

**A Three-Party Game of
Institutional Resilience versus Transition
A Model and Comparative History of China-Japan Revisited***

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Abstract

In the late 19th and the early 20th century, China and Japan witnessed landmark institutional transitions. In both cases, long-standing institutional arrangements came to an end, together with the collapse of the ruling regimes that had by themselves lasted for centuries. Yet, the post-transition experience of the two countries diverged. Japan went through a sequence of mostly peaceful reforms that transformed the country into a major power in the modern world; whereas China was plunged into a prolonged series of conflicts instead, which apparently failed to lift the country off the mud of underdevelopment. Combining a model of three-party game and a comparative narrative of these two historical episodes, this article explores the endogenous nature of institutional resilience versus transition to shed light both on how the ruling regimes managed to survive for long in both countries as well as on the divergent transitional experiences of these two nations. In addressing such differences, our analysis highlights the role of state capacity, ideological differences among key players, the impact of the sovereignty crises, as well as the inherent institutional structures in either countries.

Key words: 3-party game model; state capacity; institutional change; ideological difference; Xinhai Revolution; Meiji Restoration

JEL: B52, C70, C72, N90, N95

*The previous versions of this article were written by Professor Masahiko Aoki as a single-authored paper. Sadly, Professor Masahiko Aoki passed away on July 15, 2015. During his final days, Professor Aoki worked intensively on this version as if he was competing against the clock of his life. Unable to finish, Professor Aoki requested the assistance of Jiahua Che and Masaki Nakabayashi to resume his work. In writing the previous draft, Professor Aoki benefited from discussions, encouragement, and critical comments on earlier drafts by Jiahua Che, Paul David, Avner Greif, Takeo Hoshi, Akihiko Matsui, Chiaki Moriguchi, Masaki Nakabayashi, Tetsushi Okazaki, John Roberts, Tuan-Hwee Sng, Barry Weingast, and Cenggang Xu, as well as discussions during seminars at Stanford University, the University of Tokyo and the Chinese University of Hong Kong. The usual disclaimers apply.

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1 Motivations of this Study

In an effort to understand the nature of human progress, unified growth theory offers a coherent framework to shed light on how human societies evolve from Malthusian stagnation to human capital-driven modern growth (Galor (2005)). But countries and regions differ in their transition from a stagnant agrarian economy to a modern growth path associated with a demographic transition. While the unified growth theory attributes such variations to country differences in human capital formation, which can be impacted by a wide range of factors including costs, policies, institutions, culture, and so forth (Galor (2011); Ngai (2004)), new institutional economists focus on the establishment of an open and inclusive political order as an essential prerequisite for modern economic growth (North, Wallis and Weingast (2009); Acemoglu and Robinson (2012)). Yet, how does a growth-enhancing political order emerge from the pre-modern stage of political and economic development? If it is established by a political challenge by actors against an authoritarian political order that limits economic progress, what may trigger such a transition from a stagnant, agrarian political-economic order? How do we understand country differences in terms of the political aspects of such an otherwise generic process? This article seeks to make a modest contribution in this direction by combining an analysis of a game theoretical model and a related historical narrative, with a unified treatment of economic and political-institutional variables, in the context of a transition from a (pre-modern) political-economy order.

The context against which we place our analysis is the late 19th century Tokugawa Japan and the early 20th century Qing China. Tokugawa Japan refers to the period of between 1603 and 1867 when Japan was administered by the last military government of Japan (Shogunate or *Bakufu* in Japanese) headed by the Tokugawa clan.¹ Qing China referred to the period between 1644 to 1912 when China was ruled by the last imperial dynasty (named Qing) of the Aisin Gioro clan from Manchuria, the Northeastern part of China.² Towards the mid 19th century, both countries faced serious challenges against their sovereignty by the Western powers that had not long ago escaped from the Malthusian stagnation and begun their journey on the modern growth path. Responding to these shocks, both countries abolished their thousand-year-old institutional arrangement. In the case of Japan, the Shogunate, after having survived for almost 1000 years, came to an end in 1867 followed by a two-year war between the rebel force and the force of Tokugawa clan, which was fought from Osaka all the way to Hokkaido. As the dust settled, Japan began a series of reforms known as the Meiji Restoration that fundamentally transformed the nation and propelled the country into a major power in the modern world; and except for a six-month rebel by disgruntled samurai, the Meiji restoration was peaceful. In the case of China, after a number of failed attempts to revive the Qing dynasty

¹Shogunate is the office of a Shogun, whereas a Shogun refers to a hereditary military dictator in Japan during the period from 1192 to 1867. Shogun means General in English.

²A dynasty of Imperial China is a succession of rulers from the same family before it is replaced by a succession of rulers from another family, or a new dynasty. The Chinese dynasties lasted from 2000 BC to 1912.

that merely delayed the advent of the inevitable, finally witnessed the sudden crumble of the Qing government in 1912 in an episode known as Xinghai revolution, which ended the country's imperial system that had lasted for almost 4000 years. While Xinghai revolution was swift and almost peaceful, the aftermath was bloody and dragging. Despite various reform measures and sporadic economic progresses, the country was marred in seemingly endless conflicts, military campaigns, and civil wars among different political forces, together with the Japanese invasion from 1937 through 1945. It was not until 1949 that peace was finally restored after the Communist took power, and it would take another three decades before China began its own journey of rapid economic growth.³

The divergent experience of China and Japan allows us to push our inquiry further. In particular, why did Japan and China underwent apparently the same institutional transition, and yet met with completely different fate? Was the Chinese experience a failed transition or rather it served the same purpose in China as Meiji restoration did in Japan to address the aforementioned very same challenge these two countries faced at that time? What may be the differences in pre-modern institutional legacies in these two countries that attributed to this divergence as well as the resilience of the pre-modern political and economic order prior to these transitions? And despite the divergence, what is one thing in common in the new political orders emerged from these two institutional transitions that prepared these countries for their respective journey of modern economic growth? We hope that an investigation to these seemingly country-specific questions can ultimately shed light on the broader issues we set out to address.

Our analysis begins with three observations. First, the challenges faced by both Japan and China at the eve of their respective transition represented not only sovereignty crises but also the arrival of modern technologies that both nations must make themselves ready to embrace (Koyama, Moriguchi and Sng (2015)). Second, the modern technologies require resources to be reallocated on a much larger scale as compared to in the pre-modern agricultural economy, and to facilitate this larger-scale allocation of resources as well as to fend off the sovereignty challenges, the two countries needed to strengthen their respective state capacities (Tilly (1992), Besley and Persson (2009)), which lacked in both countries prior to their transition, as evidenced both by the crises and the political-economic order at the time, which we shall detail in our historical narrative. Third, despite their respective central governments, both Qing China and Tokugawa Japan featured a dispersed political structure with political forces at the local level amassing over time a substantial amount of administrative and military muscles not completely under the control of the central government. As we will detail in our historical narrative, these dispersed political forces may help explain the shared institutional resilience in both countries and set the tone for their divergent transition experience subsequently (Fairbank and Goldman (2006), Jansen (2002), Sng and Moriguchi (2014, 2015)).

³For detailed accounts of the two countries' experience, readers may refer to Fairbank and Goldman (2006) and Jansen (2002).

Following these observations, this article views the two landmark transitions and their respective aftermath as historical correspondence that echoes the emerging literature on state capacity and conflict that views conflicts as an important part of state building. State capacity expansion through conflicts were widely observed in early modern Europe, where monarchies extended tax bases, created sovereign bond markets, and by doing so, formed the basis of modern nation states. Also in the United States, the state capacity expanded through conflicts from independence to the Civil War (Tilly (1978, 1992), Bonney, ed (1995, 1999), Besley and Persson (2010), Aghion and Persson (2012), Yun-Casalilla and O'Brien, eds (2012), Cha (2015)). Thus motivated, we develop a simple, somewhat novel, model of a 3-party dynamic game, featuring as the status quo political order one ruler, a possible challenger, and an opportunist who chooses to side with either the challenger or the ruler so as to analyze both the shared institutional resilience as well as the divergent institutional transition paths in one coherent framework.

In our model, each of these players possesses some state capacity in the beginning, but the sum of these state capacities does not exhaust the total scale of state capacity potential in the economy. In other words, the economy features both state capacity slackness that needs to be tapped into and state capacity dispersion that requires consolidation. At any time, the state capacity of the government is determined by the state capacity possessed by the player (or players) that end up running the government in equilibrium; whereas the state capacity of the government determines the volume of public goods provision, which in turn determines the consumption value enjoyed by all players. Hence, the expansion and consolidation of state capacity can be efficiency enhancing.

At any time, the challenger decides whether to fight against the ruler while the ruler decides whether to crash the challenger, and conflict takes place whenever either party decides to do so. The opportunist at the meantime decides whether to collaborate with the ruler or side with the challenger, while speculating what would happen to itself after its side claims victory. In particular, it has to consider whether, after their victory, another conflict will take place within the winning coalition itself. It is this potential subsequent conflict that allows to explain both the shared institutional resilience and the divergent transition experience.

Winning a conflict allows the winning parties to consolidate the state capacity of the loser as well as mobilize a portion of the state capacity slackness, perhaps through their efforts to mobilize support as argued in (Tilly (1992)) and demonstrated in (Berman, Shapiro and Felter (2011)) in the example of Iraqi war. Thus, the prospect of having a stronger government becomes one of the key motivations for players to engage in conflict in this model. The second motivation comes from the fact that each player has different ideological preferences with regards to the provision of the public goods by the government and that winning the right to run the government will give a party to set the public goods provision more in line with its ideological preferences.

Our analysis shows that, when conflict takes place between the challenger and the ruler,

the opportunist tends to side with the challenger provided that the direct deadweight loss is considerable; however, should they successfully defeat the ruler, the two may go into clash against each other, and even if they don't do so, they two must bear the ideological difference between the two. Our analysis further shows that, because the potential state capacity to be tapped in is limited (due to the resource constraint of the economy), the state-capacity-motive of conflict exhibits a feature of "diminishing-return-in-scale", and as a result, conflict tends to take place when the state capacity is weak while peace tends to prevail otherwise. Yet, this state-capacity-motive is to be counterbalanced by the presence of ideological difference between the challenger and the opportunist, thus allowing even a moderately weak ruler to prevail in peace when the pre-modern political structure becomes dispersed, and the likelihood of its peaceful survival increases as the ideological difference between the challenger and the opportunist increases.

However, when a productivity shock occurs as evidenced during the sovereignty crises faced by both nations, the gain from conflict for all parties would increase. Furthermore, we show that a country with a larger disparity in ideology between the challenger and the opportunist as well as a larger untapped state capacity potential to begin with tends to fall into repeated conflicts where a successful campaign against the ruler by the challenger and the opportunist will be followed by a conflict between the latter two. In contrast, a country with a smaller disparity in ideology between the challenger and the opportunist as well as a smaller untapped state capacity potential to begin with will end in peace after a successful campaign against the ruler, and a coalition government between the challenger and the opportunist will emerge.

In the historical narrative, we provide detailed accounts to demonstrate how our theoretical analysis exactly matches with the historical experience of China and Japan. In particular, we offer evidence of relatively weak state capacity of Qing China as compared to Tokugawa Japan and highlight the source of the untapped state capacity potential. We also provide explanations about why political forces in China suffer from irreconcilable and large ideological differences as compared to their Japanese counterparts during their respective transition and relate our reasoning to the institutional legacies of both countries.

