

# HOW POLITIES CHANGE: A Strategic Perspective on China-Japan Historical Comparison

Masahiko Aoki  
Stanford University

## I. Introduction

In the impressively broad account of economic history, *Why Nations Fail*, Acemoglu and Robinson (2012) attempted to substantiate the proposition that the quality of polity matters for economic performance. The “inclusive” political regime, not the “extractive” regime, should be a critical prerequisite for sustainable economic growth. They illustrate the argument, for example, by the case of North Korea versus South Korea. The contrast of economic performance between them is obvious. However, the origin of the divide in polity in this case was due to a somewhat arbitrary drawing of the national border in international power politics after the Second World War. In a broader and longer-run perspective, does the proposition generally hold? If so, what determines the quality of polity? How can an inclusive polity be created? A reading of their book does not necessarily seem to provide a clear answer of generic relevance to these issues, however.<sup>1</sup> We may ask therefore more generally: *Is the polity prior to the economy?*

The present article proposes an alternative view: the polity and the economic organizations (and thus economic performance) co-evolve through a long historical process rather than the former is prior to the latter as shorter-run observations might often appear to suggest. Theoretically, the view is derived from a game-perspective in which institutions both in the polity and the economy are regarded as emerging, sustaining themselves and changing endogenously through strategic behaviors of agents. Specifically, the *political state* is identified with a deep *stable state* of the political game. Then, political

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<sup>1</sup> For a similar assessment, see the critical review of the book by McLeod (2013). To be fair, it may be noted that they discuss ‘virtuous cycles’ and ‘vicious cycles’ between political institutions and economic institutions. Also in a recent article, they state that “the extant political equilibrium may not be independent of the market failure: indeed it may critically rest upon it” (Acemoglu and Robinson 2013: 174). However, their advice still rests on the position that, to avoid the pitfall of reinforcing rent-seeking behavior, economic *policy* need to be carefully designed by taking into its future political equilibrium (italics is by the present author). Below a distinction is drawn between the polity as an institution and the policy as emanating from it.

institution and economic organizations/institutions are linked together through complementary and/or substitute relations within, and across individual agents' strategic choices. Thus, it may sometimes appear that changes in the polity are prior to changes in other institutions, but at deeper level they can only co-change. Otherwise, they would not be stable and sustainable.

More specifically, an exploration into the endogenous view of polity in this article is motivated and illustrated by comparative, historical cases of China and Japan. It is a well-accepted stylized fact in economics that paths to the modern economic growth regime out of the pre-modern (Malthusian) stage are quantifiably characterized with the reduction in agricultural shares in GDP and employment (e.g., Lewis 1953, Kuznets 1957, Hansen and Prescott 2002, Galor 2011). However, in Japan and China, and for this matter in Korea as well, this process started later, proceeded slower at first and then accelerated in much compressed periods of time than in the West, although there are variations even among the East Asian economies in these terms (Aoki 2013). However, this does not imply that we need a different analytical logic to explain the differences. What explains this East-Asian specific pattern of development, as well as the variations within?

In an excellent quantity study, Ngai (2004) showed that Japan's relatively earlier catching up can be accounted for by 'policy changes' through the Meiji Restoration, while Hayashi and Prescott (2008) blamed the authoritarian civic law stipulated by the Meiji Government as deterring the reduction of agricultural employment in the pre-War period. The Xinhai Revolution in China (1911) marked an obvious watershed for the polity in China. But why was it later than the Meiji Restoration? Why did it not discharge a breakthrough in terms of economic transition? Are ugly imperial aggressions and quarrels among warlords solely responsible as conventional thoughts imply? By going back further than the Meiji Restoration and the Xinhai Revolution, this article attempts to clarify and illustrate a logic by which those changes in polity should, and could, be understood: that is, the polity and the economy co-evolve through strategic interactions of agents rather than the polity and policy being purely exogenous factors for conditioning economic development and performance.

The most advanced regions of the Chinese and Japanese economies in the eighteenth century had rather similar characteristics. The basic management units of productive activities were conjugal peasant families engaged in wet farming on small plots, owned or leased, while allocating a part of their working time to handicrafts of textile and other goods for domestic uses and markets (e.g., Perkins 1969, Li Bozhong 1998 for China; Smith 1959, 1988; Hayami, Saito and Toby 2004 for Japan). Manufacturing did not develop in cities as in the West (Rosenthal and Wong 2011), while wealth accumulated by merchants were largely invested in landholdings and taxed as such (this is less so in

Japan). The major source of fiscal revenues of the rulers was from farmland tax. Thus, for the sake of referential convenience, these economies may be referred to as the *peasant-based economy* (Aoki 2012, 2013).<sup>2</sup> On this somewhat similar economic basis, different ‘formal’ rules of political governance appeared in China and Japan then. In order to understand the institutional nature of their polities, however, we need to look into how these rules were in practice applied, substantiated, modified to sustain equilibria and finally abandoned, all through interactions between the rulers and other agents, while exogenous shocks and elements of serendipity may trigger inflections of the process at particular points of time.

The article is organized as follows. After this introductory section, Section II sets a framework for strategic approach to institutions (Aoki 2001, 2011). It identifies institutions with the recursive states of play of societal games and their public representations in linguistic form. On this basic premise, it succinctly states why and how institutional resilience and changes in the polity and the economy need to be understood co-jointly. Section III turns to a comparative narrative of institutional processes in the Qing China and the Tokugawa Japan. First it looks at political governance of the peasant-base economy through lens focused on farmland property rights and land tax (IIIA). In describing and interpreting mutual fits and tensions between the polity and the economy, strategic interactions among three types of agents are attended to: the rulers (the Manchu imperial court and the Tokugawa Shogunate), the peasants, and various intermediate organizations between the two. By this way canonical forms of institutional arrangements of both countries are abstracted from their stylized practices in their heydays (say, in the eighteenth century). The form suggests a nature of the polity for each country somewhat different from prevailing or conventional models/views such as: opposing models of repressive despotism versus elite-led-public-sphere about the Qing China,<sup>3</sup> and the feudalistic-domain-state view about the Tokugawa Japan (IIIB). Finally, the Section notes crucial strategic forces and critical events that emerged in response to nineteenth-century crises, and discusses how their relations shaped paths toward the demise of the dynastic rules in the Xinhai Revolution and the Meiji Restoration.

Section IV turns to a (super-modular) analysis of a simple game model. This model is somewhat related to recent two-player models of the political economy of violence (e.g., Besley and Parsson 2012) or institutional coevolution (Huang 2012). It abstracts observations in the previous sections into a game

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<sup>2</sup> Of course, this characterization is based on a highly stylized abstraction. See Zelin (1991) for a more nuanced survey of the “family-firm”-based economy of the Qing China. Also for qualifications of the stylized characterization in the text and regional differentiations, see Aoki (2013).

<sup>3</sup> Wakeman (1991) discusses four model of historical change of the Chinese state and society. In addition to the two mentioned in the text, he discusses Confucian restorations and the growing intrusion of the state into the society. I will refer to them as well below

of three-persons: the ruler and two intermediate organizations. Strategic relations among these three players may shift between complement and substitute, depending on accumulated consequence of repeated plays from the past and various parametric changes. Then three types of possible outcomes are identified: status quo in the canonical form as a subgame perfect equilibrium; and stochastic equilibrium triggered by the revolt of one organization against the ruler, ending either in collusion between the ruler and the other organization in punishing the deviants; or transition to a new state with the fall of the incumbent ruler. The section V applies insights from this analysis of institutional resilience versus destabilization for reinforcing and amplifying the narrative in Section III. It further pinpoints subtle aspects of the Xinhai Revolution and the Meiji Restoration that might have been critical in mediating institutional legacies from the past on subsequent institutional paths in both countries.

## II. A Framework for Strategic Perspective about Institutions

In an excellent survey of the Chinese economy, Brandt, Ma and Rawski apply the term ‘equilibrium’ to institutional features that were “historically stable, mutually reinforcing and extremely difficult to alter, *short of major shocks imposed from outside.*”(2013: 33. Italics by the present author). What do they mean by ‘equilibrium’? Strategic interpretations were implicit in their argument, but making it more explicit may provide a further insight into institutional resilience, institutional inter-dependencies as well as quasi-endogenous nature of institutional change.

Instead of viewing institutions as the rules of the game that can be set and changed by political decrees (e.g., North, 1990), this article proposes to identify institutions with the salient features of ways by which societal games are recursively played by agents and expected to be played by agents (Aoki 2001, 2011). Thus, the peasant-based economy in relatively advanced regions of the Qing China and the Tokugawa Japan as referred to in the introduction is a quintessential example of institutions. Typical peasant families there and then allocated working times of their members between farming and handicraft in partially routine and partially calculating manners; inheriting, leasing, selling/buying farmlands according to prevailing practices even without relevant formal laws; mutually obliging to keep promises, act collectively in sustaining local common goods such as irrigation systems and help each other within a certain specific group; paying taxes if enforced and trying to evade them if not detected; and engaged in market transactions with local merchants using localized copper currencies and storing them as means for holding wealth; etc.

