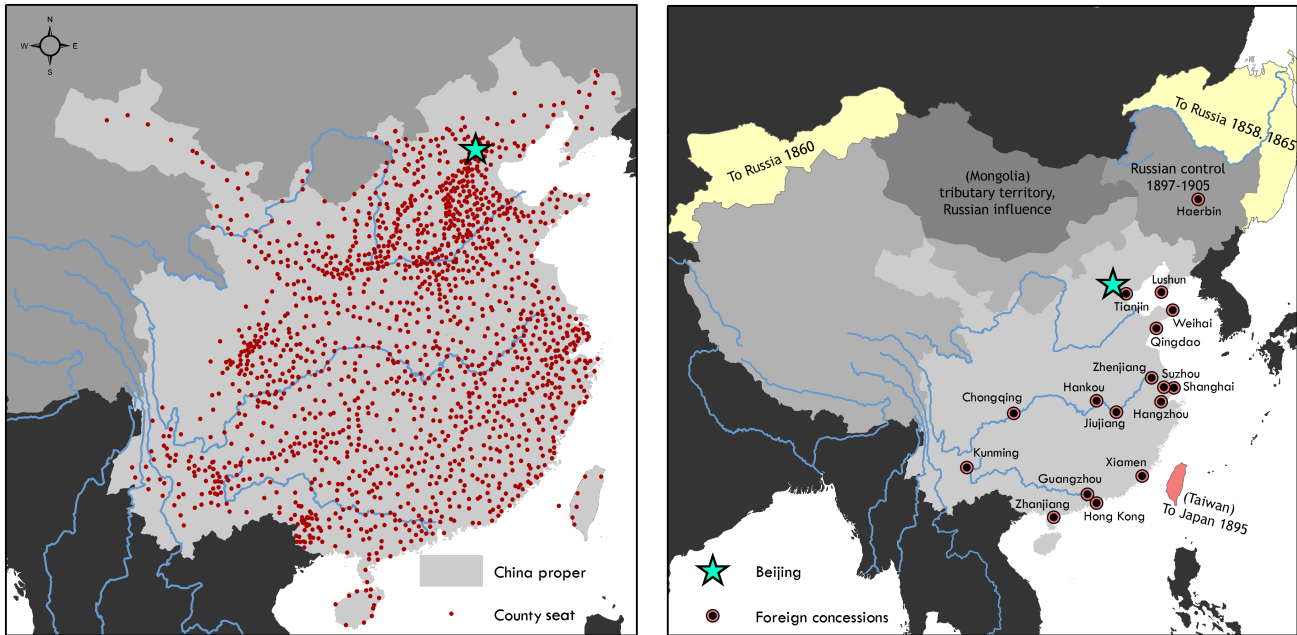
To illustrate the external validity of our framework, in Section 5 we discuss how our theory sheds light on other episodes of state formation and fragmentation, including the unification of Anglo-Saxon and the rise of Muscovy. Section 6 concludes.

## 2 THE PUZZLE: STATE CENTRALIZATION AND MODERNIZATION IN EAST ASIA

Why did the emergence of geopolitical threats from the West in the second half of the nineteenth century have differential effects on state building in different parts of East Asia? The existing literature points out that external threats and war can encourage investments in state building but with the exception of Gennaioli and Voth (2015), it does not explain how the same set of geopolitical threats can have a different impact in different countries. In this section we outline the geopolitical situation facing China and Japan in the mid-nineteenth century and how they responded to the new challenges posed by the Western powers.

Before 1850, the Qing dynasty (1644–1912) ruled a large empire stretching across 14 million square kilometers. Despite its territorial size, political authority was concentrated in the hands of the emperor who ruled through a centralized bureaucracy, which had a stronger presence in North China than in South China (Figure 1a). While Tokugawa Japan remained a feudal society with hereditary social classes, in China officials were recruited via imperial examination and appointed by the emperor. Selection was meritocratic: there was no hereditary nobility and no separation of social classes (Ch'u, 1962; Feuerwerker, 1976). In comparison to Japan, therefore, China had a long legacy of organized rule by a central government. For all of these reasons, it should have been easier for China to maintain a centralized system of government than it was for Japan to build one as Asia transitioned into the modern era. Nevertheless, this was not what occurred.

Figure 1



(a) Traditionally, the Chinese state had a stronger presence in the north than in the south as reflected in the distribution of the counties. Source: CHGIS (2007).

(b) From the mid-1800s to its collapse in 1912, the Qing state faced foreign encroachment by land (from Inner Asia) and by sea (from the sea).

### 2.1 External Threats and State Disintegration in Qing China

A large existing literature links China's long tradition of political centralization to the recurring geopolitical threat that it faced from the Eurasian steppe (Lattimore, 1940; Grousset, 1970; Huang, 1988; Barfield, 1989; Lieberman, 2009; Turchin, 2009). Prior to the Opium Wars, all major invasions of China came via the north. This changed drastically after the First Opium War (1839–42). China's defeat in the hands of Britain meant that the Western powers now posed a direct threat to China's coast. The Treaty of Nanking, signed in 1842 to restore peace, saw the establishment of Hong Kong as a British colony and the opening of five Chinese ports (Guangzhou, Xiamen, Fuzhou, Ningbo, and Shanghai) to foreign trade and residence. It was followed by a series of "unequal treaties" with Britain, United States, France, and Sweden-Norway in the 1840s that committed China to grant extraterritorial rights and give up tariff autonomy. In 1856–60, China lost the Second Opium War to Britain and France, resulting in further concessions in the form of war indemnities, opening of new treaty ports, and territorial transfers. Table 1 summarizes the chronology of these events.

Besides confronting unprecedented naval threats from the sea, China also had to deal with steady encroachment by Russia, who had by now replaced the steppe nomads as China's main

**Table 1:** Timeline for late Qing China

Year	Event	Description
1839–42	Opium War	China cedes Hong Kong to Britain.
1850–64	Taiping Rebellion	Peasant uprising sweeps southern China.
1856–60	Second Opium War	A small Anglo-French expedition defeats the Qing Army.
1858	Treaty of Aigun	China cedes 600,000 $km^2$ to Russia.
1860	Convention of Peking	China loses Outer Mongolia and cedes more territory to Russia.
1861–95	Self-Strengthening Movement	China sets up Office of Foreign Affairs and launches limited reforms.
1894–95	Sino-Japanese War	China cedes Taiwan and pays huge indemnity.
1899–1901	Boxer Rebellion	Intervention by Eight-Nation Alliance. Beijing ransacked.
1901–12	New Policies Unveiled	Qing court announces Meiji-style political, economic, military, and educational reforms.
1911–12	Chinese Revolution	Provinces take opportunity of mutiny in Wuchang to declare independence.

threat along its north-west land frontier. In 1858, when fighting the Anglo-French invasion, China ceded its territories north of the Amur River to Russia so as to avoid fighting a two-front war (Figure 1b). This was followed by the Convention of Peking in 1860, which sanctioned Russia's annexation of Chinese territories east of the Ussuri River. Further Russian encroachment into Xinjiang (Chinese Turkestan) precipitated what some Chinese historians referred to as “the great policy debate of 1874,” which saw two senior Chinese statesmen, Zuo Zongtang and Li Hongzhang, in open disagreement over whether China should place its defense priority on its land or maritime frontiers (Hsu, 1965; Liu and Smith, 1980).<sup>9</sup>

The geopolitical changes coincided with a shift toward limited political decentralization within China, which first took place in the 1850s to provide a more flexible and responsive approach to counter the Taiping Rebellion and other rebellions of the mid-nineteenth century (Kuhn, 1980; Rowe, 1983). Apart from allowing provincial scholar-generals to raise their own armies, the imperial court also granted them more fiscal autonomy (Shi and Xu, 2008). After the Taiping

<sup>9</sup>The contemporaneous *Blackwood's Edinburgh Magazine* observed in its July 1852 issue that China was increasingly sandwiched between foreign pressures along its north-west frontier and along its south-east coast. On the one hand, “Russia, the great nascent power of the Old World, has rolled her armies across Siberia up to the foot of the Great Wall, and now casts a covetous eye upon the northern portion of the Celestial Empire”. On the other hand, “Britain, firmly seated on her Indian throne, has reached with her fleets every harbour of the Flowery Land” (113).



rebels were put down, political decentralization was partially but not fully rolled back as the provinces continued to enjoy a substantial amount of fiscal and administrative autonomy.<sup>10</sup> To deal with the rising Western threat, the imperial court also permitted individual provincial appointment holders to undertake greater responsibilities in foreign affairs. In particular, the viceroy of the Zhili province, held consecutively by Zeng Guofan and Li Hongzhang between 1868 and 1895, was entrusted with the responsibilities of coordinating defense matters in the coastal provinces and dealing with the Western powers (Chu and Liu, 1994).

The Qing state also initiated the Self Strengthening Movement in the 1860s in response to the challenge of the West. The movement was championed by the semi-regent Prince Gong, together with Zeng Guofan, Zuo Zongtang, Li Hongzhang and other powerful provincial figures. Some of its more significant endeavors include: setting up foreign language schools in Beijing, Shanghai, and Guangzhou to build foreign affairs expertise and to translate Western works of science and technology; opening new mines and constructing iron foundries, steel mills, machine factories, arsenals, and shipyards; the establishment of military and naval academies; creating new industries and enterprises including railway and telegraph lines, cotton-spinning and weaving companies, and steam navigation companies.

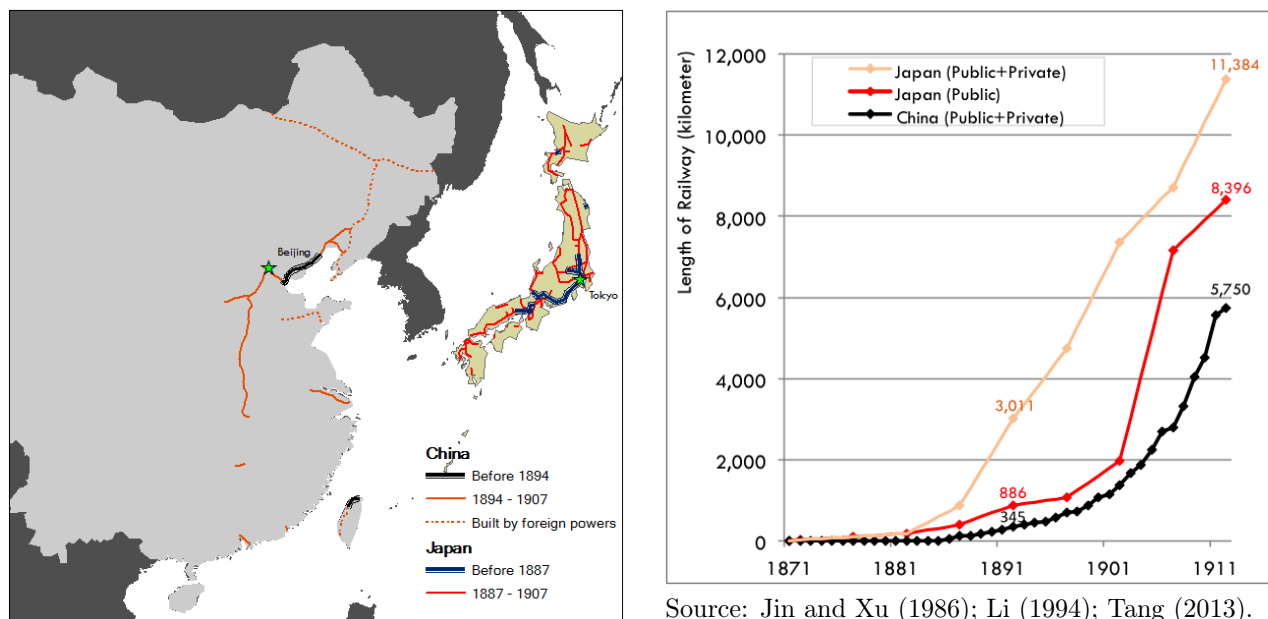
Among historians, there is an emerging view that the Self Strengthening Movement achieved more than it was traditionally given credit for (Elman, 2004; Rowe, 2009). According to Elman (2004), “[China’s] Jiangnan Arsenal and the Fuzhou Shipyard, for example, were generally acknowledged by contemporary Europeans and Japanese to be more advanced than their chief competitor in Meiji Japan, the Yokosuka Dockyard, until the 1880s” (314) and the perceived failure of the Self-Strengthening Movement was “an artifact of the impact of the Sino-Japanese War after 1895 on international and domestic opinion” (326).<sup>11</sup>

Its achievements notwithstanding, the Self Strengthening Movement was largely confined to the adoption of Western military technology and armaments. It was significantly less ambitious in agenda and limited in terms of its social and economic impact when compared with Japan’s Meiji Restoration, where reforms went beyond military modernization and involved, among other things, an overhaul of the land ownership system, the introduction of compulsory education, and state-led investment on a nationwide rail transport network (Jansen and Rozman, 1986). As Figure 2 illustrates, China lagged significantly behind Japan in railroad construction in the crucial run-up to the Sino-Japanese War of 1894–5. In the construction of telegraph lines, setting

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<sup>10</sup>Shi (2009) provides quantitative evidence on the fiscal autonomy enjoyed by the provinces in late Qing China. He observes that the reported silver income of the Qing state abnormally doubled from 105 million taels in 1903 to 235 million in 1908. Much of the “growth” could be attributed to impending fiscal reforms and changes to the revenue sharing arrangement, which encouraged the provinces to declare hitherto unreported revenues.

<sup>11</sup>Andrade (2016, 282–294) details the extent to which even on the eve of the Sino-Japanese War, the armaments of Chinese ships were considered superior to those of the Japanese.

**Figure 2:** Railroad construction in Qing China and Meiji Japan

Source: Jin and Xu (1986); Li (1994); Tang (2013).

up of post offices, and use of steamships, China, too, was overshadowed by its eastern neighbor in the second half of the nineteenth century (Li, 2008).

A major impediment to reform in late-Qing China was the significant disagreement within the governing elite (Hsu, 1980). Reformers in the government were often attacked and labeled as traitors and sycophants by conservative and hardline officials, who argued against the need for China to change its institutions and practices (Hao and Wang, 1980).