Our article of institutional resilience and institutional transition contributes to the literature of endogenous institutional change. In his effort to lay down a general framework of political institutional transformation, Aoki (2011) argues that players in a political game are likely to play among themselves a game of economic-exchange in a unified manner. As a result, institutional complementarities between the political and economic orders may evolve on the basis of strategic complementarities across players and across the political and economic domains. The nature and the properties of a possible institutional transition from one political state to another may then be explored analytically as a shift in the equilibrium state of play of the political game. This shift is likely to be associated with a complementary shift in the profile of the players' strategic choices in the game of economic-exchange. In other words, a certain political transition may be facilitated and made possible by a complementary change

in the economic order. Our article represents a concrete example of this view of institutional change.

Our theoretical model contributes to the literature of conflict as well. Most of the existing models in the conflict literature focuses on the distribution of various capacities among a ruler (the incumbent government) and its competitors or challengers to examine possible consequences of their strategic interactions. The analysis is usually carried out in a 2-person game between the incumbent ruler and the opposition, two representative statelets competing for a state formation.⁴ While there has recently emerged a considerable amount of works studying conflicts between the ruler and a continuum of atomless players, this class of works typically involves an application of global game to address coordination failure among these atomless players (Carlsson and van Damme (1993), Morris and Shin (1998, 2003)).⁵ However, the presumption that all agents constitutes a continuum might be considered to better fit a civil situation in which anonymous citizens confront the government as a mass. In order to understand the nature of some institutional changes, specifically in developmental contexts, structural factors that differentiate the relative positions of the agents, as we do in our 3-party game, may not be dismissed.⁶

In contrast, the specific structural characteristics of our 3-party dynamic game have implications both for institutional resilience and for the divergent transition paths in a coherent manner. In particular, it allows us to attribute the institutional resilience to the dispersed political order prior to the transition and the divergent transition paths to the efforts as well as capacities of these dispersed political forces in resolving their ideological differences and in seeking further expansion and consolidation of the nation's state capacity.

Our article also contributes to the literature of state building (see Tilly (1992) and Fukuyama (2014) for example). Besley and Persson (2010) represents a recent theoretical effort in demonstrating a linkage between state capacity and conflict. In particular, it shows that conflicts tend to discourage investment in state capacity. Our analysis, however, echoes Tilly (1992)'s thesis concerning the role of military conflicts in the emergence of the European states. It is consistent with a cohort of studies that have emerged over recent years to show empirically

⁴To quote a few examples of 2-person games of institutional resilience versus transition, see the contests between an incumbent ruler and an opposition in a development context (e.g., Besley and Persson (2012), chapter 4); the competition for hegemony toward the formation of a nation state among representative statelets (e.g., Gennaioli and Voth (forthcoming)); and the changing contracting modes between the king and the tax farmer in the evolution toward the French Revolution and the Glorious Revolution of England respectively (Johnson and Koyama (2014)). For a thorough review of the conflict literature, see Blattman and Miguel (2010).

⁵Factors responsible for multiple equilibria in a global game may include: an endogenous policy intervention by the state (Angeletos, Hellwig and Pavan (2006)), learning from repeated plays of a global game (Angeletos, Hellwig and Pavan (2007)), and the above-mentioned informational impact of a revolutionary entrepreneur (Bueno de Mesquita (2010)). Among these, the latter appears to be unique in terms of suggesting a direction to build an explicit bridge between the structural and informational approaches.

⁶Esteban and Ray (2001) and Ray (2009) also examined conflict models with finitely many players, with a focus, however, on explaining why compromise is difficult to achieve when many players are involved in a conflict.

that conflicts play an important role in facilitating state building (see Aghion and Persson (2012) and Cha (2015) for example).

Our result that conflicts are more likely to take place under weak state is consistent with similar predictions found in other studies (see Garfinkel and Skaperdas (2007), Grossman (1999), and Besley and Persson (2010) for example). However, our analysis presents a rather different logic for the pattern. While the existing literature either argues that weak state leads to poverty, in turn lowering people's incentive to maintain order (Garfinkel and Skaperdas (2007), Grossman (1999)) or maintains that conflicts induce weak state (Besley and Persson (2010)). We argue instead that conflict may be more likely to take place under weak state in an attempt to strengthen the nation.

With a flavour of equilibrium coalition formation, our analysis derived from the dynamic 3-player model may be contrasted to Acemoglu, Egorov and Sonin (2008, 2010), which demonstrate that a bad political institution may become resilient if no sub-coalition can secede and become a new ruling coalition. In our model, despite the fact that the coalition of the challenger and the opportunist may collapse and enter into a conflict between themselves, it remains possible for the two parties to join hands to oust the existing ruler, especially at the advent of modern technology.

Perhaps the most important contribution of this paper lies in the long-term perspective it offers with regards to the landmark transitions taking place in two leading Asian nations today. Numerous studies have compared Tokugawa Japan and Qing China, but most of these studies have focused on the questions of why reforms in Qing China failed to revive the dynasty whereas Meiji restoration succeeded in propelling the country into a major power in the world. The focus of our analysis differs, and for a good reason. First, regardless of how reforms went unsuccessfully, the question remains why, after the country had the determination to farewell its thousands-years-old institutional arrangement, China remained in turmoils for long, unable to embark on the journey of modern growth. Second, as our analysis shall suggest, the key challenge confronting the late Qing China was not the lack of reforms here and there, but instead the lack of state capacity that unfortunately had little choice but be consolidated and expanded through conflicts among different political forces. In connection to the long-term perspective outlined in this paper, Brandt, Ma and Rawski (2014), Wong (1997, 2011) represented exemplary studies of the Chinese political and economic development since the Qing dynasty. The work that is closest related to ours is Koyama et al. (2015), which emphasizes the difference geographical size between the two countries and argues that such a difference attributes to the contrasting experience of China and Japan when confronting the aforementioned sovereignty challenges, with Japan centralizing political power and China decentralizing political power.

The remainder of the article is organized as follows. Section 2 formally presents a simple, tractable model of a 3-person, dynamic game model of institutional resilience versus transition. Section 3 is thus devoted to illustrating and supporting the analytical results of Section 2

through feedback from historical information. Section 4 concludes.

2 The Model

Our model features an infinite-period economy that begins with three political forces, the *status quo* ruler R , a potential challenger A and an opportunist B . Each political party possess some state capacity, which we define as a measure of people who pledge loyalty to the corresponding political party and hence, when time comes, will be mobilized to answer the call of that political party. Let $s_R(t), s_A(t), s_B(t)$ be the measure of people loyal to political forces R, A, B at time t . We assume that $\{s_R(0), s_A(0), s_B(0)\} \equiv \{s_R, s_A, s_B\}$ observes the following pattern

$$s_R : s_A : s_B = r : a : b; \quad a + b \geq r > \max\{b, a\}.$$

There is a unit measure of infinitely living people in the economy. We refer to the measure of people who have not pledged allegiance to any political force, $1 - (s^R(t) + s^A(t) + s^B(t))$, as the state capacity slackness present in the economy and refer to the total measure of people who belong to any of the political camps as the total existing state capacity, $s(t) = (s^R(t) + s^A(t) + s^B(t))$.

In each period, there can be either peace or conflict. Should there be peace in period t , the state capacity profile remains intact as the previous period: $\{s^R(t), s^A(t), s^B(t)\} = \{s^R(t-1), s^A(t-1), s^B(t-1)\}$. The state capacity of the government, which we denote by $s^g(t)$, determines the amount of the public goods provided:

$$G(t) = s^g(t),$$

while $s^g(t)$ is determined by the combined state capacities of all political parties involved in running the government in period t . During peacetime, each individual is able to combine the public good with his own unit of labor to produce his own consumption, and attain a utility for the period that is equal to

$$u(t) = \beta s^g(t),$$

where β represents the economy-wide productivity.

Each political force consists of a zero mass of the aforementioned individuals, who are also capable of making collective decisions including determining the way in which the public goods provision is carried out. Even though the government has the same technology in generating the amount of public goods regardless of which political forces are running the show, there can be different types of public goods. Some are ideal to one political force and others are not. The three political forces differ in their most preferred public goods, and as a result, when one political force chooses its most preferred public goods, it causes a disutility to others. We refer to this disutility as political difference. Let I_A and I_B be the political difference between R and A and that between R and B respectively; let i be the political difference between A and B .

When the government is ruled by a single political force, the party chooses its ideal public goods provision. We assume that, once a political force monopolizes the government, it cannot credibly share its rule with any other political force in a subsequent period. This simplifying assumption may be justified, for instance, if power of ruling, once acquired, will give the ruler a particular advantage (for example in terms of information with regard towards its lieutenants) over other political forces in any joint governance so as to make the latter effectively powerless in the government. Meanwhile, we allow the government to be jointly ruled by political forces that have not monopolized the government in a previous period. Our simplifying assumption implies that the number of political forces in a joint government must be two. When the government is ruled jointly by two political forces, they wrestle with each other in policy dominance by the state capacities they possess respectively, which we will specify below.

Starting from time $t = 0$, the potential challenger A decides whether to challenge R 's rule. We assume that the identities of both A and B are private information so that R is unable to crack down either of them prior to any challenge. B is opportunistic and hence always awaits for A to move first. Should the conflict take place between R and A , B must decide whether to join A 's challenge, to stay neutral (and hence hide its identity), or to collaborate with R to help defend the current regime. A challenge reveals the identities of all political forces involved. In the first case, should the coalition of A and B succeed in their challenge against R , they can choose to form a joint government or collide with each other in yet another conflict. Should the joint challenge fail, the R government survives and the *status quo* regime continues. In the second case, B with its identity continues to be hidden must decide whether to challenge the winner of the conflict in a subsequent period. In the third case where B collaborates with R , a successful challenge will lead to a government run by A while a failed one allows the *status quo* government to continue (as the existing ruler cannot credibly share its rule with another political force). We assume that, whichever side with the larger state capacity during a conflict will win the conflict with probability equal to one.

In a period when the conflict takes place, no production takes place, hence a deadweight loss occurs with a discounting factor $0 < \delta < 1$. However, a conflict induces political party to expand and consolidate state capacity. We assume the political forces defeated in the challenge lose the allegiance of its people and hence its state capacity. Such a loss takes place as the winning political force takes over and acquires fidelity of these people instead. As a result, the state capacities of defeated political forces become transformed into those of the winning political parties instead. We refer to this as state capacity consolidation. Furthermore, during the time of challenge, political forces on either side of the challenge will appeal to those who have not pledged allegiance to any political force.⁷ Circumstances surrounding a challenge may also push those who have not pledged allegiance into a situation that they choose to identify themselves with one of the political forces. For example, people may be more exposed to the

⁷One could imagine that the side with the larger state state capacity is poised to win the conflict with probability almost equal to one, and mobilizing more allegiance helps further strengthen their chance of victory during the challenge.

ideal pursued by different political forces, or different political forces may reach the grass-roots to cultivate their support, or people may find that only allegiance with certain political force may be able to offer themselves security during the challenge. In any event, because of these various possibilities, at the end of a conflict, the winner is able to transform an α portion of the measure of people who have not pledged loyalty to anyone into those of allegiance with itself. We refer to the aforementioned transformation of these people as state capacity expansion. Despite their effort in cultivating their support, at the end of a challenge, losing political forces will not be able to retain any state capacity, and as a result, state capacity expansion is never materialized for the losing political forces. The scale of state capacity expansion is $\alpha \in [0, 1]$. After a coalition wins a conflict in period t , the total state capacity $s(t+1)$ attained as a result of consolidation and expansion is randomly distributed between the two political forces, i, j in such a way that the probability that the share of $s(t)$ belonging to i dominates that belonging to j equals $\frac{s^i(t)}{s^i(t)+s^j(t)}$. In other words, a weaker partner in a coalition is more likely to remain weaker after the coalition wins a conflict.

