

Rock, Scissors, Paper: the Problem of Incentives and Information in Traditional Chinese State and the Origin of Great Divergence

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Abstract: Using a newly reconstructed data series of two and a half millennia on Chinese warfare and durations of political unification and fragmentation, this article provides a re-interpretation of the traditional Chinese political regime from the perspective of institutional economics. Structured within a principal-agent model with three major actors - the emperor, the bureaucracy and the people - the article demonstrates that monopoly rule, a long time-horizon and the large size of the empire could lead an absolutist regime like imperial China towards a path of low-taxation, dynastic stability and extensive growth. But fundamental incentive misalignment and information asymmetry problem embedded in its centralized and hierarchical political structure also significantly weakened the regime's fiscal and financial capacity to support institutions and institutional change conducive to modern economic growth. Using comparable series of fiscal revenue, the paper makes some comparisons between Imperial Qing (1644-1911) and contemporaneous Western Europe.

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Abstract: Using a newly reconstructed data series of two and a half millennia on Chinese warfare and durations of political unification and fragmentation, this article provides a re-interpretation of the traditional Chinese political regime from the perspective of institutional economics. Structured within a principal-agent model with three major actors - the emperor, the bureaucracy and the people - the article demonstrates that monopoly rule, a long time-horizon and the large size of the empire could lead an absolutist regime like imperial China towards a path of low-taxation, dynastic stability and extensive growth. But fundamental incentive misalignment and information asymmetry problem embedded in its centralized and hierarchical political structure also significantly weakened the regime's fiscal and financial capacity to support institutions and institutional change conducive to modern economic growth. Using comparable series of fiscal revenue, the paper makes some comparisons between Imperial Qing (1644-1911) and contemporaneous Western Europe.

Why did China, given her economic and technological leadership in the 14th century or even in the 18th century as some have recently claimed, fail to become the first industrial nation. A multitude of hypotheses range from cultural and scientific traditions to factor endowments or natural resources. However, political and economic institutions that pertain to property rights and contract enforcements – factors viewed as fundamental to long-term economic growth by institutional economists – have figured little in this debate.¹ Part of the reason for this scant attention was that the historiography on the role of traditional Chinese state and institutions had long been dominated and clouded by the overly simplistic theoretical framework of oriental despotism or theories of class struggle in the official Communist ideology.² On the other hand, there had developed an opposing literature that emphasized the Imperial rule of benevolence which provided a framework that taxed the peasantry lightly, protected private property rights and interfered little in the operation of a well-establishment markets in land and labor.³

This paper reconciles these opposing views with a reinterpretation of the early modern Chinese state in the perspective of new institutional economics. It argues that while the traditional framework of oriental despotism may be overly pessimistic and misleading, the role of the state – its absolutist features and highly centralized political and fiscal regime – figures prominently in the formation of

¹ See Ma 2004 for a summary of these hypotheses.

² See Wittfogel (1957) for the case of oriental despotism and Wang Yanan (1981) for a strong condemnation of the traditional Chinese state from a Marxist perspective.

³ See Pomeranz 2000, Wong 1997 on factor markets and taxation.

property rights and contract enforcement in early modern China. In particular, the classic dilemma of government credible commitment as posed by Douglas North – economic growth requires a strong state to secure property rights, but a state that is too strong becomes a potential threat to private property rights – is a perennial one throughout the two millennia of Chinese dynasties.⁴

The Chinese imperial political structure, which evolved in relative isolation with remarkable continuity, offers a fascinating case study of the role of the state on economic growth from a long-term perspective. Drawing on the insights of recent literature into the relationship between institutions and economic growth, this article delineates the political logic of Chinese empire in the framework of three major actors: the emperor, the bureaucracy and the people, each with their own objective functions and incentive schemes. In the framework of principal-agent and asymmetric information, it shows that the historical interplay of these three actors with their respective incentive schemes and structures of private information shape the internal logic of the political structure. Indeed, the dynastic cycles as observed in the two millennium of Chinese history played out like a dynamic game of rock-scissors-paper where these three actors role-played and shuffled with one player taking the winning each time but not all the time.

This paper combines the theory of incentive and information with the historical framework of autocracy as elaborated by Douglas North, Mancur Olson (1993) and others. I argue that in an absolutist regime, the absence of government credible commitment can be partially alleviated through rulers' monopoly of power and long time-horizon, and could lead to a virtuous equilibrium of low-extraction and the operation of a relatively free private economy. Furthermore, the power and reach of the Chinese empire could be constrained by double principal-agent problems among the three actors. Thus, the fundamental incentive misalignment and information asymmetry problem embedded in a centralized and hierarchical political structure serves to tie the grabbing hands of an absolutist state. But more importantly, with a long time horizon of monopoly rule, the rulers' objective function switched from short-run revenue maximization to the long-term defence of monopoly rents. Fiscal extraction and tax revenue maximization became secondary to the survival and extension of rule, which hinged on the defusing of internal insurrection and elimination of alternative or contending

⁴ See North 1981, North, Wallis and Weingast 2009.

sources of political power.

Chinese state or empire formation formed a sharp contrast to the political fragmentation that characterized Western Europe since the fall of the Roman Empire, which eventually allowed the development of some form of “voice” (representative bodies in one form or another) and “exit” (political fragmentation) in Western Europe. The key is that the “corporate” characteristics of many of the European states and organizations ensured that economic rents from the reduction of violence were controlled and redistributed through a dominant coalition of commercial and property elites who had a stake in the overall economy. Intensive inter-state competition in the European political system subjected any existing monopolistic rents (due to rulers’ monopoly in the provision of internal peace and other public goods) to contestable and competitive pressure, leading to a continuous generation of Schumpeterian rents being awarded to those innovating states that resolved better the misalignment problems of incentives and information often through some form of representative institution. This process of creative destruction based on a bottom-up institutional building and inter-state competition enhance the fiscal, financial and administrative capacity of those states with positive spill-over effects that support more contract and capital intensive types of exchange.

Through a reconstruction of two millennia recorded incidences of warfare and the duration of unification and fragmentation, this article traces the evolution of state formation and corresponding changes in fiscal and administrative regimes which shape private property rights and factor markets. The case study of Qing China in 17-19th centuries presented in this paper reveals that the establishment of an absolute monopoly of political rule ensured that economic rents from the reduction of violence were firmly in the hands of rulers or political interests relatively detached from commercial or property interests. Although some rents were dissipated through the bureaucracy as an imperial compromise to the information and incentive problems, they were highly decentralized and largely hidden in the form of extra-legal surcharge or corruption with distortionary effects on economic incentives. These distortions resultant from the embedded misalignment of incentive in the regime often led to a massive withholding of private information. While effective in tying the grabbing hands of the state, information hoarding also simultaneously curtailed the state’s fiscal and administrative capacity and failed to generate the mechanism of credible commitment needed for financial and fiscal

transformation to allow sustained large-scale impersonal exchange and organization as associated with the onset of modern economic growth.

I divide the paper into three main sections followed by a conclusion. The first section provides a historical narrative on the model and evolution of traditional Chinese political structure and its theoretical implications. The second section examines the historical record of the traditional Chinese political governance model by a measure of two reconstructed indices of imperial unification contrasted against two and a half millennia data series of warfare. It further tests the theoretical prediction of our model by through a detailed qualitative and quantitative analysis on fiscal regime for Qing China (1644-1911) in a comparative perspective. The third section analyzes the problem of incentives and information and its relevance for understanding China's early modern divergence with English and Western European states. The concluding section briefly discusses the contemporary relevance of traditional Chinese political economy.

I. Chinese Absolutism: the Model and History

The Model

From the founding of the Chinese empire in Qin (221 – 206 BC) till the fall of the last Imperial Qing dynasty in 1911, both the concept and practice of a centralized rule with a hierarchical bureaucracy had been indisputably her most distinguishing and enduring characteristics (see the Appendix Table for China's dynastic chronology). We start with a description of this political model of governance or, to borrow a terminology from Max Weber, its ideal type before we turn to its historical evolution. In this model of absolutist regime, ultimate power was vested in the emperor who commanded property rights over all factors of production including land and labor. At the other or lower end of the spectrum are the people or masses (farmers or peasants in an agrarian regime) who are nominally the tenants and cultivators of land and resources owned by the emperor.⁵ The Imperial

⁵ The imperial ownership of land is expressed by the traditional notion of 'Wang-tu wang-min (王土王民, king's land, king's people/all land and all people are owned by the sovereign)', which appeared in The Book of Songs compiled during the age of Warring States (403-221 B.C.) and persisted throughout the imperial period, see Kishimoto 2011.

household is entitled to rents from agricultural output, the bulk of which went into the supply of external defence and internal security.

In this model, the dominance of a single imperial household over all social or political groups is essential. At the founding of the Qin empire, China's First Emperor (秦始皇), followed the advice of his Legalist (法家) chancellor, Lishi (李斯) and opted against a feudal (封建) type of political arrangements where the imperial power would co-exist with various regional elites or aristocrats often with hereditary status. Instead, they implemented a regime of empire-wide administrative units or prefectural system (郡县制) and household registration "bianhu qimin" (编户齐民). In this new regime, only the status of imperial throne is hereditary. With the elimination of aristocracy or self-contained political units, the administration of the empire - tax collection, suppression of violence and some provision of minimal public goods – would be governed by direct imperial rules and orders (律令) executed by an impersonal bureaucracy.⁶

We illustrate the logic of the tri-part political model in the words of the great Tang Confucius scholar, Han-Yu (韩愈 786-824): "... rulers are meant to give commands which are carried out by their officials and made known to the people, and the people produce grain, rice, hemp, and silk, make utensils and exchange commodities for the support of the superiors. If the ruler fails to issue commands, then he ceases to be a ruler, while if his subordinates do not carry them out and extend them to the people, and if the people do not produce goods for the support of their superiors, they must be punished." (Wm. Theodore de Bary et al, 1960 pp. 432-3).