The general public, too, displayed significant resentment toward what they perceived as foreign encroachment on China (Cohen, 1963; Baark, 1997; Rowe, 2009). Anti-missionary riots and assaults occurred periodically and received support from the gentry and commoners alike.<sup>12</sup> In many places, cultural differences and unfamiliarity created a widespread belief that the missionaries, who were the first foreigners that ordinary Chinese came into contact with, were evildoers who kidnapped children and caused unexplained deaths (Latourette, 1929). Likewise, hitherto unknown technologies such as telegraphs and railways were viewed with grave suspicion; China's first operational railway, the 14.5-kilometer Wusong Railway, was torn down in 1877 amid unrest among the local population (Pong, 1973; Wang, 2015).

It was only after China's comprehensive defeat at the hands of Japan in 1894–95 that its political and intellectual elites began to forge a consensus on the need for a major overhaul of the existing institutions (Hao and Wang, 1980). To restore popular support in the aftermath of the

<sup>12</sup>Wright (1957, 274) observed that "Christianity in the 1860's was attacked not [...] by officials, but by the populace and non-office-holding lower literati; it was menaced not by proscription but by mob riots."

Boxer Rebellion (1899–1901), the imperial court announced Meiji-style reforms in government, military, education, and other areas. Ironically, in 1911–12, the provincial assemblies, set up only a few years ago as part of the reform package, took the opportunity of a mutiny in Wuchang to declare their independence from Beijing, thereby ending 267 years of Qing rule.

## 2.2 From Tokugawa to Meiji Japan

In Japanese history, the years between 1603 and 1868 is known as the Tokugawa or Edo period after the family name of the shogun who was based in Edo, present-day Tokyo. At the societal level, Tokugawa Japan was organized into four hereditary classes of warriors (samurai), farmers, artisans, and merchants. The emperor was merely a figurehead while the shogun, the most powerful lord in Japan, ruled only 15% of the country (Figure 3). The bulk of the remaining country was territorially divided into some 260 domains, each headed by a local lord (daimyo).

Most of these domains were very small. According to *Hansei ichiran*, 166 out of the 266 domains had annual outputs below 50,000 koku in the 1860s.<sup>13</sup> By comparison, the Shogunate was rated at 4 million koku. However, eighteen of the local domains were sizable. Their lords were regarded as “province holders” (kunimochi daimyo) by contemporaries and behaved “more like sovereigns than like vassals” (Ravina, 1999, 21). Four of these domains—Satsuma, Choshu, Saga, and Tosa—would form the coalition that overthrew the Shogunate in 1868 (Figure 3b).

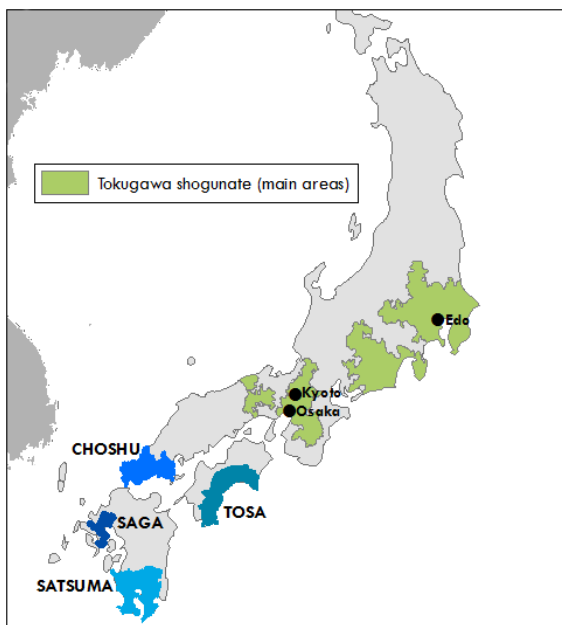
Before the late Tokugawa period, the Shogunate was able to maintain a monopoly over foreign and inter-domain affairs. To prevent the domains from challenging its leadership, the Shogunate imposed an extensive system of controls, which included planting spies and sending inspectors to look out for unusual activities in the domains, banning unnecessary contact between contiguous domains, restricting strategic marriages, requiring the daimyo’s wife and heir to reside in Edo as hostages, and obliging the daimyo to spend six months in Edo each year.

However, there was no central treasury in Tokugawa Japan, nor was there a central army (Jansen, 2000). The Shogunate had no right to tax other domains and the local domains maintained their own administrators, armies, tax systems, and legal codes (Totman, 1993). Many domains issued their own paper monies or copper cash. The absence of fiscal and military institutions at the national level and the autonomy of local domains implies that Tokugawa Japan was fiscally and militarily fragmented. If we accept Max Weber’s definition of a modern state as an entity claiming a monopoly of legitimate violence, Tokugawa Japan was not a single state but comprised a league of smaller political entities (Weber, 1968).

Due to fear of foreign influence, the Shogunate outlawed Christianity and banned Japanese

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<sup>13</sup>Japanese domains were measured in terms of economic output instead of land area. One koku is equivalent to 180.4 liters of rice, historically interpreted as the amount required to feed a person for a year.

**Figure 3:** Japan before the Meiji Unification.


Domain	Annual Output (koku)
Shogunate	4,000,000
Kaga	1,350,000
<b>Choshu</b>	990,000
<b>Satsuma</b>	870,000
Kumamoto	790,000
Owari	780,000
<b>Saga</b>	720,000
Fukuoka	570,000
Kii	540,000
<b>Tosa</b>	500,000

Notes: (i) Data source: *Hansei ichiran*. Map adapted from <http://www.fas.harvard.edu/~chgis/japan/>; (ii) Output of Shogunate based on official estimate, others are actual outputs in 1869; (iii) Anti-Shogunate coalition in bold.

(b) Largest domains by output

**Table 2:** Timeline for Major Events in late Tokugawa and early Meiji Japan

Year	Event	Description
1853	Black Ships Incident	Commodore Perry arrives off coast of Japan and demands the opening of Japan.
1862	Namamugi Incident	Satsuma's assault on British nationals results in bombardment of its capital Kagoshima.
1864	Bombardment of Shimonoseki	British, French, Dutch, and American ships shell Choshu batteries.
1868	Meiji Restoration	Tokugawa forces defeated in civil war; Anti-Shogunate coalition forms government.
1871	Feudalism officially ends	Feudal domains abolished and converted into prefectures.
1871–73	Reform accelerates	First railway line opens; Introduction of new currency system, land tax, compulsory education, and universal conscription.
1876	Samurai unhappiness grows	Government cancels samurai stipends.
1877	Satsuma Rebellion	Government suppresses uprising of 80,000 samurai after nine months of fighting.
1894–95	Sino-Japanese War	Japan defeats the Chinese army and navy.

ships from traveling abroad. Only Chinese and Dutch ships were permitted to enter Nagasaki, the sole major port open to foreign trade before 1858. As geopolitical threats to Japan were minimal for most part of the Tokugawa period, the seclusion policy was enforced with relative ease until the 1850s. This said, from the 1790s onward, there were increasing fears that Japan could face an invasion from the north due to Russian encroachment into Sakhalin and the Kurile islands. From the other direction, too, there was an uptick in the number of British and American vessels attempting to trade at Japanese ports, survey the coasts, or seek provisions and shelter.

While these initial European and American attempts to open Japan were sporadic and halfhearted, things changed radically in the mid-nineteenth century (Table 2). The political order in East Asia was fundamentally transformed after the Opium War (1839–42), which saw China, the traditional linchpin of the East Asian order, suffered a humiliating defeat at the hands of a small British expeditionary force. In 1853, when a small navy squadron from the United States led by Commodore Matthew Perry sailed into Edo bay and demanded that Japan open up or risk war, the Shogunate had no choice but to acquiesce. The event became known as the Black Ships Incident. In 1854, a treaty was signed between Japan and the United States to open Shimoda and Hakodate as ports of call to American ships. In 1858, in a series of treaties signed with various Western powers, the Shogunate further accepted provisions that obliged Japan to open more ports, give up its right to set tariffs on imports, and allow foreigners to reside in designated cities and enjoy extraterritoriality (Beasley, 2000).

The Shogunate's perceived weakness and capitulation to the demands of the foreigners led to dissent among the domains and the spread of anti-Shogunate sentiment among the samurai. In 1868, Satsuma, Choshu, Saga, and Tosa joined forces to defeat the Shogunate in the Boshin War (War of the year of the dragon) and return power to the Meiji emperor.

The anti-Shogunate domains adopted a patriotic, anti-West stance during the civil war, but once in power, they discarded their xenophobic rhetoric and pursued a program of Westernization that had begun during the last years of the Shogunate.<sup>14</sup> Feudalism was abolished as local domains were converted into prefectures and the local lords received peerages (*kazoku*) and generous pensions in exchange for control over their former lands. Helped by the swift formation of a genuine central government, reforms on land, education, monetary, and other areas were implemented on a national scale in a short span of time. Marius Jansen (2000, 334–5) notes that,

Japan, which began the Meiji Period as one of the modern world's most fractured polities, emerged within a generation as one of its most centralized states. In the 1860s

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<sup>14</sup>Japan's naval modernization began in the last decade of Tokugawa rule. Likewise, the plan to construct Japan's first railway between Edo (Tokyo) and Yokohama was approved before the Meiji Restoration (Free, 2008). The historian William Beasley observed that the Shogunate's reform program "was a blueprint for 'wealth and strength' on the lines which the Meiji government was later to follow" (Beasley, 2000, 50).

**Table 3:** Stylized Historical Observations

Observation	China	Japan
1. Geopolitical threats	Land, from Inner Asia (initially) ⇒Land and sea (post-shock)	Negligible ⇒All directions (post-shock)
2. Political structure	Centralized (initially) ⇒Decentralized (post-shock)	Decentralized (initially) ⇒Centralized (post-shock)
3. Reform		
a) Scope	Limited before the 1900s	Comprehensive from onset
b) Elite attitude	Ruling class divided	Ruling class promoted reform
c) Popular attitude	Considerable resistance	Considerable resistance at onset

Karl Marx was telling his readers in the columns he wrote for the New York *Herald Tribune* that it was only in Japan that a truly feudal state, with all its irrationalities and divisions, was still to be found, but by the 1890s the Chinese scholar-diplomat Huang Tsun-hsien was writing from Tokyo to describe to his countrymen a central order and control far superior to that of China.

While Japan's political and economic transformation during the Meiji era is widely regarded today as a textbook case of successful modernization and industrialization, it is worth noting that like China, Japan experienced considerable xenophobia and resistance to reform at the local level too. However, the Meiji state was quick and effective in dealing with public dissent (Duke, 2009). In 1873–74, several peasant-led revolts against the new land tax, public education, and conscription were brutally quelled.<sup>15</sup> They were followed by uprisings of samurai who resented the loss of their stipends and their right to carry swords. In 1877, the Satsuma Rebellion, the best known and the last of the post-Meiji uprisings, was decisively suppressed.

Table 3 provides a stylized summary of the historical developments discussed above. In the next section, we build a theoretical framework to organize these stylized facts and formalize our argument about how the interaction of geopolitics (Observation 1) and domestic constraints shaped the different reactions and developments witnessed in China and Japan (Observations 2 and 3).

<sup>15</sup>As in the Chinese case, ignorance and fear played an important role in these events. In Okayama, Kagawa, and Tottori prefectures, for example, the revolts were fed by rumors that the government was extracting blood from the people and transmitting it via the newly constructed telegraph lines to the blood-drinking foreigners (Tanaka, 2004; Levy, 2011).

### 3 MODEL

We first develop a basic model to study how the emergence of new external threats promote political centralization in some situations but decentralization in others (Section 3.1). We then extend the model to consider how the decision to embark on a program of socioeconomic modernization could be influenced by geopolitics and domestic constraints (Section 3.2). Our analysis builds on Ko, Koyama and Sng (2014), who employ a Hotelling-linear city framework to the study of interstate competition and empire formation.

To focus on the key mechanisms of the model, in this section we assume simple parametric forms for all functions. However, the results do not depend on the parametric assumptions chosen. In the appendix, we provide a more general model without these assumptions.

#### 3.1 Basic Model

Consider a territory represented by a line of length  $[0, \chi]$  with homogeneous inhabitants of mass  $\chi$  uniformly distributed along this line. This territory may be as small as the Japanese main islands or as large as China east of the Himalayas and south of the Gobi desert. An inhabitant at point  $x \in [0, \chi]$  is endowed with taxable income  $y$ .

This territory is a state with one or multiple autonomous political authorities. That is, the territory is divided into  $S \in \{1, 2, 3, \dots, n\}$  connected and mutually exclusive intervals, each administered and taxed by an authority. For example, in the case of China before 1850,  $S = 1$ . For Tokugawa Japan,  $S > 1$  since the Japanese daimyo, especially the eighteen *kunimochi* daimyo, maintained their own armies and tax systems.

For now, our concern is how  $S$ , the degree of political centralization, is affected by the geopolitical environment confronting the territory. An increase in  $S$  represents greater decentralization while a decrease in  $S$  increases centralization. For ease of illustration, we assume that  $S$  can only take the values of 1 (centralization) or 2 (decentralization). When  $S = 1$ , we refer to the sole authority as authority  $c$ ; when  $S = 2$ , we refer to the two authorities as authority  $l$  (left) and authority  $r$  (right). Restricting our focus to  $S \leq 2$  is innocuous and we discuss in the next section how relaxing it can enrich our results.

We integrate geopolitical considerations into the analysis in the following way: the territory faces geopolitical threats from outside, which are exogenous to the existing state system. Examples include the threat posed by the Mongols to the Kievan Rus', or the threat posed to China and Japan by the Western powers from the mid-nineteenth century onward.

Such threats may be (i) non-existent, (ii) one-sided and emanating from one frontier (at  $x = 0$ , without loss of generality), or (iii) two-sided and emanating from both frontiers (at  $x = 0$


**Figure 4:** A one-sided threat.

**Figure 5:** Two-sided (asymmetric) threats.

and  $x = \chi$ ). An external threat, if realized, causes gross damage  $\Lambda > 0$  at the frontier. If unstoppable, the damage will spread further into the territory: for a point  $t$  distance away from the frontier, the **gross damage** is  $\lambda(t) = \max\{\Lambda - \alpha t, 0\}$  where  $\alpha > 0$  inversely measures the spillover strength of the threat (Figures 4 and 5).