After the initial conflict, the identities of the political forces involved in the winning side of that conflict are fully revealed. Unless one of the involved political forces is a ruler in the previous period, these political forces have an option to form a joint government or collide with each other. We assume that the sequence of such a subgame is as follows. The stronger political force (one with a smaller state capacity) proposes a form of a joint government that describes the type of the public good to be implemented. The weaker political force then decides whether to accept or not; if it is rejected, the two go into a conflict.

At the end of a conflict, all political forces on the losing side of the conflict not only lose their state capacity forever and hence become inactive afterwards, each member in these political forces will no longer be able to enjoy the payoff as a citizen $u(t)$ for all t afterwards as well.

The equilibrium concept we adopt is Markov-Perfect. Finally, we assume $\beta > \max\{I_A, I_b, i\}$, which says that the ideological difference between the ruler and its subjects is never extraordinarily large so that peace will be maintained if when the ruler is able to control the maximal state capacity. The assumption ensures that peace can be an equilibrium outcome.

3 Analysis

Given the fact that $r > a$ and the fact that the stronger side will win the conflict with probability one, A will never launch a challenge against R without the support from B . On the other hand, if B sides with A , they will overthrow R with probability one. What will B 's choice if a conflict takes place between A and R ?

If B chooses to join the conflict between A and R , the total state capacity, which will fully belong to the winning side of the conflict, will be $s(t+1) = s(t) + \alpha(1 - s(t))$ regardless whether B supports A or R . Given that $a + b > r > \max\{b, a\}$, B is pivotal in determining

the outcome of this conflict and hence will always be on the winning side.

3.1 Suppose that B sides with A

After A and B jointly defeat R in period t , B has a chance to dominate A (having a larger state capacity) with probability $\frac{b}{a+b}$. If B dominates A and conflict takes place between the two, B will win the conflict and subsequently earn a presented discounted value of its long-term payoffs equal to

$$\begin{aligned} V_B^{AB}(c) &= \delta\beta\{[s(t) + \alpha(1 - s(t))] + \alpha[1 - s(t) - \alpha(1 - s(t))]\}. \\ &= \delta\beta[1 - (1 - \alpha)^2(1 - s(t))] \end{aligned}$$

where the superscript indicates political forces involved in the government and the underlined party is the dominant one. In correspondence, A will earn zero. If the two opt for a joint government, it is straightforward to show that it is a weakly dominant strategy for A to accept B 's proposal, in which case the joint government will implement B 's most preferred public goods and the presented discounted value of B 's long-term payoffs becomes

$$V_B^{AB}(p) = \beta[s(t) + \alpha(1 - s(t))].$$

There will be peace between the two if and only if $s(t) + \alpha(1 - s(t)) > \delta[1 - (1 - \alpha)^2(1 - s(t))]$;⁸ that is,

$$(1 - \alpha)[1 - \delta(1 - \alpha)]s(t) > \alpha[\delta(2 - \alpha) - 1]. \quad (1)$$

If instead B is dominated by A and the two opt for a joint government, the presented discounted value of B 's long-term payoffs is

$$V_B^{AB}(p) = (1 - i)\beta[s(t) + \alpha(1 - s(t))];$$

whereas if conflict takes place instead, B will be defeated and earn nothing instead. It is easy to verify that peace will take place if and only if condition (1) holds.

Define s_1^* such that

$$s(t) + \alpha(1 - s(t)) = \delta[1 - (1 - \alpha)^2(1 - s(t))].$$

Define s_1 such that

$$s_1 = \begin{cases} \min\{s_1^*, 1\}, & \text{if } \delta(2 - \alpha) > 1; \\ 0 & \text{if } \delta(2 - \alpha) \leq 1. \end{cases}$$

In summary, the presented discounted value of B 's long-term payoffs after supporting A will be

$$V_B^{AB} = \begin{cases} \frac{b}{a+b}V_B^{AB}(p) + \frac{a}{a+b}V_B^{AB}(p) = [1 - \frac{a}{a+b}i]\beta[s(t) + \alpha(1 - s(t))] & \text{if } s(t) \in (s_1, 1]; \\ \frac{b}{a+b}V_B^{AB}(c) + \frac{a}{a+b}V_B^{AB}(c) = \frac{b}{a+b}\delta\beta[1 - (1 - \alpha)^2(1 - s(t))] & \text{if otherwise.} \end{cases}$$

⁸We choose the tiebreak in favour of conflict for expositional simplicity.

3.2 Suppose that B sides with R

Given the assumption that R is not able to credibly share its government with B , B 's long-term payoff is

$$V_B^R(p) = (1 - I_B)\beta[s(t) + \alpha(1 - s(t))]$$

should there be peace between the two, regardless of whether B dominates R or not. If there is a subsequent conflict between the two, and B dominates R , which happens with probability $\frac{b}{r+b}$, then B 's long-term payoff is

$$V_B^R(c) = \delta\beta[1 - (1 - \alpha)^2(1 - s(t))],$$

whereas B earns zero in a subsequent conflict if R dominates B . Thus, when B dominates R , peace prevails between the two if and only if $(1 - I_B)[s(t) + \alpha(1 - s(t))] > \delta[1 - (1 - \alpha)^2(1 - s(t))]$; that is,

$$(1 - \alpha)((1 - I_B) - \delta(1 - \alpha))s(t) > \alpha[\delta(2 - \alpha) - (1 - I_B)]. \quad (2)$$

When R dominates B , it can be verified that peace prevails between the two if and only if condition (1) holds.

Define s_2^* such that

$$(1 - I_B)[s(t) + \alpha(1 - s(t))] = \delta[1 - (1 - \alpha)^2(1 - s(t))].$$

Define s_2 such that

$$s_2 = \begin{cases} \min\{s_2^*, 1\}, & \text{if } \delta(1 - \alpha) < 1 - I_B; \\ 1 & \text{if } \delta(1 - \alpha) \geq 1 - I_B. \end{cases}$$

We can verify that $s_2 \geq s_1$. In other words, having an advantage to dictate the choice of public goods provision, the incumbent R is less willing to engage in a conflict against its potential opponent. Accordingly, the presented discounted value of B 's long-term payoffs after supporting R is

$$V_B^R = \begin{cases} (1 - I_B)\beta[s(t) + \alpha(1 - s(t))] & \text{if } s(t) \in (s_2, 1]; \\ \frac{r}{r+b}(1 - I_B)\beta[s(t) + \alpha(1 - s(t))] + \frac{b}{r+b}\delta\beta[1 - (1 - \alpha)^2(1 - s(t))] & \text{if } s(t) \in (s_1, s_2]; \\ \frac{b}{r+b}\delta\beta[1 - (1 - \alpha)^2(1 - s(t))] & \text{if otherwise.} \end{cases}$$

Note that, by supporting R , B risks being at mercy of R depending on whether $s(t) \geq s_1$ or not. If R dominates B subsequently, R and B can co-exist if and only if $s(t) \geq s_1$.

3.3 Suppose that B chooses neutrality

In this case, R will defeat A and along the course will consolidate and expand its state capacity to $(r + a)s(t) + \alpha(1 - s(t))$. Given the fact that the identity of B remains hidden in this case, a subsequent conflict will take place if and only if B chooses to challenge R . Since $r > b$, the strengthened R will clearly dominate B in any subsequent conflict should there be one.

Hence, B will never challenge R . As a result, B will obtain a long-term payoff in the presented discounted value as

$$V_B^R = (1 - I_B)\beta[(r + a)s(t) + \alpha(1 - s(t))].$$

3.4 Subgame Equilibrium Outcomes

Next, we compare these payoffs to determine how B will react to the conflict between R and A should it happen.

Lemma 1 *Suppose that $s(t) \in (s_2, 1]$. Then*

1. B will side with R if $\frac{a}{a+b}i \geq I_B$; and
2. B will side with A if otherwise.

Suppose that $s(t) \in (s_1, s_2]$. Then there exists $i^(s(t))$, which is increasing in $s(t)$ with $\lim_{s(t) \rightarrow s_2} i^*(s(t)) = \frac{a+b}{a}I_A$, such that*

1. B will side with R if $i \geq i^*(s(t))$; and
2. B will side with A if otherwise.

Proof of Lemma 1

The part for $s(t) \in (s_2, 1]$ is straightforward and hence is omitted.

When $s(t) \in (s_1, s_2]$, the following inequalities hold:

$$(1 - I_B)[s(t) + \alpha(1 - s(t))] \leq \delta[1 - (1 - \alpha)^2(1 - s(t))] < s(t) + \alpha(1 - s(t)),$$

and the left equality holds when $s(t) = s_2$ if $s_2 \in (0, 1)$. Therefore, staying neutral remains a dominated strategy. Comparing the payoff of siding with A and that of siding with R , we note that

$$(1 - I_B)\beta[s(t) + \alpha(1 - s(t))] \leq V_B^R < \delta\beta[1 - (1 - \alpha)^2(1 - s(t))]$$

and the left equality holds when $s(t) = s_2$ if $s_2 \in (0, 1)$. Therefore, when $s(t) = s_2$, B will side with R if and only if $\frac{a}{a+b}i \geq I_B$. Meanwhile, since $\lim_{s(t) \rightarrow s_{1+}} V_B^R = \delta\beta[1 - (1 - \alpha)^2(1 - s(t))] = \delta\beta[s(t) + \alpha(1 - s(t))]$, we have

$$\lim_{s(t) \rightarrow s_{1+}} V_B^{AB} = \lim_{s(t) \rightarrow s_{1+}} [1 - \frac{a}{a+b}i]\beta[s(t) + \alpha(1 - s(t))] \geq \lim_{s(t) \rightarrow s_{1+}} V_B^R = \delta\beta[s(t) + \alpha(1 - s(t))]$$

if and only if

$$(1 - \frac{a}{a+b}i - \delta)(1 - \alpha)s_1 \geq \alpha[\delta - (1 - \frac{a}{a+b}i)]$$

Since $(1 - \alpha)s_1 > \alpha$ provided that $s_1 \in [0, 1)$, there exists i^* such that $\lim_{s(t) \rightarrow s_{1+}} V_B^{AB} \geq \lim_{s(t) \rightarrow s_{1+}} V_B^R$ if and only if $i < i^*$. Clearly, $\frac{a}{a+b}i^* < I_B$.

Finally, it is easy to show that $i^*(s(t))$ must be monotonic in $s(t)$, since otherwise, there exists s and s' , with $i^*(s) = i^*(s') = i$ such that

$$\frac{r}{r+b}(1-I_B)\beta[s(t)+\alpha(1-s(t))]+\frac{b}{r+b}\delta\beta[1-(1-\alpha)^2(1-s(t))] = [1-\frac{a}{a+b}i]\beta[s(t)+\alpha(1-s(t))]$$

for $s(t) = s$ and $d(t) = s'$, which is impossible given the linearity of the above equation. Hence $i^*(s(t))$ must be increasing in $s(t)$. ■

When $s(t) \leq s_1$, a subsequent conflict will take place regardless of whether B initially sides with B or R . Since A is weaker than R , B clearly prefers to confront A instead of R . Siding with R is therefore dominated by siding with A . Accordingly, B must choose between siding with A or remaining neutral.

Staying neutral dominates siding with A if and only if:

$$(1-I_B)\beta[(r+a)s(t)+\alpha(1-s(t))] \geq \frac{b}{a+b}\delta\beta[1-(1-\alpha)^2(1-s(t))]. \quad (3)$$

Define s_3^* such that condition (3) holds in equality. Define $s_3 = \min\{s_3^*, s_1\}$.