This Chinese concept of the state, as recognized by generation of scholars, is in many ways an extension of the Chinese concept of a patriarchal household. With the elimination of hereditary aristocracy, the transition from feudalism to central rule extended the stand-alone imperial household (家) into the national sovereign (国). Indeed, the unity of individual, family and state is encapsulated in the enduring Confucian adage that to realize virtues for all under the heaven, one needs first to rule

⁶ The stand-alone nature of Chinese rulers was consistent with countless historical examples of the rulers turning against the landed or commercial elites as well as bureaucrats. For Ming emperors' brutal punishment of landlords and bureaucrats and , see Liang, p.85.. For a critique of how this important distinction between Chinese and Western political regime had been blurred by the dogmatic application of Marxist ideology in China. See Feng 2006.

his own state properly, manage his own household and cultivate himself (修身 齐家 治国 平天下) The literal translation of the Chinese character for nation-state (国家) is really “state-family” or what Max Weber termed as a patrimonial or “familistic state”. Etymology used by Qian Mu reveals what was the equivalent Chinese term of “chancellor” (宰相) for the empire derived from titles that denoted managers of private royal households in the pre-Qin period. Thus, for Qian Mu, the rise of central rule also marks the beginning of a separation between ownership (the Imperial ruler) and management (the bureaucracy).⁷ This political structure, to borrow present day industrial organization terminology, is not entirely dissimilar to large private (family) ownership but managed by outsiders. This analogy will turn out to be a useful guide to examine the economic efficiency of this political organization in light of the principal-agent theory.

The History

In the era of disintegration following the collapse of the legendary Zhou dynasty in the Northern Chinese plain around the 7th century BC, thousands of marauding and competing states were slowly absorbed and consolidated under a handful of rulers who excelled in mobilizing for warfare through the adoption of administrative reform. Du Zhengshen’s in-depth study encapsulates the rulers’ winning strategies of the Warring State period in the classical Chinese phrase of “Bianhu Qimin” which could be literally translated as “registering the household and homogenizing the people.” These measures that eventually led to China’s first unification by the state of Qin in the second century BC, included the replacement of local feudal control with direct administrative rule or prefectural system, the establishment of military-based meritocracy in place of hereditary nobility (hence “homogenizing the people”), the allocation and registration of agricultural land and household for direct taxation and military conscription and the promulgation of standardized legal codes under a system of collective

⁷ See Qian, 1966, pp.8-12. Also see Creel 1964 and Du 1990 for arguments on the clan and kingship origin of the Chinese state. For an excellent summary of Japanese, Chinese and Western scholarships on the patrimonial nature of the traditional Chinese state, see introductory chapter in [????](#) 2010.

punishment. Du traced the origin of the prefectural system (郡县制) at the local level to the organization of military infantry.⁸

Qin's bloody unification did not mark the end of all violence or political fragmentation in Chinese history. Contrarily, its violent collapse under the weight of rebellion after a mere 15 years in existence taught a lesson on the fragility of political rule by brute force alone. Attempts to re-feudalize in early Han and the subsequent reinstatement of Confucius teaching with its emphasis on imperial rule of benevolence and social hierarchy as the new orthodox state ideology - previously persecuted under the Qin - all aimed at correcting the excesses of Qin despotism rooted in the harsh Legalist principles of punishment and discipline.

The diffusion of Confucius ideology as the new orthodox and the sustained military rivalry of regional powers gave rise to new ruling elites dominated by powerful and enduring lineages during China's so-called age of aristocracy roughly between the 3rd and 8th century. In this age, notable lineages monopolized schools of Confucius learning, practiced endogamy, dominated the imperial court and conducted state affairs behind closed cabinet meetings. Indeed, many of the aristocrats claimed more illustrious lineage than the emperors. As the post of the emperor was the property of these aristocratic families and relatives, the emperor could be dethroned or even murdered if the interests of aristocracy were violated. Dynastic struggles were largely the business of aristocrats or lineages unconnected to lives of the commoners. In Tang's central government, the wing of bureaucrats that reflected the opinions of aristocracy had the right to challenge or even veto (封驳) imperial edicts drafted by the imperial secretariat. And the chancellor, the head of the ruling bureaucracy, had considerable power and shared final decisions with the emperor.

But from Song onward, the balance of power had decisively tilted towards the imperial throne with the emperor taking over all state functions and commanding submission of his bureaucracy like master to their slaves. The right of challenge or veto disappeared from Ming onward and even the post of chancellorship was abolished by the first Ming emperor. Medieval China's turn towards absolutism marked the pivotal turning-points now more popularly known as the Tang-Song transformation as

⁸ Also see H. G. Greel, 1964 for an in-depth description of the origin of the prefectural system (郡县制) in China.

originally expounded by the Japanese scholar, Konan Naito. The so-called Naito thesis premised that the ascendancy of Chinese absolutist rule, despite its attendant dire implications, marked the beginning of China's modern era. It freed the commoners from the yoke of the aristocracy and took them in as tenants of the state, ushering in a series of institutional transformations ranging in fiscal, monetary regimes and ultimately the property rights regimes in man and land.⁹

The first transformation came in the recruitment of bureaucrats. Although the civil service examination system started in the Sui and Tang dynasties, they were largely restricted to the graduates of official schools monopolized by elite lineages. From about the 8th century, the civil service examination system evolved towards a three-tier (county, province and capital) nationwide system open to the majority of male commoners beyond the pupils of the official schools. The opening-up of an examination system and civil service recruitment restructured the traditional social class based on the hereditary control of aristocratic lineages over Confucius learning and provided an institutional basis for social mobility among the commoners. The incorporation of Neo-Confucianism – a grand synthesis of Confucius learning expounded by Zhuxi (1130-1200) in the Song - into the Civil Service Examination solidified the Confucius school of thought as a state-sanctioned ideology.

By granting life-long privileges of tax-exemption and legal impunity of some sort to varying levels of civil service examination candidates, the system generated a class of non-hereditary elites, the so-called gentry.¹⁰ With the appointment of these candidates to bureaucratic posts based on a system of 3-5 year empire-wide rotation and the rule of avoidance, which precluded appointees from serving their home county, the empire created a class of career officials having no autonomous territorial or functional power base.¹¹ With the use of a unified hieroglyphic written script that transcended regional dialects and the widespread diffusion of paper and block-printing during Tang and Song dynasties, the examination system became a tool of the empire for cultural integration and the forging of a shared cultural identity

⁹ For an English summary of the Naito thesis and its impact, see Miyakawa, 1955.

¹⁰ The gentry elites tended to reside locally and served the function of managing local affairs often in collaboration with the magistrates and governors. This layer of elites becomes an important intermediary between the masses and the state (Chang Chung-li).

¹¹ Qian Mu 1966. Hou Ping-ti, 1967, pp.17-19 describes the limited extent of hereditary aristocracy in Ming and Qing China.

Meanwhile, the fiscal system began a transition from the triple-tax system (租庸调) to the dual tax system (两税制) as proposed by the then Chancellor Yang Yan about 780. The crux of the tax reform was to consolidate various forms of labor corves and contributions into direct taxation on land. The shift towards a land-based system of taxation enhanced the monetization of the fiscal regime, which saw the adoption of standard monetary units of account such as copper cash, paper notes in Song, and silver tael from the middle of Ming. Monetization in the fiscal regime also made possible a central level budgeting system based on a fixed target of annual taxation (定额主义) and a system of cash reserves or savings as cushion for shocks (Ray Huang 1974, Iwai 2004). These monetary and fiscal infrastructures made possible a new military recruitment system in the Song period based on paid professional standing army (募兵制) to replace the peasant-soldier military recruitment regime (府兵制) or military commanderies (藩镇) often with independent fiscal base founded on some form of tax-exempt land grant.

A more profound consequence of fiscal restructuring is on the long-term impact of Chinese property rights regime in man and land. Traditionally, in order to ensure state revenue, Chinese imperial rulers throughout dynasties had actively engaged in the allocation of land to peasants who could in turn cultivate and contribute taxes. The well-known equal-field system (均田制) as practiced in Tang (618-907 AD) allocated land (授田) to male adult according to his productive capacity, upon which the state levied the so-called triple tax (租庸调). Depending on the category of land title, some of the allocated land could be returned back to the state once the cultivator left or deceased. But with the adoption of the dual tax system that shifted taxation on land irrespective of its ownership status, the state began to relinquish control and regulation of property rights in land, leading to the de-facto recognition of private property rights and private land transactions which had existed informally during earlier dynasties. Hence, the *de-jure* imperial property rights in land and people began to transform into de-facto rights to taxation. Indeed, the Song became China's first dynasty with no explicit state policy on land allocation (Qian 1966, chapter 2).

The land-based dual-taxation system was to become the hall mark of Chinese fiscal regime all the way down to the 20th century, while the policy of fixed revenue target was to become the cornerstone

of the ideology of the rule of benevolence. They allowed the private sector rather than the state to capture or claim all the residuals of economic expansion brought about by rising productivity, growing territory and population under a system of a free-standing, family based owner-cum-tenant system of agricultural cultivation which itself owed its existence partly through government's retreat from direct management or regulation of property rights in land. These transformations in fiscal and bureaucracy came to form what Wang Yanan claimed as the dual pillars of the traditional Chinese politics and are important in understanding the extensive growth from Song onward (Wang 1981 chapter 8, Elvin, 1973, Quan 1976, Seo 1999, Twitchett, chapter 1, Qian, chapter 2).

It remains beyond doubt that this model of Chinese autocracy is founded on a ruler-centered model, with no formal or external institutional constraint placed against the powers of the Imperial rulers and their agents on the general populace. There was a system of checks against bureaucratic abuses of power or dereliction of duty or to redress grievances of the general populace strictly but only within the administrative hierarchy in top-down fashion with the emperor often being the final arbiter. There is no formal or external institutional constraint against the powers of the emperors except the vaguely defined mandate of heaven.¹² There is of course what is often known as the insurrection constraint: if pushed below subsistence by excessive imperial or bureaucratic abuses, masses might resort to violent rebellion to overthrow imperial power. Indeed, rebellions insurrection had been an enduring feature of Chinese history marked by periodic political fragmentation and dynastic strife. Indeed, the well-known admonishment to the Tang Chinese emperor that that water can float as well as overturn a boat just like masses do to their rulers is a alternative characterization of the insurrection constraint.