Each authority collects taxes and invests in **state capacity** (military and administrative infrastructures) to maintain political order. State capacity is strongest at the authority's political-military center, but deteriorates over distance due to constraints imposed by premodern transportation and monitoring technologies. Let  $G_i$  denote authority  $i$ 's political-military center—referred to here as  $i$ 's base. As illustrated in Figure 6, for a location  $t$  distance away from  $G_i$ , its state capacity at the location is given by  $m(t) = \max\{M_i - \beta t, 0\}$ , where  $\beta > 0$  captures the loss of state capacity due to distance. Note the analogy between  $\alpha$  and  $\beta$ .

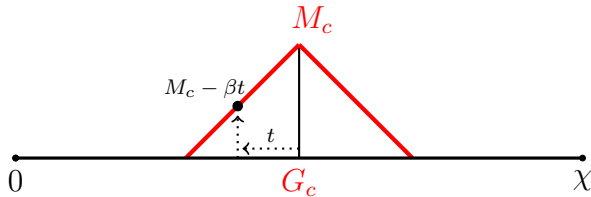
State capacity can block the external threat from spreading further into the territory. Specifically, consider a one-sided threat initiated at  $x = 0$ , if the state capacity of authority  $i$  at  $x'$  is no less than the gross damage of the external threat at that location, then  $x'$  and any location to its right is said to be **protected** (Figure 7). For authority  $i \in \{c, l, r\}$  to provide a capacity of  $M_i \geq 0$ , it costs  $m_0 + \theta M_i^2$ , where  $m_0 > 0$  denotes the fixed cost of capacity building and  $\theta > 0$  is a scaling constant.

Authorities that do not adequately protect their populations face civil unrest. Clearly, if unrest is sufficiently widespread, the existing political order will collapse. To model this, we assume that if a contiguous segment of length more than  $\delta$  (where  $0 < \delta < 1$ ) is left unprotected, then a revolution occurs and the authority (or authorities if there is more than one) that taxes the segment collapses.<sup>16</sup> This assumption, commonly used in models of political economy, captures the observation that no government regardless of regime type can completely ignore the welfare of its subjects, but revolutions require sizable support to make an impact (Tullock, 1971; Alesina and Spolaore, 2003; Acemoglu and Robinson, 2005).

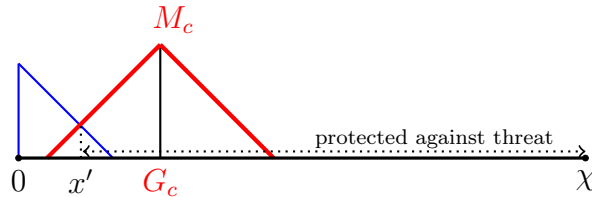
Under political centralization ( $S = 1$ ), a centralized state (authority  $c$ ) controls the entire

<sup>16</sup>Alternatively, we may assume that a revolution occurs if an authority protects less than  $1 - \delta$  fraction of its population. This delivers the same results but it has some undesirable technical properties. For example, if  $\delta = 0.2$  and there is a one-sided external threat, under political decentralization two authorities have to protect 90% of the territory to avoid revolution, while a centralized state only has to protect 80%.





**Figure 6:** An authority's state capacity deteriorates over distance from its base.



**Figure 7:** Authority  $c$  blocks the external threat at  $x'$  so that the interval from  $x'$  to  $\chi$  is protected.

territory and its net tax revenue is  $V_c = \chi y - m_0 - \theta M_c^2$ . Under political decentralization ( $S = 2$ ), we fix the administrative border of the two local authorities at  $\frac{1}{2}\chi$ . The left authority  $l$  chooses its base location  $G_l \in [0, \frac{1}{2}\chi]$ . The right authority  $r$  chooses its base location  $G_r \in [\frac{1}{2}\chi, \chi]$ . Their net revenues are  $V_l = \frac{1}{2}\chi y - m_0 - \theta M_l^2$  and  $V_r = \frac{1}{2}\chi y - m_0 - \theta M_r^2$  respectively. In Section 4, we discuss how endogenizing border formation will strengthen the results and in the appendix, we provide a version of the model that allows authorities to compete for land.

The optimization problems under political centralization and decentralization are as follows: the centralized state  $c$  chooses the location of its base  $G_c \in [0, 1]$  and invests  $M_c \geq 0$  to maximize its net revenue; authorities  $l$  and  $r$  simultaneously choose their bases  $G_l \in [0, \frac{1}{2}\chi]$  and  $G_r \in [\frac{1}{2}\chi, \chi]$  and make investments  $M_l \geq 0$  and  $M_r \geq 0$  to maximize their respective net tax revenues.

We now state four propositions that respectively address political centralization under one-sided threat (P1) and two-sided threats (P2), and political decentralization under one-sided threat (P3) and two-sided threats (P4).

**Proposition 1** (Centralization, One-Sided Threat). *Let  $\bar{\Lambda} = \alpha\delta$ .*

*When the threat is one-sided and emanates from  $x = 0$ :*

- A. If  $\Lambda_l \leq \bar{\Lambda}$ , the centralized state locates the base at  $G_c \in [\frac{\Lambda_l}{\alpha}, \chi]$  and makes zero investment in state capacity;*
- B. If  $\Lambda_l > \bar{\Lambda}$ , the centralized state locates the base at  $G_c = \delta$  and invests to the level  $M_c = \Lambda_l - \alpha\delta$ .*

Consider a politically centralized territory under a one-sided threat. Case A above states that if the threat is small and brings gross damage to no more than  $\delta$  segment of the territory, the centralized state will ignore it and make minimal effort to build state capacity. One could argue that Japan of the Nara period (710–784) or the Heian Period (794–1185) epitomize this case. Case B characterizes the scenario that China confronted in much of its history during when

it located its capital city (first Chang'an, later Beijing), bureaucracy, and military close to the northern border to defend the steppe threat.

Next, consider a centralized state confronting two geopolitical threats. Without loss of generality, assume that  $\Lambda_l > \Lambda_r$  when  $\Lambda_l \neq \Lambda_r$ .

**Proposition 2** (Centralization, Two-Sided Threats). *Let  $\bar{\Lambda} = \alpha\delta$ .*

*Under threats from both  $x = 0$  and  $x = \chi$ :*

- A. *If  $\Lambda_l \leq \bar{\Lambda}$  and  $\Lambda_r \leq \bar{\Lambda}$ , the centralized state locates the base at  $G_c \in [\frac{\Lambda_l}{\alpha}, \chi - \frac{\Lambda_r}{\alpha}]$  and makes zero investment in state capacity;*
- B. *If  $\Lambda_l > \bar{\Lambda}$  and  $\Lambda_r \leq \bar{\Lambda}$ , the centralized state locates the base at  $G_c = \delta$  and invests to the level  $M_c = \Lambda_l - \alpha\delta$ ;*
- C. *If  $\Lambda_l > \bar{\Lambda}$  and  $\Lambda_r > \bar{\Lambda}$ , the centralized state locates the base at  $G_c = \frac{\chi}{2} + \frac{\Lambda_r - \Lambda_l}{2\beta}$  and invests to the level  $M_c = \frac{\Lambda_r + \Lambda_l}{2} + \frac{\beta\chi}{2} - (\alpha + \beta)\delta$ .*

Cases A and B of Proposition 2 are analogous to Cases A and B of Proposition 1. In Case A the threats are so small that the centralized state can make zero investment in state capacity without risking a revolution. In Case B, because the threat arising from  $x = \chi$  is inconsequential, the centralized state focuses on dealing with the threat at  $x = 0$  only. Of particular interest is Case C, where threats on both ends of the territory are significant. In this situation, the state locates its base close to the center of the territory to deal with both threats simultaneously.

Moving on to political decentralization. Propositions 3 and 4 mirror Propositions 1 and 2 respectively:

**Proposition 3** (Decentralization, One-Sided Threat). *Let  $\bar{\Lambda} = \alpha\delta$ .*

*Under an external threat emanating from  $x = 0$ :*

- A. *If  $\Lambda_l \leq \bar{\Lambda}$ , authority  $l$  locates its base at  $G_l \in [\frac{\Lambda_l}{\alpha}, \frac{1}{2}\chi]$ ; authority  $r$  locates its base at  $G_r \in [\frac{1}{2}\chi, \chi]$ ; each makes zero investment in state capacity.*
- B. *If  $\Lambda_l > \bar{\Lambda}$ , authority  $l$  locates its base at  $G_l = \delta$  and invests to the level  $M_l = \Lambda_l - \alpha\delta$ ; authority  $r$  locates its base at  $G_r \in [\frac{1}{2}\chi, \chi]$  and makes zero investment in state capacity.*

**Proposition 4** (Decentralization, Two-Sided Threats). *Let  $\bar{\Lambda} = \alpha\delta$ .*

*Under threats from both  $x = 0$  and  $x = \chi$ , authority  $l$  responds in the manner specified in Proposition 3. As for authority  $r$ :*

- A. *If  $\Lambda_r \leq \bar{\Lambda}$ , it locates its base at  $G_r \in [\frac{1}{2}, \chi - \frac{\Lambda_r}{\alpha}]$  and makes zero investment in state capacity.*

*B. If  $\Lambda_r > \bar{\Lambda}$ , it locates its base at  $G_r = \chi - \delta$  and invests to the level  $M_r = \Lambda_r - \alpha\delta$ .*

In Case A of Propositions 3 and 4, the threat confronting the authority is inconsequential and can be safely ignored. This is no longer true in Case B, and hence the local authority will locate its base strategically and invest in state capacity to contain the threat.

Integrating Propositions 1–4 allows us to examine how the nature of geopolitical threats determines whether or not political centralization or decentralization is optimal. Specifically we can establish the following results.

**Implication 1** (One-Sided Threat).

*For any  $\Lambda_l > 0$ ,  $V_c^* \geq V_l^* + V_r^*$  and  $V_c^* > V_l^*$ .*

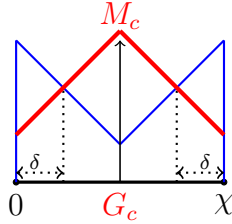
Since the state requires revenues to sustain itself, it is prone to collapse when its finances are weak. Implication 1 states that when the threat is one-sided, political centralization is more **robust** than political decentralization. The intuition is as follows: Under a one-sided threat ( $\Lambda_l > 0$ ,  $\Lambda_r = 0$ ), as  $\Lambda_l$  increases,  $V_c^*$  and  $V_l^*$  will both fall monotonically but because  $V_c^* > V_l^*$ , a geopolitical threat that is severe enough to fiscally bankrupt authority  $l$  under political decentralization may not overwhelm a centralized authority  $c$ . This highlights the advantage of political centralization: it allows for resource pooling to deal with common threats to the territory because authority  $c$  can mobilize the taxable resources of the entire territory while authority  $l$  can only mobilize half of it.

**Implication 2** (Two-Sided Threats).

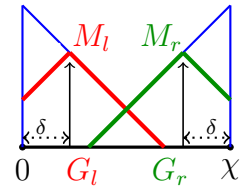
*A. For any  $\Lambda_l > \bar{\Lambda}$  and  $\Lambda_r > \bar{\Lambda}$ , there exists threshold value  $\underline{\chi}(\Lambda_l, \Lambda_r)$  such that if  $\chi < \underline{\chi}(\Lambda_l, \Lambda_r)$  then  $V_l^* + V_r^* < V_c^*$ .*

*B. For any  $\Lambda_l > \bar{\Lambda}$  and  $\Lambda_r > \bar{\Lambda}$ , there exists threshold value  $\bar{\chi}(\Lambda_l, \Lambda_r)$  such that if  $\chi > \bar{\chi}(\Lambda_l, \Lambda_r)$  then  $V_c^* < V_l^* + V_r^*$ .*

While political centralization is always more robust than political decentralization under a one-sided threat, under a two-sided threat the relative robustness of centralization and decentralization depends on  $\chi$ , the size of the territory. Part A of Implication 2 states that if the territory is sufficiently small, then political centralization is always preferred to decentralization. This is illustrated in Figures 8 and 9, which shows that for a small territory, having a centralized state to protect against both threats (Figure 8) is more cost effective than having two local authorities dividing up the territory's scarce resources to make repetitive investments (Figure 9).



**Figure 8:** When the territory ( $\chi$ ) is small, political centralization pools scarce resources to deal with two-sided threats efficiently.



**Figure 9:** Political fragmentation generates wastage and heightens the problem of resource scarcity in a small territory.

However, the reverse is true for a large territory. According to Part B of Implication 2, when the territory is large and the geopolitical threats are far apart, having two authorities, each taking on one threat, is preferred to centralization because the cost of having a single authority simultaneously defending both frontiers is exorbitantly high (Figures 10 and 11).

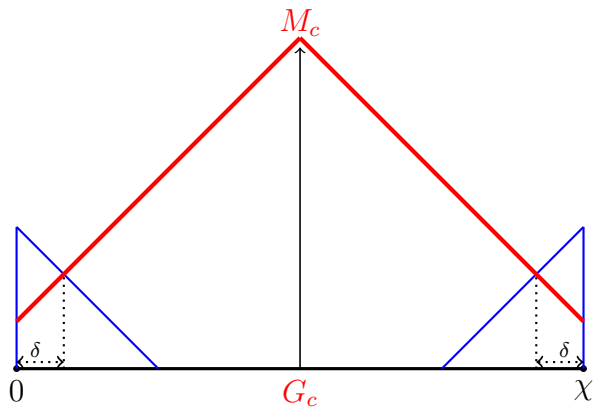
In summary, when facing severe two-sided threats, a small territory has a strong incentive to centralize, while a large territory has a strong incentive to decentralize.

