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In Authoritarian States Mechanism of Institutional Transition, and Political Instability

A Model and Comparative History

Takaharu
ISHII



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Business Breakthrough University, Japan

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Political Instability: A Model and Comparative History*

Author: **Takaharu Ishii**

Business Breakthrough University, Departure of
Management, Tokyo, Japan.

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Preface

Chapter 1. This chapter provides theoretical conditions for a stable political system. This chapter has the trade-off that military support for the rulers simultaneously encourages military build-up, resulting in closed authoritarianism, electoral authoritarianism and stabilising military regimes, while at the same time giving the military a stronger voice, which is a cost for the rulers. Democracies that are not aligned with the military are shown to be unstable. Despite the assumption of a path-dependent model, electoral authoritarianism is a stable system in countries where the initial political system is strengthened, but where the balance between citizens and the military is struck and the amount of real resources is not

sufficient for the number of resources demanded by the citizens.

Chapter 2. In this chapter, in order to examine the turning point of institutional change, we analyzed civil wars from four aspects. Theoretical, simulation, empirical analysis, and case studies. By endogenizing political, economic, and military factors in the model, we have clarified the mechanisms by which civil wars occur. The robustness of the model is evident from simulation analysis and real-life cases. We showed that the weaker the initial challenger to the government, the greater the contribution of cooperation from the population and a third force to the challenger in the process of civil war, and thus the challenger cannot create a new autocratic government with a single group after winning the civil war. The challenger also has the advantage of prolonging the civil war. For the challenger, the probability of winning the civil war increases with the proximity of the challenger's political ideology to the population, and the probability of the challenger winning the civil war is also higher when the government loses the maintenance of the population's property and public goods and the stability of the price level. The decrease in the value of public and private goods of the population due to the hyperinflation described will lower the utility of both urban and rural residents.

Chapter 3. Using the model, this study makes eight policy recommendations for creating a new postwar deterrent world order when the warring parties are authoritarian dictatorships with veto power and nuclear powers. First, as long as the ceasefire condition is the abandonment of an independent state by a dictatorship and the retention of an independent state by an invaded state, ceasefire negotiations tend to be parallel unless a mediator is obtained; Second, since democratic states require public consent before the decision to start the war, the obstacles to the start of the war

are this is greater than in dictatorships. Third, the distance between a dictatorship and a country determines the decisions of its leaders. The greater the distance, the more likely it is to provide only economic assistance. The closer a country is to the point where it feels threatened if the occupation is tolerated, the more military assistance it will provide. Fourth, when a dictatorship initiates a war of aggression, neighboring countries tend to use economic sanctions to weaken the dictatorship's ability to wage war to avoid a major-power war. Fifth, it is essential to introduce a system in which the veto power of a permanent member of the UN Security Council is suspended if it violates the UN Charter or is a war party. The sixth is the establishment of a permanent UN force that can intervene in areas of conflict by a certain level of resolution of the UN General Assembly. Register with the UN volunteer soldiers who can act in the exercise of war, so that they can be deployed early in the event of a war of aggression by a major power against a minor power. Eighth, make wartime statements by dictators and leaders of invaded countries in the media and elsewhere binding under international law.

Dr. Takaharu Ishii

Tokyo, Japan

20 May 2022

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1

Why return to an electoral authoritarian state?

Introduction

This chapter provides theoretical conditions necessary for a stable political system. The study includes the military as a player and includes the military's influence after a successful coup by its participation in the coup. It also fills a gap in previous research by showing that the disparity between the minimum resources demanded by the people and the resources they possess in reality influences the political system.

Many previous studies have shown that the utility function of citizens is determined by the political system, with disparities in inequality as one of the factors (e.g. [Miller, 2012](#); [Ishii, 2020](#)). This study takes the same perspective. However, while this study would be more likely to be a coup d'état for socialism if the only demand of citizens was to reduce inequality, this is not necessarily the only aim of a real coup d'état by citizens. Emerging conglomerates and wealthy urban areas have the experience of supporting coups by citizens in the past. However, their aim is not to hand over their property to others. Some studies exist that show the diversity of citizens' demands with models and

simulations (e.g. Ishii, 2020). This study shows that even if citizens' demands are diverse, it is essential for citizens with inferior military power to collaborate with the military or parts of the military to successfully carry out a coup, and that collaboration with the military influences the subsequent political system. Based on the military's contribution to the coup, the military that participated in the coup seeks a stronger voice in the new government, and other politicians within the new government cannot ignore the views of the military. It also shows that the stronger the influence of the military, the more stable the political system arises. A stable political regime in this study means that it is established at the expense of citizens' rights and welfare, including the economy. It assumes a state in which the resources held by the state are close to the minimum resource S that guarantees a stable life after resources are distributed among citizens.

The cost of a failed coup against a closed authoritarian or electoral authoritarian ruler, including rulers with both legislative and executive powers, is likely to be death, making it very risky to be involved in a coup. The model in this study also includes the different risks to citizens who participate in coups for each existing political system.

This study implies that regimes created by coups, even if the coup is aimed at democracy, will transform into authoritarian political regimes. It is not surprising that citizens who carry out coups have a short-term desire to win the coup as a reason for aligning themselves with the military, despite their desire for democracy and peace. However, just as citizens, out of a feeling of respect for the right to freedom and equity, would stage a coup within their own country, they are aware of the current situation in which a small military state without nuclear weapons in its foreign and domestic relations is at a disadvantage in various economic negotiations against a military power with

nuclear weapons so that freedom and equity are guaranteed even between states. To some extent, they may also feel the need to co-operate with the military in the long term. If citizens have a belief in the military's ability to solve problems such as border disputes against the backdrop of military power, and if they believe that it is necessary in the long term to produce a strong president, i.e. a closed authoritarian state or an electoral authoritarian state, to achieve this, then citizens' cooperation with the military in the coup process is it makes sense in the long term. Even if free speech and various rights by citizens are deprived, this means that many citizens are fine with the deprivation of free speech and various rights, as long as their lives, property rights and domestic peace are guaranteed against the backdrop of military power. Historically, in the French and Russian revolutions, as well as in the Xinhai Revolution in China, citizens staged coups in the early stages, but with the cooperation of the military, they succeeded. In the long term, authoritarian regimes were created by rulers with military power, rather than democratic regimes. Closed authoritarianism and electoral authoritarianism deprive people of their right to know, so they are less likely to complain about politics if they do not know.

The model of this study also shows that to sustain democracy, resources must be above the minimum to guarantee a stable life after sharing resources among citizens. It shows that if resources exist only below the resources (S) necessary for the survival of the state, no matter how much citizen support there is for democratisation, in the long term the country will return to authoritarianism and democratic institutions will not be chosen.

The inclusion of military regimes in addition to closed authoritarianism, electoral authoritarianism and democracy is also a feature of this study's model of ruling politicians

and political regimes. Electoral authoritarianism is also divided into two categories. Sole rule, such as a strong presidential system, and one-party rule, is grouped as a closed authoritarian presidential system and divided into a formal parliamentary cabinet system. The parliamentary cabinet system in this study is not a one-party dictatorship but is a stable system with a largely fixed prime minister. Through formal elections, there is always a party with a majority, from which the military-directed prime minister is determined. The authoritarian presidential system also allows the military to choose politicians whose policies are close to those of the military. Compared to a parliamentary cabinet system, a presidential system or one-party rule has fewer members in government and therefore a larger per capita distribution of resources. Therefore, once a ruler is a closed authoritarian or electoral authoritarian, he or she chooses closed authoritarianism, even if the cost of military intervention in policy is included for the ruler. This study finds that the military has less influence in a parliamentary cabinet system than in a presidential system, even if the same electoral authoritarianism is used. The reason is that in a one-party dictatorship or presidential system, it is more difficult to oppose ideas and policies dictated by the military than in a parliamentary cabinet system. In a parliamentary cabinet system, the military-supporting groups hold the majority of seats in parliament, so policies are almost certainly implemented, but the small number of politicians who disagree with the military's views makes it difficult to implement policies that are excessively favourable to the military or that increase the military's military build-up to the point where it seriously impacts on civilian life. Therefore, the influence of the military is also smaller than in a one-party dictatorship or presidential system as a closed authoritarian system.

The military also had an impact on the probability of a successful coup d'état. The stronger the influence of the military in a political system, the stronger the military power of the ruler and the lower the probability of a successful coup by the citizens. Furthermore, the risk of a failed coup by citizens is also greater.

Analysing how political regimes change from one initial state to another in terms of path dependence, Miller (2012) differs from this study in that he shows that political regimes can be freely chosen. Rather, this study implies that once a political regime is determined, it becomes stable through institutional complementarity if the characteristics of the political regime are exploited. The characteristics of political regimes are that all but democracy are backed by military power and democracy is thoroughly educated in civilian control.

Furthermore, this study assumes a variety of electoral authoritarianism and a variety of closed authoritarianism, rather than a dichotomy between authoritarian and democratic states, or a trichotomy including Miller's (2012) electoral authoritarianism. This is consistent with previous research. The model assumes diverse political regimes and a continuum of possible political regime shifts. It not only assumes a large separation between the rulers' ideal policy z and the citizens' ideal policy x , but also that the rulers allow themselves to change the political system if they adopt a compromised policy, if their support through elections is much lower than in the past, and if they believe that the threat of a coup d'état is very high. It means. In any political system, the ruler initially tries to maintain the initial political system. However, the policies that can be implemented while maintaining the political system are limited. For example, assume that the initial regime is an electoral authoritarian system where only the president is elected. However, when the citizens no longer tolerate the ruler

making policy decisions alone, and the threat of coup d'état increases, the ruler will formally tolerate the active role of the citizens, provided that the ruler himself can remain the ruler at the beginning. Citizens move to a parliamentary cabinet system when they want a parliament to be held and when citizens want to elect multiple parties and multiple politicians. When citizens do not tolerate only a formal parliament, even if a parliamentary cabinet system is introduced, they move to a democratic system. The democratic system in this study includes the presidential system, the parliamentary cabinet system and everything in between, including the anti-presidential system, and not formal elections. It differs from electoral authoritarianism in the sense that it conducts essential elections. Essential elections mean that the election results are fair and politicians are elected based on the election results. Also, executive and legislative powers are separated. The continuity of the political system is ensured by the size of the r_* that the ruler presents to the citizens.

However, the reality of the increasing number of consecutive electoral authoritarian states and the diversification of electoral authoritarianism, reflecting

In this study, the game is to choose a politician by the military in the first term and to decide whether to stage a coup in the second term; a third term is not envisaged, but by comparing the stability of the political system The second can be predicted. For example, a state with less than S necessary for state survival will become authoritarian again in the third term, as citizens revolt and democratise in the second term, but civil life does not improve.

Previous review

2.1. Electoral authoritarianism

Miller (2020) conducted an empirical analysis of the hypothesis that the transition to electoral authoritarianism (EA) balances the international incentives for dictators to adopt elections with the costs and risks of controlling elections. The results showed that international leverage in favour of democratisation, captured by dependence on democracies through trade relations, military alliances, international government organisations and aid, would lead to the adoption of EA, while socio-economic factors that facilitate voter control, such as low average income and high inequality, would also shift to EA. It held that democratisation entails the loss of dictatorial power and can therefore be explained mainly by regime fragility rather than international engagement or socio-economic factors.

Geddes *et al.* (2014) stated that a dictatorship is a set of formal and informal regimes, with rules for choosing leaders and policies. They point out that the reason for the existence of informal rules is that the concealment of the rules for choosing dictatorships satisfies the powerful, except the current ruler. It states that many states are fragile and have a high probability of emerging democracies, even if they are dictatorships. It argues that political regimes after the fall of a dictatorship and conflict behaviour in dictatorships vary widely from country to country. There are numerous studies on mechanisms in autocratic regimes (Chiozza & Goemans, 2003; Debs & Goemans, 2010; Weeks, 2014). A major problem in autocratic regimes is informational uncertainty (Tullock, 1987; Wintrobe, 1990; 1998), which Wintrobe (1990, 1998) referred to as the "Dictator's Dilemma". Formal elections are introduced because information uncertainty makes it impossible for a dictator to remain a strong dictator in the future, otherwise, he would be under constant threat of a

coup d'état. To resolve information uncertainty, elections are introduced to reveal information about citizens' policy demands (Case, 2006; Geddes, 2006; Magaloni, 2006; Miller, 2011). Such electoral authoritarianism makes policy concessions at the cost of averting a coup. There are several other reasons behind the introduction of electoral authoritarianism.

Pure rituals to deceive international observers (Carothers, 1999; Hyde 2011), transmission of ideology (Hermet, 1978), monitoring of local leaders (Barkan & Okumu, 1978; Zaslavsky & Brym, 1978), transmission of regime control (Geddes, 2006; Magaloni, 2006; Simpser, 2008), spreading aid to citizens to maintain elite loyalty (Lust-Okar, 2006; Magaloni, 2006; Blaydes, 2011), the behaviour and capacity of local leaders (Barkan & Okumu, 1978; Blaydes, 2011; Malesky & Schuler, 2011), including the military (Geddes, 2006; Cox, 2009), confirming the strength and popularity of rival factions.