Lemma 2 *Suppose that $s(t) \leq s_1$. Then*

1. *if in addition that $b \geq (1-\alpha)(1-b)$, there exists s_3 such that*

$$s_3 = \begin{cases} \min\{s_3^*, s_1\}, & \text{if } \frac{b}{a+b}\delta(2-\alpha) < 1-I_B; \\ 0 & \text{if } \frac{b}{a+b}\delta(2-\alpha) \geq 1-I_B. \end{cases}$$

and s_3 is weakly decreasing in I_B ,

- (a) *B will stay neutral for $s(t) \leq s_3$ and*
- (b) *side with A for $s(t) \in (s_3, s_1]$.*

2. *if in addition that $b < (1-\alpha)(1-b)$ instead, then there exists s_3 such that*

$$s_3 = \begin{cases} \min\{s_3^*, s_1\}, & \text{if } \frac{b}{a+b}\delta(2-\alpha) \geq 1-I_B; \\ 0 & \text{if } \frac{b}{a+b}\delta(2-\alpha) < 1-I_B. \end{cases}$$

and s_3 is weakly increasing in I_B ,

- (a) *B will stay neutral for $s(t) \in (s_3, s_1]$ and*
- (b) *side with A for $s(t) \leq s_3$.*

Proof of Lemma 2 Rewrite condition (3) in equality as

$$[(1-I_B)(r+a-\alpha) - \frac{b}{a+b}\delta(1-\alpha)^2]s(t) = \alpha[\frac{b}{a+b}\delta(2-\alpha) - (1-I_B)],$$

or

$$[(1-I_B) - \frac{b}{(a+b)(1-b-\alpha)}\delta(1-\alpha)^2]s(t) = \frac{\alpha}{1-b-\alpha}[\frac{b}{a+b}\delta(2-\alpha) - (1-I_B)].$$

We note that

$$\frac{b}{(a+b)(1-b-\alpha)}\delta(1-\alpha)^2 > \frac{b}{a+b}\delta(2-\alpha)$$

if and only if

$$b > (1-\alpha)(1-b).$$

Suppose that $b \geq (1-\alpha)(1-b)$. Then $(1-I_B)(1-b-\alpha) > \frac{b}{a+b}\delta(1-\alpha)^2$ implies that the right hand side of condition (3) must be negative. Hence the condition always holds: B always prefers staying neutral when $s(t) \leq s_1$; or $s_3 = s_1$. If $\frac{b}{a+b}\delta(2-\alpha) < (1-I_B) < \frac{b}{(a+b)(1-b-\alpha)}\delta(1-\alpha)^2$, then there exists s_3^* as defined in the text such that condition (3) holds for $s(t) \in [0, s_3 = \min\{s_3^*, s_1\}]$, where s_3^* is decreasing in I_B . Suppose that $(1-I_B) \leq \frac{b}{a+b}\delta(2-\alpha)$, then condition (3) cannot hold, that is, staying neutral will be dominated, or $s_3 = 0$.

Suppose that $b < (1-\alpha)(1-b)$. Then $(1-I_B)(1-b-\alpha) < \frac{b}{a+b}\delta(1-\alpha)^2$ implies that the right hand side of condition (3) must be positive. Hence staying neutral will be dominated when $s(t) \leq s_1$; or $s_3 = s_1$. If $\frac{b}{a+b}\delta(2-\alpha) > (1-I_B) > \frac{b}{(a+b)(1-b-\alpha)}\delta(1-\alpha)^2$, then there exists s_3^* as defined in the text such that the above condition holds for $s(t) \in [s_3 = \min\{s_3^*, s_1\}, s_1]$, where s_3^* is increasing in I_B . Suppose that $(1-I_B) > \frac{b}{a+b}\delta(2-\alpha)$, then the above condition always hold, that is, B always prefers staying neutral when $s(t) \leq s_1$; or $s_3 = 0$. ■

Lemma 1 and Lemma 2 are illustrated in the following figure.

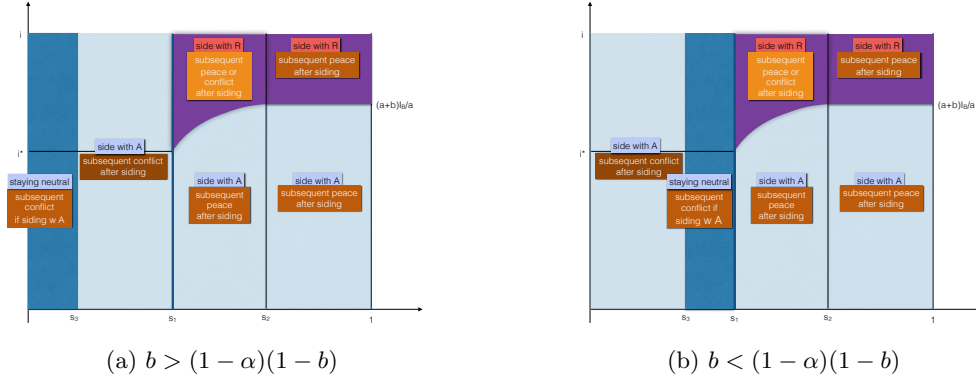


Figure 1: Subgame equilibrium outcomes

3.5 Equilibrium Outcomes

A chooses whether to challenge R in period t . A will challenge only if B will side with A . Following their victory, there will be either peace or conflict between the two, depending on whether $s(t) > s_1$ or $s(t) \in (s_3, s_1]$ if $b \geq (1-\alpha)(1-b)$ or $[0, s_3]$ if otherwise.

Consider first the case when subsequent peace between A and B is expected to be a subgame equilibrium outcome. A will not challenge R if and only if $(1-I_A)rs(t) \geq (1-$

$\frac{b}{a+b}i)\delta[s(t) + \alpha(1 - s(t))]$, or

$$[(1 - I_A)r - (1 - \frac{b}{a+b}i)\delta(1 - \alpha)]s(t) \geq (1 - \frac{b}{a+b}i)\delta\alpha. \quad (4)$$

Define $s_P^*(i)$ such that condition (4) holds in equality. Define s_P such that

$$s_P(i) = \begin{cases} \max\{s_1, s_P^*(i)\}, & \text{if } (1 - I_A)r > (1 - \frac{b}{a+b}i)\delta(1 - \alpha); \\ 1 & \text{if } (1 - I_A)r \leq (1 - \frac{b}{a+b}i)\delta(1 - \alpha). \end{cases}$$

We can verify that $s_P^*(i)$ is decreasing in i when $(1 - I_A)r > (1 - \frac{b}{a+b}i)\delta(1 - \alpha)$. Define in addition $\hat{i}(t)$ such that

$$\hat{i}(s(t)) = \begin{cases} i^*(s(t)), & \text{if } s(t) \in (s_1, s_2]; \\ \frac{a+b}{a}I_B & \text{if } s(t) \in (s_2, 1]. \end{cases}$$

$\hat{i}(s(t))$ delineates the boundary beyond which status quo will be maintained (because B is expected to side with R) when $s(t) \in (s(t), 1]$.

Proposition 1 *Suppose that $s(t) \in (s_1, 1]$. Then*

1. *the status quo will remain if $i \geq \hat{i}(s(t))$; and*
2. *if $i < \hat{i}(s(t))$, there exists s_P weakly decreasing in i such that*
 - (a) *the status quo will remain for $s(t) \in (s_P(i), 1]$.*
 - (b) *conflict will take place between R and A joined by B , followed by peace between the latter two, for $s(t) \in (s_1, s_P(i))$.*

Consider next the case when subsequent conflict between A and B is expected to be a subgame equilibrium outcome. A will not challenge R if and only if

$$(1 - I_A)rs(t) \geq \frac{a}{a+b}\delta^2[1 - (1 - \alpha)^2(1 - s(t))]$$

or

$$[(1 - I_A)r - \frac{a}{a+b}\delta^2(1 - \alpha)^2]s(t) \geq \frac{a}{a+b}\delta^2\alpha(2 - \alpha) \quad (5)$$

Define s_C^* such that condition (5) holds in equality.

Proposition 2 *Suppose that $s(t) \in [0, s_1]$. Then*

1. *if $b \geq (1 - \alpha)(1 - b)$, there exists s_C such that*

$$s_C = \begin{cases} \min\{s_C^*, s_1\}, & \text{if } (1 - I_A)r > \frac{a}{a+b}\delta^2(1 - \alpha)^2, \\ s_1 & \text{if } (1 - I_A)r \leq \frac{a}{a+b}\delta^2(1 - \alpha)^2; \end{cases}$$

- (a) *the status quo will remain for $s(t) \in [0, s_3] \cup (s_C, s_1]$*
- (b) *conflict will take place between R and A joined by B , followed by conflict between the latter two, for $s(t) \in (s_3, s_C]$.*

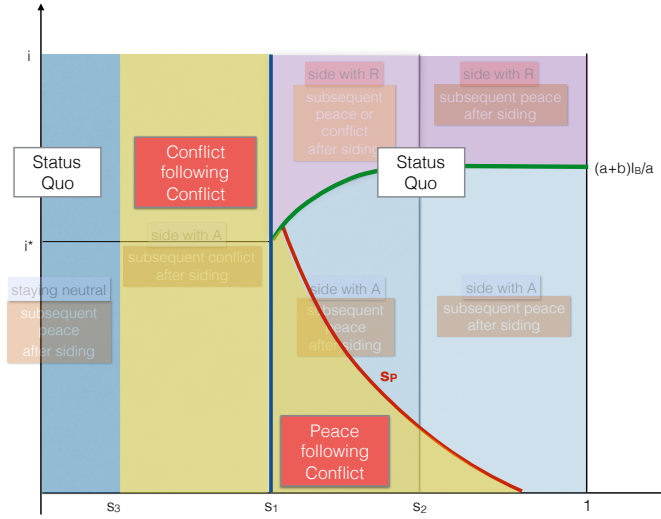


Figure 2: Equilibrium Outcomes

2. if $b < (1 - \alpha)(1 - b)$, there exists s_C such that

$$s_C = \begin{cases} \min\{s_C^*, s_3\}, & \text{if } (1 - I_A)r > \frac{a}{a+b}\delta^2(1 - \alpha)^2, \\ s_3 & \text{if } (1 - I_A)r \leq \frac{a}{a+b}\delta^2(1 - \alpha)^2; \end{cases}$$

(a) the status quo will remain for $s(t) \in (s_C, s_1]$,

(b) conflict will take place between R and A joined by B , followed by conflict between the latter two, for $s(t) \in [0, s_C]$.

Figure 2 illustrates the equilibrium outcome for the case of $b \geq (1 - \alpha)(1 - b)$. The figure assumes $(1 - I_A)r \leq \frac{a}{a+b}\delta^2(1 - \alpha)^2$ so that for $s(t) \in [0, s_1]$, the status quo will remain for $s(t) \in [0, s_3]$ whereas conflict will take place, followed by conflict between the two winning parties, A and B , for $s(t) \in (s_3, s_1]$. In the figure, the weakly increasing green curve represents $\hat{i}(s(t))$ for $s(t) \in (s_1, 1]$. Note that for $s(t) \in (s_1, 1]$, the status quo will not be challenged by A for any $\{i, s(t)\}$ such that either $i \geq \hat{i}(s(t))$ or $s(t) \geq s_P(i)$.