### 3.2 Extension: To Reform Or Not?

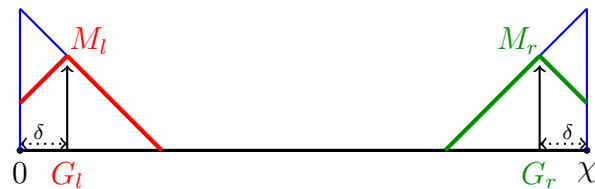
We now extend the model to allow for an explicit decision to introduce socioeconomic reform, which can be thought of as a package of policies such as conducting a thorough land survey, clarifying parcel boundaries and formalizing land rights, suppressing bandits and secret societies, breaking up distributional coalitions, and restraining the rent-seeking power of local elites.

The timing of events is as follows: First authority  $i$  decides the location of its base  $G_i \in [0, 1]$  and state capacity investment  $M_i \geq 0$ . Next, it decides whether to implement reform, which changes taxable income from  $y$  to  $\bar{y}$ . Since this is a two-stage decision process, we employ backward induction to solve it.

In practice, reform entails social dislocation and creates losers as well as winners, the losers will attempt to block the changes that hurt their interest unless they are adequately compensated (Olson, 1963; Fernandez and Rodrik, 1991; Acemoglu and Robinson, 2000a). In such situations, the presence of strong political and social institutions would mitigate the destabilizing effects of economic change and overcome resistance to change from vested interests and from local inertia through a mix of persuasion and coercion. To model this, we assume that a reform initiated by authority  $i$  succeeds if the state capacity throughout the segment administered by  $i$  is no less than  $\kappa$ , where  $\kappa$  is a strictly positive constant. We expect  $\kappa$  to be relatively small compared with  $\Lambda$ , since suppressing a local rebellion should be a lesser challenge than fighting an imperial power.



**Figure 10:** When the territory ( $\chi$ ) is large, a unified state has to make colossal investment to deal with two-sided threats.



**Figure 11:** When the territory ( $\chi$ ) is large, a division of labor between authorities  $l$  and  $r$  helps contain the cost of dealing with two-sided threats.

### Implication 3 (Reform).

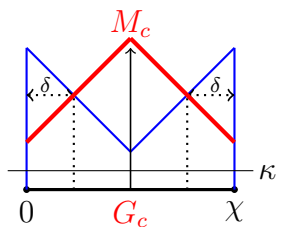
Under significant two-sided threats ( $\Lambda_l > \bar{\Lambda}$  and  $\Lambda_r > \bar{\Lambda}$ ):

- A. If the territory is politically centralized, reform will be implemented if  $\bar{y} - y > 0$ ;
- B. If the territory is politically decentralized and  $\chi \leq 2(\frac{\Lambda - \alpha\delta - \kappa}{\beta}) + \delta$ , reform will be implemented if  $\bar{y} - y > 0$ ;
- C. If the territory is politically decentralized and  $\chi > 2(\frac{\Lambda - \alpha\delta - \kappa}{\beta}) + \delta$ , reform will be implemented if  $\frac{1}{2}\chi(\bar{y} - y) + \frac{\theta}{4}[(2\Lambda - 2\alpha\delta)^2 - (\kappa + \frac{\beta\chi}{2} + \Lambda - \delta\alpha - \delta\beta)^2] > 0$ .

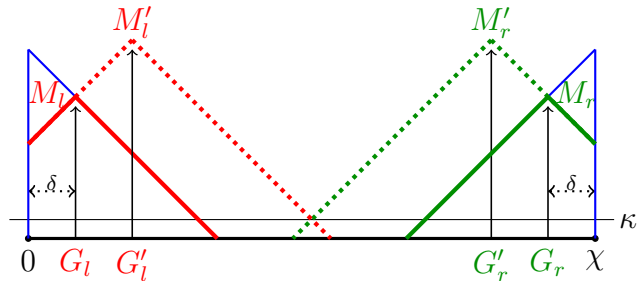
Intuitively, in Case A because a politically centralized authority confronting significant two-sided threats has to invest heavily and build capacity that effectively covers the entire span of the territory, by default it is reform-ready, and will embrace reform as long as the returns to reform ( $\bar{y} - y$ ) are positive (Figure 12). Similarly, for a small and politically decentralized territory (Case B), the state capacity of authorities  $l$  and  $r$  will generally span the entire (short) territory. Hence, there is no additional cost to implement reform. However, for a large and politically decentralized territory (Case C), the authorities have to make additional investments in state capacity before they are reform-ready (Figure 13). They will reject reform unless the returns are huge—note that the inequality in Case C will be violated when  $\chi$  is large, unless  $\bar{y}$  is large too.

### 3.3 A Numerical Example

We provide a simple numerical example to illustrate the two scenarios that are our primary concern. Consider two parallel territories, “China” and “Japan.” Let  $\chi_{China} = 18$  and  $\chi_{Japan} = 2$ ,



**Figure 12:** A politically centralized territory has state capacity (depicted in red) higher than  $\kappa$  everywhere. No extra investment is required to manage the reform process.



**Figure 13:** When the territory is large, authorities  $l$  and  $r$  have to make extra investments to extend their state capacities inland should they decide to pursue economic reform.

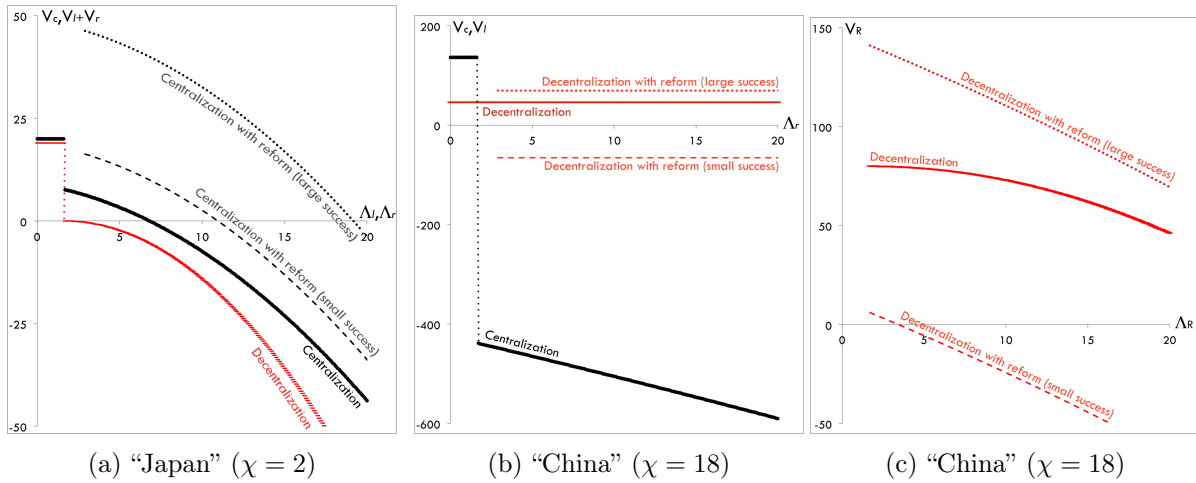
to represent the 18 provinces in China proper and the two major Japanese regions of Kanto and Kansai. In addition, let  $m_0 = 10$ ,  $\theta = 0.1$ ,  $\alpha = 4$ ,  $\beta = 8$ ,  $\delta = 0.4$ ,  $\kappa = 0.1$ ,  $y = 10$  for both territories. We also assume that reform will increase income to either  $\bar{y} = 15$  (small success) or  $\bar{y} = 30$  (large success). These particular values are chosen for convenient interpretation (so that the equilibrium net tax revenues in both territories fluctuates around zero within the range of external threat levels considered). Varying the parameter values will not qualitatively affect the conclusions since the conclusions are based on Propositions 1–4.

Initially, China confronted a severe one-sided geopolitical threat from the left and  $\Lambda_{l,China} = 20$ ,  $\Lambda_{r,China} = 0$ , while Japan enjoyed a peaceful external environment and  $\Lambda_{l,Japan} = \Lambda_{r,Japan} = 0$ . With the arrival of new geopolitical threats and the opportunity to reform, China now faces an additional threat on its right flank and  $\Lambda_{r,China} > 0$ , while Japan finds itself confronting two-sided threats and  $\Lambda_{l,Japan} = \Lambda_{r,Japan} > 0$ . We vary  $\Lambda_{r,China}$ ,  $\Lambda_{l,r,Japan}$ , and  $\bar{y}$  to explore how the variations would affect the optimal response in each territory.

Suppose that a negative net tax revenue implies state collapse. As Figure 14a illustrates, for Japan political decentralization is robust in the absence of external threats (i.e.,  $V_{l,Japan} = V_{r,Japan} > 0$  when  $\Lambda_{l,Japan} = \Lambda_{r,Japan} = 0$ ). However, this is no longer true once new threats emerge. The net tax revenues of the (two) decentralized authorities turn negative at relatively low threat levels (from  $\Lambda_{l,Japan} = \Lambda_{r,Japan} = 1.6$  onward). Centralization and reform offer a better chance of survival. Regardless of how severe the new threats and how small the returns to reform are, to this relatively small territory, the payoff of centralizing and reforming always exceeds that of remaining decentralized and unreformed.

As for China, as Figure 14b illustrates, net tax revenue becomes negative under political centralization once an additional threat emerges on the right and  $\Lambda_{r,China} > 1.6$ . The centralized authority  $c$  can avoid collapse if it allows a new authority  $r$  to be set up to administer the right

**Figure 14:** Net Tax Revenues Under Different Configurations



half of the territory. Now, should decentralization take place, for the diminished authority  $c$  and for the new authority  $r$  of this large territory, the case for reform is not clear cut. Whether reform should be implemented depends on their expectation of its returns. In Figures 14b and c, reform is worthwhile for both authorities when  $\bar{y} = 30$  (reform triples income), but not when  $\bar{y} = 15$  (reform increases income by 50%). In other words, if the returns to reform are ex-ante uncertain, then there is room for policy makers to dispute the rationale for it.

## 4 APPLICATION: NINETEENTH CENTURY CHINA AND JAPAN

Building on this numerical example, we now demonstrate that our model offers a useful framework in organizing and understanding the historical developments discussed in Section 2.

**Observation 1: Geopolitics.** Our starting point is the changing geopolitical environment in East Asia in the mid-nineteenth century. We argue that geopolitics interacted with the scale of polity to generate very different responses in China and Japan to the arrival of the Western powers. To interpret nineteenth-century East Asian geopolitics in the context of our model, we treat China as corresponding to a large territory initially confronting a severe one-sided threat from the steppe. In contrast, Tokugawa Japan prior to the arrival of the Black Ships was a small territory facing no significant external threats. From the mid-nineteenth century, Russia replaced the steppe nomads as China’s main threat along its north-west border while its previously peaceful coastal frontier now faced threats from the European naval powers. Likewise,

Japan now faced significant threats arising from both frontiers.<sup>17</sup>

**Observation 2: Political Structure.** Implication 1 suggests that China's traditional one-sided steppe threat should favor political centralization, which facilitates resource pooling. Indeed, we observe that China was a unitary state for the most part of its late imperial history. Our model also helps explain the pattern observed in Figure 1a: why, despite a higher concentration of population and wealth in South China, the Chinese state traditionally had a stronger presence in the north.

In the 1850s, the need to suppress the Taiping Rebellion and to restore order in the affected provinces forced the Qing state to devolve decision-making power to provincial administrators. The arrangement was largely preserved in the aftermath of the Taiping Rebellion. To deal with the Western naval powers more effectively, the viceroy of Zhili, who oversaw military and civil affairs of three provinces (Zhili, Shandong, and Henan), was granted the concurrent appointment of the minister of Beiyang (Northern Seas) through the second half of the nineteenth century. As Implication 2 predicts, the emergence of the maritime threat on top of the traditional threat from Inner Asia pushed China toward political decentralization and the provincial officials responded by spearheading a complete overhaul of China's coastal defense, including the construction of the naval fleets and new shipyards, arsenals, technical and translation schools, and other defense-related endeavors.

As for Japan, before the intrusion of the West the maintenance of its fragmented feudal structure was costly but sustainable. However, the wastefulness of dividing an island state with limited resources into numerous pint-sized domains was exposed once significant external threats emerged. To shore up defenses against the Western naval powers, the coastal domains took steps to bolster their military capabilities, including casting cannons, purchasing firearms, and improving training, which stretched their limited fiscal capacities. As Totman (1993, 535) observed, “[...] it appears that the contemporary fiscal difficulties of such domains as Himeiji, Kawagoe, Mito, Tottori, and Tsushima, and possibly Kii, Ogaki, and Owari can be partially attributed to the unusual defense burdens they had recently assumed.”

The new geopolitical reality also exposed the intrinsic weakness of the shogunate-domain system in coordinating foreign policy actions among the large domains. While the Shogunate took a conciliatory attitude toward Western powers, Satsuma and Choshu maintained a hardline stance. In the early 1860s, there were several attacks on foreigners involving Satsuma and Choshu

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<sup>17</sup>For historical accuracy, one may also assume that China's new threats were more severe than Japan's (i.e.,  $\Lambda_l^{China} > \Lambda_l^{Japan}$  and  $\Lambda_r^{China} > \Lambda_r^{Japan}$ ) to reflect the perception that China bore the brunt of Western imperialism due to its closer proximity to Europe and because the size of its market made it a more attractive target (Moulder, 1977; Rowe, 2009), although this would not affect our conclusions.



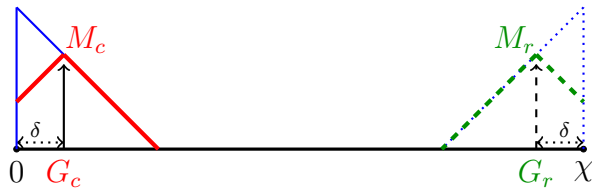
samurai. In each of these incidents, the foreign country in question demanded and received large sums of compensation from the Shogunate, which played no part in the attacks. In the two instances when the foreign powers sought military revenge from the culprit directly—by shelling the capital of Satsuma for the murder of the English merchant Richardson and Shimonoseki for Choshu's attack of foreign vessels in 1863—the Shogunate and other domains sat by and watched. Coordination failure clearly left Japan divided and weak.