Miller (2011) finds from an empirical analysis that the ruling party's electoral defeats have been accompanied by policy concessions, in particular increased education and social welfare spending and reduced military spending.

2.2. Dictatorship and the party

Autocratic ruling parties are important institutional actors in contemporary history.

Many studies argue that autocratic parties are strategically designed to increase elite cohesion and extend autocratic power and durability (Geddes, 1999; Smith, 2005; Magaloni, 2006, 2008; Brownlee, 2007; Svolik, 2012). Other studies have examined how the ruling party is involved in policy choices (Magaloni, 2006; Magaloni & Kricheli, 2010), democratisation (Magaloni, 2006; Slater & Wong, 2013; Wright & Escribà-Folch, 2012), late democratic It examines politics in the context of principles (Grzymala-Busse, 2002;

Riedl, 2014; Loxton, 2015). The first dataset of autocratic ruling parties is Geddes (1999). He categorised autocratic states into one-party dictatorships, individualism, militarism and their hybrids. In addition, Keefer (2012); Svobik (2012) included annual data on ruling parties in dictatorships, but both identified several problems. Archigos (Goemans, Gleditsch, & Chiozza, 2016) created a data set of autocratic rulers, but Miller (2019) created a dataset of autocratic ruling parties. The data showed that it is the full class of ruling parties that make dictatorships more stable. Less than 40% of ruling parties were founded by incumbent dictators or military officers, and only 30% came to power as such. Indeed, the average time between a political party being established and coming to power is 10.8 years. An analysis of whether dictatorships with political parties are more durable confirms that dictatorships without multiple parties and with a ruling party (e.g. monarchies with an ineffective parliament) are more durable, while those with multiple parties are less durable. Parties with the highest use of violence (revolutionary parties and parties invited by foreigners) were found to be the most durable. On the other hand, parties that came to power through elections were the least durable. There is a large body of literature examining the function of autocratic parties vis-à-vis dictatorships and regimes (Zolberg, 1966; Huntington, 1968; Geddes, 1999; Smith, 2005; Magaloni, 2006, 2008; Brownlee, 2007; Magaloni & Kricheli, 2010; Levitsky & Way, 2010; Svobik, 2012; Wright & Escobar-Folch, 2012). In particular, political parties are said to mediate elite conflicts and create hierarchical structures for elite recruitment and career investment. In this way, elites remain loyal and regimes become more cohesive and stable (e.g. Brownlee, 2007; Magaloni, 2008; Reuter & Remington, 2009; Svobik, 2012). Parties also maintain popular control by policing loyalties, building support through propaganda and clientelism, recruiting and mobilising party

followers and providing clear electoral labels (e.g. [Zolberg, 1966](#); [Ames, 1970](#); [Magaloni, 2006](#); [Magaloni & Kricheli, 2010](#)). Strong parties also enable dictatorships to make credible promises and improve investment and growth ([Gehlbach & Keefer, 2011](#)). Building on this theoretical work, empirical studies have shown that party-based regimes are more stable than other dictatorships ([Geddes, 1999](#); [Smith, 2005](#); [Slater, 2006](#); [Hadenius & Teorell, 2007](#); [Brownlee, 2007, 2009](#); [Magaloni, 2008](#)). Dictatorial parties are often created and empowered as a strategic project of the dictator (e.g. [Smith 2005](#); [Reuter & Remington, 2009](#); [Svolik, 2012](#); [Reuter, 2017](#)). Some dictatorial ruling parties were established by the incumbent dictator for regime strengthening purposes such as elite cooptation and legitimacy building. However, more than 60% of ruling parties were not founded by dictatorships, but have antecedents and founding purposes such as revolution, independence or colonial electoral competition. As [Smith \(2005\)](#) and [Levitsky & Way \(2012\)](#) point out, there is significant heterogeneity in the durability of autocratic ruling parties. Most recent studies addressing this heterogeneity have focused on the strategies and sophistication of leaders, including their choice of institutional rules ([Magaloni 2006, 2008](#); [Brownlee, 2007](#); [Levitsky & Way, 2010](#); [Way, 2015](#)).

[Smith \(2005\)](#) emphasises the role of financial and political constraints in the origins of the ruling party. When parties faced powerful challengers (e.g. rival parties or colonial powers) and did not have easy access to rents, they were forced to build strong institutions to survive; [Slater \(2006\)](#) similarly argues that strong parties derive from high mass mobilisation at the time of coming to power and elites are more likely to be able to use centralised It is argued that they are forced to invest in a party state.

[Levitsky & Way \(2012, 2013\)](#) found revolutionary parties to be particularly durable, with revolutionary parties having

greater coercive power after the war and gaining stronger unity through shared struggles. Revolutionary parties also tend to destroy or absorb potential rivals, particularly armies and states, in the process of coming to power; Lyons (2016) points to ruling parties developing from civil wars and rebellions, arguing that protracted war and victory without a negotiated peace settlement can produce powerful autocratic parties. Like Huntington (1968), Levitsky & Way (2012, 2013) and Lyons (2016) emphasise, the use of coercive force when gaining power can fundamentally shape party strength, its relationship with national security and regime repression.

2.3. Political regimes, economic growth and economic liberalisation

A survey of the relationship between economic growth and political regimes exists in Przeworski *et al.* (2000). Winters (2004) outlines the relationship between trade liberalisation and economic growth. The literature on economic liberalisation and economic growth includes De Haan *et al.* (2006), which also note that instability and volatility in growth rates are important, especially in developing countries (De Haan, 2007).

Hausmann *et al.* (2005) found that changes in political regimes have little to do with economic liberalisation, while Jong-A-Pin, & De Haan, (2008). found that accelerated economic growth is often caused by changes in political regimes, but mostly by economic liberalisation. They found that the longer a political regime, whether democratic or autocratic, lasts, the less the probability of transition to a more democratic system.

Imam & Salinas (2008) noted that an analysis of 22 West African countries showed that external shocks, economic liberalisation, political stability and proximity to the coast, rather than changes in political regimes, were the drivers of

accelerated economic growth Timmer & De Vries (2009) found that economic growth was driven by intra-sectoral Tavares & Wacziarg (2001) found that the positive side of democracy's impact on economic growth can be explained by increased transparency and accountability and higher economic performance, but the negative side is that democratic The consensus that institutions require may delay the response to shocks and the implementation of legislation Doucouliagos & Ulubasoglu (2008) concluded, based on a meta-analysis, that there is no clear evidence that democracy leads to economic growth. Subsequently, the conclusions changed somewhat when moving from traditional cross-sectional analysis to time series analysis: Jerzmanowski (2006) found that democracy reduces the propensity for crises to occur, but also limits the frequency of crises, while Cuberes & Jerzmanowski (2008) found that democracy is associated with higher The growth rate was assumed to be.

Clague *et al.* (1996) found that the lack of democratic rights did not affect growth, but the length of time a particular regime has been in power. They stated that it did not matter whether the regime was democratic or autocratic. It was held that a state that becomes a democracy temporarily has the same effect as a dictatorship plundering, as it tries to obtain a large budget. However, in permanent democracies, the situation was assumed to be different.

Based on path dependency, this study also assumed that the initial institutions would be strengthened. In other words, it assumes that the duration of a particular political system and regime is long-term.

Jong-A-Pin (2009) found that countries with more stable political regimes grew faster on average than those without, while Jong-A-Pin & Yu (2010) found that leadership change accelerated economic growth in politically unstable countries Ross (2001a, 2001b, 2009), Ulfelder (2007), Collier & Hoeffler

(2009), Alexeev & Conrad (2009) and Tsui (2010) show a negative relationship between resource abundance and democracy. This study includes in its model the disparity between the minimum amount of resources demanded by the public and the actual amount of resources; Haggard & Kaufman (1997) and Geddes (1999) emphasise the role of the regime's budgetary constraints. Several empirical studies compare regime durability with the potential for revolution. Also, many empirical studies exist on democratisation from closed dictatorships to electoral authoritarianism, discussing regime durability and revolutionary potential (Geddes 1999, 2006; Gandhi & Przeworski 2007; Brownlee 2007, 2009; Lindberg 2009).

2.4. Democratization

Miller (2013) showed four factors contribute to democratisation, and Acemoglu & Robinson's (2001, 2006) model includes all four of them: first, democratisation is a result of autocratic The idea is that it is the product of strategic choices by elites (Acemoglu & Robinson 2001, 2006; Rosendorff 2001; Boix 2003; Lizzeri & Persico 2004; Llavador & Oxoby 2005). Cases in which democracy is established purely by forces from below are extremely rare (Karl, 1990); O'Donnell & Schmitter (1986) emphasise divisions within the dominant elite. Ultimately, however, they argue that democratisation occurs when the dominant faction strategically supports democracy; the main motivation for the second dictator to choose democracy is the threat to the people. revolt (Weingast, 1997; Acemoglu & Robinson 2001, 2006; Boix 2003), while Collier (1999) found that democratisation is often a combination of elite choice and popular pressure.

The third factor in democratisation is the existence of class struggle over redistribution (Acemoglu & Robinson 2001, 2006; Rosendorff 2001; Boix 2003, 2008; Ansell &

Samuels 2010). There are also policy disputes (Lizzeri & Persico 2004; Llavador & Oxoby 2005; Gandhi & Przeworski 2006; Desai *et al.* 2008). This is due to the implicit threat of redistribution for elites once democratisation takes place, leading to intense struggles with non-elite classes; Boix (2003) argues that from a redistributive perspective, democracy is more likely to reduce this redistributive threat when inequalities are small. Redistribution is implemented at a lower level, making elites more likely to accept democracy.

The fourth factor for democratisation is that dictatorships may offer policy concessions to prevent revolts and coups, but often lack institutional structures, so citizens do not trust that promises will be kept. Institutions such as the Legislative Assembly should be established to ensure that citizens can trust them. For elites, see North & Weingast (1989); Congleton (2001); Myerson (2008); Wright (2008). For political parties, Magaloni (2008); Gehlbach & Keefer (2011).

2.5. Previous research on the model

On the theoretical side, Caselli & Coleman (2006) examined the impact of resource abundance on ethnic conflict, while Besley & Persson (2010) theorised its impact on political conflict.

Cox (2009) modelled the adoption of autocratic elections as a response to information, focusing on negotiations between autocrats and armed rivals. Opposition protests and government repression (Ellman & Wantchekon, 2000; Przeworski, 2009) and autocratic parliaments (Gandhi & Przeworski, 2006; Gandhi, 2008; Boix & Svolik, 2010) and political parties (Magaloni, 2008; Gehlbach & Keefer, 2011), although there is also literature modelling the adoption of political parties, most of which focuses on elite bargaining.

Acemoglu & Robinson (2001, 2006) developed a model of changing political institutions. Acemoglu & Robinson (2001,

2006); Rosendorff (2001); Boix (2003); Zak & Feng (2003) focus on the elite choice of regime type, based on economic class conflict and the threat of popular revolt; Acemoglu, Robinson, & Verdier (2004) presented a model of autocratic rule; Weingast (1997); Sutter (2000); Acemoglu & Robinson (2001, 2006); Rosendorff (2001); Boix (2003, 2008); Zak & Feng (2003); Lizzeri & Persico (2004); Llavador & Oxoby (2005); Przeworski (2005); Ansell & Samuels (2010) conducted a game-theoretic analysis of the agency problem and incorporated strategic incentives into their model.

Miller (2013) modelled not only the dependence of income changes on whether the political regime was initially autocratic or democratic but also the heterogeneity of autocratic regimes given the degree of autocracy. Furthermore, including changes in the rewards of holding political power rather than the opportunity costs of challengers, changes in political regimes included electoral authoritarianism that conceded policy through electoral signals rather than a binary transition to democratisation. It also incorporated information asymmetries regarding revolutionary possibilities. This study also incorporated information asymmetries and modelled diverse political regimes by splitting the EA of Miller (2013) into two and incorporating military regimes. We also modelled military support as a factor that strengthens the political regime, and conversely, we added multiple factors to the political regime transition, including the cost of strengthening the military's voice, the threat of a coup, the gap between the minimum resources required by the public and the actual resources, the degree of policy compromise with the civilian population and the military's policy compromise with the new Added to the model.

The model

3.1. Basic elements

The game involves two players. The autocrat (subscript a) and a representative citizen (subscript c). Play begins with the autocrat faces subgames, which responds to any of the five distinct regime types. (1) Closed Authoritarianism (CA), (2) Electoral Authoritarianism (Presidential System) (EAp), (3) Electoral Authoritarianism (Parliamentary Cabinet System) (EA_c), (4) Democracy (Dem), (5) Military Government (Mil).