3.6 A Theoretical Interpretation of Xinghai v.s. Meiji

The analysis above highlights conditions under which the status quo of the R rule is sustained in peace. It also allows us to provide a number of perspectives regarding divergent paths of institutional transition, the very issue we visit in this subsection with regard to Xinghai China and Meiji Japan. To reflect the difference between Xinghai China and Meiji Japan, we consider two kinds of economies. In both of which peace is sustained under the status quo, with one (in correspondence to Xinghai China) having a larger political difference between the two opposing political forces A and B and a weaker total state capacity as compared to the other (in correspondence to Meiji Japan). We shall now consider the sovereignty challenge faced by

either country on the eve of their respective transition propelled the two into the institutional transformation that eventually set the two nations apart.

The spiral of sovereignty challenges hit China and Japan in the 19th century, leaving many impacts to these two nations, and hence many ways for today's scholars to analyze these challenges. What remains central to these challenges, however, are arguably the following three aspects : (1) the rude awakening in both nations to the sudden arrival of much more advanced technologies spearheaded by gunboats from the West, (2) the erosion of the government' state capacity (the government being the Qing court in the case of China and the Tokugawa shogunate in the case of Japan) as it failed to defend the sovereignty against the foreign aggression, and (3) the political difference between the ruling regime and its potential political opponents became widened, while the political difference between the regime's potential opponents become reduced.

To reflect (1), we consider the crisis brought about by the West gunboats as an advent of the more advanced technologies that the two nations could absorb only after they were capable of supplying an adequate amount of public goods as a facilitating infrastructure. Accordingly, at t^* , the crisis also brings about a productivity shock $\beta(s(t))$ such that, for all $t \geq t^*$,

$$\beta(s(t)) = \begin{cases} \beta & \text{if } s(t) < \underline{s}, \\ \beta^n > \beta & \text{if } s(t) \geq \underline{s}. \end{cases}$$

In other words, should there be peace at $t \geq t^*$, the productivity gain can be enjoyed if and only if $s(t) \geq \underline{s}$. Should there be a conflict in $t+1$ followed by peace in t , the productivity gain can be expected to become materialized after the conflict if and only if $s(t) + \alpha(1 - s(t)) \geq \underline{s}$; and furthermore, if the conflict is followed by another conflict in $t+2$, then the productivity gain is expected after two periods of conflicts if and only if $s(t) + \alpha(2 - \alpha)(1 - s(t)) \geq \underline{s}$. We therefore define two more thresholds: \underline{s}^1 , which is the threshold of $s(t)$ above which, after one period conflict, the expanded state capacity can help materialize the productivity gain, and \underline{s}^2 , which is the threshold of $s(t)$ above which, after two-period conflicts, the expanded state capacity can help materialize the productivity gain:

$$\underline{s}^1 \equiv \frac{\underline{s} - \alpha}{1 - \alpha}, \quad \text{and} \quad \underline{s}^2 \equiv \frac{\underline{s} - \alpha(2 - \alpha)}{(1 - \alpha)^2}.$$

Apparently, $\underline{s}^2 < \underline{s}^1$.

We demonstrate the potential impact of such a productive shock in the following two figures. In both figures, three light blue lines indicate \underline{s}^2 , \underline{s}^1 , and \underline{s} respectively. In Figure 3, s_1 falls between \underline{s}^2 and \underline{s}^1 . As a result, after A and B oust R , the gain from a subsequent conflict between the two intensifies (given that $s_1 > \underline{s}^2$). Thus, s_1 shifts right to s_1^N . As shown in the figure, economy C , which lies just right of s_1 , which will be under status quo without the productivity shock, will therefore plunge into a conflict followed by another conflict after the productivity shock.

Meanwhile, s_P , which represents the threshold for A to challenge R , while anticipating B to side with itself and subsequently to to enjoy a peaceful joint government, will shift to the

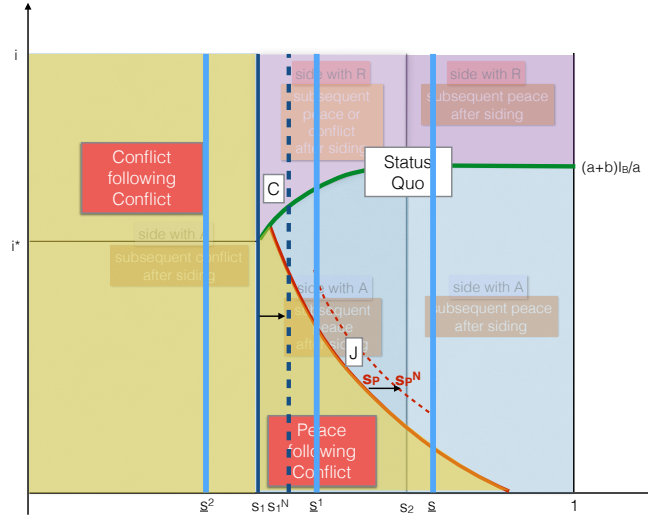


Figure 3: Potential impact of sovereignty shock

right to s_P^N for any $s(t) \in [\underline{s}^1, \underline{s}]$. This is because, for $s(t) \in [\underline{s}^1, \underline{s}]$, a one-period conflict will send the economy to cross the threshold \underline{s} , and hence intensifies the gains from such a conflict. For $s(t) \in [s_1^N, \underline{s}^1)$, however, a one-period conflict alone is insufficient to send the economy to cross the threshold \underline{s} . Thus anticipating subsequent peace between A and B , the gain of conflict does not increase. For $s(t) > \underline{s}^1$, s_P does not change either since the productivity remains constant before and after the conflict. In the figure, economy J , which lies just right of s_P between \underline{s}^1 and \underline{s} , moves from status quo to conflict as a result of the productivity shock. In contrast to C , J , with a smaller political difference between A and B , enjoys subsequent peace and a joint government between these two political forces emerges after the initial conflict.

Figure 4 demonstrates another potential mechanism through which a productivity shock will send the economy. Different from Figure 3, economy C lies left of s_1 but falls between s_C and s_1 . In other words, in such an economy, A decides not to challenge R either because A finds it unprofitable to challenge R while anticipating subsequent conflict against its partner B , or because A anticipates B to stay neutral. Meanwhile, $\underline{s}^2 < \underline{s}^1 < s_C$; as a result, a productivity shock intensifies gains from both conflict after conflict and one-period conflict. Accordingly, both s_3 (in the case when $b < (1 - \alpha)(1 - b)$) and s_C^* shift to the right, sending economy C from status quo to conflict after conflict. Also shown in the figure is economy J , with a smaller political difference between A and B and a larger total state capacity $s(t)$ that falls between s_1 and \underline{s} . For the same reason as in Figure 3, s_P shifts right to s_P^N , sending J into a one-period conflict.

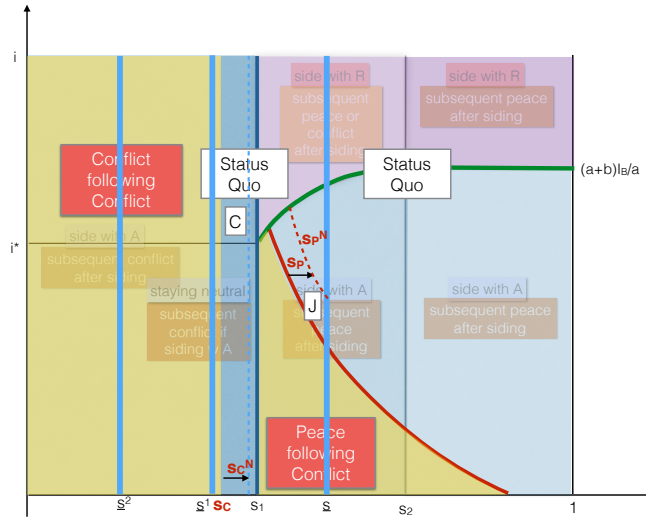


Figure 4: Equilibrium Outcomes

4 Feedbacks between the Model and Historical Information

This section provides a narrative on the stability, decay, and demise of the political-economic orders of Qing China (1644–1912) and Tokugawa Japan (1603–1868) in a manner that parallels the analytical story in the previous section. The stage of economic growth in each country during these periods may be considered as roughly corresponding to the Malthusian phase of economic growth in which a predominant portion of GDP was produced in the diminishing-returns-to-scale rural economy. However, this section omits the technological and demographic variables that are the foci of standard unified growth theory (Galor (2005, 2011)) and instead focuses on the relationship between the political and economic variables: How were the economic orders during the Malthusian phase in each country politically supported and constrained, and how were their political orders eventually undermined by possible external shocks, but above all emerging endogenous political economic potentials, ultimately leading to their demise. This involves both generic as well as unique elements in each country. In order to examine them in a unified manner, the above model provides a useful framework.

The discussion below proceeds in chronological order by comparing China and Japan in similar manners: (1) first, it describes the canonical state of play as the stable strategic relationship between the ruler, the peasantry, and the intermediary agents: the gentry in the case of China and the Han-domain (the incorporated body of the Samurai bureaucrats) in the case of Japan; (2) it then observes the emergence of instability in the canonical order caused by increasingly opportunistic strategies by the gentry and the Han; (3) next, it pinpoints the roles of transitional entrepreneurs and political propositions to bring about coalition-making in a manner reminiscent of the convergence to a type K^* equilibrium; and (4) finally, albeit beyond the scope of the model, it discusses the impacts of the particular modes of transition on

post- transitional conflicts regarding the constitutional design. The historical narrative below is highly stylized and limited to the bare minimum that is necessary for feedback between the analysis and the histories that allows for a reinterpretation of the histories.⁹

4.1 Stylized states of play constituting the canonical states

Under the Qing dynasty and the Tokugawa Bakufu, or Shogunate, from the seventeenth century, economic foundations of China and Japan were peasant-based, whereby the overwhelming share of productive activities, both agricultural and handicraft manufacturing, were managed and carried out by independent conjugal peasant families. The overall productivity, β , of Qing China and Tokugawa Japan, was in a similar level. Par capita GDP of Japan was slightly below that of China in the seventeenth century, caught up with it in the eighteenth century, and grew above it in the mid-nineteenth century. However, compared with par capita GDP of Western European countries with modern technology, β' in our model, those of both China and Japan were vastly behind and the difference between the two was not remarkable.¹⁰

Qing China was technically a centralized empire. However, after the Opium War, administrative and military reforms were led by local leaders, gentry, at the provincial government level. In particular, the modernized division of the Qing army, the New Army, was financed by the provincial governments. Thus, the reformed Qing China in the late nineteenth century was composed of the ruling political force, the Qing Dynasty of Beijing, R , and the ruled political forces of provincial governments.

Tokugawa Japan between the establishment of the Tokugawa Bakufu in 1603 and the Meiji Restoration in 1868 was a federation. The Bakufu, the central government run by the Shogun who was nominally appointed by the imperial court, provided the national public goods like nationwide transportation networks and the national security, as the ruling force, R . The ruled Hans, or Lords, retained sovereignty over domestic affairs. Citizens of other Han domains than the domain directly ruled by Bakufu were neither taxed nor mobilized by the Bakufu. Therefore, Tokugawa Japan was a federation composed of the Bakufu, the ruling force R , and Hans, the ruled political forces outside of the central government, A , B , ...

Qing China

(a) The combination of a land-based tax state and a peasant-based economy It is more easy to see fits between the above two political-economic conceptualizations on one hand and stylized facts on the other for Qing China. More than three-quarters of the official public revenue in Qing China during the eighteenth century was derived from land taxes.¹¹

⁹For more detailed historical information, as well as for more comprehensive references, Aoki (2012), Brandt et al. (2014), and Sng and Moriguchi (2014) may be consulted.

¹⁰See Maddison Project (<http://www.ggdc.net/maddison/maddison-project/home.htm>: Last visited on May 18, 2016) and Fukao, Bassino, Settsu, Takashima and Takui (2015).