In viewing these features as recursive outcomes of societal games, it is not necessary to posit that these households had complete knowledge of the structure of game and exercise fully rational

calculation over it to choose actions. Yet their behaviors are still strategic and they altogether constitute a game in that their action choices are based on certain beliefs about others' possible actions and reactions. Even in cases of merely following routines, practices, mutual obligations, market conventions and the like, the agents must have the sense, consciously or unconsciously, that the others also do the same and react in one way or another in case they do not follow those guides.

But then, how do the agents form beliefs about how the game is being recursively played by the others? This is exactly the role of such things as routines, norms, laws, organizations, constitutions and even mythologies and folklores. However, they ought not to be understood as purely exogenous guides. In order for them to be regarded by the agents as credible, enforceable, legitimate, informative, reasonable and so on so that they can serve as agents' collective, external cognitive resources for understanding the world, they must be continually endorsed, supported, verified and the like by actual plays of the societal game. That is, they acts as linguistic representations of institutions if and only if they mediate between the recursive states of play of societal games and individual cognitive processes of belief formation (Aoki 2011). This perspective of institutions is thus process-oriented as shown in the Diagram spanned by the action-cognition dimension and the collective-individual dimension. Institutions are not *merely* the representations of fixed cultural preference (as Confucius filial piety so interpreted), biological traits or connectedness (e.g., collectivism so interpreted as in Gorodnichenko and Roland 2012; kinship-based norm as in Greif and Tabellini 2012), geographical features (e.g., by-now discredited view of the Oriental despotism due to Wittfogel 1957/76).

There can be varied types of domain of societal game, depending on kinds of media of strategic interactions. Analogous to the contractual exchange of goods and money in the economic domain, emotion-inducing, action-eliciting linguistic utterance, symbolic behavior and gifts and the like may be exchanged in the social exchange domain to generate and sustain social norms, customs, stigmas, herd behavior and the like.<sup>4</sup> In the political exchange domain on which we focus below, the government provides public goods such as national and local securities, protection of vested property rights in exchange for tax payments so as to maximize its own payoffs like prestige, sustained dominance, wealth-building, monument-building, etc., while individuals and organizations select actions from among yielding, colluding, approving, rejecting, revolting and so on in response to government actions.

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<sup>4</sup> Aoki (2001) Chapter 2; (2010) Chapter 3.4.

'Stable equilibrium state' of this game can generate a 'political state', which is referred to below as the polity.<sup>5</sup>

How do individual agents deal with games on these varied domains: economic, social and political? Individual agents, whoever they may be, are likely to coordinate their own strategic choices across these domains, striking a balance between materialistic, emotional and political payoffs in terms of Edgeworthian complementarity and substitute relations.<sup>6</sup> Further, in game situations agents take into strategic considerations complementary/substitute properties of own actions vis-a-vis prevailing patterns of others' actions. Thus the strategic perspective predicts that over-all institutional arrangements emerging as equilibrium phenomena would entail characteristics of institutional complementarities, embeddedness and demarcations, linking varied domains of societal exchanges.

Thus institutions are resilient. However, they are not robust forever, either. Cumulative consequences of past plays in these domains and exogenous shocks to them may induce agents to adjust and adapt their strategic choices in the hope of improving on their over-all payoffs. These three factors, historical, exogenous and strategic, together may change complementary or substitute relations within individual agent's choice alternatives as well as across agents' choice alternatives. Thus a possibility of institutional change may be triggered. However, let us recall that institutional stability is mediated and sustained through public representations of salient features of recursive states of play that serve as collective cognitive resources to individual agents. Thus, for an institutional change to occur and be sustained, an associated change in viable public representation also ought to occur. While agents are in search of strategic adjustments in response to endogenous and exogenous changes in economic, social and political domains, therefore, various *public propositions* may compete in the public discourse domain in seeking the position of saliency in suggesting, persuading, advocating, summarizing a direction of strategic adjustments. This may be why policy as an element of the public discourse domain often appears as if it were prior to an institutional change. However, in order for a proposition to attain the position of primacy, it has to be proved in practice consistent with an emergent state of play in economic, political and social domains. Thus, economic organizations, polity and social norms are bound to co-evolve even if there are variations in timing.

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<sup>5</sup> The English word state derives from the Latin status. Status applies to something that is established, recognized as fixed or permanent in a particular position, as do its derivative English words static and stable. As such the political "state" may be thought of as being amenable to "equilibrium" analysis, possibly yielding many varieties.

<sup>6</sup> The social brain scientists, Montague and Berns, use the metaphor of "neuro-currency" to describe such cognitive process.(2012)

Let us now move on to see how this strategic perspective can be helpful for understanding the nature of institutional processes in China and Japan.

### III. The Canonical States of Play and their De-Stabilization

This section describes and interprets some stylized ‘institutional’ features of the political economies of the Qing China and the Tokugawa Japan as well as those of processes leading to their demises. First, it describes formal governing rules of the polity for each country (IIIA). Then it examines ways how those apparently centralized rules were actually modified in practice by interactions of various agents. The stable state of play thus observed for each economy is conceptualized as the canonical state for the sake of subsequent references. Specifically, for China varied intermediate organizations of local elites are observed as playing essential complementary roles to the dynastic rule, while the nature of Japan’s polity is suggested to have an aspect of quasi-fiscal federalism (IIIB). Finally, it describes how those canonical states became destabilized by strategic behavior of major players in responding to changing environments, which would culminate in the ends of the dynastic rules in both countries (IIIC). Observed features of both countries may appear apart. But if they were viewed from a strategic perspective, there seem to exist essential parallels as well, which may be helpful for a generic understanding of the nature and process of institutions. Accordingly, observations in this section are to be abstracted into a single unified model of game and analyzed in the next section. Insights from the analysis are then to be fed back in the concluding section to support some hypothetical or intuitive interpretations to be made in this section.

*A. Formal Organizations of the Political Governance:* The polity in the Qing China (1644-1912) and that in the Tokugawa Japan (1603-1868) are often contrasted by historian as the centralized local administration (*junxianzhi*) versus a feudalistic domain state. The conquering Manchu court ran the administrative structure in which the magistrate at the county level reported to the governor at the provincial level, the latter to the imperial court and its cabinet. All the bureaucrats were recruited based on literary merits through four-level (county, province, metropolitan and palace) imperial examinations and they were not supposed to be assigned to positions in their native regions according to the so-called rule of avoidance. Their positions were not formally inheritable, albeit carrying legal immunity. The imperial court also monopolized the control of military power.<sup>7</sup> These time-honored practices were a device for ruling dynasties to hold the possible emergence of land-based, aristocratic counter-powers in

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<sup>7</sup> Military power was vested in the regular Eight Banners army of the quasi-nomad Manchu origin and provincial Green Standard armies of Chinese mercenary directed by military mandarins.

check. However, whether it could achieve the objective without endogenous institutional tension is another story, as we will see.

In contrast to the formal centralized structure of the Qing's polity, the Tokugawa Japan was divided into some 300 hundred *Han*, each served by the corporate body of samurai holding exclusive rights to armaments as well as to land taxation and legal enforcement within its geographical territory [The *Han* has been usually translated as the domain, but by a reason stated shortly it is conceptually a misleading one so that I do not adopt it in this article]. The Tokugawa *Bakufu* (Shogunate) was the same as other *Han* on these accounts although their territory was much larger in size and more resourceful. National defense and the provision of cross-*Han* public goods and projects were collective responsibilities of all the *Han* (or shared by some selected *Han*) under the assignment of the *Bakufu*. An important distinction between the *Bakufu* and the *Han* in this *Baku-Han* regime was the assumed power of the *Bakufu* to abolish a *Han* or transfer a lord and its samurai body to a less resourceful *Han*, somewhat remindful of the power of the feudal lord in the West. But this action was not supposed to be invoked arbitrarily, such as by the reason of personal disloyalty of a lord to the Shogunate, but legitimized only when a *Han* was negligent on assigned responsibility for sustaining the over-all order, as we will see.

Whether or not these formal rules generated the order that the ruler intended depended on strategic reactions of other agents, which may reveal a somewhat different nature of the polity in each country than the formal rules may imply. For this, we first look into ways how the farmland property rights and tax obligations were enforced in the peasant-based economy.