The ruler gains a direct benefit $R > 0$ from having greater power than CA or EA. When the ruler is a Democracy Dem, citizens gain direct benefits, $D_c > 0$. When the ruler is a democratic ruler and there is no domestic civil unrest, the ruler gains a hand benefit, $D_a > 0$, through building and promoting relations with foreign countries.

In each sub-game, $y \in R$, which encompasses all socio-economic policies, is chosen by citizens under democracy and the ruler under CA/EA. (In some of the Propositions below, to understand the results of the analysis, it is assumed that the ruler has a utility function containing the squared distance between his ideal and real policies and a point representing his policy ideal) The point on the policy of the ruler's ideal is $z < 0$ and is known by both the representative citizen and the ruler. The citizen's ideal policy point is x , unknown by the ruler, and believed by the ruler to lie in a uniform distribution between 0 and $\bar{x} (> 0)$. \bar{x} implies uncertainty about the citizen's preferences. Let z be the policy value of the ruler relative to citizens, and z denotes the level of inequality since economic inequality implies the intensity of the conflict.

Given a policy offer, one actor chooses to rebel or not. The likelihood of the ruler is θ for CA, θ' for EA and α for Dem. actor i faces a cost $c_i > 0$ for each, with an additional cost

$k_i > 0$ if civil war occurs and the actor is defeated. The ruler may launch a coup d'état in the case of democracy. If a civil uprising or a coup by the ruler fails, the regime type and policies remain unchanged. If successful, the winner can change regime type and determine policy; one round ends the game.

In summary, in CA the ruler offers y and the citizens decide whether to revolt; in Dem the citizens offer y and the ruler decides whether to stage a coup; in EA it differs slightly in terms of citizen signalling, with the ruler formulating a constrained but ideal policy; in CA the ruler offers y and the citizens decide whether to revolt; in Dem the citizens offer y and the ruler decides whether to stage a coup; in CA the ruler offers y and the citizens decide whether to revolt; in Dem the citizens decide whether to stage a coup; in EA the citizens offer y and the ruler decides whether to stage a coup; in Dem the citizens decide whether to stage a coup. If citizens support the regime, the ruler does not transfer authority and can extract policy concessions $y_2 \geq y_1$. This choice is made through electoral signalling, where dissatisfied citizens elicit policy concessions by voting against them. A constrained offer is presented, citizens choose between a gain or a policy concession and the commitment is fulfilled. Finally, citizens choose whether to revolt. $\overline{y_d}$ is the upper limit of policy compromise possible to maintain closed authoritarianism. If a compromise within $\overline{y_d} \geq y$ can avoid a citizen coup, the CA can be maintained. If a coup cannot be avoided without the ruler making compromises of y_2 or y_1 below, then an electoral authoritarian presidency.

$$\overline{y_{ed}} \geq y_2 \geq y_1 \geq \overline{y_d}$$

After the change to an electoral authoritarian presidential system, a further $\overline{y_{ep}}$ or less but $\overline{y_{ed}}$ or more policy

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compromises are required before moving to an electoral authoritarian parliamentary cabinet system.

$$\overline{y_{ep}} \geq y_4 \geq y_3 \geq \overline{y_{ed}}$$

After the change to an electoral authoritarian parliamentary cabinet system, if further $\overline{y_{ep}}$ or more policy compromises are required, the transition is made to democracy.

$$y_5 \geq \overline{y_{ep}}$$

I make three assumptions concerning the model's parameters.

Assumption 1

$$(1 - \theta(M)) < \frac{-\theta(M)\{-k_c + R_d(M) + f_d(S - \underline{S})\} - c_c}{D_c + P(S < \underline{S})(\rho M - m) + f_{Dem}(S - \underline{S})}$$

If above assumption is violated, the citizen will always revolt under CA or EA. If the autocrat know this, the autocrat will choose between CA with $y = z$ and democracy.

Assumption 2

$$z > \frac{R_d(M) + c_c + \theta(k_c^d - R_d(M))}{1 - \theta(M)} - D_c - P(S < \underline{S})(\rho M - m) - f_{Dem}(S - \underline{S}) + R + M(z_M - z) + (1 - \theta(M))f_d(S - \underline{S}) + R_d(M) + c_a - \theta(M)(R - m - R_d(M)) + (1 - \theta(M))(-k_a)$$

Assumption 3

$$d < d_m$$

If z is sufficiently negative, we get an uninteresting equilibrium in which the autocrat chooses CA and $y = z$ even though it provokes all citizen types to revolt. This assumption eliminates that possibility.

The more m increases the cost a ruler loses by having a stronger voice in the military, the smaller the benefit of the ruler winning the coup. On the other hand, an increase in military power m increases the likelihood of crushing a coup by the citizens. Also, $R_d(M)$ is a function of the military's profit M . The more M is, the more the military build-up reduces the domestic resources $f_d(S - \underline{S})$ produced through the authoritarian state's production function, as it has a negative sign of lost state profits through the military build-up. The military build-up reduces utility through civilian consumption by using the resources produced for military purposes. In the long run, the use of resources for military build-up also has the potential to $\underline{S} > S$. In this case, the probability of a coup being suppressed by the military build-up increases, but the probability of a coup by citizens increases.

Historically, in China, the Sun Yat-sen failed coups many times until the Xinhai Revolution of 1911 by the Sun Yat-sen, and in Japan, the Choshu domain many times until the Boshin war of 1867 led by the Choshu domain. There have been failed coup attempts, including the Russian Revolution of 1917, by which time Lenin was in exile in another country due to the failed coup attempts he had previously carried out. Thus, even though coups have failed, there is a history of coups have occurred many times, and this study model this history.

The solution concept is perfect Bayesian equilibrium, which requires subgame-perfection and Bayesian updating over type.

3.2. First turn of closed authoritarianism and electoral authoritarianism

3.2.1. Military

On its first turn, the military chooses the politician whose policy is closest to the military's policy y_M . The smaller $(z_M - z)$ is, the more the military's profit M increases.

$$\begin{aligned} u_M &= M(z_M - z) > \underline{M} \text{ if } S < \underline{S} \\ u_M &= M(z_M - z) = \underline{M} \text{ if } S \geq \underline{S} \end{aligned}$$

Below the minimum level of state resources \underline{S} required by the people, for example, even in a democratic system, the military itself influences politics, for reasons such as disappointment at the low competence of democratically elected politicians, to achieve political stability and intensive investment on the back of the state's military power. Assume that the aim would be more desirable for the state. \underline{S} Assume that if the resources of the state exist beyond \underline{S} , it can put up with a system in which even if policy failures continue under a democratic system, the people themselves should be held responsible because they are failures caused by politicians elected by the people. Let \underline{M} be the minimum military force required for national defence. The military's gain u_M is equal to the military's profit M . The policy z_M demanded by the military means a military build-up and an increase in military expenditure. The relationship between the military's policy z_M and the ruler's ideal policy z is as follows.

$$z_M = z + \varepsilon$$

3.3. Second turn

3.3.1. Closed authoritarianism

In CA, the autocrat offers a policy y . The citizen then chooses whether to revolt, with a $1 - \theta$ probability of success. If the citizen does not revolt, y is implemented, the

citizen gets $-f(x - y)$, and the autocrat gets $R - f(y - z)$. In the event of revolt, each actor i loses c_i .

If the autocrat wins, the citizen loses k_c . The autocrat retains R , and policy y is implemented. If the citizen wins, the autocrat loses k_a and retains the loss from y , whereas the citizen gains

D_c and implements the policy x .

S is the current national resource and \underline{S} is the minimum national resource required by the population. \underline{S} is the minimum national resources available to provide the minimum services demanded by the people from the state. A state can have less than \underline{S} resources. In other words, $S - \underline{S} < 0$ is possible. f_d is a function of the amount of state resources that can be used and produced by closed authoritarianism. $f_d(S - \underline{S})$ is the product of increased production by utilising, through closed authoritarianism, the amount of resources beyond the resources that the people, at a minimum, demand from the state. the greater $S - \underline{S}$, the greater the amount produced. $R_d(M)$ is a function of the military's profit M . The greater M , the more Through military build-up, the state loses profit. In other words, the sign of $R_d(M)$ is negative. Citizens lose their gains through the use of resources by the military for the military build-up, both in the case of no coup and in the case of a closed authoritarian political system in which a coup is initiated but defeated. In cases where a rebellion occurs and the ruler wins, the military has a stronger voice. The cost to the ruler of a stronger military voice is m . Through military build-up, the ruler increases the probability of increasing the police force and winning the civil war. The probability of winning a coup by citizens, θ , is a decreasing function of m . If $S < \underline{S}$ when citizens stage a coup, the probability of some military support is q . If some military support, a democratic system is created after citizen victory, but military influence m is also created.

The utility function for the citizen is the following.

$$u_c^{CA}(y) = \begin{cases} R_d(M) - f(x - y) + f_d(S - \underline{S}) & \text{if no revolt} \\ -c_c + \theta(M)\{-k_c^d - f(x - y) + R_d(M) + f_d(S - \underline{S})\} \\ + (1 - \theta(M))\{D_c + P(S < \underline{S})(\rho M - m) + f_{Dem}(S - \underline{S})\} & \text{if revolt} \end{cases}$$

The utility function for the autocrat is the following.

$$u_a^{CA}(y) = \begin{cases} R - f(y - z) + M(z_M - z) + f_d(S - \underline{S}) + R_d(M) & \text{if no revolt} \\ -c_a - f(y - z) + \theta(M)(R - m - R_d(M) + f_d(c)) + (1 - \theta(M))(-k_a + f_{Dem}(S - \underline{S})) & \text{if revolt} \end{cases}$$

The military will not participate in the coup with the citizens, and the military may stage its own coup.

The utility function for the military is the following.

$$u_m^{CA}(y) = \begin{cases} R_d(M) - f(z_M - y) + f_d(c) & \text{if no revolt} \\ -c_c + \theta(M)\{-k_c - f(z_M - y) + R_d(M)\} + (1 - \theta(M))\{D_c + f_d(S - \underline{S})\} & \text{if revolt} \end{cases}$$

The subgame equilibrium is captured in the following proposition.

Proposition 1

The following constitutes the sole equilibrium in the closed authoritarianism subgame.

$$\text{Let } d = \frac{R_d(M) + c_c + \theta(k_c^d - R_d(M))}{1 - \theta(M)} - D_c.$$

1.

If $z \geq \bar{x} - d$, the autocrat chooses $y = z$. Otherwise, the autocrat chooses $y = y^*$, constrained from above by $\min(\bar{x} - d, d)$, where

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$$= z + \frac{-R - M(z_M - z) - f_d^y(S - \underline{S}) - R_d(M)}{4\bar{x}} + \frac{c_a - \theta(M)(R - m - R_d(M) + f_d(S - \underline{S})) - (1 - \theta(M))(-k_a)}{4\bar{x}}$$

2. The citizen revolts if and only if $|x - y| > d$

3. The military revolts if and only if $|z_M - y| > d_m$

Rulers must be aware of both civil and military insurgencies. When the difference between military policy z_M and civilian policy y is large, it becomes difficult for rulers to adjust. When $\frac{\partial u_a^{CA}}{\partial y}$ and $\frac{\partial u_a^{CA}}{\partial z_M}$ are both large, the possibility of the military supporting a civilian coup d'etat arises. Revolutions resulting from a joint struggle between the military and citizens can be identified all over the world, such as the French Revolution in the 18th century, the Russian Revolution in the 20th century and the Xinhai Revolution that overthrew the Qing dynasty in China, which resulted in the military's Yuan Shikai obtaining power, and the Prague Spring in the 21st century. A discussion of military regimes is given in a later section.

3.3.2. Electoral authoritarianism

(1) Electoral Authoritarianism(Presidential System)

In EA, the autocrat implements a binding policy deal that is contingent on the citizen's choice of payoff or policy concession. The payoffs are identical to those in CA, with the exception that the autocrat wins with probability θ' and there is a transfer of r from the autocrat to the citizen.

The utility function for the citizen is the following.