¹¹The actual share would be much higher if the unofficial tax surcharges on farmland, as discussed below, were included. There were no official taxes on commerce or manufacturing at the national level, with the exception

The land tax was officially imposed on landowners in the official registry originating in the preceding Ming period. Self-managing peasants may, or may not, have owned the lands they cultivated. But large landlords, estimated to have owned not more than one-quarter of the farmlands, did not manage farming by themselves and they leased out the own lands to peasant families. In that way, the agricultural productivity of the peasantry, which constituted more than 95 percent of the population, was the essential tax base for the Qing ruler. On the other hand, more than one-half of the official public expenditures by the central government were made to sustain the monopoly by the quasi-nomad Manchu Qing ruler over legitimate force. As is well known, public finance and military service were officially administered by the centralized bureaucratic apparatus, which was served by scholar-officials selected through multi-level imperial examinations. The essential reason for the adoption of this indigenous, time-honored apparatus by the Qing ruler was that it served as a device to prevent the possible emergence of challenges by landownership-based, force-backed local powers.¹²

But there was more than just that. There was a type of complementarities between Qing governance and the peasant family-based economy. First, the Qing's ability to collect taxes depended on the peasants' productivity on their cultivating farmlands, while the security of the peasants' productive activities, property rights in productive assets and inventories, were to be assured by the Qing's centralized military and police power against possible aggression by foreigners, competing armies, bandits, and so forth. It should be noted that this differed from the situation in medieval Europe when manufacturing activities and assets had to be protected by the walls of autonomous city (Wong (1997); Rosenthal and Wong (2011)). Secondly, however, productivities of domestic manufacturing by the peasantry can be monitored by the ruler only imperfectly. Theoretically, then, high exploitative taxation on farmland would have distortional effects on peasants' effort allocation toward non-taxable domestic activities. Then it was in rulers' interests to provide more public goods to agriculture and impose less than maximal tax on the peasantry than otherwise (e.g., Bardhan (2014)). Thus the Qing Emperors in the eighteenth century took explicitly a pro-agricultural policy stance: for example compiling voluminous series of official books on agricultural engineering (Wong (1997)).

(b) Three-level strategic complementarities Set aside from the centralized military power, the size of the Qing government apparatus was extremely small relative to the scale of national land and the size of population (e.g., Sng and Moriguchi (2014)). There were said to be fewer than 20,000 office-holders vis-à-vis the population of some 380 millions in 1820. At the county level, on average a magistrate ruled over a population of 200,000 or more. The solution was tax farming by the gentry who resided locally. These were the people who had passed the imperial examinations at least at the county levels but did not hold official

of taxes on licensed sales trade.

¹²This is originally due to an insight by the Japanese Sinologist Konan Naito. On this, see Brandt et al. (2014), p.49..

positions They numbered about 700,000, occupying 0.18 percent of the entire population in 1842 (Chang (1955), p.102). The amount of land owned by the gentry was not as much as that owned by the gentry in contemporaneous England. In fact, a large majority of the gentry were even landless (Chang (1962)). However, some enterprising people from the gentry became active in intermediating public finance, both in tax farming and public goods provision. A xxx-page long book by a political scientist on a comprehensive treatment of public finance in the early eighteenth century provides ample examples and episodes of moral hazard behaviors emergent from this practice, often tricky and ingeniously crafted. It is certainly a delightful reading for economists who believe in the primacy of hidden self-interests as driving force of human behavior. Certainly moral hazard behavior must have been rampant then as described. However, there were also collective, institutional containing responses to them.

In the Yangzi delta region where commerce and agriculture were the most advanced, the gentry formed formal organizations, known as landlord bursaries (*zuzhan*). They collected rents from (tens of) hundreds of lease-holding peasant families, and from these rents they paid taxes to the magistrate, charged fees to be kept for themselves, and distributed the to the remainder to the landlord members of the bursaries. They also sought the assistance of the magistrate to use official force and legal provisions whenever necessary to settle any rent arrears by their tenants (Muramatsu (1966)). For political correctness, these organizations were often disguised as clan organizations, but in fact they assumed corporate characteristics, such as voluntary participation by the landlords including those unrelated by blood, perpetual life independent of lives of individual members, and permanent administrative organizations. Thus the local officials and the gentry strategically complemented each other to mutually facilitate tax and rent collection.

There were, however, also subtle elements of complementarities between the gentry and the peasantry as well. Some peasant families disguised their land ownership as lease holdings from the gentry to hide them from the magistrates and their clerks so as to protect themselves from abusive tax surcharges by local officials, while the gentry extracted protection fees from the peasant families in the disguise of rents.¹³ In addition, because the actual length of the terms in office of the county magistrates was short, from one to five years, much of the practical management of local public goods, such as the repairing of roads, the building of bridges, the construction of dikes, and so forth, was in the hands of the local gentry. Further, in the early nineteenth century and thereafter when the security of peasants' property rights was increasingly threatened by bandits, secret societies, rebellious religious groups, and so on, the powerful gentry became active in organizing village level militia training groups, called *tuanlian*, which existed in some tension with the official local security forces (Kuhn (1970)).

Thus the gentry possessed a Janus-like character. One face was directed to the dynastic ruler and the office-holders, facilitating the latter's governability while aided by the latter in

¹³Moral hazard problems at the county level caused by tax farming are well documented by Zelin (1984) and studied empirically by Sng (2014) using a principal-agency framework.

sustaining their own political and power in the locality. The other face was directed to the peasantry, providing local public goods and security for the peasants' property rights, thereby achieving economic gains, local political power, and social prestige of their own as well. Let us refer to this stable pattern of strategic linkages among the dynastic ruler, the scholar-officials, the gentry, and the peasant families, which sustained the complementarities between the Qing tax state and the peasant family-based economy, as the Q-canonical state of play. As the complementarities were essentially strategic-based, their sustainability could become problematic if the major agents accumulated a capacity to deviate from the canonical state and modify it. This indeed became the case in the second half of the nineteenth century and on which prepared for a path to transition out of it.

4.1.1 Tokugawa Japan

(a) Tokugawa Japan: A federalist regime of land-based tax states The state of Tokugawa Japan was likewise essentially a land-based tax state, but its entire territory was mutually exclusively divided into the largest domains governed by the Bakufu (Shogunate government) and the rest into some 260 domains, large and small, each governed by the respective Han headed by Daimyo (the Lord) under a federal regime. Although the Bakufu, as the central government, assumed the diplomacy and the supreme command over the Hans' military forces for the national security, and also controlled about one-quarter of the total taxable farmlands of Japan as its directly ruled domain, that is, $r < 1/2$, there was no difference between the Bakufu and the Han as regards their nature as a land-based state in that each had exclusive rights within their respective domains to universal taxation on the farmland cultivated by the peasant families listed in the official registry at the village office based on through "land survey" by the Bakufu and individual Hans from the 1590s to the 1670s, as well as to legitimate political force to secure internal as well as external safeties of its own domain. Both public finance and military affairs were administered in each domain by the body of inheritable samurai-bureaucrats, aiming at its own Han as permanent corporate entity beyond the lifetime of individual Shogun/Daimyo.¹⁴

As the central government, the Bakufu assumed residual rights of control over across-Baku-Han issues such as foreign diplomacy, the mintage of coins used as legal tenders, and jurisdiction of inter-Han legal disputes.¹⁵ The supreme command for the national defense was also assigned to Bakufu as further discussed below, but actual defense was considered to be

¹⁴Both the Shogunate and the Daimyo was advised by the cabinet composed of elite vassal samurais. When the cabinet decided that their lord was inappropriate as a Daimyo, either morally, politically, mentally or else, the cabinet confined him in custody and search for a successor among his brothers or a possible adopted son. Instances of this practice were not rare, suggesting the corporate nature of the Han (Kasaya (1988)).

¹⁵For the monetary policy, the Shogunate exclusively issued national fiat currency in terms of gold, silver, and copper coins. While external balance had to be met by the Shogunate currency, the Han were allowed to issue shogunate-currency -denominated domain-specific promissory notes as legal tenders in transactions with merchants (Nishikawa and Amano (1999)). Also, the Han were allowed to issue short term rice-denominated treasuries, whose spots and futures were traded in the rice market in Osaka (Hamori, Hamori and Anderson (2001); Wakita (2001)).

a collective responsibility of the Han as well. It used to be conventionally taken for granted that foreign trade was a monopoly of Bakufu through an only officially open port of Nagasaki. However Satsuma-Han on the southern tip of Japanese archipelago was engaged in lucrative trade with China through the Ryukyu Kingdom, while Tsushima-Han in the Japan Sea with Korea (Tashiro (1999)).

Thus, Qing China and Tokugawa Japan appeared to have shared the same characteristics of the land-based, tax state, with the latter being of a federalist kind. However, there were differences between them in their substantive forms mainly regarding two points. The first one is in whether the property right of peasant farmers was formally protected by the state, and the second is in the relative ability of the administration to geographical terrain it governed. Japan, geographically much smaller than China, was a federation of fragmented Hans. The state was geographically closer to its citizens than in China, which formed a base of stronger state capacity of Tokugawa Japan than that of Qing China (Sng and Moriguchi (2014)). The closer state strictly protected property right of peasants. Given this property right protection, heavier taxation rate in Japan was incentive compatible such that tax collection was largely delegated to villages as described later.

In China, the official responsible for collecting taxes at a region or a locality was nothing but an agent of the centralized local administration (*junxianji*) of the dynastic ruler. We have already discussed in Section 3.1 that the workings of the small body of the centralized local administration should be understood in the context of embedding web of gentry's networks (*guanxi*).

Let us now look at inside of the land-based tax state of each Han to see if there emerged new elements contributing to agricultural productivity and political transaction costs. In parallel to the military-economy separation described above, the urban-living vassals and regular soldiers of the Daimyo were organized into the permanent corporate body of the Han and were compensated for their administrative and military services in terms of shares in Han's tax revenues. As said, the Samurai was essentially not a legal owner of the farmlands either individually or as a collectivity, in their own domain (Iwahashi (1999)). The Shogun and Daimyo assumed only taxation authority as a (sub) state and they guaranteed land property rights to cultivating peasants. Thus relations between the samurai and the taxpayers in the village became impersonal, public relations. It is a striking difference from the medieval European feudalism in which the lords, by themselves being tenants of the nobility holding the fief, enjoyed various forms of services rendered by peasants on the estate, say, demesnes, serfs, and freeholders with personal obligation of homage, labor, and a share of the produce to in exchange for military protection.

In practice of taxation, the village office, led and managed by elite peasants, was responsible for collecting land tax: a practice called village-undertakings (*mura-uke*). The tax rate was predetermined by bargaining between the Bakufu/Han government and the village office. Once it was determined, it was usually hard to change. As the state of play between the Han

corporate body of samurai and the village thus generated a “pact” of exchange between land property right protection and voluntary tax payment (Asao (1994)). The peasantry as a collectivity became the residual claimant by fulfilling their tax obligations. The village was also responsible for developing local infrastructure such as irrigation and maintaining internal security, fixing internal disputes as the court of first instance and the threat of social ostracism prevented village residents from deviating. On the other hand, the corporate body of the Bakufu/Han was able to secure tax collection by following the pact.