### *B. Property Rights and Taxation in the Peasant-based Economies*

(i) *China: the Dynastic Power and Local Elites Complemented.* In the heydays of Qing China, about three quarters of recorded public revenue was from land taxes. Theoretically, individual land ownerships were registered on the "fish-scale register" held at the magistrate-office — the so-called, because the figurative record of individual holdings in the village looks like fish scales. This register was originally drawn in the preceding Ming period and was revised only in unsystematic ways under the Qing rule. The ownership of farmland was conventionally inherited equally among sons, which led to the frequent sales of ownership due to the fragmentations of wealth accumulation. Wealthy buyers like gentry and merchants let impoverished sellers continue to cultivate the same plots, while the latter sold a portion of leasing rights to still others, or they were entitled to redeem ownership in practice if conditions allowed them to do so. Thus, ownerships and leaseholdings were sold and bought like stocks without interventions of the government as a major means of wealth transfer and accumulation. Some large landowners then divided their holdings into many smallholdings under pseudo names like those of the

dead, the departed or original owners to evade tax. These practices resulted in multilayered, complex property right arrangements such as two-owners, three owners and even more to a plot. Clerks of the magistrate's office responsible for the collection of tax were negligent on keeping the register up to date and precise, or for worse revised it arbitrarily for the ease of record, collection and malfeasance often in collusion with large landholders.<sup>8</sup>

With relatively weak organizational and fiscal basis of the centralized local administration, the magistrate farmed out tax collections to the gentry who were lower-level academic degree holders or retired officials: the collusive practice known as *baolan*. However, through this informal practice the gentry gradually gained relative autonomy from the lower level administration for their own benefits, while small, weak households sometimes sought gentry's protections against the illegal surcharges by magistrates. In southeast China where agricultural development was relatively later, tax collections were likewise farmed out to village-based clan organizations (Baker 1979). In the Yangtze Delta where commerce and agriculture were most advanced, resourceful gentry formed formal organizations known as the landlord bursaries (*zhu-zhan*). They collected rents from tens and hundreds of leaseholders, paid taxes out of revenues and kept fees. They were often disguised as clan organizations for political correctness, but in fact they assumed corporate characteristics such as voluntary participation, perpetual life and specialized administrative organizations (Muramatsu 1966, 1970; Aoki 2012).<sup>9</sup> Further in the early nineteenth century and on when the security of property rights were increasingly threatened by bandits, secrete societies and revolting religious groups and so on, powerful and resourceful gentry became active in organizing militia group called *tuan* at the village level. These local groupss were then mutually interconnected to wider associations through personal relations of leading gentry (Kuhn 1970).

Thus, the formally centralized polity of the Qing China actually entailed increasing assertions of gentry's property right interests backed up by unofficial armed force. However, during the heydays of the Qing rule, gentry's tax farming still helped the magistrate who had only weak fiscal, social and personnel resources. Merchants likewise contributed to public revenues through tax payments on farmlands that they invested in. On the other hand, gentry's abilities to punish peasants' rent arrears were aided by local police function under the control of the magistrate, while merchants' abilities to be

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<sup>8</sup> For a comprehensive treatment of moral hazard behaviors of the magistrate and their clerks as well as the Emperor Yongzhen's reform attempt to control the problems and its eventual failure, see Zelin (1984). For recent analysis of the agency problem, see Sgn (2013) and for a survey Brandt, Ma and Rawski (2013).

<sup>9</sup> For corporate characters of organizations disguised as clan organizations, lineage trust, *hui* and so on, see Sangren (1984) and Ruskola (2000).

engaged in local and long distance trade was safeguarded by relative domestic peace provided by the government force. In these regards, governments at all levels on one hand and the gentry and merchants as localized groups on the other may be regarded as strategically complement each other. However, as discussed below, their relations would tend to assume more elements of strategic substitute, as the military competence of the dynasty weakened.

*(ii) Japan: Quasi-Fiscal Federalist Feature:* The land ownership register of the Tokugawa Japan originated in the Land Survey conducted by Toyotomi Hideyoshi in the eve of national unification under the Baku-Han regime. His intention was, as that of Chinese dynasties, to remove the seed of challenge by landownership-based political and military powers. This survey examined the size and productivity of all farming plots in detail and attributed de facto property rights and tax obligations to the actual cultivator of each small plot. This survey was enforced against the resistance of large patriarchal families, such as *myoshu* (literally, 'name holders'), who managed relatively large farming units with quasi-domestic subordinate laborers (*nago*, literally, a 'name-holder's child'). Their family heads were forced to reside in castle towns as members of Han's samurai corporate body. This register was then made kept at the village office served by elite peasant families of the village – they themselves were cultivators -- and revised according as cultivating practices were changed by inheritance, intra village transactions and so on. Possible ownership disputes were primarily resolved within the village by arbitration of the village official. When property rights disputes crossing village boundaries were brought to the magistrate's court, judgments were primarily based upon evidences derived from the original registry by Toyotomi (Ishii 1966).

The collection of land tax was contracted out to the village office by the Han government. The Han government did not intervene in affairs of the village, as far as the village contract was observed. There were variations in tax rate determination across Han and over time. In some places, tax rates tended fixed in practice from the early eighteenth to the mid-nineteenth centuries (Smith, 1988: chapter 2). In other places, the magistrate office examined prospective crops of the village each year and adjusted tax rates accordingly, which was criticized as prone to briberies of officials as well as bureaucratic disturbances in the timing of harvest. Then, in 1722 Bakufu adopted the fixed-rate method for its own domain subject to periodical revision and with an exception clause for the case of extraordinary poor harvest (Oishi 1961: chapter 4). Under the fixed rate scheme, peasants in the village became residual claimants. The member households of the village then became collectively interested in mutually controlling free-riding on local public goods projects such as the construction and maintenance of an irrigation system essential for wet farming. Thus the norm of mutual compliance and cooperation

among member households of the village evolved: the one that may be referred to as the membership-based norm in that it was binding to all the members and only to the members of the village.<sup>10</sup>

This increasing self-governance of the village only subjected to the village contract was at the basis of the Baku-Han regime. Albeit no clear separation of contract law from civil law, the peasants became *de facto* owners of their cultivating lands and engaged in land transactions within the village and gradually *vis-à-vis* outside merchants in spite of Bakufu's original prohibition of farmland leasing and sales by independent landholding peasants. On the other hand, the Han government became a bureaucratic corporate body of samurai who derived incomes according to their ranks from land tax revenues. Incompetent or dissolute lords were confined to retirement by an agreement among major retainers, or after fierce factional fights among them (Kasaya 1988). The sustainability of the Han as the corporate body thus became prioritized to personal dignity of disqualified lord.

Relations between the Bakufu and any Han were not on personalized basis, either. It was noted that the Bakufu was entitled to punish a Han for possible negligence of sharing collective responsibilities. In one case, the lord of the Matsumae Han in Hokkaido was transferred because of alleged negligence of preparation of defense against possible Russian intrusion. When severe political repression and heavy taxation by Shimabara Han incited peasants' bloody rebellion led by Catholic militants and crushed only after military interventions of Bakufu and neighboring Han, the domain was abolished and its lord was executed. Thus, the power of Bakufu in this regard was understood to be exercised only if legitimized by common interests of the Han in punishing a deviant who threatened the order of Baku-Han regime built on the peasant-based economy.

All these characteristics may indicate that the nature of the Baku-Han regime was actually that of an all-inclusive coalition of the Han with Bakufu as a leading player. This characterization may be upheld by a game-theoretic analysis in the next section, as well as made revealed in practice by an attempt of powerful member Han to realign the coalitional structure in response to upcoming crisis which eventually led to the Meiji Restoration. In this coalitional structure, all the cultivating peasants in the peasant-based economy were taxed for public revenues of Han and Bakufu. Public finance, universal

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<sup>10</sup> It is interesting to note in this regard that in China the Kanxi emperor also attempted to freeze nominal taxes in perpetuity in 1712 (Ma 2011). However, this attempt was in effect nullified at the level of county due to varied surcharges imposed by the magistrate. Also at places where transactions of farmland across the boundaries of villages were frequent, cooperative norm such as bound the member households of the village altogether might have been relatively harder to evolve, unless the security of their private property rights and lives were threatened alike by external aggressions. In China, the formation, observance and sustenance of cooperative norm appear to be limited to within a network of selected members: social practices known as *guanxi*. Aoki (2012, 2013), Herrmann-Pillath (2010).

taxation, and permanent bureaucratic administration were thus all integrated in the coalitional Baku-Han polity. In this sense the coalition essentially formed a tax state (Schumpeter 1988) rather than a domain state in which the lord financed its household economy with rent revenues from its own domain. This tax state further assumed a quasi-fiscal federalist form, where each Han enjoyed the complete autonomy in taxation and public expenditure except for the sharing of collective responsibilities for national defense and the like. However, it is 'quasi-' in that the state is administered by the body of hereditary samurai-bureaucrats not accountable to all the tax paying members of the state.