We can interpret the logic of traditional Chinese logic in Mancur Olson's benchmark framework based on the analogy of stationary and roving banditry. The crux of his argument is that monopoly political rule given a long time horizon (especially with throne being hereditary across generations as in dynasties) is more likely to lead to a "virtuous" equilibrium of relatively low level of

¹² The problem of the absence of formal constraints against emperor is succinctly summarized by Ray Huang's study of Ming imperial system, the heyday of Chinese imperial despotism: "...Final authority (was) rested in the sovereign, bureaucratic action was limited to remonstrance, resignation, attempted impeach of those who carried out the emperor's orders, and exaggeration of portents as heaven-sent warnings to the wayward emperor. When all these failed, there was no recourse left." See Ray Huang, 1974, p. 7.

predation or extraction and high level of provision of public goods under a stationary bandit type of rulers. As the longer the time horizon and the more stable the imperial rule is, the more likely the ruler's interest could become, in Olsonian term, "more encompassing." Hence, under conditions of monopoly rule, and a long time horizon and low discount rate, rulers' high valuation of the stream of future tax income over one-time or short term extraction constitutes a self-enforcing constraint on the grabbing hands of the autocratic rulers in the absence of formal constitutional constraint.¹³

The remarkable coincidence between the Naito thesis on the "modern" features of absolutism coincides and the Olsonian theory of autocracy had in fact been foretold by Chinese intellectuals themselves more than a millennium ago. The most well-known and enduring defence of centralized absolutism came from the renowned Tang scholar-bureaucrat Liu Zongyuan (773-819). He argued that while a decentralized feudalism served the "private" interest of the feudal rulers and their relatives, only a prefectural system under a centralized rule created a common public interest even though this creation itself was motivated by the private interest of the autocrat to strengthen his own power and subjugate his officials. According to Liu, the prefectural system contained gems of impartiality by allowing the worthy rather than the hereditary nobles to govern. One could easily replace a bad prefect or magistrate but not a bad feudal lord. Hence for Liu, the founding of the Qin marked the birth of a "public under the heaven" (公天下) in China. Indeed, he went on to point out that the prefectural system out-performed feudalism by what may be termed "the insurrection test": history shows that rebels to the dynasty could come from the masses, the principalities, or the commanderies but none from the officials and prefectures (Yang 1969, pp. 7-8, Feng 2006, pp.60-63).

Liu's eloquent defense of the merits of centralized rule is rooted in a idealized Confucian construct of the state as a paternalistic extension of a patriarchal family where the incentives and interests of the different actors within a common were convergent by default. The reality is often far from the construct: the often independent and disparate objective functions, incentive schemes and information structures of the three actors, the emperor, the bureaucrat and the masses or peasant

¹³ See Olson 1993. See Besley and Ghatak 2010 for a simple reputation-based game-theoretic model that establishes a positive relationship between the ruler's rate expropriation and his political discount rate, leading to the rise of what they refer to as a case of endogenous property rights (private property rights protected without formal institutional commitment).

farmers gave rise to a double principal-agent problems: that between the emperor and the bureaucrat and that between the bureaucrat and agent. Indeed, the system of centralized administrative rule whose merits so lauded by Tang scholars such as Han Yu and Liu Zongyuan merely substituted the problem of conflict and concession with regional power magnates for a principal-agent problem within a hierarchy, which tended to increase in scale in relation to the scale of the empire given the pre-modern monitoring technology.¹⁴

The possible equilibrium outcome may rest on a set of trade-offs between dynastic stability and the scale of the empire. Clearly, the stability of the empire – and the associated equilibrium of long-term horizon of rule and low extraction - hinges on its capacity to head off both internal insurrection and external aggression. While the continuous cooptation of heterogeneous or alien political units into the centralized administrative hierarchy (through force or other means) could reduce the potential threat of external aggression, imperial expansion itself could exacerbate agency problem leading to heightened risk of internal insurrection within the empire. Indeed, holding everything else, the political logic of the Tang-Song transformation – by homogenising the vast empire through the instituting of a standardized bureaucratic recruitment system, the rise of a relatively dispersed but homogeneous small-holding peasantry and the widespread diffusion of Confucian ideology – precisely aimed at the alleviation of the agency problem in a growing empire. We examine in the next section how did this Chinese model of autocracy fare by Liu Zhongyuan’s “insurrection test”.

II. The Test of History

Imperial Unity and Dynastic Longevity

As argued by China historian Ge Jianxiong, the two millennia of Chinese history since the founding of Qin had actually seen more years of political fragmentation than unification under one ruler. Using the geographic size of unified Ming China as the criteria (shown as the shaded area in the map, sometimes also referred to as China proper, the largely agrarian part of China), Ge’s calculation as summarized in Table 1 reveals that out of the 2135 years since China’s first unification under Qin, China remained unified for only about 935 years. Meanwhile, warfare is a constant theme running

¹⁴ See Sng Tuanhwee 2010 for a model on informational diseconomies of scale in Chinese empire.

through the Chinese dynasties, fragmented or unified. Calculated from a detailed recording of incidences of warfare compiled by China's Military History Committee, table 1 shows a total of 3752 incidences of warfare in the span of 2686 years, giving an average of 1.4 incidence of warfare per year throughout the period.

Insert Map here

Figure 1 plots two reconstructed indices of Chinese unification against the incidences of warfare within each century between 7th century BC and 19th century AD. For each century, the two indices of unification are the sum of the product of two items denoted as N_i and T_i , written as $\sum_{T=0}^{100} N_i T_i$ with the subscript i stands for the i th century between 4th BC and 19th century. In our first index, the Ge Jianxiong index (indicated by the blank column with dots in figure 1), N_i takes a value of 1 if China (again defined by the Ming territory) was under one ruler and zero if not, while T_i is set equal to the number of years when the value of N_i is equal to one for that i th century. So this index is a graphic reproduction of Ge's historical narrative of Chinese unification and fragmentation by centuries shown in Table 1. For the second, or weighted index of unification (plotted in dark shade column in figure 1), N_i is now set equal to the inverse of the number of polities ruling over the Chinese territory while T_i is equal to the number of years those polities were ruling over China within that i th century. As distinguished from the Ge index where N_i is simply a binary variable of one (one ruler only) or zero (more than one ruler), the weighted index captures the degree of Chinese unification by taking into account the number of polities ruling over China and hence tells a richer story of Chinese empire formation.

Both indices in the figure shows that the drive for unification proceeded in roughly three phases, beginning with the rise of Qin and Han dynasties between 3rd BC and 3rd AD, then the surge of Sui and Tang dynasties between 6th and 8th century and the final consolidation towards a single unitary empire under Yuan, Ming and Qing dynasties starting with the 13th century. Fragmentation was most prolonged between the 3rd and 6th centuries – what Naito referred as China's age of aristocracy, when competing polities or dynasties often with shifting territories and transient tenures jostled for geo-political power. Fragmentation re-emerged following the collapse of Tang in 907. But with the

founding of Northern Song in 960 up until the Mongol conquest in 1280, political fragmentation in China proper took the form of sustained rivalry usually between two large political entities pitting Northern and Southern Song against non-Han rulers of Liao, Jin and later Mongol consecutively. Hence, our second index, more than the Ge index, reflects a trend of progressive consolidation of Chinese states towards a single unitary rule from the tenth century (or Song) onward with period of disintegration becoming shorter and the number of competing states smaller but sizes larger.

Figure 1 also links the unification indices with data on the incidences of warfare. While warfare persisted throughout the history, the centuries of important dynastic change (marked with circles in figure 1) in 3rd BC, 6th, 7th, 10th, 13th, 14th and 17th AD (corresponding to Qin and Han, Sui, Tang, Song, Yuan, Ming and Qing respectively) generally corresponded to a upsurge of incidences of warfare, usually followed by a moderation of warfare in the following century as the new dynasties managed to consolidate their hold on power.¹⁵

Insert Figures 1 and 2

A major sustained threat to Chinese unification came from the repeated nomadic incursions originated in the northern frontier outside China's Great Wall where the Chinese system of governance based on sedentary agriculture halted before steppes and dry-lands¹⁶. Figure 2 reveals the importance of the nomadic conflicts with Han Chinese as a share of total warfare throughout Chinese history. Indeed, except for the earlier period of Chinese empire in the 2nd and 1st century BC, conflicts between nomads and sedentary Chinese always exceeded the internal rebellions within Chinese, marked by a sharp escalation from the 10th century afterward. The importance of Han-nomadic conflict had been long noted (Lattimore 1989, Turchin 2009, Bai and Kung forthcoming). Despite being fewer in number, the nomadic population derived comparative advantage in violence from mobility in settlement and the

¹⁵ Clearly, one needs to exercise caution on the interpretation of the warfare data culled from the two volume work compiled by China's Military History Committee. According to the brief introductory notes, the two volume works are largely based on the laborious team project that compiled incidences of warfare mostly from the twenty four historical annals with some additional sources. Although brief narrative was provided for each incidence of warfare recorded, the records do not capture the scale, duration or intensity of each incidence of warfare. Nonetheless, we believe it is very useful information to give broad quantitative indication of the historical narrative or at least the official or prevailing perceptions of the magnitude of warfare in Chinese history. Bai and Kung's paper did a convincing cross-check the validity of this data source an independent work by Peter Perdue for the Qing dynasty (1644-1911).

¹⁶ For the classification of non-Han Chinese regions in Manchuria, Mongolia, Xinjiang and Tibet, see Owen Lattimore 1940.

availability of horses. Peter Turchin noted that all but one of the fifteen unifications that occurred in Chinese history – the establishment of Ming c. 1368 – originated in the North and almost all the Chinese capitals were located in the north (even after the economic centre shifted south to the Yangzi valley after the first millennium) (p. 192). Indeed, China’s northern frontier demarcated by the Great Wall witnessed a progressive escalation in the scale of warfare and the size of political units mobilized for warfare between the Han-Chinese and nomadic Chinese. The massive construction of the Grand Canal in 7th century, for example, provided the logistic capacity to jack-up the military build-up on China’s northern frontier feeding on grain shipped from the economically ever-important South, but this was successively matched by the scaling-up of imperial confederations of semi-nomadic tribes such as Xiongnu, Turks and Mongols (See Quan Hanshen 1976 for the role of Grand Canal).