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$$u_c^{CA}(y) = \begin{cases} R_{ed}(M) - f(x - y) + f_{ed}(S - \underline{S}) & \text{if no revolt} \\ -c_c + \theta'(M)\{-k_c^{ed} - f(x - y) + R_{ed}(M) + f_{ed}(S - \underline{S})\} \\ +(1 - \theta'(M))\{D_c + P(S < \underline{S})(\rho M - m) + f_{Dem}(S - \underline{S})\} & \text{if revolt} \end{cases}$$

The utility function for the autocrat is the following.

$$u_a^{CA}(y) = \begin{cases} R - f(y - z) + M(z_M - z) + f_{ed}(S - \underline{S}) + R_{ed}(M) & \text{if no revolt} \\ -c_a - f(y - z) + \theta'(M)(R - m - R_{ed}(M)) + (1 - \theta'(M))\{(-k_a) + f_{Dem}(S - \underline{S})\} & \text{if revolt} \end{cases}$$

f_{ed} is a function of the amount of state resources utilised and produced by the presidency in electoral authoritarianism. $f_{ed}(S - \underline{S})$ is the product of the increased use of resources by electoral authoritarianism over and above the resources that the people demand from the state at a minimum. the more M , the more $R_{ed}(M)$ the state loses through a military build-up. Not only the citizens, but also the rulers, i.e. the sign of $R_{ed}(M)$ is negative. Citizens lose their gains through the use of resources by the military for a military build-up, both in cases where a coup does not occur and in cases where a coup does occur but is defeated because the political system is electoral authoritarian. The cost of electoral authoritarianism is smaller than the cost of closed authoritarianism through military build-up ($0 > R_{ed}(M) > R_a(M)$). Electoral authoritarianism denies rulers against an arms build-up that citizens believe is excessive through elections. Electoral authoritarianism discourages arms build-up. the available productivity of state resources depends on the political system, $f'_{Dem} > f'_{ed} > f'_a$.

Proposition 2

The following constitutes the sole equilibrium in the Electoral Authoritarianism (Presidential System) subgame.

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$$d' = \frac{R_d(M) + c_c + \theta(k_c^{ed} - R_d(M)) - (1 - \theta(M))\{D_c + P(S < \underline{S})(\rho M - m) + f_{Dem}(S - \underline{S})\}}{1 - \theta(M)} +$$

$$R + M(z_M - z) + (1 - \theta(M))f_d(S - \underline{S}) + R_d(M) + c_a -$$

$$\theta(M)(R - m - R_d(M)) + (1 - \theta(M))(-k_a)$$

$$\pi = c_a + (1 - \theta')(R - m - R_{ed}(M) + k_a - f_{Dem}(S - \underline{S}))$$

1. The autocrat offers $y = y_1$ and $r = r_1$ if the citizen chooses payoff and $y = y_2$ and $r = 0$ if the citizen chooses concession. The autocrat always offers $r_1 = -z(y_2 - y_1)$.

• If $\bar{x} \leq z + d'$, the autocrat offers $y_1 = y_2 = z$.

• if $\frac{z}{2} + d' < \bar{x} < -\frac{\pi}{2}$, there exists a threshold $b < -\frac{\pi}{2}$ such that the autocrat offers $y_2 = y_2^*$ and $y_1 = y_1^*$, where

$$\begin{cases} \min\left(\bar{x} - d', \frac{z}{2} + 3d'\right) & \text{if } \bar{x} < b \\ \frac{z}{2} + \frac{9\bar{x}}{16} \pm \frac{9}{16} \sqrt{\bar{x}^2 - \frac{16}{9}\{z\bar{x} + c_a + (1 - \theta')(R - m - R_{ed}(M) + M(z_M - z) + f_{Dem}(S - \underline{S}) + k_a)\}} & \text{otherwise} \end{cases}$$

$$y_1^* = \frac{z + y_2^*}{3}$$

• otherwise, the autocrat offers $y_1 = y_2 = z + \frac{\pi}{2x}$

1. If $y_1 = y_2$, the citizen chooses concession if and only if $r_1 = 0$. Otherwise, the citizen chooses concession if and only if

$$x > \frac{1 - (y_2 - y_1)}{2(y_2 - y_1)} \{-(y_1 - z)^2 - (y_2 - z)^2 + R + f_{ed}(S - \underline{S}) + R_{ed}(M) + y_2\}$$

2. The citizen revolts if and only if $|x - y| > d'$

(2) Electoral Authoritarianism (Parliamentary Cabinet System)

f_{ep} is a function of the amount of state resources used and produced by the parliamentary cabinet system in electoral authoritarianism. $f'_{Dem} > f'_{ep} > f'_{ed} > f'_d$. Also $0 > R_{ep}(M) >$

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$R_{ed}(M) > R_d(M)$. The Prime Minister, the ruler of the parliamentary system, is elected by the parliamentary majority party. The military cannot choose all members of parliament, but the ruler is chosen from the military. However, the ruler does not benefit from the military build-up, so $M(z_M - z)$ is not included in the ruler's utility function. However, even if a coup were to occur, the increase in M due to the military build-up increases the probability that the ruler will win.

The utility function for the citizen is the following.

$$u_c^{CAp}(y) = \begin{cases} R_{ep}(M) - f(x - y) + f_{ep}(S - \underline{S}) & \text{if no revolt} \\ -c_c + \theta^{ep}(M)\{-k_c^{ep} - f(x - y) + R_{ep}(M) + f_{ep}(S - \underline{S})\} \\ + (1 - \theta^{ep}(M))\{D_c + P(S < \underline{S})(\rho M - m) + f_{Dem}(S - \underline{S})\} & \text{if revolt} \end{cases}$$

The utility function for the autocrat is the following.

$$u_a^{CAp}(y) = \begin{cases} R - f(y - z) + f_{ep}(S - \underline{S}) + R_{ep}(M) & \text{if no revolt} \\ -c_a - f(y - z) + \theta^{ep}(M)(R - m - R_{ep}(M)) + (1 - \theta^{ep}(M))\{(-k_a) + f_{Dem}(S - \underline{S})\} & \text{if revolt} \end{cases}$$

Proposition 3

The following constitutes the sole equilibrium in the Electoral Authoritarianism (Parliamentary Cabinet System) subgame.

$$d'' = \frac{R_d(M) + c_c + \theta^{ep}(k_c^{ep} - R_d(M)) - (1 - \theta^{ep}(M))\{D_c + P(S < \underline{S})(\rho M - m) + f_{Dem}(S - \underline{S})\}}{1 - \theta^{ep}(M)} + R + (1 - \theta^{ep}(M))f_a(S - \underline{S}) + R_d(M) + c_a - \theta^{ep}(M)(R - m -$$

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$$R_a(M)) + (1 - \theta^{ep}(M))(-k_a), \pi = c_a + (1 - \theta^{ep})\{R - m - R_{ed}(M) + k_a - f_{Dem}(S - \underline{S})\}$$

1. The autocrat offers $y = y_4$ and $r = r_4$ if the citizen chooses payoff and $y = y_3$ and $r = 0$ if the citizen chooses concession. The autocrat always offers $r_4 = -z(y_4 - y_3)$.

• If $\bar{x} \leq z + d''$, the autocrat offers $y_3 = y_4 = z$.

• if $\frac{z}{2} + d'' < \bar{x} < -\frac{\pi}{2}$, there exists a threshold $b < -\frac{\pi}{2}$

such that the autocrat offers $y_3 = y_3^*$ and $y_4 = y_4^*$, where

$$\begin{cases} \min(\bar{x} - d'', \frac{z}{2} + 3d') & \text{if } \bar{x} < b \\ \frac{z}{2} + \frac{9\bar{x}}{16} \pm \frac{9}{16} \sqrt{\bar{x}^2 - \frac{16}{9}\{z\bar{x} + c_a + (1 - \theta')(R - m - R_{ed}(M) + f_{Dem}(S - \underline{S}) + k_a)\}} & \text{otherwise} \end{cases}$$

$$y_3^* = \frac{z + y_2^*}{3}$$

• otherwise, the autocrat offers $y_3 = y_4 = z + \frac{\pi}{2x}$

2. If $y_3 = y_4$, the citizen chooses concession if and only if $r_4 = 0$. Otherwise, the citizen chooses concession if and only if

$$x > \frac{1 - (y_2 - y_1)}{2(y_2 - y_1)} \{-(y_3 - z)^2 - (y_4 - z)^2 + R + f_{ed}(S - \underline{S}) + R_{ed}(M) + y_4\}$$

3. The citizen revolts if and only if $|x - y| > d''$

Under a given \bar{x} , x is divided into three areas. In the area closest to 0, citizens choose to gain and do not revolt. In the area in the middle, citizens choose policy compromise and do not revolt. In the largest area, citizens choose policy compromise and revolt.

Specifically, in areas where \bar{x} is central, the ruler partially transfers the policy-making process and offers $y_3 < y_4$. In areas where \bar{x} is not central, the ruler sets $y_3 = y_4$, the same strategy as in CA. Subsequently, there are also optimal y_3

and y_4 within the framework of \bar{x} and a threshold value of x at which citizens revolt; as in CA, maximum compromise occurs at the median value of \bar{x} ; as in CA, at the limit where the ruler gets a guarantee not to revolt, \bar{x} is discontinuous.

3.3.3. Democracy

In a democracy, the citizen offers a policy y . The autocrat then chooses whether to revolt, with an α probability of success. The payoffs are a mirror image of the payoffs in CA.

The utility function for the citizen is the following.

$$u_c^{Dem}(x, y) = \begin{cases} D_c - f(x - y) + f_{Dem}(S - \underline{S}) & \text{if no coup} \\ -c_c - f(x - y) + \alpha(-k_c^{Dem} + f_d(S - \underline{S})) + (1 - \alpha)(D_c + P(S < \underline{S})(\rho M - m) + f_{Dem}(S - \underline{S})) & \text{if coup} \end{cases}$$

The rebel army that causes the coup shall be the military. The utility function for the military is the following.

$$u_a^{Dem}(y) = \begin{cases} D_a - f(y - z) + f_{Dem}(S - \underline{S}) & \text{if no coup} \\ -c_a + \alpha\{R + f_d(S - \underline{S}) + R_M(M)\} + (1 - \alpha)\{-k_a - f(y - z) + f_{Dem}(S - \underline{S})\} & \text{if coup} \end{cases}$$

$f'_{Dem} > f'_{ep} > f'_{ed} > f'_d$. Also $0 > R_{ep}(M) > R_{ed}(M) > R_d(M) > R_M(M)$

because democracy is a system in which resources are widely distributed among citizens and because the financial benefit of the individual ruler is the remuneration for his/her labour as a politician as stipulated by the rules.

The analysis differs from CA because it assumes perfect information when citizens make policy decisions. They also know with certainty when y is coup d'etat. As a consequence, citizens choose $y=x$ when they do not revolt. They also choose the largest y sufficient to avoid a coup if x is in the central area. If x is large enough, they know in advance that a coup will occur and prefer to choose $y=x$.

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These areas correspond to integrated, non-integrated and unstable democracies.

As m is the cost to the ruler of strengthening the military's voice, military regimes are not included in the model as the military itself is the ruler.

Proposition 4

The following constitutes the sole equilibrium in the Democracy subgame.

$$d''' = \frac{R_M(M) + c_a + \alpha(k_c^{Dem} - R_M(M))}{1 - \alpha} - D_a - P(S < \underline{S})(\rho M - m) - f_{Dem}(S - \underline{S}) \\ + R + M(z_M - z) + (1 - \theta(M))f_d(S - \underline{S}) + R_d(M) + c_a - \theta(M)(R - m - R_d(M)) + (1 - \theta(M))(-k_a)$$

1. The citizen chooses the policy y such that

$$y_5^* = \begin{cases} z + d'' & \text{if } z + d'' < x < z + d''' \\ \sqrt{c_c + \alpha(D_c + k_c^{Dem} + P(S < \underline{S})(\rho M - m) + f_{Dem}(S - \underline{S}) - f_d(S - \underline{S}))} & \text{otherwise} \end{cases}$$

2 The autocrat coups if and only if

$$|y - z| > d'''$$

Coups occur in equilibrium when

$$x \geq z + d''' \\ + \sqrt{c_c + \alpha(D_c + k_c^{Dem} + P(S < \underline{S})(\rho M - m) + f_{Dem}(S - \underline{S}) - f_d(S - \underline{S}))}$$

3.3.4. Military Government

The utility function for the citizen is the following.

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$$u_c^M(y) = \begin{cases} R_m(M) - f(z_M - y) + f_m(S - \underline{S}) & \text{if no revolt} \\ -c_c + \theta''(M)\{-k_c + R_m(M) + f_m(S - \underline{S}) - f(z_M - y)\} \\ + (1 - \theta''(M))\{D_c + P(S < \underline{S})(\rho M - m) + f_{Dem}(S - \underline{S})\} & \text{if revolt} \end{cases}$$

For the autocrat, the utility function is the following.

$$u_a^M(y) = \begin{cases} R - f(y - z_M) + M(z_M - z_M) + f_m(S - \underline{S}) + R_m(M) & \text{if no revolt} \\ -c_a - f(y - z_M) + \theta''(M)(R - R_m(M) + f_m(S - \underline{S})) + (1 - \theta''(M))(-k_c^m + f_{Dem}(S - \underline{S})) & \text{if revolt} \end{cases}$$

The Subgame perfect Equilibrium is captured in the following proposition.

Under military regimes, m costs are unnecessary because politicians and the military are the same. Also, since politicians and the military are the same, there is no difference in policy and z_M is achieved. The military does not compromise with the civilian policy y . Also, unlike closed authoritarian rulers who build up their military to maintain their power, military regimes aim to respond not only domestically but also externally, e.g. to counter foreign invasions or to expand their military presence abroad, so the military build-up is greater ($R_d(M) < R_m(M)$). Productivity is also lower than in closed authoritarianism and lower than in any political system ($f_m(S - \underline{S}) < f_d(S - \underline{S})$).