Implication 2 predicts that for a small territory like Japan, the emergence of significant foreign threats would render political fragmentation untenable. Interestingly, in the run-up to the civil war, we observe no major disagreement between the antagonistic Shogunate and anti-Shogunate forces over the need to restructure the shogunate-domain system. The anti-Shogunate forces rallied under the slogan of *sonnō jōi* (revere the emperor and expel the barbarians), which called for national unification under the emperor and conspicuously omitted any mention of the shogun. The Shogunate, for its part, pursued *kōbu gattai*, or the union of the imperial court and the Shogunate (through marriage) so as to create a genuine central authority. Despite their rivalry, both camps saw national unification as a precondition for Japan to resist further foreign aggression. In fact, it was the Shogunate's plans in 1866–67 to promote political centralization and reform that accelerated the civil war as “Satsuma and Choshu began to fear that they must act quickly or lose their chance” (Beasley, 1973, 95).

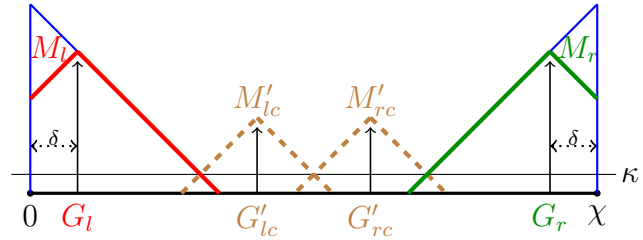
**Observation 3: Reform.** Implication 3 predicts that a small state confronting significant external threats is likely to accept reform (1) to augment its limited resources, and (2) because having already acquired sufficient state capacity, its marginal cost of reform is low. In the case of Japan, the anti-Shogunate coalition was outwardly xenophobic before the Restoration, but once the civil war was over, the new Meiji government sought to maintain good relations with the West and embraced reform wholeheartedly.

To be sure, there was tension among the Satsuma and Choshu factions; reforms were often implemented without a clear, overarching plan and many achievements were the result of trial-and-error (He, 2013). But within the ruling class, there was consensus concerning the untenability of the status quo and a shared fear that resource-poor Japan could be colonized by the West. Much of the disagreement was centered on the speed and method of reform instead of its necessity.

Historically, the Meiji state inherited, modified, and developed the system of political control, local administration, and economic management that the former shogunate and domain administrations left behind (Crawcour, 1974; Nakabayashi, 2012). As a strong state, its ability to deal with local grievances responsively enabled the swift and successful implementation of unpopular policies such as the land tax reform and public education for all. On the one hand, it was willing to fine-tune its policies to appease dissent without fundamentally compromising



**Figure 15:** For a large territory, the emergence of a new threat at the right frontier prompts the previously centralized state to decentralize and allow state building on the right segment.



**Figure 16:** The desire to reform pushes a large territory toward further decentralization with the setting up of two new authorities, *lc* and *rc*, to administer its inner segment.

the reform agenda. For example, the land tax was lowered to 2.5% of the land value in 1877 when it became clear that the initial level of 3% set during the 1873 land tax reform was too heavy for many farmers.<sup>18</sup> On the other hand, the Meiji state did not hesitate to use coercion to squelch any sign of open dissent. The anti-tax, anti-reform uprisings of the 1870s—some of them involving as many as 100,000 farmers—were forcefully suppressed, and the primary instigators were often executed as a warning to others (Aoki, 1971; Norman, 2000; Duke, 2009).

What about China? Consistent with our model, the rise of the West in the mid-1800s encouraged state building efforts, especially along the coastal provinces (Figure 15). However, the vastness of its territory implies that much of the country remained under-administered. While Japan would see reform as the natural next step after its political centralization, reform in China was impeded by a lack of state capacity at the local level. The late China historian Albert Feuerwerker noted that “the imperial bureaucracy, although highly centralized in its formal organization, did not penetrate very deeply into Chinese society, including those aspects of society which constituted the economy” (Feuerwerker, 1980, 59–60).

A reflection of the Qing state’s weak local control was the high incidence of anti-missionary riots and assaults on foreigners living in China which the state was often powerless to prevent and could only deal with by paying compensation after the damage had been done (Wehrle, 1966). Low state capacity made the Qing state appear reactionary. In the eyes of Robert Hart, the Inspector-General of China’s Imperial Maritime Custom Service from 1863–1908, the Qing court’s policy “was not to guide but to follow events”, “what the people wish for [...] the Government in the end sanctions” (Hart, 1975, 118). Popular objections and concerns that telegraph lines, railways, and other Western innovations would undermine social stability by inducing land grabs and disputes, throwing porters and peddlers out of work, generating conflicts between foreigners

<sup>18</sup>Similarly, the Meiji government aimed at establishing compulsory education of 8 years in 1872, but it was reduced to 3 years in 1880 in response to peasant protests against the shortage of farm helpers.

and the general population contributed to the imperial court's ambivalent attitude toward reform and hampered China's early industrialization (Fairbank, 1992; Baark, 1997).<sup>19</sup>

Our model suggests that China in the second half of the nineteenth century needed additional local state building and possibly further decentralization before it could manage radical socioeconomic change. And due to the high costs and political risks that reform entailed, these efforts would only be worthwhile if the perceived benefits were huge. Indeed, Chinese enthusiasm toward reform rose only after they witnessed in the 1894–5 Sino-Japanese War Japan's rapid transformation into a modern power.

Ironically, the Qing dynasty hastened its demise when it finally committed itself to undertake institutional reform in the 1900s. The newly created provincial assemblies, one of the key components in the reform package, helped end the dynasty by revolting against it in 1911–12. A few years later, China entered the warlord era (1916–28). Although the era has received a bad name due to the endless fighting among armies led by provincial strongmen, it was also a time of intense local state building, when local governments under the warlords built new institutions to tax, regulate markets, and provide public services (Remick, 2004). Interestingly, Mao, who led the communists to national power in 1949, was an ardent advocate of provincial autonomy and separatism at this time. In an article published in the newspaper *Ta Kung Pao* on September 3, 1920, he suggested that the country should break up into smaller pieces (Mao, 1990),

We have to accept that there is utterly no hope of developing China collectively. The best solution is to forgo the idea of collective development, embrace separatism, allow each province to pursue its own development, and establish the principle of provincial self-determination [...] it is best for China to break up into 27 countries.

Consistent with the analysis we have developed here, the Qing state collapsed when the difficulties of resisting foreign aggression and transforming a large country while keeping all the pieces together proved too much for it to manage. The demise of Qing China in 1912 was followed by the fall of Tsarist Russia in 1917 and Ottoman Turkey in 1922. Both empires, like China, were large states that had struggled to implement reforms when confronted with severe geopolitical threats. Their fate stood in stark contrast with the rise of Japan and the dominance of medium-sized states in Europe. Taken together it suggests that it was the interaction of external threats and the challenges posed by geography that explains the divergence in state building that we observe in East Asia in the late nineteenth century.

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<sup>19</sup>There were outbreak of riots directed against the construction of telegraph lines as late as 1892 (Chang, 1980, 302).

#### 4.1 Further Remarks

We now discuss a few remaining issues. First, our analysis does not imply that smaller is always better. There are two problems embedded into the model: resource scarcity and organizational complexity. If the territory is too large, the organizational problem is magnified. When it is too small, resource scarcity becomes acute. A small territory has limited resources and if the external threats are severe, the state cannot survive even if it is centralized and commands all of the territory's resources. In the language of the model, if  $\chi$  is sufficiently small,  $V_c^* = \chi y - m_0 - \theta[\frac{\Lambda_r + \Lambda_l}{2} + \frac{\beta\chi}{2} - (\alpha + \beta)\delta]^2$  will always be negative. Japan was small relative to China, but it was larger than, for example, Korea, Vietnam, and Sulu, which were all subjugated by the colonial powers despite their long histories of continuous statehood prior to colonization.

Second, our conclusion that a large territory requires further state building before it can be ready for radical socioeconomic change is *not* driven by the assumption of  $S \leq 2$ . To see this, suppose authorities  $l$  and  $r$  can devolve power to new authorities by voluntarily giving up land (i.e.,  $S > 2$  is permissible). Now, for the entire territory to have sufficient state capacity so that reform can be pursued,  $l$  and  $r$  could (a) increase their respective investments (as in Figure 13), or (b) allow new authorities to be set up (as in Figure 16)—the new authorities will still have to build state capacity in the previously under-administered inner segment to a level above  $\kappa$ .

Third, the model assumes that authorities do not compete for territorial gains. Without this assumption, authorities need to defend themselves not only against foreign threats, but against each other too. This would strengthen the case of Japan moving from decentralization to centralization in the mid-nineteenth century, since political decentralization now leads to more resource competition than previously assumed. It would also help to explain why China's political decentralization in the nineteenth century was partial and incomplete, and why the imperial court hesitated over reform and allowing provincial authorities to drive China's modernization.

Fourth, for analytical convenience we abstract away the composition of the political elite. Aoki (2014) argues that the common samurai-administrator background of political elites in Japan helped smooth the Tokugawa–Meiji transition. Meanwhile, mistrust between the Manchu imperial court and the Han Chinese majority grew over the course of the nineteenth century as the traditional political order unraveled (Fairbank, 1992; Rowe, 2009). It is not clear if racial division contributed meaningfully to the disagreement between the late-Qing reformists and ultraconservatives, since the two camps were not split along racial lines. But if it did, it would have deepened the dilemma that the Chinese state faced over decentralization and reform.

Fifth, in the model once an authority builds sufficient state capacity, the success of reform is guaranteed. This essentially assumes that authorities know how to reform. In reality, reform is a risky business and while one could learn from others, there is no guarantee that what works in

one country would work in another. It is plausible that because Japan was comparable in size to the Western European states, the cost for it to adopt Western institutions and copy Western practices were lower and its chance of success higher. China was a completely different beast. No other country was remotely comparable in size—the United States had a population of 23 million in 1850, China's Jiangsu province alone had 44 million people. It is not obvious that Western institutions and practices, based on organizational principles tried and tested in small and medium-sized polities, could be successfully transplanted into China without distorting their intended purposes.<sup>20</sup> Taking this factor into account would again strengthen our conclusion.

Finally, it may seem like a shortcoming of our analysis that we take the size of a territory as exogenous. In fact, this is not a bad approximation in the case of China and Japan. Japan is an island archipelago, while China proper is traditionally bounded by major geographical barriers: the Gobi desert in the north, the Himalayas in the West, the dense tropical rainforest in the south, and the Pacific Ocean in the east.<sup>21</sup>

## 5 EXTERNAL VALIDITY: ENGLAND AND RUSSIA

In this section we apply our model to two other cases to provide some evidence for the generalizability and external validity of our framework. In so doing, we stress that we do not purport to offer a universal account of state centralization or fragmentation. Clearly, there are episodes of state centralization that have occurred in the absence of geopolitical threats, in which case our model would not be applicable. Nevertheless, the mechanisms that we highlight are not specific to China and Japan but apply more broadly to other parts of the world and contains generalizable insights for understanding the process of state-building today.

### 5.1 *Anglo-Saxon England*

Anglo-Saxon England provides an example of centralization in small territory facing a severe one-sided external threat. In response to Viking invasions from the north, the kingdom of Wessex was able to unify much of England and to build a precociously centralized state.

Early Anglo-Saxon England was politically fragmented. Between 650 and 800 AD the political configuration of England is traditionally referred to as the Heptarchy in reference to the seven

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<sup>20</sup>In addition, important similarities between Japanese and European feudalism could also have facilitated Japan's embrace of capitalism and Western political and social institutions (Anderson, 1974*a,b*; Umesao, 2003).

<sup>21</sup>While the Qing empire expanded into present-day Xinjiang, Mongolia, and Tibet, these lands were economically unproductive. In 1820, China proper accounted for 98% of the Qing empire's population (Sng and Moriguchi, 2014). Conceptually, the new lands can be considered as "barriers" that help define the territorial limits of China proper instead of its natural and undifferentiated extensions.

main kingdoms that comprised it, though in practice the number of competing kingdom varied over time. The main kingdoms were Kent, Wessex, Mercia, Essex, Sussex, East Anglia, and Northumbria. Within the heptarchy, a particular kingdom might obtain temporary predominance as, for instance, Northumbria did in the seventh century and Mercia did in the eighth century under the overlordship of Offa (r. 757–796). Nevertheless, no ruler came close to unifying England into a single kingdom.<sup>22</sup>

Prior to 850, the threats facing these Anglo-Saxon kingdoms were small. Warfare was endemic but small scale. Wessex and Mercia faced sporadic border conflicts with the remnants of the British kingdoms that inhabited Wales and Cornwall, while Northumberland faced raids and periodic war with the kingdom of Strathclyde and from the Picts and Scots. But these threats did not threaten the stability of the Anglo-Saxon kingdoms.

Like the Black Ships that confronted Tokugawa Japan a millennium later, the external threat posed by the Vikings after 850 was both unexpected and qualitatively different in magnitude. They sought the long-term conquest of parts of the British isles and rapidly overran the kingdoms of Northumbria, East Anglia, and Mercia.<sup>23</sup> The kings of Northumbria and East Anglia were killed, perhaps as sacrifices to the pagan deity Woden (Wormald, 1982, 148). In the language of our model, the Viking threat that emerged in 850s was a severe one-sided threat.