*C. Strategic Causes of, and Responses to, Institutional Instability*

In the first half of the nineteenth century, varied factors and events that would destabilize the respective canonical states of play occurred in both countries: among others, public finance difficulties that resulted from the declining taxing capacities of the rulers and their responses with austerity policies that created vicious cycles; occasional famines; the forced opening of treaty ports to the West that put pressure on the traditional commercial order; increasing requirements of conflict-related expenditures for coping with internal disorders and external threats; and specifically for China, the stagnation of per capita income and widening income disparity as a result of population explosion in the previous century combined with diminishing marginal returns to reclamations; declining work morale due to wide-spread consumption of imported and domestic opium. Lists may continue.

What types of bodies and organizations, old or new, emerged as representative players in shaping and responding to the instability of the canonical states? What were their strategic relations to the rulers: complementary or substitute? What kind of strategic interactions among them were crucial for leading to events resulting in the final demises of the Qing dynasty and the Baku-Han regime? How are China and Japan compared in these matters?

*(i) China: Uneasy Alliances:* The dramatic upheaval of the Taiping Rebellion (1850-64), led by a self-claimed Christ's brother, Hong Xiuquan, started in one of the poorest provinces, Guangxi, and at one point they occupied the most productive agricultural region of China, the lower Yangtze delta, and established an elaborate palace in Nanjing a la dynasty. The official army of the Qing court had weakened by then to cope with their military strength and it was only after ten years of battles joined by the region-based Xiang, Huai and other armies that the Taiping Heavenly Kingdom was finally wiped out. These armies were organized by elite mandarins like Zeng Guofan who took a leave from official duties to the court. They developed as nested associations of the village-based, self-defense training group, *tuan* (Kuhn 1970, Hatano 1973).

The emergence of quasi-official organizations of political violence distinct from the official army was epoch-making, which raised an interesting issue of whether they would remain as strategically complement to court's political control or substitute for it. Certainly, as against the Taiping Rebellion, the elite-gentry-led regional military power was helpful for the court's effort to prevent their weakened centralized control from further declining, while extraordinary self-reliant efforts of the gentry and peasants recruited as soldiers in the region to protect their own property rights were aided by the network of semi-official status of the mandarin leaders. As far as this much is concerned, the gentry's autonomous organizations of armed peasants and the court's political rule were mutually complementary. However, at the same time the mandarin leaders financed enormous costs to run their armies through the regional control of salt and land taxes. This was a major departure from the principle of avoidance for the dynastic rule to repress the emergence of land-based local power. Once the major revolt was quelled, independent assertion of power by the elite-gentry could become potential threats to the dynastic rule. Indeed, some factions of Xiang Army became rebellious later. However, Zeng, Li Hongzheng and other major leaders chose to be active in dynasty's administration and contribute to reform the unstable canonical order through the Self-Strengthening Movement in the areas such as diplomacy, arsenal, 'bureaucracy-supervised-merchant-managed' enterprises, education, and so on. Some of these reforms were prior or parallel to the industrial policy of the Meiji government of Japan. However, implicit tension remained between the court and those elite gentry<sup>11</sup>

Two new factors developed then to potentially destabilize the canonical order further: the creation of the new army and the tendency toward the increasing autonomy of the local polity, arguably referred to by some scholars as the evolution of the "public domain".

After the Li-led Qing army inheriting his ex-Huai army was badly defeated in the Sino-Japan War (1894) fought in the Korean Peninsula, even the conservative court was forced to become aware of the backwardness of its own army in training and equipment. It thus decided to in 1901 to create the New Army for each province, replacing the traditional Green Standard Army recruited with low morale mercenary and poorly equipped. Taking advantage of this, the Li's disciple, Yuan Shikai, maneuvered to build the formidable Newly Created Army as quasi-private force in Zhili (the capital district directly ruled by the court). On the other hand, however, after the abolition of the century long tradition of the Imperial Examination, many aspirant youths joined newly created military academies or were sent to

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<sup>11</sup> There were fifteen officers of the Xian Army who later became Viceroy. Among them, the leader of Wai army, Li Hongzhang, was dismissed a few times from government high positions but had to be recalled to duties when his irreplaceable competence in public services were needed such as at the times of diplomatic negotiations over the end of Sino-Japanese War and indemnity to damages done by the Boxer's Rebellion.

Japan by the government, exposed there to anti-Qing movements such as led by Sun Yat-sen. They eventually became commanders, centrally appointed councilors of provincial new armies and the like. Recruitments of soldiers to the new army were made from among members of indigenous peasant families with three generational records of residence in a village without no history of crime and opium consumption (Hatano 1973: chapters 2-4). Thus, new armies outside the northern Zhili were solidly rooted in the peasant-based economy.

Each province was made to bear the costs of supporting the New Army, in addition to a share of rising obligations to foreign loans and various indemnities. Also, some provinces, such as Hubei governed by the former officer of the Xiang Army, Zhang Zhidong, became active in developing arsenals, steel mills, railroads, port facilities and promoting commerce. In order to manage these and other public obligations and projects, provincial governments were in need for new sources of fiscal revenues other than land tax. After hard bargains with the Board of Revenue of the imperial court, provincial governments were allowed to mint copper coins in high yuan denomination and issue bills backed up by them.<sup>12</sup> In the Qing China, there were traditionally two kinds of money: silver (ingots or coins including of foreign mintage) used for means of settlement for long-distance trade as well as tax remittance to the court's coffer, on one hand, and varied copper coins used as means of local exchanges and peasants' store of wealth and means of tax payments, on the other. Their exchange rates were traditionally negotiated to meet public finance needs. There was a chronic shortage of copper coins because of fragmentation of the peasant-based rural economy, which led to the relative appreciation of values of copper currencies against silver. A substantial amount of seigniorage was thus made possible for provincial governments exploiting difference between the purchasing cost of raw materials from Yunnan province and Japan, on one hand, and high exchange values of copper coins as against silver, on the other (Kuroda 1994). The Qing Court and its Revenue Board had continued to centrally control kinds and rates of taxes that provincial governments could impose. But now a tendency toward a modicum of fiscal federalism emerged, although it was yet limited only to provinces open to cross regional and international trades. Against poorer provinces, the Board of Revenues strengthened its efforts to squeeze embezzlements (*zhongbao*) by local bureaucrats, which in turn led to increasing conflicts between them and landlords. Thus even there demands for local autonomy started to be pronounced.

As provincial and local governments faced increasing burdens of fiscal obligations, the elite gentry, wealthy merchants who obtained scholar-official status by purchase and the like were forced to be involved in public matters such as the construction and maintenance of irrigations and dikes, education,

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<sup>12</sup> The rest of this paragraph owes to Kuroda (1994)

poverty relief and sometimes even local safety. They were in return enforced to bear costs in the forms of varied tax payments and ‘voluntary’ contributions to their occupational associations, the chambers of commerce (*shehui*), traditional charity organizations and the like. There were debates among social historians about possible nature of this development. Some saw the emergence of the civil society or public domain a la Habermas in this development and others regard this merely as the penetration of government’s control into private interests, while still others proposed the introduction of the China-specific category of the ‘third sphere between the state and society’.<sup>13</sup> However, the development of economic and social infrastructure that would facilitate the expansion of trade, as well as secure elites’ commercial and private property rights and monopolistic positions, was not certainly against their interests. In returns for rising cost bearing, they demanded their voices heard through consultative boards that were created by the central government as means of directly relating itself to local elites. In this way, activities of local elites were subtly shifting from complementing the dynastic rule, say by outright tax farming, to substituting for its absence in the public good provisions in exchange for enhancing own private interests. From this perspective, the first two views above capture only one aspect of the evolving situation at the neglect of the other, while the third appears to introduce a redundant category.

It is important to note that the prosperity of commerce in such trading centers as Hankou, Guangdong, and Shanghai were made possible largely by the intermediation of trading of agricultural products by peasant ‘family firms’ in their rural hinterlands connected by water and other transportation means. Through their intermediation, agricultural sectors along the Yangzi and Pearl Rivers were made increasingly connected to markets of other regions and international markets, as quantitative studies by Brandt (1989) and Keller, Li and Shiue (2013) revealed. In this sense, the change in the polity described above may be thought of as evolving together with the growing marketization of the peasant-based rural economy.

Thus in the first decade of the twentieth century, the organizational landscape of the Qing China were substantially modified by the presence of the New Army and the increasing pressure and tendency of the local polity toward self-autonomy, both with the human resource supply and market development of the peasant based economy as the backbone. Would there be any alliance possible between them to put an end to the dynastic rule? Finally in 1911, angered by the attempt of the central government to nationalize a province-financed railroad line in Hunan to make it available as a collateral

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<sup>13</sup> See Rowe (1984, 1989), Rankin (1986) and Esherick and Rankin (1990) for the first view, Wakeman (1992) for the second and Huang (1992) for the third.

to foreign loans, the New Army and activists in Hunan province uprose and declared independence from the Manchu rule. This action was immediately followed by the New Army and consulting councils of other fourteenth provinces, which lifted the curtain for the Xinhai Revolution and subsequent drama of the Republican age. However, this intra- and inter-provincial alliances were spontaneously formed, even to the surprise of Sun Yat-sen residing abroad then, only with the removal of Manchu court from the ruling position as only common goal. As well known, this was finally accomplished by the move in 1912 that Sun would yield the Republican Presidency to Yuan Shikai, if he would coax the imperial court into 'voluntary' abdication.