The risk to life in the event of a failed coup is $k_c^m > k_c^d > k_c^{ed} > k_c^{ep} > k_c^{Dem}$.

Proposition 5

The following constitutes the sole equilibrium in the military government subgame. Let

$$d^m = \frac{R_m(M) + c_c + \theta(k_c - R_m(M))}{1 - \theta(M)} - D_c - P(S < \underline{S})(\rho M - m) - f_{Dem}(S - \underline{S}).$$

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1. if $z \geq \bar{x} - d$, the autocrat chooses $y = z$.
 Otherwise, the autocrat chooses $y = y_m^*$, constrained from above by $\min(\bar{x} - d, d)$, where

$$y_m^* = z_m + \frac{-R - f_m(S - \underline{S}) - R_m(M)}{4\bar{x}} + \frac{c_a - \theta''(M)(R - M(z_m - z_M) - R_m(M) + f_m(S - \underline{S})) - (1 - \theta''(M))(-k_c^m + f_{Dem}(S - \underline{S}))}{4\bar{x}}$$

2. The citizen revolts if and only if

$$|x - y| > d^m$$

3.4. Regime change

For the ruler, the political system is a given at the beginning of the game.

Given the difficulty of expressing this in limited terms, we formulate a general proposition for regime choice using the uncertain situation of \bar{x} , z indicating inequality, D_a the reward of democracy, and θ , θ' , α the strength of the dictator. Consider how regime choice varies in equilibrium: if EA and CA are non-discriminatory, the ruler is assumed to choose CA.

The first result shows the relationship between \bar{x} and D_a and regime choice.

Proposition 6

Fix all parameters except \bar{x} and D_a .

- For any D_a , CA is chosen for sufficiently large \bar{x} . CA is also chosen for low \bar{x} and D_a .
- If EA occurs in equilibrium, it is chosen for a middle range of \bar{x} .
- If D_a is sufficiently large, democracy is chosen if and only if \bar{x} is below a threshold, which is increasing in D_a .

3.4.1. Stability by a political system

This section examines the stability of each of the political regimes in the previous section.

Stability is checked in three different ways: first, by comparing the expected gains of those carrying out the coup. The political regimes are compared in terms of the behavioural principles of those who decide to carry out a coup based on expected gains, regardless of whether the coup is successful or not.

The second is the gain of the ruler if the coup does not occur, as opposed to the gain of the citizens if the coup does not. The most disenfranchised citizens in the absence of a coup would naturally be a military regime, followed by a closed authoritarian regime, followed by an electoral authoritarian presidential regime, an electoral authoritarian parliamentary cabinet regime and the most desirable for the citizens would be a democracy. This is evident from elements of each political system model, such as the possibility of compromise and the existence of a space for citizens to express their will. On the other hand.

The extent to which rulers are willing to seriously resist a coup d'état affects their gains, in the view of this section. On the other hand, many historical situations can be identified where citizens are undeterred and repeat coups no matter how many times coups fail. Even if a coup could be put down by military force, repeated coups may cause rulers to acknowledge their poor governing capacity. Despite the absence of coups, a political system may not be stable if the ruler does not have enough interests to insist on remaining in power. This is tested by comparing the ratio of the gains of citizens in the absence of a coup to the gains of the ruler in the absence of a coup for different political regimes, to examine the stability of political regimes.

The third is the gain of citizens in the case of no coup against the cost to citizens in the case of a coup. Many studies assume that decisions are made based on expected gains, but in military regimes and closed authoritarianism, those who participate in coups may be killed. As political

prisoners, they may not live a free life for the rest of their lives. In electoral authoritarianism, on the other hand, they may not be killed. Consider people who make decisions based on the risk of a failed coup, rather than on expected gains.

As above, stable political regimes from the perspectives of three groups of people: those who act based on expected gains, those who consider the benefits of a coup based on the relationship between the gains of citizens and rulers in the absence of a coup, and those who focus on the risks of a coup, respectively. Considerations.

3.4.2. Expected payoff

Closed Authoritarianism

No revolt > Revolt

$$R_d(M) - f(x - y) + f_d(S - \underline{S}) > -c_c + \theta(M)\{-k_c^d - f(x - y) + R_d(M) + f_d(S - \underline{S})\} + (1 - \theta(M))\{D_c + f_{Dem}(S - \underline{S})\}$$

The following equation can be derived from the above equation.

$$f(x - y) > c_c + \theta(M)k_c^d + \frac{\{R_d(M) + f_d(S - \underline{S}) - D_c - f_{Dem}(S - \underline{S})\}}{1 - \theta(M)}$$

Electoral Authoritarianism(Presidential System)

No revolt > Revolt

$$R_{ed}(M) - f(x - y) + f_{ed}(S - \underline{S}) > -c_c + \theta'(M)\{-k_c^{ed} - f(x - y) + R_{ed}(M) + f_{ed}(S - \underline{S})\} + (1 - \theta'(M))\{D_c + f_{Dem}(S - \underline{S})\}$$

The following equation can be derived from the above equation.

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$$\{1 - \theta'(M)\}\{R_{ed}(M) - f(x - y) + f_{ed}(S - \underline{S}) - D_c - f_{Dem}(S - \underline{S})\} + c_c > 0$$

$$f(x - y) > c_c + \theta'(M)k_c^{ed}$$

$$+ \frac{\{R_{ed}(M) + f_{ed}(S - \underline{S}) - D_c - f_{Dem}(S - \underline{S})\}}{1 - \theta'(M)}$$

Electoral Authoritarianism (Parliamentary Cabinet System)

No revolt > Revolt

$$R_{ep}(M) - f(x - y) + f_{ep}(S - \underline{S}) >$$

$$-c_c + \theta^{ep}(M)\{-k_c^{ep} - f(x - y) + R_{ep}(M) + f_{ep}(S - \underline{S})\}$$

$$+ (1 - \theta^{ep}(M))\{D_c + f_{Dem}(S - \underline{S})\}$$

The following equation can be derived from the above equation.

$$f(x - y) > c_c + \theta^{ep}(M)k_c^{ep}$$

$$+ \frac{\{R_{ep}(M) + f_{ep}(S - \underline{S}) - D_c - f_{Dem}(S - \underline{S})\}}{1 - \theta^{ep}(M)}$$

Democracy

No revolt > Revolt

$$D_a - f(y - z) + f_{Dem}(S - \underline{S}) >$$

$$-c_a + \alpha\{R + f_d(S - \underline{S}) + R_M(M)\} + (1 - \alpha)\{-k_a - f(y - z) + f_{Dem}(S - \underline{S})\}$$

The following equation can be derived from the above equation.

$$f(y - z)$$

$$> \frac{c_a - \alpha\{R + f_d(S - \underline{S}) + R_M(M)\} - (1 - \alpha)\{-k_a - f(y - z) + f_{Dem}(S - \underline{S})\} + D_a + f_{Dem}(S - \underline{S})}{\alpha}$$

Military Government

No revolt > Revolt

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$$R_m(M) - f(z_M - y) + f_m(S - \underline{S}) \\ > -c_c + \theta''(M)\{-k_c^m + R_m(M) + f_m(S - \underline{S}) - f(z_M - y)\} + (1 - \theta''(M))\{D_c + f_{Dem}(S - \underline{S})\}$$

The following equation can be derived from the above equation.

$$f(z_M - y) > c_c + \theta''(M)k_c^m \\ + \frac{\{R_m(M) + f_m(S - \underline{S}) - D_c - f_{Dem}(S - \underline{S})\}}{1 - \theta''(M)}$$

In order to assume that the disparity between the different policies sought determines whether a coup will take place, $f(x - y)$ is taken to be the left-hand side of the equation. As long as the inequality holds, there is no revolt. The denominator, the probability of a successful coup, is smallest for military regimes, and increases in the following order: closed authoritarianism, electoral authoritarian presidential system, electoral authoritarian parliamentary system and democracy. The most unstable system is democracy and the most stable is a military regime.

3.4.3. *The relationship between citizens' and rulers' gains in the absence of a coup*

Closed Authoritarianism

$$\{R - f(y - z) + M(z_M - z) + f_d(S - \underline{S}) + R_d(M)\} / \{R_d(M) \\ - f(y - z) + f_d(S - \underline{S})\}$$

Electoral Authoritarianism (Presidential System)

$$\{R - f(y - z) + M(z_M - z) + f_{ed}(S - \underline{S}) + R_{ed}(M)\} / \{R_{ed}(M) \\ - f(x - y) + f_{ed}(S - \underline{S})\}$$

Electoral Authoritarianism (Parliamentary Cabinet System)

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$$\{R - f(y - z) + f_{ep}(S - \underline{S}) + R_{ep}(M)\} / \{R_{ep}(M) - f(x - y) + f_{ep}(S - \underline{S})\}$$

Democracy

$$\{D_a - f(y - z) + f_{Dem}(S - \underline{S})\} / \{D_c - f(x - y) + f_{Dem}(S - \underline{S})\}$$

Military Government

$$\{R - f(y - z_M) + M(z_M - z_M) + f_m(S - \underline{S}) + R_m(M)\} / \{R_m(M) - f(z_M - y) + f_m(S - \underline{S})\}$$

The denominator, the citizen gain, is smallest for military regimes and is larger for closed authoritarian regimes, electoral authoritarian presidential regimes, electoral authoritarian parliamentary cabinet regimes and democracies, in that order. The gain of the ruler, the numerator, depends on the sum of the military-backed gain M , productivity $f_a(S - \underline{S})$ and resources used for military build-up $R_a(M)$. If the individual ruler increases his military power-backed gain M to maintain his power at the expense of the state's productivity and resources, the ruler's gain in the short term will be the opposite of the aforementioned sequence of citizen gains. Military rulers have the largest gains, followed by closed authoritarian rulers. Democratic rulers have smaller gains. No clear answer can be found, as the numerator depends on the status of the political system. However, judging from the denominator, if the gains of the rulers are divided by the gains of the citizens, the largest in the military regime, which is the political system that requires the military regime to maintain power the most, and citizens are also dissatisfied.

3.4.4. People who focus on the risks of a coup d'état.

Closed Authoritarianism

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$$-c_c + \theta(M)\{-k_c^d - f(x - y) + R_d(M) + f_d(S - \underline{S})\}$$

Electoral Authoritarianism (Presidential System)

$$-c_c + \theta'(M)\{-k_c^{ed} - f(x - y) + R_{ed}(M) + f_{ed}(S - \underline{S})\}$$

Electoral Authoritarianism (Parliamentary Cabinet System)

$$-c_c + \theta^{ep}(M)\{-k_c^{ep} - f(x - y) + R_{ep}(M) + f_{ep}(S - \underline{S})\}$$

Democracy

$$-c_c - f(x - y) + \alpha(-k_c + f_d(S - \underline{S}))$$

Military Government

$$-c_c + \theta''(M)\{-k_c^m + R_m(M) + f_M(S - \underline{S}) - f(z_M - y)\}$$

For those who focus on risk, the costs of closed authoritarianism are subtracted from the costs of military regimes to make a comparison between military regimes and closed authoritarianism and are identified by variable.

Since $\theta'' > \theta'$ is negative, plus or minus sign of $\{\theta''(M) - \theta'(M)\}(-k_c^m - k_c^d)$ is negative.

The risks of military regimes are therefore greater. If citizens fail, there are costs such as the death penalty and political prisoners, which are very large compared to other political regimes. Since $R_m(M) < R_{ed}(M) < 0$, $\theta''(M)R_m(M) - \theta'(M)R_{ed}(M)$ is also negative.

$R_m(M) < R_{ed}(M)$ means that military regimes are more likely to use resources for military purposes than closed authoritarianism, meaning that fewer resources remain in the hands of citizens.

Since $f_M(S - \underline{S}) < f_d(S - \underline{S})$, $\theta''(M)f_M(S - \underline{S}) - \theta'(M)f_d(S - \underline{S})$.

A comparison of the costs for coup plotters in different political regimes is as follows.

Military Government > Closed Authoritarianism > Electoral Authoritarianism(Presidential System) > Electoral Authoritarianism (Parliamentary Cabinet System) > Democracy

For risk-conscious people, military regimes offer the most stability, as coups are very risky. The least, stable is democracy. Given that the means of coup d'état is backed by violence, the model in this study is consistent with intuition.

Discussion

This study provides theoretical conditions for a stable political system. The model explains the recent trend in international politics towards a return to authoritarianism.