4.2 The emergence of resource-based, decentralized capacities that destabilized the canonical order

4.2.1 Qing China

The emergence of de facto fiscal federalism More so than the Opium War which was provoked by British troops, a first major challenge against the Q-canonical state of play was the internal Taiping Rebellion (1850–64). During this period, the population was reduced by some 50 millions (about 13 percent of the population), including death toll due to famine and starvation.¹⁶ The military capability of the regular armies of the Qing was too weak to resist the rebellion. The final defeat of the rebellion was owed to the quasi-public armies organized by elite scholar-officials off duties on the basis of networking the aforementioned village-based militia groups. Local gentry and peasantry in the relatively affluent Yang-zi Delta region whose property and lives were threatened by the rebel’s aggression were recruited to join the armies. The heavy cost of supporting the quasi-public armies was mainly financed by the introduction of regional commercial taxes. This was a major departure from the principle of avoidance traditionally observed in the Qing tax state in which the scholar-officials were separated from the indigenous sources of economic gains and political force. It became clear that the Q-canonical state could not be sustained against domestic rebellion without the strategic support of the elite gentry’s conflict-management capacity.

The elite gentry chose to continue to play with the dynasty even after the settlement of the mass rebellion, however, but with much more autonomy. Fifteen former officers of the quasi-public armies later became viceroys and provincial governors. They engaged in developing their own industrial and military capacities in respective provinces by increasingly relying on the regional commercial taxes and promoting homemade industrial policies. Such opportunities were facilitated by the development of commerce at the treaty ports that intermediated the rising commercialization of products by peasant-family firms in the hinterlands (Brandt (1989); Keller, Lin and Shuie (2012)). Some provincial governments acquired the right to mint higher denominations of copper coins to facilitate trade and obtained substantial seigniorage, as the value of copper appreciated by approximately 25 percent against the officially used silver between the end of the Taiping Rebellion and the turn of the century.

¹⁶The number is from Maddison (2006), Appendix Table 5a, p. 538.

The second major trigger for altering the nature of the rural-based tax state was the Qing defeat in the Sino-Japanese War (1894–95) and the devastating impact of the Boxer Uprising (1900). These two incidents made even the conservative and inward-looking imperial court aware of the need to strengthen its military capability through modern training and improved weaponry. It thus decided to replace the traditional Eight Banners Armies by the New Armies to be established in the provinces. After the 1905 abolition of the centuries-long tradition of the imperial examinations, many aspiring youths entered the newly created military academies, and hundreds were sent annually by the government to Japan for military education. Members of this new generation of military trainees were eventually appointed commanders, councilors, or officers in the provincial New Armies, replacing the scholar officials as an autonomous organization equipped with legitimate force. The costs of decentralizing military power to the provincial levels were borne by the respective provinces.

Parallel with the increasingly autonomies of the provincial governments and the new armies, elite gentry in urban centers were able to develop stronger strategic alliances with them. They were made to bear the costs for the provision of local public goods as well as costs of supporting new armies in the form of arbitrary tax assignments and voluntary contributions. However, the development of economic and social infrastructure, and the internal security afforded by military force of the new armies, facilitated the expansion of trade and secured their commercial and private property rights and monopoly market positions. In this way, the focal point of strategic complementarities between the gentry and the government now slanted to the province level, on the basis of the regional commercial development of the peasant-based rural economy. Thus the Qins tax state increasingly incorporated elements of a de facto fiscal federalism, limiting the scope of the Board of Revenue only to control of the marginal transfers from the wealthier to the poorer provinces. Accordingly, the local elites shifted their strategic positions from complementing the dynastic ruler to substituting for it, if not yet openly challenging the Qing ruler.

4.2.2 Japan

Internal challenges within the Bakufu-Han regime In the 1830s situations emerged that destabilized both the Bakufu/Han-Village pact and the Bakufu-Han federal regime. Public finance by the Han traditionally had relied on land tax, often paid in kind, with being supplemented by borrowing from financiers in Osaka and Edo based on long-term relationship and issuance of short-term treasury notes denominated by rice, which were traded at the secondary market, the Dojima Rice Market at Osaka. However, the Han governments in the productively more-advanced domains began an attempt to capture rents from the increasing commercialization of their peasant family-based economies. Take the example of the Choshu Han that was to play an important strategic role in the forthcoming Meiji Restoration. The production of commercialized crops and handicraft goods by peasant households developed to such an extent that more than one-half of the Han GDP was produced outside of traditional

farming.¹⁷ The Han government set up commercial taxes imposed on licensed merchants. The fiscal reforms were pursued by radical lower-class samurai bureaucrats who took over the Han government through a coup d'etat.

Even within the Bakufu domain, there were widespread peasant revolts during the last decade of Tokugawa rule. By then, the village-undertaking in the Bakufu domain had been institutionalized as a formal pact between the local offices of the Bakufu government and the quasi-official organizations of village representatives who were the relatively well-to-do farmers. But the latter came under increasing pressure from the middle-class peasant activism and the lower-class peasant militancy. Although the Bakufu tried to extend its tax basis to commerce as license fees from the mid-18th century, the effort fell further behind expansion of the secondary and tertiary sector of the economy. Largely, the Bakufu failed to extend tax basis along with economic development in the nineteenth century. Further, while the village-undertaking system was less costly as taxation mechanism, it made difficult to track increases in agricultural productivity. Indeed, land tax revenue of the Bakufu hit the peak in the early eighteenth century and became stable since then, although per capita GDP began to rise in the early nineteenth century (Smith (1988); Fukao et al. (2015)). The tax burden ratio in the Bakufu domain is estimated fall from 40 percent in the late 17th century to less than 30 percent in the 19th century.¹⁸ The weakening taxation power was widely observed among other Han except for a few domains that succeeded in reforms such as Choshu Han. Improved productivity and stagnant tax revenue meant an increase in state capacity slackness, and hence, an increase in the return on conflict.

The relatively weakened state capacity of the Bakufu was revealed when the US navy arrived at Edo bay in 1853 and the Bakufu signed the Treaty of Amity in 1854, which forced Japan to open several ports, to unilaterally provide the US with the consular jurisdiction and the most-favored-nation treatment, and the Treaty of Amity and Commerce in 1858, which forced Japan to join free trade regime and to unilaterally wave tariff autonomy, under the military threat from the US navy.

Encounter with the US navy also indicated that new technology. β' , was now available to the Bakufu and Hans. The Bakuff and Hans began preparations to adopt the modern technology. Building the modern navy by the Bakufu, under the Falig of the Rising Sun, was part of such efforts.

4.3 The final events: Transitional entrepreneurship and salient public propositions

The final exits from the canonical state of play was realized in each country by the formation of a strategic alliance against the ruler among determined challengers, on the one hand, and

¹⁷For the political economy of the Choshu, see Nishikawa (1987) and Saitô (2005); and for its political role as an entrepreneurial challenger inclusive of the peasantry, see Tanaka (1998).

¹⁸See Nakabayashi (2012), p. 382.

opportunists or moderates, on the other, in a manner reminiscent of a transition through an equilibrium. However, such a formation was achieved only after trial and error on each side, involving strategic experiments by transitional entrepreneurs. During the final stage a broadly acceptable and legitimizing proposition swept a way to a transition by making a broad anti-dynastic coalition possible.

4.3.1 Japan: The Meiji Restoration

While the Komei Emperor sought a strategic alliance with the Bakufu, he was xenophobic. In 1863, he promulgated the Imperial Order of Expel the Barbarians. Although the Bakufu notified suspension of free trade to Western ambassadors following the ordinance, this obvious breach of the 1858 treaties was declined and the Bakufu failed to follow the ordinance. The Choshu Han dared to bomb Western ships, but its batteries were quickly occupied by the Western allied forces. Meanwhile, in an attempt to break the Bakufu-Emperor alliance, the Choshu Han mobilized its military force in Kyoto where the Emperor resided in 1864, but its attempt failed. The Bakufu acquired the Imperial Order of Punitive Expedition of the Choshu Han from the imperial court, and the Choshu Han surrendered to the Bakufu army on march. This first invasion of the Choshu Han in 1864 showed that the Bakufu-Han regime still remained a stable equilibrium.

However, another militarily powerful Satsuma Han, also bombed by the British Navy in retaliation of the killing of an Englishman by its member, became also aware of the need to remove the Bakufu from the ruling position to build a strong strong nation. In 1866, the Satsuma Han and the Choshu Han concluded a military alliance.

In 1866, the Bakufute acquired the Imperial Order of Punitive Expedition of Choshu Han from the imperial court again. However, this second raid failed to have the Choshu Han surrender and ceased fire. The failure of the second raid to Choshu indicated a destabilized state in both facets of the Bakufu-Han regime and Bakuf/Han-Village pact. On the one hand, observing relative decline of the Bakufu power, the moderate Hans of the Bakufu allied forces had low morale. On the other hand, military logistics were part of the Bakufu/Han-Village pact, and the burden was supposed to be taken by villages. Second request of logistics within three years was considered overload.

By skillful diplomacy Satsuma and Choshu Han eventually succeeded in forming a formidable alliance with the moderates, the Tosa Han and the Hizen Han. The Tosa had formerly advocated the establishment of a congress in which all the Daimyos were to be represented with the Shogun as a possible chair, while the Hizen had been active in industrial policy by taking an advantage of its position responsible for the defense of open Nagasaki port. They made the slogan Reverence for the Emperor as their sole public proposition, while shelving their potential differences on all other political issues. Further, the Komei Emperor died in 1866. The Bakufu lost its ally within the imperial court.

Losing ground, the Shogun Yoshinobu Tokugawa decided to return the title of the Shogun

to the new Meiji Emperor in 1867, hoping establishment of a new government organization led by Tokugawa family. Meanwhile, the Choshu-Satsuma alliance acquired a secret imperial order of expedition of Yoshinobu Tokugawa. They mobilized their troops against the Bakufu, and Yoshonobu Tokugawa surrendered in January, 1868. Although Hans in Western Japan stood by the imperial court and the Choshu-Satsuma alliance, Hans in Eastern Japan with the Bakufu navy, which refused surrender. Finally, the Bakufu navy surrendered to the imperial court in May, 1869.

The Bakufu-Han regime had formed a stable federation, which meant that surrender by the Shogun himself did not imply a regime change. For the Meiji imperial government to be installed on a firmer basis, a strategic alliance of the Han federation itself was to be abandoned. The Choshu, Satsuma, and Tosa Hans decided to transfer their troops to the imperial government as the Household Division of the imperial army in 1871, and the imperial government declared abolition of the Han federation. Sovereignty including domestic affairs exclusively belonged to the imperial government, feudal lords were disarmed, and the imperial army was reorganized as the only ground forces. Ex-lords including Tokugawa family and samurais were compensated by fixed rate government bonds. The Bakufu-Han regime equilibrium was replaced by another stable equilibrium, a centralized nation state, at this moment.

The essential factor of Bakufu/Han-Village pact was landownership protection. The Land Tax Reform Act of 1873 reconfirmed existing landownership of peasants. Meanwhile, elite farmers were engaged in the Freedom and Civil Right Movement toward parliamentary democracy. The movement echoed in the imperial government, where a conflict between the young bureaucrats who sought a constitutional state and the emperor and nobles who sought a restoration of ancient monarchy. The pressure from the people supported the former and the imperial government promulgated the Imperial Order of Gradual Transition to the Constitutional State in 1875.

The Constitution of the Empire of Japan was drafted, promulgated in 1889, and came into force in 1890. Under the constitution, the administration, the Diet (legislature), the court, the staff headquarters of the imperial army, and that of the imperial navy were perfectly independent to each other. In particular, the veto given to the House of Representatives of the Diet for any legislation including budget legislation led to necessity of coalition between the administration and the House by transition to a party cabinet system, which began around 1900.