Indeed, Charles Tilly’s pithy account of “how war made states, and vice versa” for Medieval and early modern Europe turns out to be an equally apt depiction of the rise of Chinese empire. The striking degree of synchrony and feedback loops between the rise of the steppe imperial confederations and Chinese empire in driving up both the size of war and states plays out like Chinese prequel to Tilly’s tale of war and state formation in Europe, but on a scale much larger and a time frame much earlier. Tracing a millennium of the number of political entities in the Latin West and the Muslim World on century-by-century basis, Bosker, Buringh and van Zanden (2008) show that they proliferated to as many as several hundred and 20 respectively during the 14th century and both only started to consolidate from the 15th century onward, almost five centuries later than the Chinese empire (see figure 3 in Bosker et al). Indeed, measured by the standard of imperial unity and dynastic longevity – not to mention the scale, the performance of the Chinese model of political absolutism remained unparalleled among major world civilization. Indeed, Liu Zongyuan’s insight on the merits of centralized absolutism turned out to be remarkably prescient.

The Case of Qing: 1644-1911

The last and possibly the most powerful and centralized Chinese dynasty epitomizes the most prominent features of this political economy model in action. The Qing Imperial monarchy under the

rule of Manchus, a non-Han Chinese minority from China's Northeast frontier, became a great defender of orthodox Confucius ideology and a centralized political system. The more than two and half century under the Qing saw roughly a tripling of her population and a doubling of territory and ushered in China's prosperous 18th century, the so-called "Glorious World of Kangxi and Qianlong" (康乾盛世).

The road to the heyday of the 18th century prosperity started in 1644, the year of Qing's official inauguration. Like all previous rulers that managed to conquer a territory as vast as China, it takes about a further two decades for Qing army to achieve the complete suppression of the former Ming loyalists mostly based in the South of the Yangzi river. And it was not until 1683 under the reign of Kangxi emperor (1661-1722) that Qing quashed the rebellion of these so-called "three feudatories" and annexed their territories into Qing's centralized administration. Two years later, Kangxi finally broke the resistance of the rebellious naval kingdom of Zheng Chenggong and officially integrated the island of Taiwan into an administrative unit of China. In the final decades of the 17th century, the Qing contained the threat from an expansionary Russia by signing the Treaty of Nerchinsk in 1689 and conquered China's North-western territory in 1696. From 1720, Qing attained the control of Tibet with the installation of a new Dalai Lama (Jonathan Spence 1990). Clearly, by the early 18th century, the Qing succeeded in the consolidation of power and establishment of monopoly rule over historically China's largest ever territory.¹⁷

Insert Figure 3

To establish the relationship between imperial fiscal revenue and political stability, we start with Qing's official figure, which understandably could not reflect the full extent of governmental taxation on the whole economy. Figure 3 plots scattered series of nominal expenditure (revenue) under the direct control of the Board of Finance. It clearly shows that the working of a fixed target revenue at least for the period between 1662 and 1849: the series remained largely trendless with an average about 36 million silver taels but a standard deviation at only 3.2. Nominal series began to rise from the mid-

¹⁷ Through the so-called tributary order, China extended its sphere of influence to East and Southeast Asia which recognized varying degrees of Chinese suzerainty.

19th century but in real terms still remained mostly stationary if deflated by rice price. Indeed fiscal revenue in real terms actually declined between the late-17th century and the mid-19th century.

It is important to note that only a portion of this nominal revenue arrived at the coffers of the Board of Revenue as much of it was expended as direct transfers between provinces or expenses incurred outside Beijing. A better gauge of Imperial Qing's treasury position is better reflected in the annual inflows and outflows of silver revenue and the changes in stocks of silver reserves stored at the coffers of the Board of Finance, whose accounts, fortunately, have largely survived. Figure 4 shows the available series of annual inflows and outflows silver at the coffers of the Board of Finance, which, at an average value about 11 million amounted to less than a third of the total annual tax revenue. Although trendless, there is much great fluctuations, with sharp rises in outflows often associated with major warfare expenditure. As the balance of inflows and outflows adds up to the existing stock of silver reserves at the coffers, the occasional sharp rise in the revenue raised from the sale of government offices after the turn of the nineteenth century (in particular in 1804, 1827 and 1834) revealed often desperate measures to replenish Qing's silver stocks to remedy its deteriorating fiscal position.

Figure 5 plots the series of stocks of silver reserves against incidences of warfare and conveys a fuller and more telling portrayal of Qing's fiscal position in its two and half centuries of rule. In its early years of military conquest in the 1660s, Qing's fiscal position started out modest but gradually built up the silver stocks from the 18th century when the number of war incidences sharply reduced and political stability set in. Indeed, at the time of the famous declaration by Kangxi emperor in 1712 that there will be no additional taxes on newly added taxable population (续生人丁, 永不加赋) and Yongzhen's follow-up fiscal reform of further consolidating head tax into land tax (摊丁入地) in 1722, Qing entered into a prolonged period of accumulation in silver reserves peaking over 70 million by the 1790s, roughly equivalent to two years of total tax revenue. It was also during these glorious decades of Kangxi and Qianlong that numerous tax exemptions had been granted in times of bad harvest as further hallmarks of the Imperial rule of benevolence (Zhang Zhidong, pp. 19-21). The suppression of the White Lotus rebellion around the turn of the eighteenth century, marked the end of the Qianlong

rule and led to a sharp drop in silver reserves from which the Qing never fully recovered. The 1840s Opium War followed by the devastating Taiping rebellion had almost completely drained Board's coffer of its silver reserves and left a Qing largely bankrupt by the mid-19th century.

Insert figures 4 and 5

A careful study by Wang Yeh-chien on the structure of fiscal revenue based on a couple of benchmark years confirm the predominance of land tax. For 1776, 70% of total revenue was derived from land tax alone with the remainder coming from some form of commercial taxes. Only about 22% were collected in kind (Wang 1973, p. 80). On the expenditure side, about 50% were expended on direct payment to soldiers and another 17% gone to paying for the salaries of officials and bureaucrats. Expenditure on public goods such as maintenance of river transport or famine relief seemed to be only slightly above 10%.¹⁸

Overall, it is possible that Qing tax rates were the lowest across dynasties in per capita terms. The study by Liu Guanglin seems to reveal that per capita tax burden in Qing around 1776 were probably the lowest across several benchmarks period since the Song dynasty. It is likely that the size of Qing standing army around the 18th century at about eight hundred thousand was lower in absolute number than both those in Ming and Song despite the enormous population increase (Iwai, p. 33). Even K'ang-xi himself gloated that "in our Dynasty, the total sum of military and civil expenses is about the same as that of the Ming period. But speaking of the Court expenses, the aggregate amount spent by the Court is even less than that for one palace of the Imperial Concubines. The accumulated sum of the past 36 years is less than that spent in one year's time during the Ming." (cited in Chang te-ch'ang, p. 271).

Thanks to recent comparative work, we are now able to place the Qing imperial revenue and fiscal regime in a global context as shown in Tables 1 and 2. Table 1 shows that the total nominal Chinese governmental revenue in silver tons were higher than any of the European states or Ottoman in the latter half of the seventeenth century and remained one of the largest throughout the eighteenth

¹⁸ See Shi Zhihong, p. 68. Iwai, p. 32. Although the Imperial court or the so-called Nei-wu-fu (内务府) took in a mere 1% of the total budget, it had its own source of revenue and expenditure outside the official balance sheet of the board of revenue, see Chang te-ch'ang.

century. But this is largely a reflection of China's enormous population size, roughly ten times that of the Ottoman Empire, Russia or France individually during the 18th century. In per capita terms, Chinese tax revenue as revealed in Table 2 ranked with Ottoman and Russia as among the lowest while England and the Dutch end stood at the other end, with France and Spain in between. The starkest contrast came in the first half of the nineteenth century roughly at a time China confronted England head-on in the Opium War, Qing's total central revenue amounted to only 24% of that of Britain and in per capita term, was a striking 1%.

The second panel of Table 2 follows the approach of Karaman and Pamuk to convert per capita tax revenue in daily wages of urban unskilled laborers. Qing's imperial revenue in per capita terms amount to only over two days' earnings of an urban unskilled work in the early 18th century and came down to only over a day by the late 18th century, reflecting the combined effect of a fixed revenue target accompanied by explosive population expansion. In terms of daily wages, the relatively lower wage level pushed the Chinese per capita fiscal revenue to about 10% of the British level as compared to only about 1% in silver terms for the first half of the nineteenth century.

Insert Tables 1 and 2

The contrast is equally striking when it comes to trends and structure of taxation. While Qing imperial revenue remained largely stagnant (and declined slightly in real terms), they rose in Britain by a stunning 17 fold from 1665 to 1815. The total British revenue as a share of national income before the Glorious Revolution of 1688, at slightly more than 3%, it surged to about 18% by 1810 (O'Brien 1988, p. 3). While firm GDP estimate for China in 18-19th century is unavailable, some tentative calculation by Wang Yeh-chien show that his more comprehensive version of tax revenue (which included guess-estimates for costs of tax collection as well as various extralegal local surcharges) amounted to a mere 2.4% of NNP even in the 1910s.¹⁹ The surge in British tax receipts came disproportionately from indirect taxes such as customs and excise duties, which accounted for nearly 80% of total revenue towards the end of the 18th century (O'Brien 1988, pp. 9-10).

In sum, if Chinese empire outperformed other political regimes by the measure of imperial unity and dynastic stability, Qing's performance in terms of low rates of tax extraction at the Central level

¹⁹ See Wang 1973, p. 133. Wang's result also seems broadly consistent with the daily wage conversion in Table 3.

remained equally outstanding in the early modern era. Hence, the case of a great divergence between China and Europe (or China's falling behind) by the 18th century can only be understood criteria beyond the measures of dynastic tenure and fiscal extract.