While the formal model by Meller (2012) and others divided political regimes into three categories - closed authoritarianism, electoral authoritarianism and democracy - and rulers made their choices, this study considers that there is an initial political regime based on path dependency. The features of this study's model include the inclusion of the military as a player, the fact that the state only has less than the minimum resources to guarantee a stable life in reality after resources are distributed among citizens, which affects the political system, the inclusion of military regimes, and the inclusion of electoral authoritarianism as a presidential system (including one-party dictatorship) and parliamentary cabinet. The two main features of the political system are: the division of the system into two parts; and changes in the political system according to the magnitude of policy compromises. This study has the trade-off that military support for the rulers simultaneously encourages military

build-up, resulting in closed authoritarianism, electoral authoritarianism and stabilising military regimes, while at the same time giving the military a stronger voice, which is a cost for the rulers. Democracies that are not aligned with the military are shown to be unstable. Furthermore, the process of winning a coup by citizens increases the probability of success of the coup, as citizens work with the military. However, after a new democratic government is formed, the military's voice is strengthened, meaning that the policies of the non-military coup victors are not always realised. This explains why democracy is a political system that is difficult to sustain. The ruler strikes a balance by making policy compromises with both the military and the public. Closed authoritarianism is threatened by coups due to lack of information, and full democracy is fragile. Democracy cannot be sustained if it is achieved through a coup d'état but with the support of the military. Despite the assumption of a path-dependent model, electoral authoritarianism is a stable system in countries where the initial political system is strengthened, but where the balance between citizens and the military is struck and the amount of real resources is not sufficient for the number of resources demanded by the citizens. The model is consistent with the findings of many empirical studies, including the introduction of elections by authoritarian states due to resource endowments and uncertain information, and reflects the political regimes and political economy environments of diverse states.

This study showed that the presence of the military stabilises closed authoritarianism, electoral authoritarianism and military regimes, but at the same time means that democratic stability is weak.

The probability of a successful coup d'état increases if the military participates in the coup, while the probability of a successful civilian coup decreases with the military build-up if the military influences politics in a way that the military

does not participate. Furthermore, one of the findings of this study is that the more equal a society is, the more closed authoritarian regimes become. Furthermore, in closed authoritarian regimes, the ruler gains the support of the military. As rulers are determined by their support for rulers who implement the policies desired by the military, politicians also have no incentive to deviate significantly from the policies desired by the military. The reason is that it undermines their own support base. Only in a stable society of equality can the soil for closed authoritarianism be nurtured. Closed authoritarianism is also maintained when there are sufficiently large inequalities. This means that the probability of a coup d'état is high, and rulers will maintain a system in which the chances of suppressing a coup d'état are high, unless they achieve a major redistributive policy. These results are consistent with Miller (2012).

Closed authoritarianism is not only a system that makes it easier to build up military power but also a system that maintains closed authoritarianism, such as legal restrictions on human rights, such as the prohibition of demonstrations - a system that is very effective in maintaining the power of the ruler. Furthermore, military regimes are easy to maintain if they are early political regimes. The reason is that politicians are at the same time military officers, so strong measures to build up the military and maintain security are top policy priorities. In a closed authoritarian system, the military selects politicians with policies close to those of the military, so arms build-up is not always the top priority. Politicians have to take into account other authorities besides the economy and the military, and there are policies that the politicians themselves want. In contrast, in military regimes, the military build-up is the top priority, even in situations involving a lack of funding for the military build-up, so coups are strongly suppressed and speech is controlled, and once a military regime is in place, it is difficult to get the

political system changed. Democracy persists to the extent that inequality is small, state resources are high and citizens understand the magnitude of the benefits to be gained from democracy.

Many past cases have shown that in the event of a coup d'état, the military's cooperation can result in a military government, with the military having an increased voice in the process. To avoid a military regime, it is necessary to institutionalise the rule that even in the event of a coup d'état by civilians, the police will respond, and only if the coup is so radical that the police suffer casualties, the military, which is more capable than the police in protecting itself, will be allowed to intervene on a limited basis, including by limiting the types of weapons it can use. The study suggests that this should be the result. The military's suppression of civilian coups leads to acts that threaten human rights. Military participation in revolutionary action should also be avoided, as the fruit of coups is the strengthening of authoritarian states that destroy democracy and threaten human rights.

Authoritarian rulers and the president as an electoral authoritarian ruler may prohibit demonstrations and legally create political prisoners. These legal systems for the maintenance of one's power, the associated violation of rights and the prohibition of demonstrations as a preliminary step to carrying out a coup, significantly reduce the probability of a coup's success, because what reduces the probability of a coup's success is mainly the military build-up, but also the military-backed legal system for the maintenance of power. This can also include improvements. These legal developments not only suppress free speech but also impede the realisation of a more prosperous life through politics than the status quo. The development of legal systems is also a cost to citizens by authoritarian and electoral authoritarian states.

Closed authoritarianism and electoral authoritarianism, because they are ruled by the few, require only a small distribution of benefits to those in power on the part of the rulers, but on the other hand, they do not take into account the views of opponents, which means that there are many opponents. For this reason, the rulers of authoritarian and electoral authoritarian states have essential links with the military. To keep the opposition in check, speech control alone is not enough. For ordinary citizens, where they do not have armed forces and do not have the financial resources to finance political activities, speech controls have a certain effect. However, when a second and a third power after the rulers within power are combined, it becomes difficult for the traditional rulers to rule. Therefore, the rulers need to show the overwhelming difference in power - military power - against the second power by connecting with the military.

As democracy does not have a direct stake in the military, the support base of democratic rulers is weakened, suggesting that politicians who can deliver the policies demanded by the military will be the rulers, i.e. that a transition to an authoritarian state is inevitable. Democracy is also the preferred system for suppressing coups, as the military and rulers must be able to identify opponents to their policies and decentralise power in order to defeat coups individually. To this end, it was suggested that the best course of action for rulers is to move to electoral authoritarianism. Democracy institutionalises the transfer and decentralisation of power at the same time as the empowerment of citizens is achieved. This not only increases the probability of a successful coup by the military but also lowers the cost of suppressing rebellion because power is decentralised. In addition, if a coup leads to a transition to a democratic system, the legitimacy of the elected rulers in that system may not remain sufficiently high. The reason is

that even if the ruler is active in a non-electoral way, i.e. in a coup, and wins the elections, there is still a need to legitimise the coup in the process of victory. The effect of the success of the coup on the electoral outcome would not be negligible. As a result, new coups will also be legitimised and politics will become unstable.

Powerful presidents in electoral authoritarianism are established with the support of the military. In other words, the more rational the president is in predicting the future decline in his or her support and the emergence of a strong opposition in the future, which will eventually come, the more a semi-presidential system is chosen, which introduces both a presidential and a parliamentary cabinet system. In this study's model, if the military nominates the president in secret and the military influences policy, then it is an electoral authoritarian presidential system. This presidential system also includes states that are almost a one-party dictatorship as a parliamentary cabinet system, or where the power of the parliament is very weak and the power of the president is very strong. These are semi-presidential systems. On the other hand, the stronger the democratic forces are, the more strongly citizens want a democratic system based on the separation of powers and civilian control, and the more strongly the military denies its influence in politics, the more electoral authoritarian the parliamentary cabinet system becomes. Even if the Prime Minister is replaced, all Prime Ministers are under the influence of the military. If a presidential election is honestly held, a presidential system is chosen if there is a high probability of winning the election and at the same time an optimistic president and military that do not expect a large drop in future approval ratings. As the expected decline in future approval rating increases, a semi-presidential system would be chosen, and a parliamentary cabinet system would be introduced if the expected decline is very large. The

model in this study finds the policy compromise y required to maintain each political system: there is a CA threshold $\overline{y_d}$ between the optimal y^* of the CA and y_1^* of the EA presidential system, and a threshold $\overline{y_{ed}}$ between y_3^* of the EA parliamentary cabinet system and the EA presidential system exists. Above $\overline{y_{ep}}$ is democracy.

$$(y_5^* \geq \overline{y_{ep}} \geq y_4^* \geq y_3^* \geq \overline{y_{ed}} \geq y_2^* \geq y_1^* \geq \overline{y_d} \geq y^* \geq \overline{y_m} \geq y_m^*)$$

This study shows that the presence of the military stabilises closed authoritarianism, electoral authoritarianism and military regimes, but at the same time shows that democratic stability is weak. The minimum conditions for a stable democracy are (1) the entrenchment of democratic education of civilian control in the civilian population and the military, (2) the existence of a certain degree of regime change through elections, (3) a minimum of livelihood or more economic benefits, in our view. The above will stabilise the political system of democracy, as the sense of influence, the people feel over the state through elections outweighs the costs of coups d'état.

Also, even assuming formal elections through electoral authoritarianism, armed solutions and human rights violations are likely to occur when the military has strong links with politicians. In addition to the three above, ways in which the international community can work together to stabilise democratic regimes include Avoiding electoral authoritarianism by not only asking authoritarian states to establish a separation of powers, which tends to be formal, but also by restraining the military (separation of military power), weakening domestic military forces through the deployment of a certain number of domestic military personnel to the UN and strengthening UN forces, which are always held by the UN, human rights violations by major

powers and The establishment of an international system that allows interference in the internal affairs of states to deal with conflicts, and the passage of international law to eradicate electoral fraud, such as imposing international penalties for fraudulent elections under the UN Charter, etc., are considered necessary to deal with authoritarian states, since the bad effects of fraudulent elections are being brought about by a president who is born through rigged elections.

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2

Why return to an electoral authoritarian state? Mechanism of institutional transition, political instability and expansion of local power through civil wars: A model and comparative history

Introduction

The history of the world shows that civil wars resulting in the use of force sometimes result in the formation of stable institutions with the support of the inhabitants, while other times a prolonged civil war leads to the collapse of a country's political economy. Where is the turning point?

This study seeks the turning point of institutional change in civil wars. This study examines the mechanism of civil wars through theory, its simulation, and case and empirical analysis. The consistency of results across multiple

approaches to civil war reveals the robustness of our model. It also assumes that institutions reflect the ideology of the population. For this study, civil war implies armed conflict by a group of challengers to the government. The players in this study's model are the government, the challengers, an opportunist third force, and the residents of urban and rural areas. We use the model to determine whether opportunists strategically participate in the civil war through strategic interactions with other players. The study considers the influence of political and economic variables by including variables related to residents' political ideology and their ability to take charge of the economic aspects of government in Aoki (2016). We show how the support of the population affects the outcome of civil wars and how civil wars tend to be protracted by weakening the government's ability to take charge of the government.

While most previous studies are two-party games between the government and the opposition, this study is a majority player, which is closer to a realistic model. Based on a discrete dynamic game. If the people believe that the government has lost its legitimacy and effectiveness out of Lipset (1960) legitimacy and effectiveness against politics, while the third force and residents believe that the challenger has an effective policy, the third force and residents will cooperate with the challenger. When the population cooperates with either the government or the challenger, a certain percentage of that population will join the civil war as military personnel. The result of a civil war is that the autocratic challenger may win. Even if the dictatorial challenger announces that he will implement coercive policies after winning the civil war, the population may support the challenger, even though they know they will be deprived of their basic human rights, if they anticipate that their poverty will be alleviated as a result of the coercive policies.

We also envision a case in which a single challenger group against the government will have difficulty winning, but when two or more groups ally, they will have a power that outweighs that of the government. We will examine what mechanisms are used to create alliances. Include and discuss predictions for the post-alliance civil war, including what happens after the alliance is won. Even if the challenger is weaker than the government when it challenges the government to civil war, we predict that the challenger will win the civil war in the long run by gaining support from the local population and a third force. We show that the optimal long-term strategy is for the challenger to challenge the government to civil war. Civil wars also arise from government instability. The reason for government instability can be assumed to be the lack of confidence in either the legitimacy or effectiveness of Lipschitz from the populace. When the people do not have confidence in the government, civil war does not arise if power can be replaced peacefully. If the people do not trust the government, but there is no change of power, and there are forces with military power similar to that of the government, civil war will ensue. Alternatively, civil war is assumed to occur when there is a political power that many people believe may replace the government, even if it has less military power than the government has at the beginning of the civil war. The above implies that one of the factors that cause civil war is the dispersion of power. This section will examine theoretically how the dispersion of power can generate civil war. We also show that when civil war reduces the government's ability to sanction challengers, it provides an incentive for challengers to continue civil war.

Our model introduces variables on political ideology and the ability of the government to take charge in economic terms in Aoki (2016). For ideology, we assume that residents are divided into two groups: outcome egalitarian (socialist)

and opportunity egalitarian (capitalist) ideologies, each with a different utility function in the region.

An important role of government is the guarantee of property rights, which is the preservation of the value of assets held by residents, and the ability to provide services of public goods. This study considers the ability to stabilize the value of these goods as the ability to take charge of the government. The utility function of residents includes the utility obtained from private and public goods. The price level is a function of consider a model that affects value. Assume that the price level is affected by arms imports and domestic debt levels associated with the civil war.