*(ii) Japan: Realignment of the Baku-Han Coalitional Structure?* In facing similar threats of foreign powers, albeit later and milder than in China, the Bakufu ordered the building up of defense measures to all the Han facing sea, while engaged in negotiations with foreign powers over the opening of ports for trade to circumscribe their open hostility. The Bakufu regarded the opening inevitable after observing unfortunate experiences of China. However, unanimity among the Han on this issue soon became problematical, and accordingly did the stability of the coalitional structure itself so. Dynamics of the polity eventually leading to the Meiji Restoration was thus initiated by strategic moves of some resourceful Han to challenge the authority of the Bakufu in the coalitional structure of the Baku-Han-regime. They were Satsuma, Chōshū, Tosa and Hizen, each of them was unique in terms of characteristics of their resources, human and material, as well as policy orientation.

The Satsuma Han, one of the largest Han but meager in farmland quality, had been engaged in trade with China via the Ryukyu Kingdom throughout the Tokugawa era by taking its geographical advantage of being in the southern tip of Japan archipelago. In 1862, the samurai troop of Satsuma Han killed a horse-riding English man who allegedly behaved disorderly against the procession of their lord nearby Edo. The Satsuma first refused to indemnify the damage demanded by England, against which England retaliated with the bombing of the Satsuma castle from her Navy battleships. This incident made the lord of Satsuma and his samurai staff convinced of the need to build strong military power, while avoiding futile open conflict with the Western power. They started making deals with a English trading company to import weapons. Chōshū was one of the most advanced in terms of the market development of its peasant-based economy.<sup>14</sup> Hizen nearby open Nagasaki port promoted exports of indigenous rural products through its own trading house, while allocating 20 per cent of agricultural tax

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<sup>14</sup> The development of the rural domestic industry in Chōshū is well studied by such authors as Smith (1988: chapter 3) and Nishikawa (1987). Saito estimates that, if nonagricultural earnings are properly taken into account, the total income of the lease-holding peasant household might have exceed the wage income in England by ten percent in the late eighteenth century (Saito 2005).

revenues to import military equipment and other industrial products. By this way they quickly learnt know-how of producing weaponry and other manufactured goods. Tosa was not particularly distinct in economic performance, but its rather unstable internal politics produced political and economic entrepreneurs from among lower-ranked samurai with rural roots, including the later founder of Mitsubishi Zaibatsu, Iwasaki Yataro. Thus the capacities of all these four Han to get active in the reform movement were based on the development of the peasant-based rural economy in respective territories in one way or other.

Initially, these Han were not necessarily in agreement in direction of reform. Lower ranked samurai of Chōshū, who had been influenced by a charismatic nationalistic ideologue, Yoshida Shōin, took the control of Han governance by coup d'état and openly opposed the "soft" diplomacy of the Bakufu. They bombed European ships passing through a strait nearby their territory and ended up with paying large indemnity, however. They then modified their policy stance by focusing on the restoration of the Emperor's rule as means to end the Tokugawa hegemony. More moderate Tosa proposed to establish a two-tier parliament system to make the decision-making process in the coalitional structure more open and participatory: the system constituted of the upper house with the lords of all the Han as its members and the lower house with selected samurai bureaucrats as its members. Hizen remained rather aloof in political scene, concentrating their energy on industrial development. While a variety of public propositions were still competing for saliency, Chōshū mobilized its military power in Kyoto where the Emperor resided. This premature move, known as the Uprising at the Forbidden Gate (1864) was crushed by the united forces of Satsuma, the Bakufu and their allies. Chōshū were officially declared as an enemy of the royal court. But this did not restore the order of the coalitional structure with the hegemony of the Bakufu.

As the polity continued to be unstable, the pace of open discourses as well as covert meetings among samurai bureaucrats across domains was accelerated, sometimes including activist court nobles and reformist staffs of the Bakufu. In spite of initial divides in political agenda, enormously popular Saigo Takamori from Satsuma succeeded in forging a formidable alliance among the resourceful four Han. They agreed on limiting their common agenda to the return of the supreme power to the Emperor as a symbolic public proposition, while making other policy agenda virtually shelved. Their successful take-over of the governing position by the force was quickly led to the abolition of the Baku-Han regime known as the Meiji Restoration.

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This section described the canonical state of the polity in the heydays of the dynastic rule and its modification toward their doomsday for both China and Japan. To be reckoned with from macroscopic standpoint were strategic relations between the polity and the peasant-based rural economy. In the heydays, the polity was fiscally and economically supported by the latter, whereas the majority of the peasant ‘family firms’ were assured of their sustenance and property rights under the stable polity. The ruler was neither just benevolent nor extractive. Modifications in these strategic complementary relationships toward the ends of the dynastic rules in both countries had two important common characteristics. One is the increasing assertion of military-based power of regional organizations such as the New Army, organizations of local elites, and the Han. Second, these assertions and tendencies were largely backed up by the developments of commercialized activities and human resources in the peasant-based rural economy and vice versa. With these important polity-economy relations as the background, the next section builds and analyzes a model of the polity that focuses on the first characteristic in order to identify essential strategic factors for institutional stability, de-stability and transformation.

#### **IV. A Game of Three Players and Three Types of Equilibrium**

As mentioned in the Introduction, recent models of possible regime change in the polity in development economics focus on two-person competition, say between the incumbent ruler and the challenger. In contrast, the model below abstracts apparently different structural features of China and Japan into a simplified, but unified structure of game played by three persons: the ruler, a possible challenger to the canonical order, and a third agent who strategically chooses its stance between the two, depending on situation. From discussion in the previous section, it may be inferred that these organizations represent a revolting peasant organization, (formal/informal) organizations of the gentry, the Han, the New Army, depending on context of possible application. An analysis of this section proceeds in a rather abstract fashion, however, to derive conditions for the existence of stable equilibria of agents’ strategic interactions and their comparative static properties. As a major analytical tool, super modular technique is employed to clarify essential roles of complementarities/substitutes and positive/negative externalities — these characteristics may be related but to be distinguished in analysis — among agents’ strategies in determining equilibrium outcome and its possible change.

Let the three players: the ruler and two intermediate/local organizations be denoted as R, L1, and L2, respectively. Imagine the political economy has sustained a stable state of play up to the present, denoted by  $\langle u^{R*}, u^{1*}, u^{2*} \rangle$  in terms of players’ payoffs, which is referred to as the canonical state. In the

present time referred to as the period 1, L2 decides whether or not to deviate from the canonical state. In case L2 deviates, the payoff profiles will be:  $\langle u_R^* - \Delta\gamma, u_1^* - \Delta\gamma, u_2^* - \Delta\gamma + \tau_2 \rangle$ , where  $\Delta\gamma$  = external cost imposed on public goods provision by L2 and  $\tau_2$  = the private benefit of L2 from shirking if positive and the revolting cost of L2 if negative.

In period 2, R and L1 react to L2's action, to which L2 counter-react. The outcome of their interactions determines the nature of future state from then on. If L2 revolts in Period 1, R tries to punish L2 in period 2, depending on its magnitude, and a conflict situation arises. L1 decides with whom to align its strategy. Let  $\langle \kappa_R, \kappa_1, \kappa_2 \rangle$  represent the strategy profile in this situation, where  $0 \leq \kappa_R \leq K^R$  and  $0 \leq \kappa_2 \leq K^2$  represent the level of conflict action by R and L2 respectively, involving respective cost  $\eta\kappa_R$  and  $\mu\kappa_2$ ; and  $0 \leq |\kappa_1| \leq K^1$  represents the level of L2's strategic action involving cost  $\mu|\kappa_1|$ , with  $\kappa_1 < 0$  (alternatively,  $\kappa_1 > 0$ ) implying L1's action against L2 (respectively, L1's action against R).