III. The Great Divergence

Incentives and Information in the Chinese State

The concentration of power in the imperial throne whose interest and incentives were often misaligned with his agents explains two perennial governance anomalies throughout Chinese dynasties. The first is the distinctive class of eunuchs as a by-product of absolutist imperial power. With no heir to pose a potential challenge to imperial throne but abundant access to the emperor's inner court, the eunuchs often wielded enormous power in the name of the emperor and at times, took de-facto control of the throne often in connivance with the courtesans. Despite being much maligned throughout history, the threats of eunuchs to formal imperial rule and governance never went away (Yu, Qinhuo 2006). The second related phenomenon is the constant drift between informal and formal bureaucracy. As observed by many historians, most formal bureaucratic posts started out as personal appointment from within the imperial court as a process of internal staffs being sent as imperial plenipotentiary to control outer layers of administration. Overtime with these posts absorbed into the more permanent formal bureaucratic structure, new layers of inner court personnel were sent to monitor and control them, creating another layer of formal bureaucracy often superimposed on the existing structure, only to be followed by another round. This gave rise to both multiplication and shifts of bureaucracies often at the expense of administrative power at the local level (Qian Mu p.44, Liang Qicao, p.28, Wang Yannan pp. 48-49).

The inherent weakness of the regime become most apparent if we look beyond the imperial capital. The fear of any potential build-up of alternative autonomous local power base resulted in a highly centralized fiscal system during Ming and Qing with almost no officially recognizable local finance. The center issued detailed rules and regulations on each items of revenue and expenditure for the county level where taxes had to be collected from the highly dispersed and decentralized producing or marketing units across a giant empire and remitted. The Qing government distinguished between

remitted tax (起运) and retained ones (存留) – the latter was recognized as local costs of tax-collection and often formed the local administrative budget. But as Madeleine Zelin (p. 28) shows that retained revenue were only about 21.5% of total revenue in 1685. Even among this 21.5%, the bulk of it was expended for local expenses connected with the center such as the provision for imperial armies and imperial relay station.

As the official tax revenue allocated to the local fell far short of the requirements of normal administration, often insufficient to cover the salaries of official bureaucrats, let alone their expenses and support staffs such as secretaries, clerks, runners and personal servants, various levels of bureaucrats relied on informal or the infamous extralegal surcharges (苛捐杂税) beyond the official level. Zelin's study documents in detail the sources of these revenue ranging from the levying of various surcharges, manipulation of weights and measures and currency conversion in tax collection, falsifying reports, shifting funds across fiscal season years, retaining commercial tax revenue, hoarding tax revenue from newly claimed land and exacting contributions and donations from local farmers or merchants. Provincial level officials and their "unofficial" staffs relied on the extraction of gifts and contributions from the lower level officials and engaged in practises such as skimming funds off in purchase and allocation (buying at low price but reporting at high price) (Zelin, pp.46-71). Official collusion could also backfire in unexpected directions. Often, the extralegal nature of these surcharges often forced the parties involved to pay off blackmailing (Iwai, p.3-4).

Reliance on informal local taxation and the employment of unofficial staffs for public administration often led to the privatization of public services. Ch'u Tung-tsu's classic book on Qing local government offers a vivid portrayal of county clerks extracting bribes with the threat of delaying legal cases submitted, runners demanding so-called "chain-release money" from the families of the accused criminals who would otherwise have been put under chain and torture, retaining part of the "recovered goods" from theft or robbery, or sometimes resorting to outright extortion of wealthy residents with false accusations, even the porters guiding the magistrate's office would demand pay for handing in documents or warrants. All in all, clerks, runners and personal servants often collaborated in sharing the spoils of corruption. This kind of nexus of corruption at the local level is a pale reflection

of the much larger networks of collusion at different levels of the state machinery. Although levels of extraction are hierarchical from the provincial level down, deceit and collaboration were mutual across levels, creating layers of cover-ups among the officials and staffs that would frustrate any monitoring attempts.²⁰

The theoretical perspective of incentive and information throws new light on imperial China's Long-standing policy of a fixed target of tax revenue. Shrouded in the veil of "imperial rule of benevolence", the policy may well be a rational strategy to cope with information asymmetry. In the absence of information or monitoring capacity, the principal (equivalent to a landlord in a standard principal agent model in the agrarian setting) would opt for a fixed rent contract with his agent over that of share and wage.²¹ Indeed, one can observe the practise of fixed revenue quota – akin to some form of tax-farming – being extended to other spheres of taxation such as commercial and urban taxes or even local governance throughout imperial China. In fact, the attempts to establish a formal bureaucracy and a transparent taxation system where the state could claim the residuals or at least a share of the total revenue face fundamental difficulties. Formalizing local informal taxation, as attempted in the well-studied 18th century Yongzheng fiscal reform, exposed previously hidden revenue to possible extraction from the upper level officials or even the imperial throne itself in times of distress. Conversely, it ended up legitimizing a higher tax target without curbing unofficial extractions at the lower level of government. Ironically, it was informal taxation being outside the official purview that became the most secure source of local finance.²²

²⁰ Some shocking cases revealed that sometimes staffs kept duplicate set of account books, with the set for local use marked by secret codes impenetrable from the official examination. These special types of account books even circulated informally within a fairly wide area. See Zelin p.240.

²¹ See Eugene White for a similar theoretical approach on the French taxation system in the Ancien Regime.

²² The well-known fiscal reform carried out by the Yongzheng emperor from 1724 illustrates this fundamental dilemma. The Yongzheng emperor's policies to increase surcharges to land taxes and essentially legitimize previously "illegal" local extractions, while achieving some degree of success, had to be largely abandoned towards the end of the 18th century as it could not solve the dual problems of the inability of the higher administration to monitor the use of local revenue and the tendency for upper level bureaucracy to engage in extraction and re-allocation of revenue designed for local use, see Zelin. Even China's highest authority of imperial revenue had difficult to refuse extraction from the emperors. In a memorial sent by the Board of Revenue to the Emperor in 1872, the minister stated: "A line must be drawn between the *Nei-wu-fu* (the Imperial Household) and the government Treasury which has been established by our early ancestors... The revenue of this Board is fixed, but the borrowing of the *Nei-wu-fu* is indefinite. During these recent years, ... We request your majesty to instruct the *Nei-wu-fu* to observe faithfully the tradition:... so that unnecessary expenses can be curtailed and national revenue can be preserved.... (Chang, p. 269).

This fundamental contradiction is rooted in the conflict of interest embedded in an institutional framework where the emperor or the upper level officials took on the dual role of both the principal and the contract-enforcer in a principal-agent contract. The discretionary imperial and bureaucratic power as derived from this dual role may give the rulers benefits that outweigh the negative impact of local corruption and abuses which could be tolerated or even implicitly recognized as long as they did not threaten directly political stability. Where such abuses became or were beginning to be viewed as excessive, the rulers would clamp down selectively (give their power of discretion) often with excessive punishments especially in times of lax discipline.²³ The severity and intensity of imperial monitoring and punishment varies across dynasties or imperial reigns. The prevalence of these abuses at various levels of the government helps explain the apparent contradiction of the extremely low rate of tax extraction measured by the receipts of the Board of Revenue and the rapacious image of Ming and Qing regimes. Indeed, in the heyday of Chinese absolutism, the ire of another generation of Chinese intellectuals had by then turned to the faults of centralized absolutism. Writing in the 17th century, independent scholars such as Huang Zongxi and Gu Yanwu lamented that the emperors and public officials had too often subsumed the public interest to their own private interest. Gu in particular reminisced the advantages of decentralization under feudalism in China's antiquity, where the right of veto acted as some form of constraint against imperial power and the autonomous princes or lords were more caring of their constituents than the rotating bureaucrats (Xiao, pp.502-525).

The faults of Chinese absolutism are best summarized by Liang Qicao, one of China's most celebrated modern age intellectuals and reformers. Writing in 1896 at a time of ideological crisis in the face of Western imperial challenge, Liang summed up the weakness of the traditional Chinese system as rooted in distrust. As rulers cannot trust their officials, they set up multiple layers of bureaucracies to check against each other. In the end, nothing gets accomplished as no one takes responsibility for anything. Moreover, the lower level officials were more interested in pleasing their superiors than serving their people. By taking wealth from the people to bribe their superiors, their posts became more

²³ See an unusually frank dialogue where Yongzheng emperor was brought home the serious shortfall of local finance and the extent of reliance on local extra-legal surcharge. I want to thank He Ping for this reference. For periodic and selective capital punishment on the so-called "economic crime" meted out to high level government officials see He Ping, pp.293-5. Huang counted in detail the sorry fate of all the 89 most ministers of Revenue under the Ming from 1380, pp.13-14.

secure even though their constituents were mistreated. In China's age of antiquity, local officials were appointed from the local people. But imperial distrust led to the rotation of officials and by Ming, they were rotated across North and South with appointees incurring debts and travelling thousands of miles to take up their posts. Not understanding local dialects and customs, their posts became a mere facade with real power vested in entrenched clerks and runners. By the time they recognized they could accomplish a thing or two, their tenure there was up and they would be on the move again. Separated by multiple layers of bureaucracies and living deep inside the court throng with eunuchs and courtesans, the emperor hardly knew events outside. Hence, a regime, as Liang concludes, that did everything to guard against each other was also self-weakening (pp.27-31)

The Great Divergence: an Institutional Interpretation

Although we see similar linkage between war-fare driven resource mobilization and state-building and state consolidation in Western Europe, two features stood apart from China. Firstly, political fragmentation marked by an amalgam of decentralized, small scale and autonomous political units in the form of feudal fiefdoms, kingdoms or city-states had been more entrenched in Western Europe. Secondly and more consequentially, a fundamental organizing feature of the Western European institution - itself Medieval in origin - is "corporatism" where propertied and wealthy elites had direct access to political power through some form of political representation, such as "parliament" broadly defined (Grief 2006, van Zanden, Buringh and Bosker 2010). Hence, inter-state warfare in the European framework took on a distinctive trajectory absent in China as already noted by Weber.²⁴ In city-states or federation of city-states (such as Northern Italy and Holland) with strong representation of commercial or property interest, warfare mobilization led to the rise of what Charles Tilly referred to as capital-intensive path as contrasted with the coercion-intensive path followed by larger empires such as Russia and Ottoman where the interest of the commercial elites were subdued and representative institution were weak or non-existent.

In capital-intensive path, war mobilization accelerated the development of financial and fiscal institution marked by the rise of public debt and commercial taxation. In the case of 16th century

²⁴ Weber, Religion of China, pp. ??