In addition, support from the domestic populace and local authorities and military power are important factors in winning a civil war to secure supplies. We divide the elements of military power into military technology and domestic support and show that the rise in military technology leads to decentralization. When people judge that a government (1) has military technology but no domestic support, (2) has a small number of supporters of the ruling party's political ideology, or (3) is not capable of taking charge in terms of economic stability, the government's relative position is We will show that the government will be weakened and either decentralization will occur or the government will be replaced through civil war. This study considers the following as factors contributing to decentralization The inability of the government to impose decisive sanctions despite the challenger's defeat so that the challenger continues to hold sway in the country after the civil war.

Mechanism for the conflict

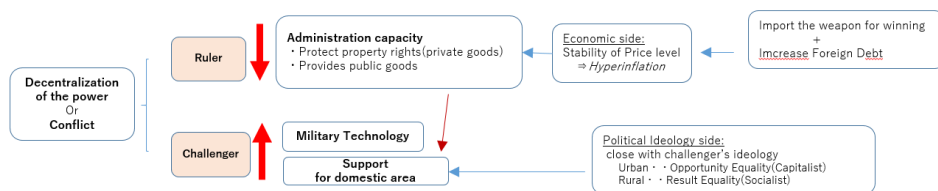


Figure 1. Mechanism for the Conflict

While most previous studies are two-party games between the government and the opposition, this study is a majority player, which is closer to a realistic model. It is based on a discrete dynamic game.

The introduction of the ability to take charge of government is consistent with Lipset's (1960) theory.

If the people believe that the government will lose its legitimacy and effectiveness out of Lipset's (1960) legitimacy and effectiveness against politics, while the challenger has an effective policy, the third force and the residents will cooperate with the challenger. When residents cooperate with either the government or the challenger, a certain percentage of their population will join the civil war as military personnel. The result of a civil war is that the autocratic challenger may win. Even if the dictatorial challenger announces that he will implement coercive policies after winning the civil war, the population may support the challenger even though they know that they will be deprived of their basic human rights if they anticipate that their poverty will be alleviated as a result of the coercive policies.

Civil wars also arise from government instability. One reason for government instability can be assumed to be the lack of confidence in either the legitimacy or effectiveness of Lipschitz from the populace. When the people do not have confidence in the government, civil war does not arise if power can be replaced peacefully. If the people do not trust

the government, but there is no change of power, and there are forces with military power similar to that of the government, civil war is likely to occur. Or, if there is a political power that many people believe could replace the government, even if it has less military power than the government has at the beginning of the civil war, and if the ideology of that power is supported by the population, it would be desirable for the challenger to challenge the government to civil war.

The above implies that one of the factors that cause civil war is the dispersion of power. This section will examine theoretically how the dispersion of power can generate civil wars. We also show that if civil war reduces the government's ability to sanction the challenger, it provides an incentive for the challenger to continue the civil war.

Furthermore, to predict post-civil war institutions, not only the objectives of civil war for the challenger, but also the characteristics of the challenger itself are important in determining institutions. This model also allows for the challenger to be an extremist.

Challengers in this study are groups that challenge the government by force through civil war. Extremists are groups among the challengers that focus on assassinations and other activities, or groups such as the Islamic State in Syria that do not focus on activities to seek the support of the population and seek to overthrow the government only by military force.

Extremists in this study are hardliners in the broadest sense of the concept as opposed to centrists and moderates, including groups that espouse religious fundamentalism, radicals for the introduction of democratic policies, hardliners for liberalization and protectionist policies, hardliners against other countries and specific groups within their own countries. It is a general term for groups for whom

it is very difficult to tolerate or compromise on the values of other forces or the policies espoused by other forces.

Extremists are often armed and militarily strong. They are also generally perceived as groups with radical ideologies, and therefore often do not enjoy the support of the population. In our model, the militant groups have strong military power, but it is difficult for them to gain the support of the local population. In our model, we assume that the cases in which the political gap between challengers and opportunists is large are extremist groups.

Extremists may participate in civil wars to influence the post-civil war regime. Their proposed policies are often uncompromising with other challenger groups, and the speed and content of reforms are often radical. They often seek to destroy groups with vested interests. The radicals in this study rely on military force to achieve their group's objectives and thus are an effective offensive force to overthrow the government. Because of the magnitude of their offensive power, they have a large voice once a civil war begins, and their voice is likely to have a significant impact on the administration of the government after the civil war is won. In addition, the objectives of the militants are often different from those of the initial democratic movement. The establishment of relationships between extremists and other forces after the victory of a civil war is important from the perspective of regime stability and the direction of institution-building.

Gates *et al.* (2016) show that once civil wars occur, they occur repeatedly. This study also examines the relationship between the number of civil wars and the success of civil wars.

This study examines the mechanism of repeated occurrence of civil wars and shows that when the government is not powerful enough to extinguish the challenger's forces with a single civil war victory, repeated

civil wars are more likely to be victorious for the challenger. To this end, we envision a supergame that introduces a finite repetition game during the civil war as a tactical space, apart from the larger strategic decision of who to align with.

This study examines the mechanism of civil war at the juncture of institutional change through theory, its simulation, and case and empirical analysis.

The case analysis deals with several countries: first, Japan at the end of the Edo period (1850s-1867), which triggers the end of feudalism; second, China during the Xinhai Revolution (1911), which brings an end to the Qing Dynasty; third, China during the This is China during the period of the National Communist Civil War that led to the founding of the People's Republic of China (1949). The governments of the above periods were afraid of foreign conquest of their countries, and history confirms that the challengers aimed for strong military power and modernization. Therefore, they aimed for a strong state through centralization rather than federalism.

However, China, which did not have an ideology or strong military force capable of uniting the opinions of nations, and Japan, which was able to have an ideology to unite the nation, show that their subsequent history and their institutions were different. Two more countries will be treated as examples after World War II. Myanmar and Syria. By treating as cases countries where historically famous civil wars have occurred, we confirm that the model of this study is broadly applicable. Myanmar and Syria were centralized states, but despite the existence of ethnic minorities and ethnic conflicts, they failed to achieve democratic institutions to reflect the opinions of the central government. Myanmar was a socialist country as of 1988, which limited economic and political freedom, and the number of poor people was high, causing difficulties for the people. Under these circumstances, student demonstrations for democratization

and liberalization arose, and the party advocating democratization won the elections but was forced to fail by the military. Myanmar has since then remained under military rule, but democratic policies have also been introduced; since 2015, democratization has been implemented. In Syria, however, democratization has not been implemented. In Myanmar, democratization has continued to be blocked by the military, although democratic parties have always won elections from 1988 until 2015. The will of the people was squeezed between the options of federalism and democratization. Although Myanmar has not fought a civil war, it is a case of a successful challenger because the people's will has been consistent and unified, and democratization has finally been achieved. Syria, on the other hand, has the energy to overthrow the ruling party, but there is not enough coordination among the challengers and there is little trust between them.

Syria can be considered a case of failure of the challengers.

Previous review

Several studies have examined the impact of fiscal capacity and the level of military technology on political equilibrium; Gennaoli & Voth (2013) examined the process by which powerful nation-states emerge from many small states through military competition. They examined it under two types of actors: those with strong fiscal capacity and those with weak fiscal capacity. Besley & Persson (2011) modeled the competition of challengers to rulers and analyzed the conditions that lead to the defeat or survival of rulers.

Aoki (2016), using a multiple-period game model, found that the Kuhn-Tucker condition is satisfied and that there is always one equilibrium because it is supermodular, and that the ruler's resistance can be reduced by compensating for the

reduction in the ruler's losses due to the transition to the new state. The study also showed that the fixed cost of transitioning to the new state decreases, and that the alliance between the challenger and opportunist is assured through a shift in their positions from competitive to complementary, thus increasing the probability of transitioning to the new state. The results of the analysis are applied to Japan and China. As a way to compensate for the reduced losses of the rulers in the transition to the new state, the shogunate returned power to the emperor in the final days of the Tokugawa shogunate, avoiding the costs of war and the future destruction of the shogunate, and the shoguns lived as an aristocratic class (nobility) after the civil war. In exchange for a certain guarantee of the ruling class's life and property, the guarantee of a reduction in the ruler's losses reduced the cost of transition. The example of regime transition and the end of civil wars has been seen in the past in many countries in order to speed up the end of wars.

An example of lowering the fixed costs of transition to a new state is the alliance between Satsuma and Choshu in Japan at the end of the Tokugawa Shogunate, when multiple players could share the costs of arms, ammunition, and supplies rather than having one clan provide all supplies, weapons, ammunition, etc., and then engage in civil war through the alliance. Not only in civil wars, but also policy making in peacetime, if the cost of policy making and implementation is known in advance, it is not necessary for a single group to make efforts for policy making and implementation if the cost is covered by only one group, both in terms of cost and low probability of success, but if multiple groups If policy decisions and implementation are made jointly, the equilibrium situation is one in which costs are distributed and cooperation takes place.

A case in point is the relationship between Choshu and Satsuma at the end of the Tokugawa shogunate, in which the

challenger and the opportunist were able to ensure their alliance by shifting their positions from rivalry to complementarity. After the defeat of the Choshu domain, the Satsuma domain changed its mind that the next attack by the Shogunate would be on the Satsuma domain, and the Satsuma domain joined forces with the Choshu domain to fight against the Shogunate. As a result, throughout the Boshin War of 1867, all clans except the Satsuma and Choshu clans followed the allied forces of the Satsuma and Choshu clans, who were steadily winning the war. The Boshin War was followed by the fall of the shogunate regime and the start of the Meiji Restoration, in which the Choshu clan was the challenger and the Satsuma clan the opportunist (the Satsuma clan was the most important clan that led the Choshu clan to defeat in the first conquest of Choshu, but it did not destroy the Choshu clan and did not take harsh actions against the Choshu clan).) This can be seen as a complement to the rivalry between the Chōshū and Satsuma clans, which were defeated in their respective battles against the Shogunate, but which could have won the war by working together. The clans can be regarded through the military superiority of the combined forces of the Satsuma and Choshu clans in the early stages of the Boshin War, the return of the authority of the shogunate to the Emperor, and the order by the Emperor to overthrow the shogunate, the opportunist clans decided to stop their neutrality and join forces with the Satsuma and Choshu clans during the war to ensure the survival of their clan and their current position after the Boshin War. He believed that the

The Satsuma and Choshu clans accepted allies in time of war to avoid defeat in the Boshin War. This is an example of how challengers and opportunists shifted their positions from competitive to complementary. The earlier the opportunist third force allied itself with the challenger, the better position it would be in the new government that

would be formed after the challenger's victory. This is strongly related to the fact that the challenger's victory in the early stages of the civil war rapidly expands his base of support, leading to a successful civil war by the challenger.

In peacetime, the challenger politician can also seek alliances with opportunist politicians in order to determine and implement policies. The opportunist has little advantage in refusing the alliance because the likelihood of policy realization is greatly increased if the alliance is formed. If the opportunist's benefits after the policy is realized are guaranteed through the transaction, the relationship between the challenger and the opportunist changes from one of competition to one of complementarity, and the alliance takes place.

Civil war

3.1. Purpose and types of civil wars

Historically, including since World War II, war has been waged by and between nations. Since then, the actors of war have diversified to include international organizations, local domestic forces, and domestic extremist groups, and the forms of war have also changed to include domestic conflicts and terrorism.

There has been an increase in the number of wars waged by specific groups and organizations, as exemplified by the 9/11 attacks in the United States, aimed at attacking specific countries or challenging specific ideologies or the international community without limiting the attacks to specific nations. Among acts of violence, civil wars still occur throughout the world. Many civil wars do not disappear, even though they destroy not only lives but also the productive activities of nations and the basis of people's lives. Civil wars include wars not only between states but also between states and terrorists.

In addition to stable employment and increased income, domestic economic revitalization has confirmed the importance of guaranteeing citizens' rights to political participation and property rights to realize the design of institutions by citizens and to make their lives easier. On the other hand, there are countries and regions where these rights are not guaranteed or economic activities are not liberalized. As one of the means to realize these, some citizens try to achieve them through civil wars, which may bring about many deaths. Civil wars sometimes occur even when the importance of peace is recognized as a given. By examining the conditions under which civil wars occur, the reasons for their recurrence, and the impact of policy failures of ruling parties and the ideological proximity of local populations and opposing forces (challengers) on the outcome of wars, this study aims to clarify the mechanisms by which civil wars occur around the world and to provide predictors and consequences of civil wars.

There are different types of civil wars. While some civil wars have clear objectives, such as a civil war against a dictatorial state or a civil war for the transition to a democratic system, there are many cases in which the objectives of civil wars are not clear, i.e., they are simply power struggles.

Sometimes the purpose of the civil war, the direction of the policy after the overthrow of the ruling party, becomes clear during the civil war. In some cases, the goal is to promote the well-being of citizens and the democratization of the country and encourage citizens to participate in politics. In other cases, the goal is to stimulate the economy by liberalizing trade, protecting trade, nationalizing companies, etc. In other cases, the ostensible and real objectives may differ. While it is often simply a struggle for power among capitalists and other emerging powers, it is also possible for civil society to gain power through

protracted civil wars. Conversely, although civil society groups may have taken the lead in the early stages of a civil war, they may disappear as the civil war drags on, and the purpose of the civil war may change, becoming a battle between military forces other than civil society groups.