Strategic profile  $\langle \kappa_R, \kappa_1, \kappa_2 \rangle$  yields either of two future states: transition to a new state — denoted by N — putting an end to the R's rule or the Punishment of L2 — denoted by P — with the failure of L2's (and possibly L1's) revolt, with respective probability of  $P^N(\kappa_R, \kappa_1, \kappa_2)$  and  $P^P(\kappa_R, \kappa_1, \kappa_2) = 1 - P^N(\kappa_R, \kappa_1, \kappa_2)$ . The payoff profile of each state is given by

$$(N) \quad \langle u^{R*} - C^R - \eta\kappa_R, u^{1*} + \pi^1(\kappa_1, \kappa_2) - \mu|\kappa_1|, u^{2*} + \pi^2(\kappa_1, \kappa_2) - \mu\kappa_2 \rangle$$

$$(P) \quad \langle u^{R*} + \sigma C^2(\Delta\gamma) - \eta\kappa_R, u^{1*} + (1-\sigma)C^2(\Delta\gamma) - \mu|\kappa_1|, -C^2(\Delta\gamma) - \mu\kappa_2 \rangle$$

where  $C^R$  represents the loss R suffers when it loses the governing position;  $\pi^1$  and  $\pi^2$  represent the political-economic gains expected from the transition to the N — simply referred to as the post transition gains — accruing to L1 and L2;  $C^2(\Delta\gamma)$  is penalty imposed on L2 depending on the magnitude of damage done on public goods in period 1 when its revolt fails:  $\sigma$  is a parameter representing R's share in the gains from punishment of L2's, with  $1 > \sigma > 0$  for  $\kappa_1 < 0$  and  $\sigma > 1$  for  $\kappa_1 > 0$ , implying positive reward (respectively, penalty) for L1's cooperation (resp. revolt). Denoting partial derivatives of functions by subscripts of relevant variables, we assume that  $\pi^1 < 0$  and  $\pi^1 = 0$  if  $\kappa_1 \leq 0$  and  $\pi^1_1 \geq 0$ ;  $\pi^2 > 0$ ,  $\pi^2_2 \geq 0$ . If  $\pi^1_2, \pi^2_1 > 0$  (alt.  $< 0$ ), they represent externalities in gaining expected post-transition gains (resp. negative externalities). If  $\pi^1_{12}, \pi^2_{12} > 0$  (alt.  $< 0$ ), we say L1's and L2's strategies are complements (resp. rivalries) in expected post-transition gains.

$P^N$  and  $P^S$  summarize possible state-outcomes of players' strategic interactions in terms of their conflict-managing technologies. This function may be regarded as analogous to what Besley and Persson call the conflict technology in their two person game of political violence (2011: Chapter 4) However, in our three-person game context, the outcome of the game may also depend on ways coalition may be

formed among players. Therefore, in its interpretations, it need not be regarded as referring only to hard technology involving physical violence but also soft technology as well involving psychological, informational, diplomatic, persuasive and other such means. We assume  $P_{1,2}^N \geq 0$  and thus  $P_R^N \leq 0$ . We refer to the case of  $P_{12}^N > 0$  as that of strategic complements of conflict-managing technologies in transiting to a new state (or simply technological complements) between L1 and L2. As shown later, even if  $P_{1,2}^N > 0$ , it could happen that  $P_{12}^N < 0$ . This case is referred to as strategic rivalries in conflictive-managing technology, distinct from the rivalries in expected post transition gains. This distinction is important for assessing the existence and implications of varied equilibria. By the sign convention of  $\kappa_1$ , we say L1's strategy is technological complement (alternatively, rivalry) to R's in reducing (alt. promoting) transition to a new state, if  $P_{R1}^N < 0$  (resp.  $P_{R1}^N > 0$ ). We always assume  $P_{R2}^N < 0$ .

Among others, we are interested in the possibility of subgame-perfect equilibrium of the canonical form. So we solve the model backward, beginning in the second period. Denoting equilibrium values with asterisk, the second period equilibrium requires the Kuhn Tucker condition that  $u_R^* \leq 0$ ,  $\kappa_R^* u_R^* = 0$ ;  $u_1^* \leq 0$ ,  $(\kappa_1^* - K^1)u_1^* = 0$ ; and  $u_2^* \leq 0$ ,  $\kappa_2^* u_2^* = 0$ . We need to further specify parameters in varied ways to prove possible existence of equilibrium and its properties. First, consider a simple case for which  $\pi^1$  and  $\pi^2$  are constant so that L1's and L2's strategies affect only conflict outcomes in such a way:

$$P^N = (\kappa_1 + \kappa_2) / (\kappa_R + \kappa_1 + \kappa_2 + B) \text{ for } \kappa_1 \geq 0$$

$$P^P = (\kappa_R - \kappa_1) / (\kappa_R - \kappa_1 + \kappa_2) \text{ for } \kappa_1 < 0,$$

where B represents the set-up cost of a new state. Note that  $P_{21}^N = -2(\kappa_R + B) / [\kappa_R + \kappa_1 + \kappa_2 + B]^3 < 0$ , which implies that L1 and L2 are strategic rivals in possible conflict situation. Consider first the possibility in which  $-K^1 \leq \kappa_1 < 0$  to be a strategic choice for L1. Then,  $u_1^* = -P^P \Delta u^1 + \mu = \Delta u^1 \kappa_2 / (\kappa_R - \kappa_1 + \kappa_2)^2 + \mu$ , where  $\Delta u^1$  is L1's net payoff gain in the case of transition equal to  $\pi^1 + (1-\sigma)C^2(\Delta\gamma)$ . As  $\Delta u^1 > 0$ ,  $u_1^* > 0$  so that  $\kappa_1 < 0$  cannot be an equilibrium choice for L1. So assume  $\kappa_1 \geq 0$ . L2's strategic reaction to this ought to be to find  $\kappa_2 \geq 0$  for which  $u_2^* = P^N \Delta u^2 - \mu = (\kappa_R + B) \Delta u^2 / [\kappa_R + \kappa_1 + \kappa_2 + B]^2 - \mu = 0$ , where  $\Delta u^2$  is L2's net payoff gain from transition equal to  $\pi^2 + C^2(\Delta\gamma) - u_2^* > 0$ . Under what condition is this possible? Let us rewrite the condition as  $\kappa_1 + \kappa_2 = (\kappa_R + B)^{1/2} [(\Delta u^2 / \mu)^{1/2} - (\kappa_R + B)^{1/2}]$ . Thus if  $\kappa_R > \Delta u^2 / \mu - B$ , R can choose  $\kappa_R$  for which there is no strictly positive strategies for  $\kappa_1$  and  $\kappa_2$ . In this example, therefore, only possible solution is  $\kappa_1^* = \kappa_2^* = 0$ , entailing  $P^{N*} = 0$  and  $P^{S*} = 1$  for which  $u^2 = -C^2(\Delta\gamma)$  and  $u^1 = u_1^*$ . This is the case where the collective setup cost for the a new state B is very high, R's conflict-managing technology is high enough, and/or the net political-economic gain from the transition relative to the cost of conflict-management cost is too low for L2. Ignoring time preference of L1, if  $u_2^* - \Delta\gamma + \tau_2 < C(\Delta\gamma)$ , it is never worthwhile for L1 to

deviate from its canonical state obligation in period 1. Thus, sustaining the canonical state becomes subgame perfect equilibrium.

The above example is simple, but interesting in illustrating the potential importance of technological complementarities for transition between R1 and R2. To see this more generally, let us allow the expected post-transition gains,  $\pi^1$  and  $\pi^2$ , dependent on L1's and L2's choice of  $\kappa_1$  and  $\kappa_2$ , respectively. We do not assume the concavity of these functions. Then the following super-modular analysis shows that: If there were no technological complementarities, a modicum of externalities in political-economic gains may not be sufficient for transition. On the other hand, even if there were negative externalities, strong technological complementarities may be able to overcome them to realize transition.

First note that straightforward calculations show the following:

$$Eu_{R1}^R = P_{R1}^P [\sigma C^2(\Delta\gamma) + C^R]$$

$$Eu_{R2}^R = P_{R2}^P [\sigma C^2(\Delta\gamma) + C^R]$$

$$Eu_{1R}^1 = -P_{1R}^P [\pi^1 - (1-\sigma)C^2(\Delta\gamma)] - P_R^P \pi_{11}^1 \text{ for } \kappa_1 > 0$$

$$= P_{1R}^P (1-\sigma)C^2(\Delta\gamma) \text{ for } \kappa_1 \leq 0$$

$$Eu_{12}^1 = P_{12}^N [\pi^1 - (1-\sigma)C^2(\Delta\gamma)] + P_{12}^N \pi_{21}^1 + P_{21}^N \pi_{11}^1 + P_{12}^N \pi_{12}^1 \text{ for } \kappa_1 > 0$$

$$= P_{12}^P (1-\sigma)C^2(\Delta\gamma) \text{ for } \kappa_1 \leq 0$$

$$Eu_{2R}^2 = -P_{2R}^P [C^2 + \pi^2] - P_R^P \pi_{22}^2$$

$$Eu_{21}^2 = P_{21}^N [C^2 + \pi^2] + P_{21}^N \pi_{21}^2 + P_{12}^N \pi_{22}^2 + P_{21}^N \pi_{21}^2$$

The following set of conditions (a) - (d) imply that  $Eu_{R1}^R, Eu_{R2}^R, Eu_{1R}^1, Eu_{2R}^2 < 0$ , and  $Eu_{12}^1, Eu_{21}^2 > 0$ . They together constitute sufficient conditions for  $\langle Eu^R, Eu^1, Eu^2 \rangle$  to be super-modular in  $\langle K^R - \kappa_R, \kappa_1, \kappa_2 \rangle$ .