Netherlands and 17th century England, political wrangling over taxation eventually led to parliamentary control or supervision of tax revenue, ushering in what North and Weingast (1989) referred as the mechanism of “credible commitment” from the state. This model of political governance with its stake holders acquiring the right to oversee the executive power through tax contribution is essentially corporate in character and was crucial to the rise of 17th century financial revolution and the development of a professional, routinized and accountable bureaucracy, which more than tripled between the Glorious Revolution of 1688 and the 1780s (Brewer, pp. 66-67).

As expounded in several studies, all traditional states reaped economic rents from the reduction of violence and the maintenance of peace and stability (North, Wallis and Weingast 2009, Vockart 2000, Khan 2000). The crucial difference that mattered to long-term growth trajectories is how economic rents from the reduction of violence and protection of property rights are generated, controlled and distributed. In a corporate model of governance as in Western Europe, rents were in the hands of a dominant coalition whose membership and representation were defined by wealth and property. As changes in wealth and prosperity led to shifts in coalition and political powers, they lead to a process of creative-destruction where larger and newer rents were generated partly through inter-state competition.²⁵ While all dominant coalition were inherently rent-seeking and institutions such as parliament were far from being representative in early modern Europe, the peculiarly national character of the English parliament allowed it to become a node and forum for transmitting information and interests of the dominant coalition of the landed and commercial elites to collectively bargain with the crown. In some sense, the national parliament centralized rent-seeking in England as contrasted with other more decentralized absolutist states such as Spain and France where faction-based or parcelized rent-seeking persisted in states such as France and Spain where rising fiscal needs increased state dependence on tax-farming, venality, and other short-term measures susceptible to corruption (Mokyr and Nye 2007, Saumitra Jha 2008).

In the case of China, the precocious rise of absolutism with the absence of any representative institutions ensured that economic rents derived from the control of violence were firmly in the hands of political interest divorced from those of commercial and property interest. Given the relatively

²⁵ See Khan 2000 for an exposition of the so-called Schumpeterian rents in states and government policy.

unchanged size of the imperial household or lineage (which could cap the size of rulers' expenditure needs for luxury consumption) and overriding concern with dynastic tenure rather than revenue maximization, the Imperial ruling lineage and its entourage only had a small stake in or gain from the growth of the economy. The direct consequence is the rise of what Greif (2005) observed as an absent government whose formal power rarely reached into economic or commercial areas where direct political interest was not threatened and whose main intervention in the private sector such as tax exemption and famine relief all aimed at risk reduction and social stability.²⁶

While in China, some rents were dissipated through the bureaucracy as an imperial compromise to the information and incentive problems, they were highly decentralized and largely hidden in the form of extra-legal surcharge or corruption which often had distortionary effects on economic incentives (Schleifer and Vishny). More importantly, if the mechanism of credible commitment can be viewed as the outcome of a political bargaining process that reshuffled political coalition to redistribute and stabilize rents, the decentralized or "invisible" nature of these rents in China precluded the rise of strong and formal organization that could shape or reform formal rules and institution. This constrained found its clearest expression in what Olson would call as the contract or capital-intensive sectors. When in fiscal distress, Ming and Qing rulers relied on silver storage, resorted to ad hoc extractions from the administrative hierarchy below, the sale of official titles, the forced contribution, outright confiscation or - as occurred in the devastating mid-19th century Taiping rebellion - massive monetary debasement. An organized and formal market for public or governmental debt as existed in the West was hard to sustain due to the absence of two essential conditions. Firstly, in the absence of government credible commitment, numerous "private lending" in Qing China - once made to the state

²⁶ See Ma 2010 for lagged development in the Chinese legal sphere in commercial and financial sectors. An outstanding contrast can be seen in the comparison of early Ming's overseas explorations under Admiral Zheng Ho and British overseas activities in the 17-18th centuries. While the 15th century Zheng-Ho expensive multiple expeditions brought Chinese imperial prestige to as far as East Africa and took back exotic animals and gifts, it aroused resentment among both the bureaucrats and the masses for the excessive taxation burden imposed on the people. On the other hand, both Ming and Qing displayed hostility towards private overseas trade for fear of possible insurrection. In contrast, overseas trade through British East India corporations and other corporation entities involved a wide segment of the wealth elites, including many of the parliamentarians whose holding of shares in these corporate ventures turned out to be significant to explain their support for political change in the times of Glorious Revolution, see Suamitra Jha 2005.

- were subsequently converted to forced contributions.²⁷ Secondly, the condition that the fiscal and financial discipline of some European absolutist states could be disciplined by financial market or financial institution outside their jurisdiction was also absent in the Chinese context defined by a single unified monopoly power and absence of inter-state competition.

Hence, our findings affirm the paradoxical pattern long recognized in European fiscal regimes: it was the paragons of constitutional regimes such as the Netherlands and England that managed to extract a much higher rate of tax revenue than those absolutist regimes. More importantly, the differences in levels of fiscal revenue were also reflective of large differential in developments in fiscal and financial institution and ultimately levels of per capita income between constitutional and absolute regimes (North and Weingast 1989, Brewer 1989, Karaman and Pamuk 2010, Dincecco 2009). Indeed, new studies pointed out the combination of low share of fiscal revenue, high interest rate, low level of financial intermediation often go hand in hand with low per capita income that characterized contemporary underdevelopment (Besley and Ghatak forthcoming, Besley and Persson forthcoming, Acemoglu 2005). Indeed, available evidences show that private interest rates in traditional China exhibited wide variation but the lower end averaged about 20% for 17-18th centuries, a rate that was possibly four or five times the level of that in England and the Netherlands (Peng et al., 2006, Epstein 2000). This ratio reversed as real wage rates of unskilled urban workers in China were probably a third or less that in those two European countries (Allen et al 2011). Indeed, it is this differential factor price ratio at the two ends of Eurasia (rather than imperial unity and dynastic stability) that captures the essence of the Great Divergence.

Conclusion

Through a narrative model of the Chinese state, this article stresses the importance of institutions as a determinant to both the long-run economic growth and the great divergence between China and Western Europe in the early modern era. In an absolutist regime, the self-enforcing constraint to governmental predation through monopoly of power and long time-horizon of rule could lead to a

²⁷ Indeed, the only viable public borrowing started in the late 19th century between the Qing state and Western merchants and bankers who had the backing of Western colonial presence in the case of default. See Zhou Yumin 2000, pp.277-287.

virtuous equilibrium of low-extraction and even the operation of a relatively free private economy. In a corporate model of the state as in Western Europe, the security of property rights and freedom from extraction is no longer tied to the time horizon of the rulers, who were transformed into executive powers guided by the interest of the stake-holders. Furthermore, this corporate model of states that evolved in Western Europe helped resolve some of the fundamental incentive and information problems that beset an empire such as China with centralized and hierarchical political structure and enabled the evolution of contract and information intensive sectors that may be conducive to the rise of a relatively high-wage, low interest-rate economy in early modern Western Europe. This sheds fresh light on the ongoing Great Divergence debate. Indeed, if we accept Robert Allen's recent argument on the importance of differential factor prices – a relatively higher ratio of wages to those of capital and resources prices in England than in China – was instrumental in inducing Industrial Revolution in England rather than in China, I argue these differential factor prices themselves need to be explained rather than taken as given.

The case study on Qing fiscal regime reveals that indeed, prior to the mid-19th century onset of Western imperialism, Chinese mode of autocracy remained a viable and arguably, a sustainable model of governance. The imperial rule was not merely founded on sheer brute force or maximal extraction. Rather, it derived its legitimacy derived from an ideology recognized by a large segment of the population, certainly the ruling elites queuing at along the steps of the social ladder as defined by the national civil service examination system. The absence of pressure coming from external or inter-state competition in China was partially (or imperfectly) substituted by a cross-dynastic competition, where standard of imperial rule of benevolence of the existing dynasty had to be stacked up against the records of the preceding dynasties. Even the most ardent critic of centralized absolutism like Huang Zhongxi or Gu Yanwu ransacked through China's age of antiquity for models of governance. The perspective may seem retrogressive at times, but certainly carries a very long-term horizon.

In this regard, the onset of Western imperialism in the mid-19th century marked a watershed to the traditional Chinese state as the regime for the first time confronted a challenge from a different type of state that came from her coastal fringes in the South rather than her Northern frontier of steppes and deserts. It thrust a new political order where the China imperial monopoly of rule was forever breached

by a global system of inter-state competition. This led to a transformation in ruler's objective function where competition with the West and economic growth took on as a new source of legitimacy. Under this structure, the model of centralized governance took on new vitality. Indeed, the Chinese ideology of centralization provided the initial source of political inspiration to Meiji reform which forged a centralized prefectural system over a previously fragmented feudal Tokugawa (Feng Tianyu, chapter 4). Mao Zhedong, the founding father of Communist China, was an open admirer of the first emperor of Qin and Liu Zongyuan's theory of absolutism (Feng Tianyu p.65). Mostly remarkably, even during the last two decades which saw unprecedented economic transformation in China's long history, scholars have now increasingly recognized that China's centralized and authoritarian administrative system – its central appointment of officials, rotating system of bureaucratic posts, decentralized fiscal and even the traditional coping mechanism of relying on information asymmetry to preserve local autonomy – are remarkably resilient and instrumental in the recent Chinese economic miracle.²⁸

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²⁸ See Qian and Weingast 1997 and Xu, Chenggang forthcoming.