The kingdom of Wessex, however, survived because it was among the larger and more powerful Anglo-Saxon kingdoms and because geographical location protected it from the first brunt of the Viking invasion. Alfred the Great (r. 871–899) halted the invasion by the Viking “grand army” in 878 and used the breathing space this bought him to mobilize the resources of the unconquered parts of his territory and to raise an army strong enough to roll back the Viking advance. In 886, Alfred captured London. This marks the beginning of the West Saxon unification of England and “the gradual and halting emergence of a new kingdom that extended beyond the territorial or tribal confines of the ancient kingdoms of Wessex, Kent, or Mercia” (Abels, 1998, 24–25).<sup>24</sup>

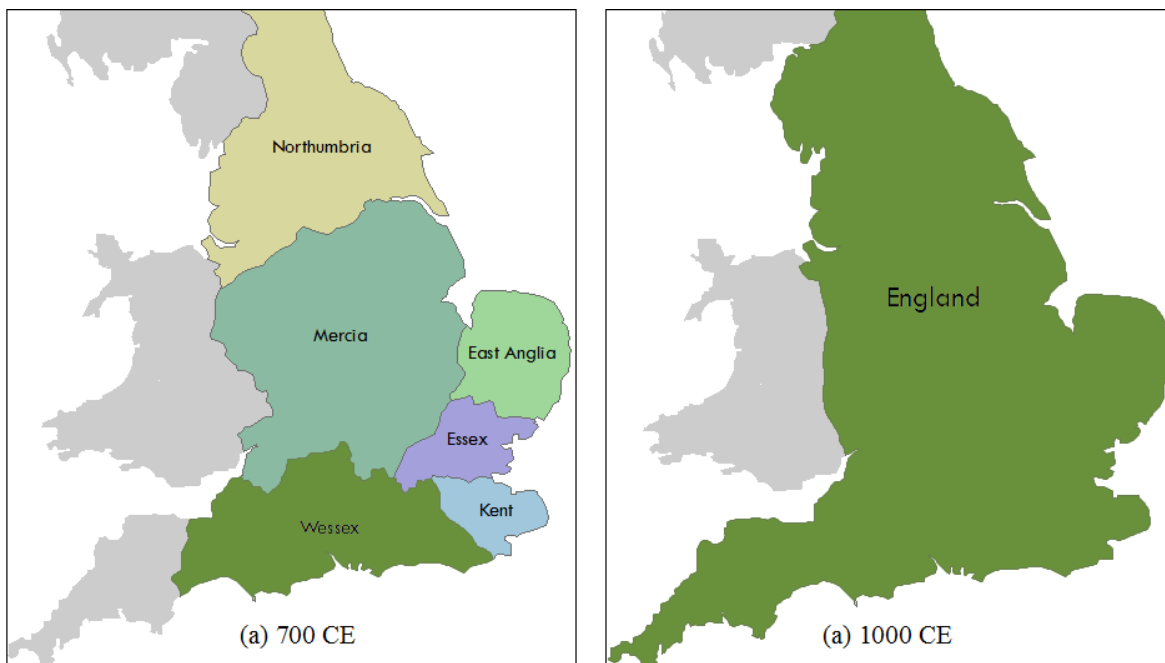
Alfred first unified the rival kingdoms of Wessex and Mercia and this union became the foundation for this new English kingdom (Loyn, 1984, 8). Consistent with our model, only a larger kingdom than Wessex was capable of providing the level of defense now needed to defeat the Viking threat. Alfred combined the Anglo-Saxon kingdoms to increase the amount of

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<sup>22</sup>During the Mercian period, historians detect a tendency toward political unification. For example, Offa fought numerous conflicts with Kent and claimed the kingship of Kent between 772–774 but for most of this period the rulers of Kent were able to assert their independence (Yorke, 1990, 31).

<sup>23</sup>The size and scale of the Viking raids has been the subject of controversy among historians. See discussion in Wormald (1982, 132–152). While revisionist historians sought to scale back tradition accounts of the devastation wrought by the Vikings, the modern consensus agrees that the Viking attacks of the second part of the ninth century represented major invasions involving armies numbering in the thousands.

<sup>24</sup>As one historian notes “[i]f one needs a date for the beginning of an English kingdom this is as good as any” (John, 1982, 160).



**Figure 17:** The Anglo-Saxon Heptarchy. Between 850 and 1000, the kings of Wessex created a unified kingdom of England. Note boundaries were in flux during the seventh and eighth centuries. Adapted from Nussli (2011).

resources he could collect for the purpose of defense.

However, he did more than this. Historians attribute Alfred's success to his ability to increase state capacity: the reign of Alfred the Great saw the establishment of a "large standing army and navy together with a public works programme of unparalleled magnitude" (Jones, 1993, 669). Alfred established a system of fortifications known as burhs that provided a point of refuge for the population from attack by Viking raiders. These fortifications were bureaucratically planned and documented. Wormald notes: "the burghal system involved the deployment of colossal manpower resources . . . There is no more impressive evidence before Domesday Book of the capacities of Anglo-Saxon government" (Wormald, 1982, 154). With some caveats we can view this as a program of "modernization" akin to that undertaken by peripheral societies in the nineteenth and twentieth centuries.

The unification of Anglo-Saxon England is a classic case of state formation under the threat of invasion. Subsequent kings of Wessex would unify the entirety of England (though they would call themselves rulers of the West Saxons, Mercians, or Angles as regional identities remained important).<sup>25</sup> In the face of a continued threat of new Viking invasions, the Anglo-Saxon kings' policy of conquest and unification was accompanied by state building and investment in fiscal

<sup>25</sup>Eadred (r. 946–955), for instance, called himself "king, emperor of the Anglo-Saxons and Northumbrians, governor of the pagans, defender of the Britons" (John, 1982, 168).

and legal capacity. Tenth-century Anglo-Saxon kings were legislators. They sought to limit violence, for example by trying to prohibit feuding, and to impose common laws, and created “a crude but powerful bureaucracy” (John, 1982, 176). Historians argue that this precocious unification helped put England on the path toward early centralization, a characteristic which numerous scholars have pointed to in accounting for the subsequent success the English state had in building fiscal capacity (e.g. Dincecco, 2010; O’Brien, 2011; Johnson and Koyama, 2014; Koyama, 2016).<sup>26</sup> Certainly, at no point in its subsequent history was England ever divided into separate realms again.

## 5.2 *Muscovy Russia*

Anglo-Saxon England provides an example of a small territory unifying and modernizing in response to an external threat. We now consider the example of a large territory unifying in response to a one-directional geopolitical threat: the rise of Muscovy and the foundation of the Russian empire.

Muscovy was not one of the principalities that formed the Kevian Rus’, the first state in Russia. Under Yaroslav I (r. 1019–1054) and other early rulers, the Kievan Rus’ was a loose federation of principalities that owed fealty to the ruler of Kiev. Figure 18a depicts the borders of the various principalities that made up the Kievan Rus’ in the mid-1200s.

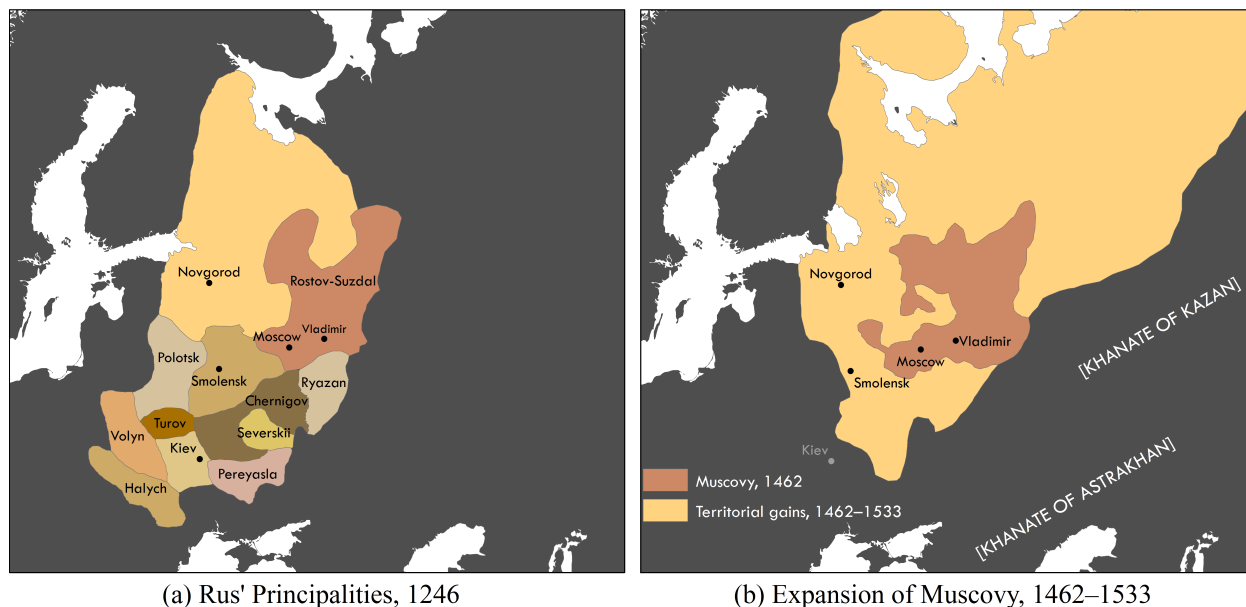
By the end of the twelfth century, the Kievan state was divided into roughly twelve different principalities. The most important of these included the Republic of Novgorod, the Grand Duchy of Vladimir, and the Kingdom of Galicia-Volhynia. The Kievan states comprised agriculturalists in the south who practiced slash and burning agriculture and hunters, trappers, and woodsmen in the north. There was continuous low-level conflict with the nomads of the steppe, notably the Pechenegs, Toriki (Oguz), and Polovtsy (Qipchak, Cumans) who raided the settled lands sporadically (Sunderland, 2004, 12). However, the conflict did not pose a threat to the existence of the different Kievan regimes.

This changed dramatically with the Mongol invasions of the thirteenth century. As with the Viking invasions of England, this was a significant exogenous shock. The Russian states were vulnerable because they were divided. As one historian notes “it was not so much military

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<sup>26</sup>As Campbell (2000) notes, “Late Anglo-Saxon England was a nation state. It was an entity with an effective central authority, uniformly organised institutions, a national language, a national church, defined frontiers, and, above all, a strong sense of national identity” (10). “England was by then [1066] a nation-state. It is highly improbable that any European rulers enjoyed closely organised authority over so wide an area as did its kings. The dominions of the German King Henry IV were far more extensive, but the extent of his authority varied from area to area; his government was by no means uniformly integrated; and he did not rule a state in the sense that Edward the Confessor did. There is no question of there having been anything comparable to the English state in France, Spain or Italy” (31–32).





**Figure 18:** The Unification of the Russian World. Adapted from Perrie (2006).

unpreparedness and inefficiency that enfeebled the Russians as lack of unity between territories in the north, the south and the south-west. There was no suzerain prince who had effective control over *all* Russian lands” (Fennell, 1983, 86). Contemporary chroniclers portray these invasions in catastrophic terms listing city after city that was sacked. Modern historians are unable to estimate overall population losses but they agree that the devastation must have been tremendous. Russia remained under Mongol domination for the subsequent two centuries. It was only gradually that a new principality, Muscovy, was able to consolidate power in the lands north of the old Kievan state.

In the late fifteenth century, Ivan III (r. 1462–1505) absorbed the other Russian principalities and overthrew the power of the Golden Horde, thereby laying the foundations for the Russian empire. Muscovy succeeded in repelling nomadic invasions from the East by investing massively in frontier defenses. As in Anglo-Saxon England, the rulers of Muscovy invested in “palisades and earthworks between stands of forest to ‘cut-off’ nomadic raiding routes” (Sunderland, 2004, 24). Khodarkovsky (2002, 221) notes that because of Muscovy’s long eastern border (Figure 18b),

[its] frontiers remained “soft targets”, vulnerable to large-scale nomadic invasion and impossible to defend against small-scale lightning raids. The lessons of the Mongol conquest and its devastating impact upon the entire Eurasian continent were clear: only a strong state with a centralized government capable and willing to devote significant resources to the defense of the steppe frontier could prevent similar disasters.

Yet by the late sixteenth century, the centralized empire that the rulers of Muscovy built was facing threats from the west as well as the east. Consistent with our theory, these two-sided threats almost led to its breakup during the Time of Troubles (1598–1613). However, the new Romanov dynasty was able to make peace in the west so as to focus on (and eventually subdue) the threat from the steppe.

These examples could be expanded upon. In particular, history offers many examples of geographically compact states such as Macedon, the Dutch Republic and Prussia building strong states in response to foreign threats. However, it is important to emphasize that we do not claim that the emergence of a strong external threat would always lead to centralization. If the threat is too strong, it will overrun a decentralized territory without giving it the opportunity to unify. Nevertheless, even in these cases, the systematic tendencies we identify in our model may still be detected. For example, the Roman invasion of Gaul in the 50s BCE was so strong that it overwhelmed resistance and led to the incorporation of Gaul into the Empire. However, the force of the initial invasion did cause the fragmented tribes of Gaul to unify into a federation under Vercingetorix in order to resist. In this case, the tendencies identified by our theory were present but the result was a Roman victory instead of a unified Gaul.

## 6 CONCLUSION

In this paper, we study the successful creation of a unified state in Japan and the corresponding failure of Qing China to modernize during the second half of the nineteenth century. In accounting for the diverging paths of political developments and state building in China and Japan, we emphasize the importance of external geopolitical threats. These threats made it incentive compatible for rulers of relatively compact territories such as Japan to embark on a program of centralization and modernization but very costly for a large state like China to do so. This analysis sheds new light on why China, which had been centralized for much of its history, experienced disintegration upon the arrival of Western powers, and why Japan, which had been politically fragmented for centuries, became unified and modernized during the same period.

Our analysis shows how different geopolitical threats can explain the different choices made by political elites in China and Japan in the second-half of the nineteenth century. In developing this argument, we do not need to resort to different cultural attitudes to reform or differences in the competence or farsightedness of policymakers in either China or Japan. To demonstrate the generalizability and external validity of our theory, we also apply our model to other historical episodes of state building, such as the unification of Anglo-Saxon England in the tenth century and the rise of Muscovy during the fifteenth century.