(a)  $P_{R1}^P < 0, P_{R2}^P < 0$  and  $P_{12}^P > 0$ : L1 and L2 is technological rival to R in escaping from the canonical state, but complement with each other. .

(b)  $P_{21}^N/P_{22}^N > -\pi^2_1/[C^2 + \pi^2]$  and  $P_{12}^N/P_{11}^N > -\pi^1_2/[\pi^1 - (1-\sigma)C^2(\Delta\gamma)]$ : Even if L1 and L2 mutually exercise external diseconomies on other's expected post-transition gains, they can be overcome by mutual technological complementarities toward transition that are strong enough in elasticity terms.

(c) :  $P_{11}^N/P_{12}^N > -\pi^2_{21}/\pi^2_2$  and  $P_{22}^N/P_{21}^N > -\pi^1_{12}/\pi^1_1$ : Possible rivalry between L1 and L2 in expected post-transition gains can be overcome by their respective marginal technological contributions to transition that are strong enough in elasticity terms. If L1 and L2 complement each other in this respect, the condition trivially holds.

(d)  $-P_{R1}^P/P_R^P > \pi_1/[\pi^1 - (1-\sigma)C^2(\Delta\gamma)]$  and  $-P_{R2}^P/P_R^P > \pi_2/[C^2 + \pi^2]$ ; L1's and L2's strategies can generate greater technological-rivalry effect on R to exit from the canonical state than own expected marginal post-transition gains in elasticity terms.

The following set of inequalities exhibit the properties on increasing difference with respect to various parameters:

(e)  $Eu_{R\eta}^R < 0$ ,  $Eu_{1\mu}^1 = -1$  if  $k_1 > 0$ ,  $Eu_{2\mu}^2 = -1$ ,  $Eu_{RC}^R = -P_R^N > 0$ ,  $Eu_{R\Delta\gamma}^R = P_R^P \sigma C'(\Delta\gamma) > 0$ ,  $Eu_{1\Delta\gamma}^1 = P_1^P (1-\sigma)C'(\Delta\gamma) < 0$  and  $Eu_{R\sigma}^R = P_R^P C^2(\Delta\gamma) > 0$ ,  $Eu_{1\sigma}^1 = P_1^P C^2(\Delta\gamma) < 0$ .

By applying the super-modular theorem due to Topkis (1979) and Milgrom and Roberts (1990) to the above, the following proposition holds:

**Proposition:** *Under the set of conditions (a)-(d) there exists at least one equilibrium in the second period. Suppose equilibrium is unique and denoted by  $\langle \kappa_R^*, \kappa_1^*, \kappa_2^* \rangle$ . Then (e) implies that the higher  $\eta$ , the lower  $\mu$ , the lower  $C^R$ , the lower  $\sigma$  and the lower  $\Delta\gamma$  lead to the higher  $\kappa_1^*$  and  $\kappa_2^*$  and the lower  $\kappa_R^*$ , which enhances the probability of transition to a new state. Ignoring the time preference of L2, deviation from the canonical state in the first period is not worthwhile for L2, if  $P^{N*}[\pi^{2*} + C^2(\Delta\gamma)] - \mu\kappa_2^* < u_2^* - \Delta\gamma + \tau_2$ . Then sustaining the canonical state becomes subgame perfect equilibrium, if there is no other sub-game equilibrium in Period 2. If  $P^{N*}[\pi^{2*} + C^2(\Delta\gamma)] - \mu\kappa_2^* > u_2^* - \Delta\gamma + \tau_2$ , then L2 deviates from the canonical state in period 1, even if  $-\Delta\gamma + \tau_2 < 0$ .*

The above set of conditions is sufficient for the existence of an equilibrium and its static properties. It does not exclude the possibility of other equilibria, however. For example, the example discussed prior to the proposition does not satisfy the condition (b), but still entails a possibility of subgame perfect equilibrium. Yet, the set by itself offers a case of interesting situation where L1 has a choice between committing to the canonical order, or cooperating with the revolting L2 in attempt to exit from the canonical state even if there could be negative externalities and rivalries between them -- both should be distinguished from each other -- as regards their expected post-transition political-economic gains. The proposition clarifies that, even if this is the case, L1 and L2 may co-join in the attempt to deny the continuing rule by R (that is,  $k_1 > 0$ ), if conflict management technologies of L1 and L2 are strong enough by themselves (c) and vis-à-vis the incumbent rule (d), as well as strongly complementarities with each other (b). Its outcome is uncertain ex ante. But the proposition also clarifies the comparative static properties such as the higher efficiency of conflict technology of L1 and L2 vis-à-vis that of R. Possible importance of technological complementarities in the determination of equilibrium was highlighted in the example as well by assuming away possible interacting impacts of political economic preferences between the two. One of the reasons why L1 and L2 are not complementary in their conflict-management technology in that example was attributed to the existence of set up cost denoted by B. Thus, if the agents can reduce it through soft coordination, distinct from hard technology as represented by  $\mu$ , then an equilibrium gets more probable in the direction of transition to a new state, if combined with stronger hard technology as denoted by the lower value of  $\mu$ .

Also, as intuitively clear, if L1's benefit of staying in coalition with the incumbent by punishing L2 gets lower, as signified by lower values of  $\sigma$ , L1 would be tempted more to enhance its strategic move to

seek transition to a new state (that is,  $k_1 > 0$ ). However, such move does not necessarily guarantee a transition to a new state. By unluckiness or miscalculation of L1 and L2, strategic interactions in period 2 may be ended up with the failures of L2 to have revolted and for L1 to support it, entailing the penalty on L1 as well signified by  $\sigma > 1$ . In sum, for a new state to be achieved, it appears essential for L1 and L2 to shift their mutual positions from rivalries to compromises and complements in terms of the use of their own conflict-managing strategy, soft and hard. However, if there were not sufficient externalities and complementarities between L1 and L2 — again this distinction is important — on post-transition political-economic policy, there would be another round of conflict situation to emerge after the transition.

## **V. Summary: Interpreting Institutional Resilience, Transitions and Legacies**

### *A. The Coalitional Nature of the Dynastic Rules.*

In the light of model analysis in the previous section, the stable nature of the canonical states of the Qing rule and the Baku-Han regime may be interpreted in terms of subgame perfect equilibrium. Theoretically, the off-the-path-of-play sub-games in the second period ought not to be observable. They are just a potential state which rational players are assumed to avoid treading on. However, in reality various anomaly events and episodes are observed that may reveal underlying forces to sustain otherwise stable situations to both inside players as well as to outside observers like us. The Qing rule from the early to the late eighteenth century was strong enough not to allow for any effective challenge by local gentry, peasants, merchants or bandits. It maintained effective conflict-managing technology including intelligence networks, the monopoly of legitimate political violence. On the other hand, they allowed the interests of elites, and even those of landholding peasants, in local order, security of own property rights and economic gains represented through varied intermediate organizations. The latter in turn aligned their actions in the forms of tax farming and tax payments. When some organizations or lower bureaucrats deviated from this order, the court selectively intervened and punished them (Hung 2011). The public representation of such action as based on mandate of the heaven, as well as the principle of filial piety from below and paternalistic benevolence from the above mediated between such order and agents' belief system.

In section III, we have conjectured the nature of Baku-Han polity as an all-inclusive stable coalition. All the Han possessed their own military force, yet its use by any Han to disturb the order of the peasant based economy or shirk the due sharing of order-preserving responsibilities such as national defense was expected to be punished by the other Han under the leadership of the Bakufu. Within each Han, its

order as a permanent corporate body was sustained with the threat of forced retirement of a lord who did not behave in conformity with it. Thus the nature of the Baku-Han regime may be understood as composed of the nested equilibria of sub-game perfect type.

*B. Crucial Roles of Complementarities in the Strategic Uses of Conflict-Management Technologies*

Both in China and Japan, institutional transitions from the canonical states were initiated by open mobilization of military force by intermediate organizations to challenge the canonical order like the Taiping Rebellion and the Uprising at the Forbidden Gate. These challenges were repressed by strategic alliances between the incumbent rulers and other organizations, like gentry-led armies and Han choosing to help sustain the order at that time, somewhat in manners remindful of the punishment outcome of the model. The failures of the revolts led concerned organizations either to choose to stay in alliance with the incumbent ruler (e.g., the leaders of ex-Xian Army), make efforts to develop their own capacities (e.g., market-oriented peasants, merchants outside the traditional merchants guilds) or kept the Janus faces between the two (e.g., civil organizations in treaty ports). The actual happening of the Xinghai Revolution was a result of the spontaneous making of alliance between the new armies, including the one led by Yuan Shikai, and various civic, commerce and revolutionary organizations. This is very much like a situation that the proposition in the last section focused on: a transition brought about decisively through (unintended) complementarities in strategic assertions of power across organizations, but with relatively less substantive agreement on post-transition political agenda, which would readily become apparent after the Revolution.