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Appendix Table. Chinese Dynasties, Years of Unification and Incidences of Warfare

Chinese Dynasties	Years	Number of Years per dynasty	Years China was Unified	Number of years Unified	Number of recorded warfare	Average number of warfare per year
Spring and Autumn Period 春秋	770 BC — 476 BC	294			395	1.34
Warring States Period 戰國	475 BC — 221 BC	254			230	0.91
Qin 秦	221 BC — 206 BC	15	221BC - 209 BC	15	10	0.67
Western Han 西漢	206 BC — AD 24	229	111BC - AD 22	132	124	0.54
Eastern Han 東漢	25 — 220	195	50 - 184	134	277	1.42
Three Kingdoms 三國	220 — 265	45			71	1.58
Western Jin 西晉	265 — 317	52	280-301	21	84	1.62
Eastern Jin 東晉	317 — 420	103			272	2.64
Southern and Northern Dynasties 南北朝	420 — 589	169			178	1.05
Sui 隋	581 - 618	37	589-616	27	88	2.38
Tang 唐	618 — 907	289	624-755	131	193	0.67
Five Dynasties and Ten Kingdoms 五代十國	907 — 960	53			73	1.38
Northern Song 北宋	960 — 1127	167			255	1.53
Southern Song 南宋	1127 — 1279	152			294	1.93
Yuan 元	1280 — 1368	88	1279-1351	72	204	2.32
Ming 明	1368 — 1644	276	1382-1618	236	578	2.09
Qing 清	1644 — 1911	268	1683-1850	167	426	1.59
Total		2686		935	3752	1.40

Source: Number of Years China was unified one rule was calculated from Ge Jianxiong, 2008 pp. 218-224; Number of warfare calculated from China's Military History Editorial Committee (ed.), *A Chronology of Warfare in Dynastic China (Zhongguo Lidai Zhanzheng Nianbiao)*.

Table 1. Qing Central Government Revenue in International Comparison (Tons of Silver)

	China	Ottoman	Russia	France	Spain	England	Dutch R
1650-99	940	248		851	243	239	
1700-49	1304	294	155	932	312	632	310
1750-99	1229	263	492	1612	618	1370	350
1800-49	1367					6156	
1850-99	2651					10941	

Source: China same as figure. Other countries are from Kivanc Karaman and Sevket Pamuk. I want to thank Kivanc Karaman and Sevket Pamuk for sharing their revenue data sets.

Conversion notes: one Chinese silver tael = 37 grams of silver.

Table 2. International Comparison of per capita Tax Revenue

	Per Capita Revenue in grams of silver						
	China	Ottoman	Russia	France	Spain	England	Dutch R
1650-99	7.0	11.8		46.0	35.8	45.1	
1700-49	7.2	15.5	6.4	46.6	41.6	93.5	161.1
1750-99	4.2	12.9	21	66.4	63.1	158.4	170.7
1800-49	3.4					303.8	
1850-99	7.0					344.1	

	Per Capita Revenue in days of urban unskilled wages						
	China	Ottoman	Russia	France	Spain	England	Dutch R
1650-99		1.7		8.0	7.7	4.2	13.6
1700-49	2.26	2.6		6.7	4.6	8.9	24.1
1750-99	1.32	2.0		11.4	10.0	12.6	22.8
1800-49	1.23					17.2	
1850-99	1.99					19.4	

Source: same as Table 2.

For per capita revenue in days of urban unskilled wages, 1650-59, 1700-09 figures are used to represent 1650-99, 1700-49 respectively. Average of 1750-50 and 1780-89 are used to represent 1750-99 for all other countries except China. See

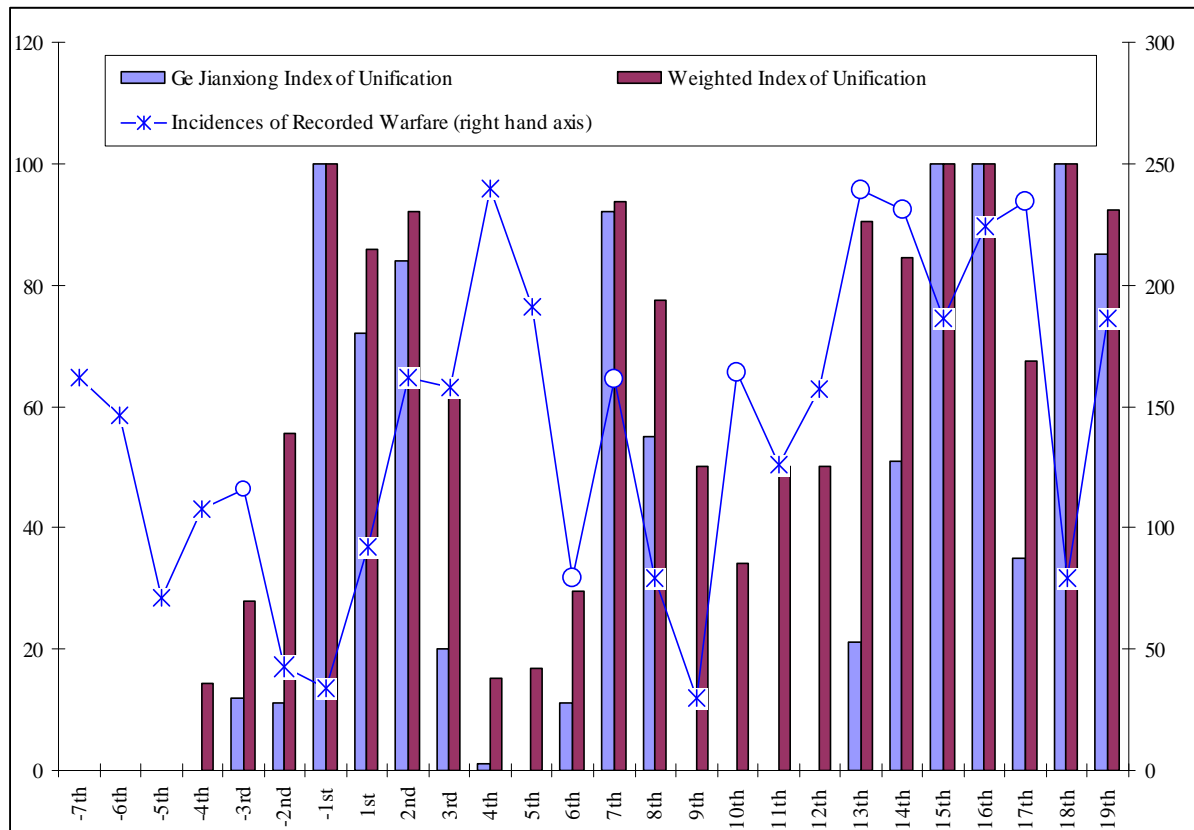
<http://www.ata.boun.edu.tr/sevketpamuk/JEH2010articledatabase>. Nominal wages for China and England are for Beijing and London drawn from Allen et al forthcoming.

Map: Chinese territory under Ming and Qing



Notes: The area in shade roughly corresponds to territories under Qin and Ming or the so-called China Proper. I want to thank Ma Fengyan, Yan Xun and Helena Ivins for assistance with this map.

Figure 1. Number of Recorded Warfare and Number of Years China was Unified per each Century

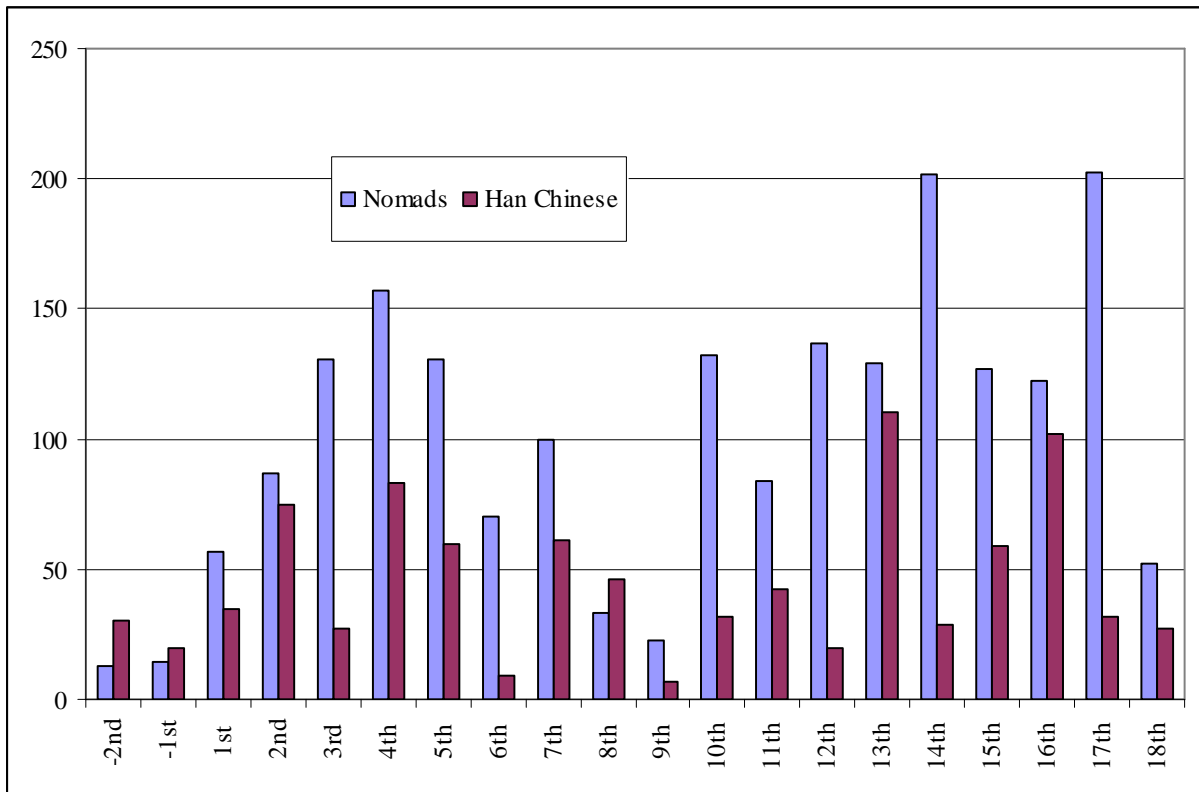


Sources: for the Ge's index of index, see explanation in Table 1 and text.