## REFERENCES

- Abels, Richard (1998), *Alfred the Great*, Longman, Harlow, UK.
- Acemoglu, Daron and James A. Robinson (2000a), 'Political losers as a barrier to economic development', *American Economic Review* **90**(2), 126–130.
- Acemoglu, Daron and James A. Robinson (2000b), 'Why Did the West Extend the Franchise? Democracy, Inequality, and Growth in Historical Perspective', *Quarterly Journal of Economics* **115**(4), 1167–1199.
- Acemoglu, Daron and James A. Robinson (2001), 'A Theory of Political Transitions', *American Economic Review* **91**(4), 938–963.
- Acemoglu, Daron and James A. Robinson (2005), *The Economic Origins of Dictatorship and Democracy*, Cambridge University Press, Cambridge.
- Alesina, Alberto and Enrico Spolaore (2003), *The Size of Nations*, MIT Press, Cambridge, MA.
- Anderson, Perry (1974a), *Lineages of the Absolutist State*, Verso, London.
- Anderson, Perry (1974b), *Passages from Antiquity to Feudalism*, Verso, London.
- Andrade, Tonio (2016), *Tonio Andrade*, Princeton University Press, Princeton.
- Aoki, Koji (1971), *Hyakushoo ikki sogo nenpyo [A comprehensive chronology of peasant protests]*, San'ichi Shobo, Tokyo.
- Aoki, Masahiko (2014), 'Three-person game of institutional resilience versus transition: A model and its application to China-Japan comparative history'. Mimeo.
- Baark, Erik (1997), *Lightning wires: the telegraph and China's technological modernization, 1860–1890*, Greenwood Press, Westport, CT.
- Barfield, Thomas (1989), *The Perilous Frontier: Nomadic Empires and China*, Basil Blackwell, Oxford.
- Beasley, William (1973), *The modern history of Japan*, Weidenfeld and Nicolson, London.
- Beasley, William (2000), *The rise of modern Japan*, St. Martin's Press, New York. 3rd edition.
- Besley, Timothy and Torsten Persson (2011), *Pillars of Prosperity*, Princeton University Press, Princeton.
- Boix, Carles (2011), 'Democracy, development, and the international system', *American Political Science Review* **105**, 809–828.
- Campbell, James (2000), *The Anglo-Saxon State*, Hambledon and London, London.
- Centeno, Miguel Angel (1997), 'Blood and Debt: War and Taxation in Nineteenth-Century Latin America', *American Journal of Sociology* **102**(6), 1565–1605.
- Chang, Hao (1980), Intellectual change and the reform movement, 1890–8, in J.Fairbank and K.-C.Liu, eds, 'Cambridge History of China, vol. 11', Cambridge University Press, Cambridge, pp. 274–338.
- CHGIS (2007). Version 4. Harvard Yenching Institute, Cambridge, MA.
- Chu, Samuel and Kwang-Ching Liu, eds (1994), *Li Hung-chang and China's early modernization*, M.E. Sharpe, Armonk, NY.
- Ch'u, Tung-Tsu (1962), *Local government in China under the Ch'ing*, Harvard East Asian studies, 9, Harvard University Press, Cambridge, MA.
- Cohen, Paul (1963), *China and Christianity: the missionary movement and the growth of Chinese antifeoreignism, 1860–1870.*, Harvard University Press, Cambridge.

- Crawcour, Sydney (1974), 'The Tokugawa Period and Japan's preparation for modern economic growth', *Journal of Japanese Studies* **1**(1), 113–125.
- Dincecco, Mark (2010), 'Fragmented authority from ancien régime to modernity: a quantitative analysis', *Journal of Institutional Economics* **6**(03), 305–328.
- Dincecco, Mark (2015), 'The Rise of Effective States in Europe', *Journal of Economic History* **75**(03), 901–918.
- Doner, Richard, Bryan K. Ritchie and Dan Slater (2005), 'Systemic vulnerability and the origins of developmental states: Northeast and Southeast Asia in comparative perspective', *International Organization* **59**(2), 327–361.
- Downing, Brian M. (1992), *The military revolution and political change: Origins of democracy and autocracy in early modern Europe*, Princeton University Press, Princeton.
- Duke, Benjamin (2009), *The history of modern Japanese education: constructing the national school system, 1872–1890*, Rutgers University Press, New Brunswick, NJ.
- Duus, Peter (1998), *Modern Japan*, Houghton Mifflin, Boston. 2nd edition.
- Eckstein, Arthur M. (2011), *Mediterranean Anarchy, Interstate War, and the Rise of Rome*, University of California Press, Berkeley, CA.
- Elman, Benjamin (2004), 'Naval warfare and the refraction of China's Self-Strengthening Reforms into scientific and technological failure, 1865–1895', *Modern Asian Studies* **38**(2), 283–326.
- Ertman, Thomas (1997), *Birth of Leviathan*, Cambridge University Press, Cambridge.
- Fairbank, John (1992), *China: a new history*, Belknap Press of Harvard University Press, Cambridge, MA.
- Fairbank, John and Edwin Reischauer (1989), *China: tradition and transformation*, Houghton Mifflin, Boston.
- Fennell, John (1983), *The Crisis of Medieval Russia 1200–1304*, Longman.
- Fernandez, Raquel and Dani Rodrik (1991), 'Resistance to reform: Status quo bias in the presence of individual-specific uncertainty', *American Economic Review* **81**(5), 1146–1155.
- Feuerwerker, Albert (1976), *State and Society in Eighteenth-Century China: the Ch'ing Empire in its Glory*, Center for Chinese Studies, University of Michigan, Ann Arbor.
- Feuerwerker, Albert (1980), Economic trends in the late Ch'ing empire, 1870–1911, in J.Fairbank and K.-C.Liu, eds, 'Cambridge History of China, vol. 11', Cambridge University Press, Cambridge, pp. 1–69.
- Finer, Samuel (1999), *The History of Government from the Earliest Times*, Vol. I, II, III, Oxford University Press, Oxford.
- Free, Dan (2008), *Early Japanese railways, 1853–1914: Engineering triumphs that transformed Meiji-era Japan*, Rutland, Tuttle.
- Fukuyama, Francis (2011), *The Origins of Political Order: From Prehuman Times to the French Revolution*, Farrar, Straus and Giroux, New York.
- Gennaioli, Nicola and Hans-Joachim Voth (2015), 'State capacity and military conflict', *Review of Economic Studies* **82**(4), 1409–1448.

- Grousset, René (1970), *The Empire of the Steppes: a history of Central Asia*, Rutgers University Press, New Brunswick. Translated by Naomi Walford.
- Haggard, Stephan, David Kang and Chung-In Moon (1997), 'Japanese colonialism and Korean development: A critique', *World Development* **25**(6), 867 – 881.
- Hao, Yen-Ping and Erh-min Wang (1980), Changing Chinese views of Western relations, in J.Fairbank and K.-C.Liu, eds, 'Cambridge History of China, vol. 11', Cambridge University Press, Cambridge, pp. 142–201.
- Hart, Robert (1975), *The I.G. in Peking: letters of Robert Hart, Chinese Maritime Customs, 1868–1907*, Belknap Press of Harvard University Press, Cambridge, MA. Edited by John Fairbank, Katherine Bruner, Elizabeth Matheson.
- He, Wenkai (2013), *Paths toward the modern fiscal state: England, Japan, and China*, Harvard University Press, Cambridge, MA.
- Hintze, Otto (1906, 1975), Military organization and the organization of the state, in F.Gilbert, ed., 'The historical essays of Otto Hintze', Oxford University Press, Oxford, pp. 178–215.
- Hoffman, Philip (2012), 'Why was it Europeans who conquered the world?', *Journal of Economic History* **72**(03), 601–633.
- Hoffman, Philip (2015), 'What do states do? Politics and economic history', *Journal of Economic History* **75**, 303–332.
- Hsu, Immanuel C. Y. (1965), 'The great policy debate in China, 1874: Maritime defense vs. frontier defense', *Harvard Journal of Asiatic Studies* **25**, 212–228.
- Hsu, Immanuel C. Y. (1980), Late Ch'ing foreign relations, 1866–1905, in J.Fairbank and K.-C.Liu, eds, 'Cambridge History of China, vol. 11', Cambridge University Press, Cambridge, pp. 70–141.
- Huang, Ray (1988), *China: A macro history*, M.E. Sharpe, Armonk, NY.
- Hui, Victoria Tin-bor (2004), 'Toward a dynamic theory of international politics: Insights from comparing ancient China and early modern Europe', *International Organization* **58**(1), 175–205.
- Hui, Victoria Tin-bor (2005), *War and State Formation in Ancient China and Early Modern Europe*, Cambridge University Press, Cambridge.
- Jansen, Marius (2000), *The Making of Modern Japan*, Belknap Press of Harvard University Press, Cambridge, MA.
- Jansen, Marius B. and Gilbert Rozman, eds (1986), *Japan in transition, from Tokugawa to Meiji*, Princeton University Press, Princeton.
- Jin, Shixuan and Wenshu Xu, eds (1986), *Zhongguo tielu fazhan shi (The development history of the Chinese railroads)*, China Railway Publishing House, Beijing.
- John, Eric (1982), The age of Edgar, in J.Campbell, ed., 'The Anglo-Saxons', Penguin, London, pp. 160–191.
- Johnson, Chalmers (1995), *Japan, who Governs? The Rise of the Developmental State*, W. W. Norton, New York.
- Johnson, Noel and Mark Koyama (2014), 'Tax farming and the origins of state capacity in England and France', *Explorations in Economic History* **51**(1), 1–20.

- Johnson, Noel and Mark Koyama (2015), States and economic growth: Capacity and constraints. Mimeo.
- Jones, Eric (1981, 2003), *The European Miracle*, 3rd edn, Cambridge University Press, Cambridge.
- Jones, S. R. H. (1993), 'Transaction costs, institutional change, and the emergence of a market economy in later Anglo-Saxon England', *Economic History Review* **46**(4), 658–678.
- Kaplan, Robert D. (2012), *The Revenge of Geography*, Random House, New York.
- Karaman, Kivanc and Şevket Pamuk (2013), 'Different paths to the modern state in Europe: The interaction between warfare, economic structure and political regime', *American Political Science Review* **107**(3), 603–626.
- Kennedy, Paul (1987), *The rise and fall of the great powers: economic change and military conflict from 1500 to 2000*, Random House, New York.
- Khodarkovsky, Michael (2002), *Russia's Steppe Frontier*, Indiana University Press.
- Ko, Chiu Yu, Mark Koyama and Tuan-Hwee Sng (2014), Unified China; Divided Europe. Available at SSRN: <http://ssrn.com/abstract=2382346>.
- Koyama, Mark (2016), 'The long transition from a natural state to a liberal economic order', *International Review of Law and Economics*. Forthcoming.
- Kuhn, Philip (1980), *Rebellion and its enemies in late imperial China: Militarization and social structure, 1796–1864*, Harvard University Press, Cambridge, MA.
- Latourette, Kenneth (1929), *A history of Christian missions in China*, Macmillan Company, New York.
- Lattimore, Owen (1940), *Inner Asian frontiers of China*, American Geographical Society, New York.
- Levy, Indra (2011), *Translation in modern Japan*, Routledge, New York.
- Li, Wei (2008), The interaction between ethnic relations and state power: a structural impediment to the industrialization of China, 1850–1911, Dissertation, Georgia State University.
- Li, Zhancai, ed. (1994), *Zhongguo tielu shi: 1876–1949 [A history of the Chinese railroads]*, Shantou University Press, Shantou.
- Lieberman, Victor (2009), *Strange Parallels: Southeast Asia in Global Context, C. 800–1830. Vol. 2*, Cambridge University Press, Cambridge.
- Lipset, Seymour Martin (1963), *Political Man: The Social Bases of Politics*, Anchor Books, New York.
- Liu, Kwang-Ching and Richard Smith (1980), The military challenge: The north-west and the coast, in J. Fairbank and K.-C. Liu, eds, 'Cambridge History of China, vol. 11', Cambridge University Press, Cambridge, pp. 202–73.
- Loyn, Henry (1984), *The Governance of Anglo-Saxon England 500–1087*, Stanford University Press, Stanford.
- Mackinder, Harold J. (1904), 'The geographical pivot of history', *Geographical Journal* **23**, 421–37.
- Mahan, Thomas (1890), *The Influence of Sea Power Upon History: 1660–1783*, Little Brown, Boston.
- Mao, Zedong (1990), *Mao Zedong zao qi wen gao 1912.6–1920.11 [Mao Zedong's early manuscripts: 1912.6–1920.11]*, Hunan Press, Changsha. Edited by Xu Rihui.
- McBride, Michael, Gary Milante and Stergios Skaperdas (2011), 'Peace and war with endogenous state capacity', *Journal of Conflict Resolution* **55**(3), 446–468.
- Mearscheimer, John J. (2001), *The Tragedy of Great Power Politics*, W. W. Norton, New York.

- Michalopoulos, Stelios and Elias Papaioannou (2014), 'National institutions and subnational development in Africa', *Quarterly Journal of Economics* **129**(1), 151–213.
- Mokyr, Joel (1990), *The Lever of Riches*, Oxford University Press, Oxford.
- Morgenthau, Hans (1948), *Politics Among Nations*, McGraw-Hill, New York.
- Moulder, Frances (1977), *Japan, China and the modern world economy: toward a reinterpretation of East Asian development ca. 1600 to ca. 1918*, Cambridge University Press, New York.
- Nakabayashi, Masaki (2012), Rise of the Japanese fiscal state, in B.Yun-Casalilla, P.O'Brien and F.Comin Comin, eds, 'The Rise of Fiscal States: A Global History, 1500–1914', Cambridge University Press, Cambridge, pp. 378–409.
- Nexon, Daniel (2009), *The Struggle for Power in Early Modern Europe*, Princeton University Press, Princeton.
- Nicholas, Sambins, Stergios Skaperdas and William C. Wohlforth (2015), 'Nation-building through war', *American Political Science Review* **109**, 279–296.
- Norman, Herbert (2000), *Japan's emergence as a modern state: Political and economic problems of the Meiji period*, University of British Columbia, Vancouver.
- Nussli, Christos (2011). URL: <http://www.euratlas.com/about.html>.
- O'Brien, Patrick (2011), 'The nature and historical evolution of an exceptional fiscal state and its possible significance for the precocious commercialization and industrialization of the British economy from Cromwell to Nelson', *Economic History Review* **64**(2), 408–446.
- Olson, Mancur (1963), 'Rapid growth as a destabilizing force', *Journal of Economic History* **23**(4), 529–552.
- Paine, S. C. M. (2003), *The Sino-Japanese War of 1894-1895*, Cambridge University Press, Cambridge.
- Perrie, Maureen, ed. (2006), *Cambridge History of Russia Volume 1. From Early Rus' to 1689*, Cambridge University Press, Cambridge.
- Pomeranz, Kenneth (2000), *The Great Divergence, China, Europe and the making of the modern world economy*, Princeton University Press, Princeton.
- Pong, David (1973), 'Confucian patriotism and the destruction of the Woosung railway, 1877', *Modern Asian Studies* **7**(4), 647–676.
- Ravina, Mark (1999), *Land and Lordship in Early Modern Japan*, Stanford University Press, Stanford.
- Remick, Elizabeth (2004), *Building local states: China during the Republican and post-Mao eras*, Harvard University Asia Center, Cambridge, MA.
- Rosenthal, Jean-Laurent and R Bin Wong (2011), *Before and beyond divergence: the politics of economic change in China and Europe*, Harvard University Press, Cambridge, MA.
- Rowe, William (1983), 'Hu Lin-i's reform of the grain tribute system in Hupeh, 1855–1858', *Late Imperial China* **4**(10), 54.
- Rowe, William (2009), *China's Last Empire: the Great Qing*, Harvard University Press, Cambridge, MA.
- Shi, Zhihong (2009), *Revenue, expenditure and inventory statistics of the Qing Board of Revenue Silver Treasury [Qingdai hubu yinku shouzhi he kucun tongji]*, Fujian People's Publishing House, Fuzhou.
- Shi, Zhihong and Yi Xu (2008), *Wan qing caizheng: 1851–1894 [Finance of the Late Qing Dynasty]*,