The punishment phase of the post-Forbidden-Uprising was relatively shorter in Japan, as the de-stabilization of the canonical state was publicly initiated by efforts among samurai bureaucrats to realign the structure of the coalitional state. As observed in Section III, in spite of initial disparity in political agendas advocated by them, conflict-management strategies of activists from leading Han fairly quickly converged in terms of immediate political proposition: the removal of the Bakufu's political hegemony. Such coordinating efforts were certainly made facilitated because of the culture of dense communications across the Han nurtured through the practice of alternate residence of Han lords and their administrative staffs between Edo and their own castle towns. Although strategic coordination in removing Bakufu was thus purposeful and effective in Japan, however, differences in post-transition political-economic agenda were also purposefully shelved.

*C. How were Differences in Reform Agenda Resolved or Unresolved in the Post-Transition Era?*

Thus, there was a modicum of common mode in transition between China and Japan: differences in post-transition policy agenda among major players were potentially large, yet remained covert in the

euphoria of the Revolution, or had been intentionally shelved for the sake of success in formal change of the polity. Ways these differences were resolved or unresolved certainly shaped the subsequent institutional paths for both countries in many years to come, which is beyond the scope of this essay. However, as already mentioned in the Introduction, it is important to note that the reduction in the share of agricultural employment (in case of China) and that of the number of households primarily engaged in agriculture (in case of Japan) did not substantially change until the beginning of the high growth periods of the 1970s and 1950s respectively (Aoki 2012, 2013). Was it because of the nature of the polity, as suggested by Hayashi and Prescott (2008)? Or, did the legacies of the peasant-based rural economy from the previous stage were also responsible for the shaping of institutional paths in-between? This may be an important issue for understanding the nature of economic development in East Asia as well as the nature of institutional change more generally.

(i) *Whither Federalism?* After the Xinhai Revolution, there was a brief episode of futile attempt by the most powerful New Army general, Yuan Shikai, to restore an Imperial system of his own. As this move was put out by a broad alliance of republicans and some other army leaders, one of major unsettled issues in the post-Revolution constitutional design was arguably about choice between federalism and centralism. Sun Yat-sen who organized the Nationalist Party in 1911 was an avowed centralist. Some ex-generals and officers of the New Army who gained hegemony in respective regional politics became ambitious to expand its militaristic influence to national scale without necessarily having a clear political objective other than dominance. They taxed peasants under their control and recruited soldiers from among them. The official histories of both Nationalist and Communist Parties now treat them as wicked, treacherous warlords.<sup>15</sup> Among those so named, however, there appeared to be some genuine federalists, like Cheng Jiongming in Guandong.<sup>16</sup> Even Mao Zedong prior to his joining the formation of the Communist Party openly expressed a federalist view as the leader of a reform movement organization in Hunan province.<sup>17</sup> The federalist movement in Guangdong was finally crushed in 1925 by the Chiang Kai-Shek's (Jiang Jieshi's) Nationalist army aided by Russian advisors and supplies. After he

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<sup>15</sup> For a through academic treatise on the so-called warlords based on primary historical sources, see Hatano (1973).

<sup>16</sup> For recent works on Chen's federalist movement based on detailed documentary evidences, see Cheng (1999), Duan and Ni (2009). Bertrand Russell who was a visiting professor at Peking University around 1920 had a high opinion about Chen. So did James Dewey who intimately observed educational scenes in China at that time. See Russell (1922: 67, 268-9). Hatano (1973:chapter 6) characterized Cheng's opposition to Sun's Northern Expedition as political convenience, although he recognizes Cheng's popularity in Guangdong was due to his "allied self-determination" platform.

<sup>17</sup> The young Mao stated: "From our observation there is no hope for fully establishing people's rule in China within the next twenty years. During this period Hunan had best protect its own boundaries and implement its own self-rule, making Hunan a heaven of peace without bothering about the other provinces or the central government. Thus it can place itself in a position similar to that of one of the states on the North American continent a hundred years ago, We should run our own education, promote our own industry, and construct our own railways and motor roads." (Mao, 1920/[1992]: 526)

succeeded in establishing the Nationalist Government in 1927, he had to yield agricultural tax entirely to provincial powers, limiting its own sources of national fiscal revenues to salt taxes, custom duties and foreign and domestic loans. This fragile mixture of 'market-oriented' centralization and warlord-dependent, degenerate federalism had to face, and was finally overpowered by, the challenge from the Communist army who adopted a coherent, peasant-based approach to political mobilization. The release of rural-based energy for industrialization under what Montinola, Qian and Weingast (1995) called 'Federalism Chinese style' did not come immediately, however. Ironically it had to be waited until the passing of the interlude of wholesale corporatization of the entire rural economy into the People's Communes, which was costly at least in terms of productivity gains.

Only possible combination of centralism and federalism could be the so-called 'market-preserving federalism' in which the central government limits itself to the provision of a national framework for the free mobility of resources and people across otherwise-fiscally-autonomous local governments (McKinnon 1997). Why did the tendency toward federalism dwindled in the early twentieth century China? Set aside the alleged disadvantage of the federalist movement in military technology, was it the immaturity of foundational civic domains that was responsible for it? Is this why Mao's peasant-based revolution turned out to be a solution for national re-unification? Or, could civic-based federalism and peasant-based localism be made in some way compatible and complementary for China's development? These are admittedly kinds of hypothesis that cannot be tested or refuted empirically, but it appears that China still continues to face critical political economic issues related to national-provincial, urban-rural relations.<sup>18</sup>

*ii) From the Quasi-Federalist State to a National Bureaucratic State:* Japan exited out of the old regime comparatively more smoothly and faster than China via the initial attempt of strategic realignment of the coalitional structure of the Bakuhan regime. But this transition also conditioned the nature of the subsequent polity. One of the first actions of the four Han that took over the governing position was to hand over their own armies as the imperial guards, which was in effect the initial formation of the national army as a requisite of the modern nation state. They abolished all the Han and made a centralized administrative structure composed of prefectures governed by their appointees a la traditional Chinese governance rule (*junxianzhi*). With all the overwhelming debts of Han taken over by the central government, all the lords given court ranks and all the samurai provided with seven-year bonds as compensations for the loss of prestigious inheritable status, this transition appeared to be not bad news for them all for a while.

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<sup>18</sup> To quote a few of such issues: excessive environmental-unfriendly growth rate competition under the 'federalism Chinese style, conflict between centralization of tax collection and the provincial responsibility for social welfare programs, urbanization by massive domestic migration from the rural economy and resulting apartheid under the Huko (urban-rural separate household registration) system.. See Aoki (2012) and Lou (2012) for these.

However, ten years after the Restoration, ex-samurai and unemployed former soldiers who became impoverished and disgraced revolted in southern-west of Japan, led by the ex-hero of the Restoration, Saigo. He tried to absorb and release their disgruntlements with aggressive outward policy toward Taiwan and Korea. The official government army crushed the revolt, entailing severe inflation caused by military expenditure almost amounting to annual tax revenue. But the aggressive foreign policy orientation gradually became an influential stream within the government. As for constitutional design of a new polity, those who advocated the introduction of constitutional monarchy controlled by a democratically elected parliament in the tradition of Tosa's proposition lost a battle against the champions of exclusive bureaucratic governance under the guise of Emperor's quasi-religious authority. Industrial policy was short-lived and made yielded to an austerity policy that resulted in the strengthening of bureaucratic control over budgeting. Thus, the quasi-fiscal federalism under the bureaucracy-led Baku-Han regime was transformed into a centralized bureaucratic state with the dominance of authoritarian Chōshū clan, anticipating the eventual hegemony of the military bureaucracy within it. This bureaucratic state and the traditional peasant-based economy had uneasy interdependencies until the end of the Asia-Pacific War. In the period of industrial construction of the Meiji era, the government relied on the fiscal mechanism to transfer agricultural surplus in the form of de facto subsidies to the industry. In the Showa period when the hegemony of the military bureaucracy was gradually solidified, it relied on labor force made redundant through the practice of primogeniture by the household-members of the village. They were mobilized as the soldiers of the Imperial Army and immigrants to the frontier of Manchuria, resulting in what Leslie Young described as "Japan's Total Empire" (1999).<sup>19</sup>

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<sup>19</sup> For the bureaucratization of the Japanese military evolving out of cliquish competition among ex-Han clans, see Kitaoka (1993). For the fiscal mechanism in the Meiji period to transfer agricultural surplus to industry through the creation of differentials in tax burdens, see Teranishi (1982). For the sustenance of the member-ship based village norm, which resulted in redundant labor in the rural economy, see Hayashi and Prescott (2008) and Aoki (2012). For a through study of bureaucracy-village coordination in promoting immigration to Manchuria, see Young (1999).

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