4.3.2 China: The Xinhai Revolution

As the weakened governing capacity of the Qing ruler became ever more apparent, the Confucian fiction of governance as the mandate of Heaven began to lose its legitimizing power. Prior to the emergence of Western nationalism, the most appealing revolutionary slogan in southern China in the late nineteenth century was Oppose the Qing, Restore the Ming, meaning the restoration of governance by the Han ethnic group over the territory of the preceding Ming

dynasty. Later in 1905, influenced by Western nationalism, the oath of membership to Sun Yat-sen's Revive China Society used the rhetoric of Expel the Tartar Barbarians, Restore Zhonghua meaning in classical Chinese the middle country where moral and literary principles thrive, and Establish a United Government.¹⁹ This anti-Manchu proposition gradually captured the minds of the Han people, particularly the young soldiers in the south.

After several abortive attempts of violent actions by the radicals under the entrepreneurial influence of Sun Yat-sen, finally in 1912 the uprising of the New Army in Wuhan was able to proclaim the independence of Hubei province from Qing rule. This move was quickly followed by similar declarations by the New Armies and/or the consultative gentry councils in fourteen other provinces. Their anti-Manchu sentiments among them were symbolized by their eighteen-star flag representing the number of provinces of Han ethnic origin. Representatives of these provinces elected Sun Yatsen as president of the provisional republican government. Under Sun's influence, they proceeded to declare the establishment of a republic to be run by people of the five nationalities (the Han, Manchu, Tibetans, Mongols, and Muslims) rather than by the Han alone, however, and after heated debate they adopted the five-star flag instead of the eighteen-star flag.

This inclusive proposition was effective in forming a broader transitional coalition and reducing the resistance by the Qing ruler and his supporters. Sun offered to yield the presidency to Yuan Shikai, a formidable military commander of the New Army in the capital province of Zhili, if Yuan could coax the imperial court into voluntary abdication. Yuan had been under imperial orders to suppress the independence movement militarily, but the softened political stance of the Revolutionary group vis-a-vis the Manchu ruler certainly made him easier to accept this offer. The young imperial ruler had no choice but to abdicate on the assurance that he could stay on with his family and staff in the Forbidden Palace before moving to the Summer Palace.

4.4 Impacts on the post-transition constitutional agenda

The final exits of both China and Japan from their respective canonical states of play had certain basic common features. They were realized when moderates or opportunists abandoned their state-abiding strategies and a broad anti-dynastic coalition was formed, subsequent to transitional entrepreneurial actions by the determined challengers. As a result, in both Japan and China, the transition from a pre-modern state was realized in a relatively bloodless way. However, there is also a difference between their two paths that may have had an impact on their respective subsequent institutional evolutions.

In the case of the Meiji Restoration, the formation of a transitional coalition was negotiated and implemented among players with similar backgrounds as the samurai-bureaucrats who had

¹⁹In 1905, the Tongmenhui, a united revolutionary group also led by Sun Yat-sen, having by then been influenced by Western socialism, modified this oath by replacing the third item with Establish a democratic state; Distribute land property rights equally.

administered their own tax states within their domain. Landownership of peasants under the Bakuf/Han-Village pact was reconfirmed by the imperial government. While the people moved forward for a constitutional state in the freedom and civil right movement, they requested a greater participation in the new government instead of toppling it. Further, the movement helped young bureaucrats in the imperial government persuade the Emperor and the noble, who had dreamed restoration absolute monarchy of the ancient period, to accept a constitutional monarchy.

Once transition toward a constitutional state was determined, the spectrum was not so wide. While liberal bureaucrats, ex-bureaucrat politicians, and wealthy farmers tended to pursue the British style parliamentary cabinet system, bureaucrats from the Choshu Han pushed for the Austria-German style where the administration was independent against the legislature. At largest, their difference was that between Germany and the United Kingdom. Republic, and of course, socialist state, were basically outside of the spectrum.

Therefore, both in the background and in the vision for the future, ideological difference i was small. Reconfirmed property right of peasants stabilized the new government, making citizens' contribution be incentive compatible. Further, once the constitution came into force in 1890, the House of Representatives, which was stipulated to discuss annual budget before the House of Peers and had a veto on an increase in budget, extended its power against the administration. From the late 1890s, the majority party of the House of Representative came to join the cabinet by sending ministers, and in the 1920s, the majority party of the House of Representative held the office of the prime minister.²⁰ This pledged voice from tax payers enabled the imperial government to safely grip its state capacity.

In contrast, the Xinhai Revolution was realized by ad-hoc alliance-making among agents of varying backgrounds and varying policy orientations: from the self-claimed revolutionaries led by Sun Yat-sen, to the liberal officials and soldiers in the New Armies in the south, to the urban elite gentry in local public offices and quasi-private domains, and even to conservative and ambitious military leaders, such as Yuan Shikai who later proceeded to make a futile attempt to become emperor. In the sense that the way in which the strategic capacities and orientations of the players were diverse and were mobilized in a manner of "proceeding separately, but hitting the same target together," the Xinhai Revolution may be thought of being more consistent with the conditions for a transition.

It was as if a structure somewhat homeomorphic to the pact between the Samurai, Inc. and the village (officials) in the T-canonical state of play were replicated at national level.²¹ In contrast, soon after the euphoria of Xinhai Revolution, China faced a formidable challenge for the building of a nation state, which required the reconstruction of administrative bureaucracy, legitimate force, and fiscal capacities in the vacuum left by the demise of the Qing ruling apparatus. Its quintessential question was how to strike a balance between the traditional cen-

²⁰See Mitani (1995) and Banno (2014).

²¹As Fukuyama (2014) and Banno (2014) point out, it would be possible to posit a counter-factual history where such system evolved in a more English style democratic direction absent an autonomous military.

tralized unification and the emergent trend toward federalism or regionalism. The Provisional Constitution of 1912 stipulated a unitary state, but it did not define the organizational position of the provincial governments within the framework of the unitary republic, relations between the (civic) administration and the army, and so on. Indeed, underlying the conflict between centralization and federalism, there was a fundamental political-economy issue about how the potential of the peasant-based economy could be linked to the political state in lieu of the Qing tax state. Although the prosperity of the federalist-oriented provinces prior to the transition was based on their market linkages to the developing peasant-based economy in their hinterlands, there was no clear political program among the transition-seekers to develop this potential.²²

During his tenure as president of the Republic, Yuan Shikai succeeded in achieving a modicum of unification of the national economy, as evidenced by the expanded circulation of the national currency. The appreciation of silver during World War I contributed to its wider acceptance as well as to a reduction in the real value of the government's debt obligations to foreigners. After the failure of abortive attempt by Yuan Shikai to become emperor by himself and subsequent his death in 1916, his generals began to compete with one another for military hegemony that would assure them an access to land taxation. To counter this, Sun Yat-sen attempted to advance to the North to complete his unification agenda, organizing his own troops and relying on fiscal resources in the relatively prosperous South. The military conflicts thus put colossal pressures on the public finance capacity of the provinces. Chen Jiongming, civil governor of Guangdong province and commander-in-chief of the Guangdong Army, resisted the Sun's unification drive by force and advocated the idea of a "federation of self-governing provinces" (*liansheng zizhi*) along the legacy of the autonomous tendency in the southern provinces during the late Qing era. Even young Mao expressed a federalist inclination, just three years prior to his joining in the formation of the Communist Party in 1921 (Mao (1920/1992). pp. 526–530). The uncompromising three-way contest without much room for strategic complementarity was only settled by the establishment of military hegemony under Chiang Kaishek.

5 Summary and concluding remarks

This article combines an analysis of a new 3-person game model and comparative institutional interpretations of Chinese and Japanese political-economic histories. The basic idea is to conceptualize an institution as a stable state of play in a game and its transition as a move from one stable state of play to another. In lieu of the 2-person game and global games in the

²²In his speech at a reception by the Shanghai Newspaper Guild Sun Yat-Sen (1912) expressed his agricultural land policy as that parliaments were to determine farmland prices and government would then charge a tax in a fixed proportion, say 10 percent, to the value, and government would acquire a portion of the ownership equivalent to the subsequent appreciation in value. Its implementation would be far from realistic in terms of administrative burdens and would be inconsistent with wither of the peasants and landlords incentives for economic development.

literature on regime change, this article proposes a 3-person, 2-period model. The introduction of a third party, dubbed the opportunist in this article, enriches the performance of the game. The model predicts that, if certain technological and/or preference conditions hold, there may be two types of equilibria, dubbed the type- K^* and the type- K_* , with a high or low likelihood of transition, respectively. However, the selection of one of the two possibilities cannot entirely be resolved by an assumption of individual rationality in terms of learning and dynamic adaptation. Instead, this article points to two possible mechanisms for facilitating the institutional transition: a public-proposition-based coalitional agreement between the challenger and the opportunist; and a transitional entrepreneurial role by the challenger. The article then illustrates and substantiates this analysis-based story with a historical narrative on two major events of institutional transition from pre-modern states: the Meiji Restoration in Japan and the Xinhai Revolution in China. Paralleling the historical narratives with the performance characteristics of the strategic model facilitates new comparative interpretations of the two events.

The analysis and narrative hopefully make it clear that the fundamentals of a game of institutional resilience versus transition are *economy-based* political capacities among agents. The sizes, relative distribution, and interactive uses of these capacities among the agents determine the likelihood of an institutional status quo, resilience, or transition. In turn, a political transition may accelerate or inhibit technological and human capital development to achieve economic process, depending on the ways in which the agents' political capacities are generated and mobilized. Thus, a political institutional transition may be regarded as co-evolving with a phase-shift in the economic growth path that is envisioned in unified growth theory.

Admittedly, the model and the interpretation of the historical narrative in this article only focus on some particular aspects and cases during the institutional process. As a result, there are certainly limits to the scope of the model, requiring both some comment and an apology. First, the model focuses only on the endogenous nature of the institutional process. Of course, in actual development processes some external shocks, such as foreign military and economic impacts, natural environmental disaster, and so on, may prompt strategic readjustments among the domestic agents. This was particularly conspicuous during the period of our narrative—nineteenth-century China and Japan. More generally, any institutional process proceeds through feedbacks of the environmental dynamics to the endogenous play of domestic game. However, it is the evolving configuration of strategic choices by the internal agents that ultimately shapes the domestic institutional forms. Attributing the sources and the consequences of the institutional process entirely to foreign shocks could mislead us to a biased historical awareness of the practical implications. Of course saying so does not imply that the impacts of Western imperialism (and Japanese imperialism in the first half of the twentieth century) are regarded as irrelevant or insignificant for understanding political-economic processes in East Asia since two centuries ago. The players' beliefs and values about the external

impacts can be understood as implicit in their payoff functions and their derived strategies, however, as exemplified by the public rhetoric such as Expel the Barbarians.

Second, some characteristics of the institutional transitions from pre-modern states in China and Japan may appear to be rather unique as that of revolution. They may include the crucial role of some inside agents in the old establishments as active carriers of transitional movement; the removal of the dynastic rulers without bloodshed; and the absence of prior agreements about the post-transition political agenda among the challengers. These phenomena may be better explained in terms of the 3-person game rather than the 2-person game which would rather entail only a black-or-white outcome. But does this mean that a 3-person model, more broadly conceived, is East Asian-specific and irrelevant elsewhere? We may wonder however if it is not the case that the North and Weingast (1989) perspective on the Glorious Revolution, as well as that of Weingast (1997) on the fundamental nature of the rule of law, is also built on insights from a class of 3-person game. What about the nature, processes, and consequences of the fierce conflicts between moderates and radicals surrounding the decay, demise, and legacy of ancient regimes, say, through the French Revolution or the February-October Revolution in Russia? It is hopeful that, although limited in scope and simple as a model, this article can provide food for thought on the possible relevance and enrichment provided by a broader class of 3-person games as a useful toolkit for comparative historical analysis beyond East Asia.

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