- Shanghai University of Finance and Economics, Shanghai.
- Slater, Dan (2010), *Ordering Power*, Cambridge University Press, Cambridge.
- Sng, Tuan-Hwee (2014), 'Size and dynastic decline: The principal-agent problem in late imperial China 1700-1850', *Explorations in Economic History* **54**(0), 107–127.
- Sng, Tuan-Hwee and Chiaki Moriguchi (2014), 'Asia's little divergence: State capacity in China and Japan before 1850', *Journal of Economic Growth* **19**(4), 439–470.
- Stasavage, David (2010), 'When distance mattered: Geographic scale and the development of European representative assemblies', *American Political Science Review* **104**(4), 625–643.
- Sunderland, Willard (2004), *Taming the Wild Field: Colonization and Empire on the Russia Steppe*, Cornell University Press, Ithaca.
- Tanaka, Stefan (2004), *New times in modern Japan*, Princeton University Press, Princeton.
- Tang, John (2013), Railroad expansion and entrepreneurship: evidence from Meiji Japan. CEH Discussion Papers No. 2013-01.
- Tilly, Charles (1975), Reflections on the history of European state-making, in C.Tilly, ed., 'The Formation of Nation States in Western Europe', Princeton University Press, Princeton, pp. 3–84.
- Tilly, Charles (1985), Warmaking and statemaking as organized crime, in P.Evans, D.Rueschemeyer and T.Skocpol, eds, 'Bringing the State Back In', Cambridge University Press, Cambridge, pp. 169–192.
- Tilly, Charles (1990), *Coercion, Capital, and European States, AD 990–1990*, Blackwell, Oxford.
- Totman, Conrad (1993), *Early Modern Japan*, University of California Press, Berkeley.
- Tullock, Gordon (1971), 'The paradox of revolution', *Public Choice* **11**, 89–99.
- Turchin, Peter (2009), 'A theory for formation of large empires', *Journal of Global History* **4**, 191–217.
- Umesao, Tadao (2003), *An ecological view of history: Japanese civilization in the world context*, Trans Pacific, Melbourne.
- Vu, Tuong (2010a), *Paths to Development in Asia*, Cambridge University Press, Cambridge.
- Vu, Tuong (2010b), 'Studying the state through state formation', *World Politics* **62**(1), 148–175.
- Wade, Robert (1990), *Governing the Market*, Princeton University Press, Princeton, New Jersey.
- Waltz, Kenneth N. (1979), *Theory of International Politics*, Waveland Press In, Long Grove, Illinois.
- Wang, Hsien-Chun (2015), 'Merchants, mandarins, and the railway: Institution failure and the Wusong Railway, 1874–1877', *International Journal of Asian Studies* **12**, 31–53.
- Weber, Max (1968), *Economy and Society*, Bedminster, New York.
- Wehrle, Edmund (1966), *Britain, China, and the Anti-Missionary Riots 1891–1900*, Oxford University Press, London.
- Wong, Bin (1997), *China Transformed: Historical Change and the Limits of European Experience*, Cornell University Press, Ithaca, NY.
- Wormald, Patrick (1982), The ninth century, in J.Campbell, ed., 'The Anglo-Saxons', Penguin, London, pp. 132–160.
- Wright, Mary Clabaugh (1957), *The last stand of Chinese conservatism: the Tung-Chih restoration, 1862–1874*, Stanford University Press, Stanford.
- Yorke, Barbara (1990), *Kings and the Kingdoms of Early Anglo-Saxon England*, Routledge, London.



## 7 APPENDIX

In Section 3, we provide a stylized model to highlight the key mechanisms and results. Below, we lay down a general model that (1) does not assume specific parametric forms, and (2) endogenizes border formation, to show that the findings of the stylized model are robust to a relaxation of its assumptions.

The general setup of the model is unchanged. As before, we model a territory as a line  $[0, \chi]$  with  $\chi$  individuals uniformly distributed along this line. Each individual is endowed with income  $y$ .

The territory faces threats from outside. An external threat of magnitude  $\Lambda$ , if undeterred, causes gross damage is  $\max\{\lambda(\Lambda, t), 0\}$  at a point  $t$  distance away from the frontier, where  $\lambda_1 > 0$ ,  $\lambda_2 < 0$ , and  $\alpha > 0$  is a scaling constant. Moreover, threats may emanate either from one frontier (at  $x = 0$  only, without loss of generality) or from both frontiers. Whether they are one-sided or two-sided, and the value of  $\Lambda$ , depends on the continent's geographical environment, which is exogenously determined.

The territory is divided into  $S \in \{1, 2\}$  connected, mutually exclusive intervals, each administered by a regime (authority). When  $S = 1$  (political centralization), one regime  $c$ , rules the entire continent. When  $S = 2$  (political fragmentation), two regimes,  $l$  and  $r$ , coexist. Regime  $l$  is on the left of regime  $r$ . We focus on the symmetric equilibrium for tractability.

Regime  $i$  may invest in state capacity, and the cost of doing so is convex. For regime  $i \in \{c, l, r\}$  to invest  $M_i \geq 0$ , it costs  $k(M_i)$ , where  $k(0) = 0$ ,  $k' > 0$ , and  $k'' > 0$ . A regime's state capacity is strongest at its center of deployment,  $G_i$ ; for a location that is  $t$  distance away from  $G_i$ , regime  $i$ 's state capacity on that location is  $m(M_i, t) = \max\{M_i - \mu(t), 0\}$ , where  $\mu(0) = 0$ ,  $\mu' > 0$ , and  $\mu'' > 0$ .

When  $S = 2$ , instead of assuming exogenous border formation, we now allow regimes  $l$  and  $r$  to compete for land. Let regime  $l$  controls  $[0, b]$  and regime  $r$  controls  $[b, 1]$ , where  $0 \leq b \leq 1$ . The border  $b$  is the location between  $G_l$  and  $G_r$  at which the two regimes are evenly matched in state capacity. Specifically,  $b$  is defined by:

$$m(M_l, b - G_l) = m(M_r, G_r - b) \tag{1}$$

State capacity not only helps to define the border, it also acts as a deterring force to block the external threat from spreading inland. Consider a threat emanating from  $x = 0$ , a location  $x \in [0, \chi]$  is protected by regime  $i$  from the external threat originating from 0 if there exists  $0 \leq \hat{x} \leq x$  such that  $\lambda(\Lambda, \hat{x}) - m(M_i, G_i - \hat{x}) \leq 0$ . In a symmetric fashion, a location  $x \in [0, \chi]$  is protected by regime  $i$  from the external threat originating from  $\chi$  if there exists  $x \leq \hat{x} \leq \chi$

such that  $\lambda(\Lambda, \chi - \hat{x}) - m(M_i, \hat{x} - G_i) \leq 0$ .

If a contiguous segment of length more than  $\delta$  (where  $0 < \delta < 1$ ) is left unprotected, then a revolution occurs and the authority (or authorities if there is more than one) that taxes the segment collapses. If the revolution constraint is not violated, the net revenue of regime  $e$  under empire is  $V_c = \chi y - k(M_c)$  while the net revenues of regimes  $l$  and  $r$  under interstate competition are  $V_l = b\chi y - k(M_l)$  and  $V_r = (1 - b)\chi y - k(M_r)$ , respectively.

The optimization problem facing a centralized state (authority  $c$ ) is straightforward: it first decides  $G_c \in [0, 1]$  and then  $M_c \geq 0$  to maximize its net revenue  $V_c = \chi y - k(M_c)$ . Since this is a two-stage decision process, we employ backward induction to solve the model.

Under political decentralization ( $S = 2$ ), authorities  $l$  and  $r$  simultaneously choose  $G_l$  and  $G_r$ . After observing the locations, they then simultaneously make investments  $M_l \geq 0$  and  $M_r \geq 0$ . Again, we employ backward induction to solve the model.

Let  $\bar{\Lambda}$  be defined by  $\lambda(\bar{\Lambda}, \delta) = 0$ . Below, we restate Propositions 1–4 of Section 3.

**Proposition 1** (Centralization, One-Sided Threat). *When the threat is one-sided and emanates from  $x = 0$ :*

- A. *If  $\Lambda_l \leq \bar{\Lambda}$ , the centralized state locates the base at  $G_c \in [\frac{\Lambda_l}{\alpha}, \chi]$  and makes zero investment in state capacity;*
- B. *If  $\Lambda_l > \bar{\Lambda}$ , the centralized state locates the base at  $G_c = \delta$  and invests to the level  $M_c = \lambda(\Lambda_l, \delta)$ .*

**Proposition 2** (Centralization, Two-Sided Threats). *Under threats from both  $x = 0$  and  $x = \chi$ :*

- A. *If  $\Lambda_l = \Lambda_r \leq \bar{\Lambda}$ , the centralized state locates the base at  $G_c \in [\frac{\Lambda_l}{\alpha}, \chi - \frac{\Lambda_r}{\alpha}]$  and makes zero investment in state capacity;*
- B. *If  $\Lambda_l = \Lambda_r > \bar{\Lambda}$ , the centralized state locates the base at  $G_c = \frac{\chi}{2}$  and it invests to the level  $M_c = \lambda(\Lambda_l, \delta) + \mu(\frac{\chi}{2} - \delta)$ .*

**Proposition 3** (Decentralization, One-Sided Threat). *Under an external threat emanating from  $x = 0$ , there exists  $\Lambda^*$  such that:*

- A. *If  $\Lambda_l \leq \bar{\Lambda}$ , regime  $l$  locates its base at  $G_l \in [\frac{\Lambda_l}{\alpha}, \frac{1}{2}\chi]$ ; regime  $r$  locates its base at  $G_r = \chi - G_l$ ;  $b = \frac{\chi}{2}$ ; and  $M_l = M_r > 0$ .*
- B. *If  $\Lambda_l \leq \Lambda^*$ , regime  $l$  locates its base at  $G_l \in [\frac{\Lambda_l}{\alpha}, \frac{1}{2}\chi]$ ; regime  $r$  locates its base at  $G_r = \chi - G_l$ ;  $b = \frac{\chi}{2}$ ; and  $M_l = M_r > 0$ .*

C. If  $\Lambda_l > \bar{\Lambda}$  and  $\Lambda_l > \Lambda^*$ , regime  $l$  locates its base at  $G_l \in [\frac{\Lambda_l}{\alpha}, b]$ ; regime  $r$  locates its base at  $G_r < \chi - G_l$ ;  $b < \frac{\chi}{2}$ ; and  $M_l > 0, M_r > 0$ .

The intuition of this proposition is as follows. If the external threat is small enough so that the revolution constraint never binds ( $\Lambda_l \leq \bar{\Lambda}$ ), regimes  $l$  and  $r$  will focus on competing for land with each other (Case A). Importantly, because border formation is now endogenous and the regimes have to invest in state capacity to compete with each other, even if there exists a significant external threat from the left frontier, the state capacity that the left regime built to compete with the right regime is sufficient to block the threat and no additional investment on state capacity is required as long as  $\Lambda_l \leq \Lambda^*$  (Case B). It is only when the threat from the left frontier is sufficiently large ( $\Lambda_l > \bar{\Lambda}$  and  $\Lambda_l > \Lambda^*$ ) that the left regime has to actively deal with it. In this situation, it will have to shift its base leftward and this will cause it to cede land to the right regime (Case C).

**Proposition 4** (Decentralization, Two-Sided Threats). *Under threats from both  $x = 0$  and  $x = \chi$ , there exists  $\Lambda^*$  such that:*

- A. If  $\Lambda_l = \Lambda_r \leq \bar{\Lambda}$ , authority  $l$  locates its base at  $G_l \in [\frac{\Lambda_l}{\alpha}, \frac{1}{2}\chi]$ ; authority  $r$  locates its base at  $G_r = \chi - G_l$ ;  $b = \frac{\chi}{2}$ ; and  $M_l = M_r = M^* > 0$ .
- B. If  $\Lambda_l = \Lambda_r \leq \Lambda^*$ , authority  $l$  locates its base at  $G_l \in [\frac{\Lambda_l}{\alpha}, \frac{1}{2}\chi]$ ; authority  $r$  locates its base at  $G_r = \chi - G_l$ ;  $b = \frac{\chi}{2}$ ; and  $M_l = M_r = M^* > 0$ .
- C. If  $\Lambda_l = \Lambda_r > \bar{\Lambda}$  and  $\Lambda_l = \Lambda_r > \Lambda^*$ , authority  $l$  locates its base at  $G_l \in [\frac{\Lambda_l}{\alpha}, \frac{1}{2}\chi]$ ; authority  $r$  locates its base at  $G_r = \chi - G_l$ ;  $b = \frac{\chi}{2}$ ; and  $M_l = M_r > M^* > 0$ .

As in Proposition 3, Proposition 4 states that if the external threats are sufficiently small, regimes  $l$  and  $r$  effectively ignore them and focus on competing with each other (Cases A and B). This is because the state capacity that each regime built to compete with each other is sufficient to deal with the threats and no extra investment is required. But when the threats are large, the regimes will have to respond by increasing their respective investments in state capacity (Case C).