For the weighted index, the number of political entities are calculated as follows:

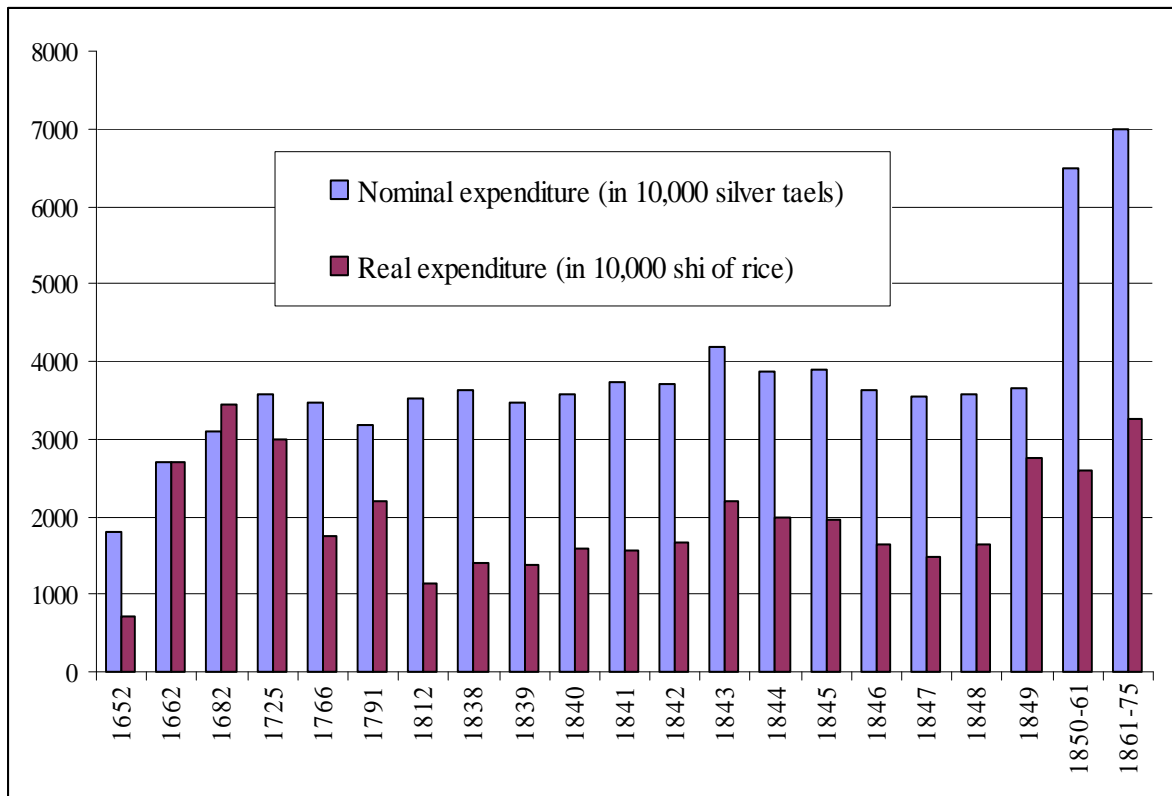
Number of entities are set equal to 7 in the Warring states period (-4th century), 3 in the Three Kingdoms Period (220-265), 2 in the Western Jin period, 7 in the Eastern Jin, 6 in the Southern and Northern dynasties, 5 in the Five dynasties and ten kingdoms, 2 in the Northern and Southern Song period. For periods of dynastic breakdown but a unitary dynastic rule continued to exist in name, I assign the number of entities all equal to 2. For the number of territories and dynastic governments, we consulted the Historical Atlas of China (8 vols.) edited by Tan Qixiang and Dynastic Calendars of East Asia (东方年表).

Figure 2. Number of Recorded Chinese Warfare per Century with Nomads and with Han Chinese themselves



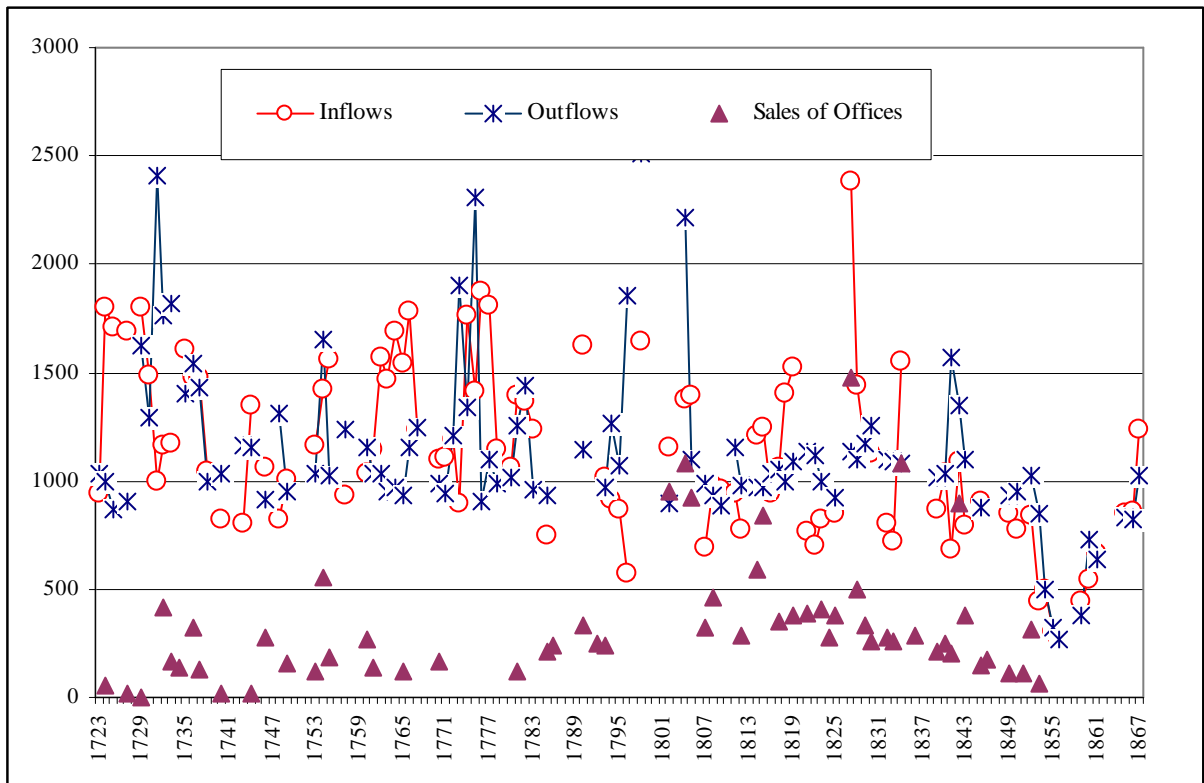
Source and notes: same as Table 1. Number of warfare with nomads are calculated by Bai and Kung, the number of Han Chinese warfare is equal to the total subtracted by the that with the nomads. I express my special thanks to Bai and Kung for sharing their datasets on nomadic-Chinese Warfare.

Figure 3. Government Expenditure (Revenue) in Qing China



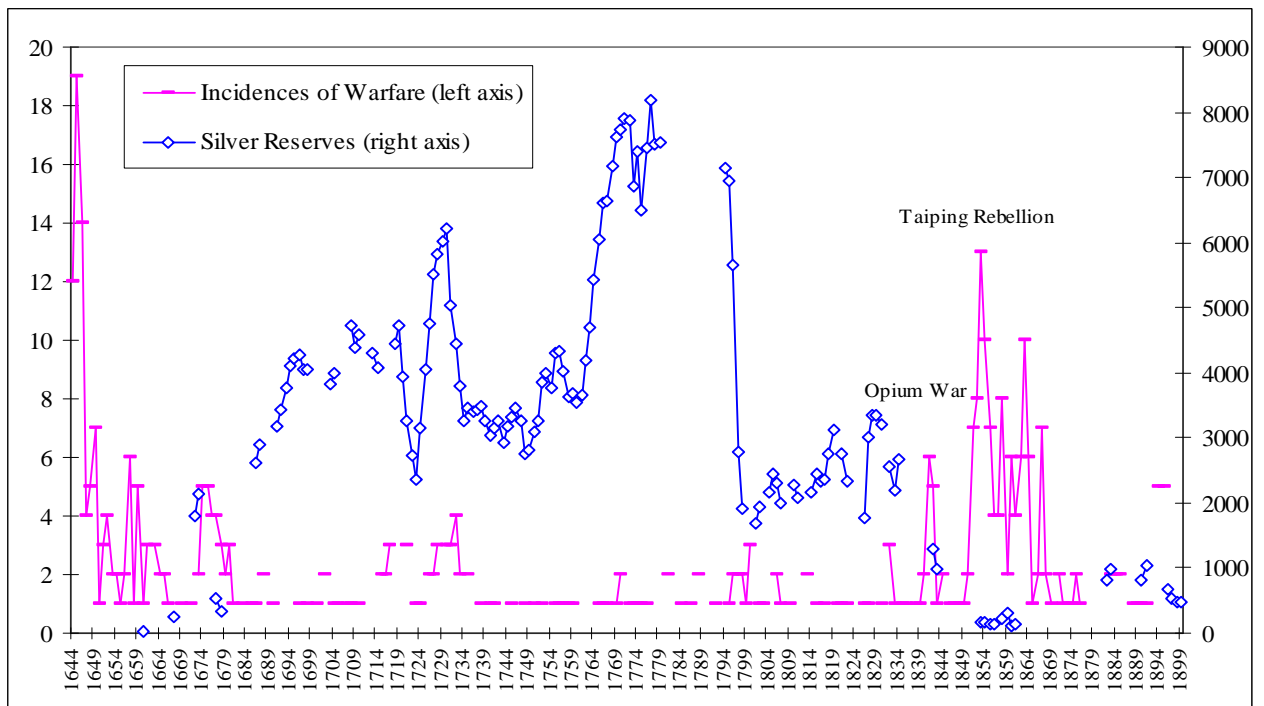
Source Notes: Fiscal data from Iwai, Table 2, p.37. Hamashita p. 73. Lower Yangzi grain price from Wang Yeh-chien is used to deflate the nominal series.

Figure 4. Annual Inflows and Outflows of Silver Reserves at the Qing Board of Revenue (in ten thousand taels)



Sources: Shi zhihong pp. 272-281. Sales of office revenue data from Luo Yudong, pp. 6-7.

Figure 5. Annual Average of Recorded Incidences of Warfare and Silver Reserves (in ten thousand taels) in Qing (1644-1911)



Source notes: China's Military History Editorial Committee (ed.), *A Chronology of Warfare in Dynastic China (Zhongguo Lidai Zhanzheng Nianbiao)*. Silver Reserves from Shi zhihong pp. 272-281.