Several reasons for the outbreak of civil war can be cited. Sometimes they are aimed at a simple power struggle for power and gain by challengers and their interest groups, sometimes they are a reaction of the disadvantaged against government policies or a call for a change in policy priorities, sometimes they are aimed at changing some policies, and sometimes they are a movement for democratization by citizens. Sometimes undemocratic institutions are created to create strong governments, led by groups such as workers who are disadvantaged through globalization. In other cases, groups allied during a civil war may win the civil war and establish a new government, but later come into conflict and the civil war is repeated. Also, because of ideological differences even before the alliance is formed, coalition governments are likely to have conflicts between groups in terms of policy priorities and in the formation of public goods, such as how to realize policies and the size of the budget for those policies. This will require patience and deal-making on both sides of the group. The possibility of civil war exists whether the power gap between groups is large or small before the civil war. Aoki (2011) analyzed the nature of endogenous institutional change concerning institutional resilience and institutional transition. He stated that institutional complementarities arise when the leading groups that define the political and economic orders are aligned, respectively, and a foundational domain of strategic complementarities among players and across the political and economic. The report states that with a change in the political system, players in the political game and players in the economic game are likely to play a game of economic

exchange with both sides. The nature of possible institutional transitions from one political state to another can be examined analytically as a change in the equilibrium state of play. It also states that certain political transitions may be facilitated and made possible by complementary changes.

The relationship between Hong Kong and China was in a state of flux until the passage of the National Security Maintenance Act of the Hong Kong Special Administrative Region of the People's Republic of China, which came into effect in Hong Kong in June 2020. Demonstrations continued for an extended time. In November 2020, the Hong Kong government disqualified pro-democracy opposition members, and all opposition members resigned en masse in protest. 2010 The late 1990s saw the election of hard-line ruling parties in several countries, including the U.S. and the Philippines; the TPP and other globalization movements waned; and the U.S. and the Philippines saw the emergence of a new globalization movement. Several countries saw protectionism and homegrown prioritization grow as a result of elections won by parties that espoused protectionism. The situation is similar to that before World War II in that an increasing number of countries are putting their own countries first. The actors in civil wars are diversifying and increasing from insurgent groups led by politicians and political parties to terrorists. Not only are the objectives of civil wars diversifying, but the objectives of civil wars are also transforming during civil wars. Sometimes they are backed by civil forces, as in Hong Kong, sometimes by mercenaries or terrorist groups backed by the financial power of capitalists, and sometimes by coups d'etat backed by local or central military forces. Furthermore, the scale of civil wars varies from terrorism and military coups by small groups seeking assassination attempts to civil wars

that divide countries in two, such as the Vietnam War and the Korean War.

3.2. Definition and scale of armed conflict

The UCDP classifies armed conflict into three categories: state-based conflict, non-state conflict, and unilateral violence. Armed conflict is defined as the use of force between several organized armed groups (whether governmental or nongovernmental), and "country-based conflict" is defined as "conflict between governments (and/or) localities where the use of force between two parties (at least one of which is a state) results in at least The UCDP defines "more than 25 deaths" as "more than 1,000 combat-related deaths per year, the intensity of which increases from armed conflict to war. The number of Non-state conflict" means that neither party to the conflict is a state, and includes ethnic conflicts and cartel conflicts such as the Mexican drug war. It defines "unilateral violence" as "the use of force against civilians by a state government or formally organized group that results in at least 25 deaths in a single year. It includes attacks against civilians by the governments of Sudan, Myanmar, and Syria, as well as attacks by non-state actors such as al-Qaeda. the UCDP has published the "Journal of Peace UCDP publishes a list of all armed conflicts in Research, as well as its annual report, States in Armed Conflict.²⁰ The number of armed conflicts in 2011 was 37, of which 6 reached the level of war.

While this study focuses primarily on "country-based conflicts" because it assumes for the sake of convenience that one party to the discussion is the government, the model does not necessarily eliminate the other two categories. The implications of this study can be applied to "non-state conflicts" and "unilateral violence," except for the part where policy effects by the ruling party affect the outcome of civil wars. Although wars between states tend to receive most of

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the attention, the death toll from civil wars is still high today. Civil wars occurred in 37 countries in 2011 and 32 countries in 2020.

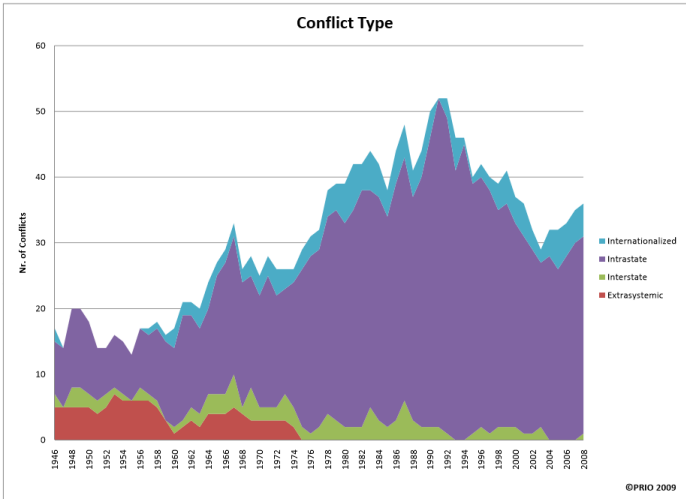


Figure 2.1. *Conflict type for civil wars*

*Source: PRIO (2009). [[Retrieved from](#)].

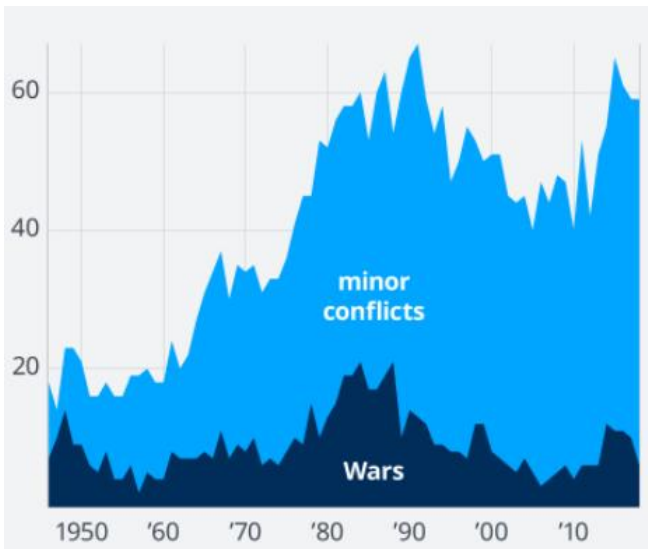


Figure 2.2. *Intensity for civil wars*

* Source: Uppsala Conflict Database 2019. [[Retrieved from](#)].

Figure 2-1 shows the chronological change in the type of civil war and the number of civil wars. Extrastate and interstate have been decreasing since 1974, while intrastate has. The number of countries with the largest number of such countries peaked immediately after the end of the Cold War and began to decline.

Figure 2-2 shows a time series of the number of wars and minor battles (Minor) in the world. The difference between the two is the number of casualties, both of which are the subject of this study. Minors declined for about 10 years after the late 1990s, but have since increased. Increasing.

3.3. How can civil wars be reduced?

The introduction of democratic institutions that allow minority opinions to be reflected in policy through the political participation of citizens, without the means of civil war, and how policy changes and institutional design can be made possible through regime change is an important idea for reducing civil war.

On the other hand, since democratic systems make possible changes in values, such as responses to minority opinions, through the long-term realization of democratic education, a sufficient time is needed for democratic systems to function before their effects are manifested, and policy stability is necessary during that time. Another disadvantage of democratic systems is that the time it takes to make policy decisions is longer than that of tyranny. Furthermore, democratic institutions are easily associated with liberalizing economic policies, and when liberalizing economic policies are rejected as the domestic employment environment deteriorates, democratic institutions are also rejected and are difficult to maintain.

Economic growth requires capital accumulation. To accumulate domestic capital, institutions that favor domestic capitalists over workers tend to be introduced. Globalization

is promoted to allow foreign capital to flow into the country, and as a result of competition with inexpensive foreign firms, domestic firms are eliminated and the labor market is lost, which can be detrimental to workers.

This study examines the mechanisms that give rise to civil wars and the mechanisms that prolong them. It introduces a model in which the more widely a civil war process gains a base of civilian support, the easier it is to win the civil war. Even if civil war does occur, it may be possible to achieve long-term peace by considering an environment in which post-civil war political forms can be relatively democratic.

The weaker the initial challenger's forces against the government, the longer the civil war lasts, and the more the challenger will need the cooperation of the population and other forces to win the civil war. Under these circumstances, a post-civil war coalition government can be expected, and the challenger cannot behave autocratically. Also, if the civil war process has enlisted the cooperation of democratic groups, it is more likely that post-civil war democratization will also be achieved.

While Aoki (2016) focused on the conditions for peace in civil wars, this study will also examine the impact of civil wars.

3.4. Current status of civil war

Figure 3 shows the number of deaths from civil wars since World War II in descending order of magnitude. The duration of the civil war, the name of the country, and the number of deaths are listed. Many of the civil wars were of short duration. Some last for as long as 10 years or more, while others last for a decade or more.

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The long and the short of the problem

Civil wars and internal armed conflicts, 1946-2012

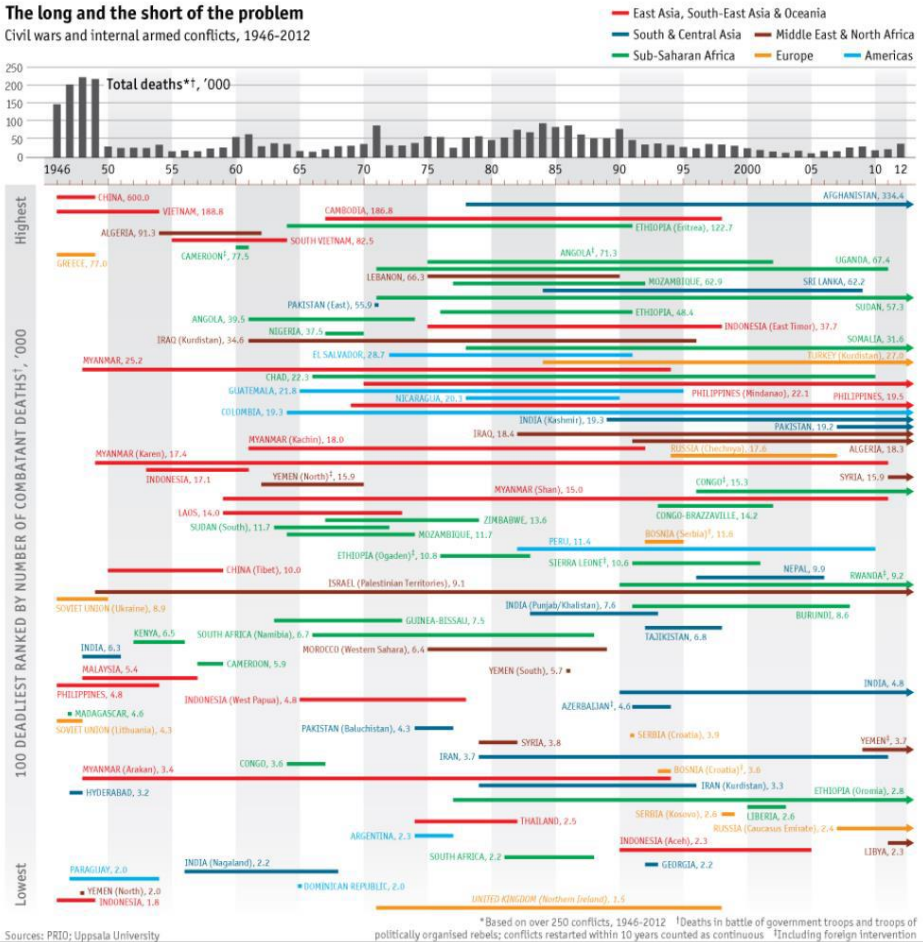


Figure 3. Civil wars and Internal armed conflicts, 1946-2012

*PRIO : Uppsala University(2013) [[Retrieved from](#)].

Collier & Hoeffler (2004) provide a theoretical econometric analysis of predictive models of civil war using data from 1960 to July 1999. Compared to civil war to gain rights, etc. (Grievance model), they found that the Opportunity model has more explanatory power. The explanatory variables are as follows.

Availability of financing: an increase in primary commodity exports considerably increases the risk of civil

war. Diaspora also facilitates financing and increases the risk of resumption of civil war.

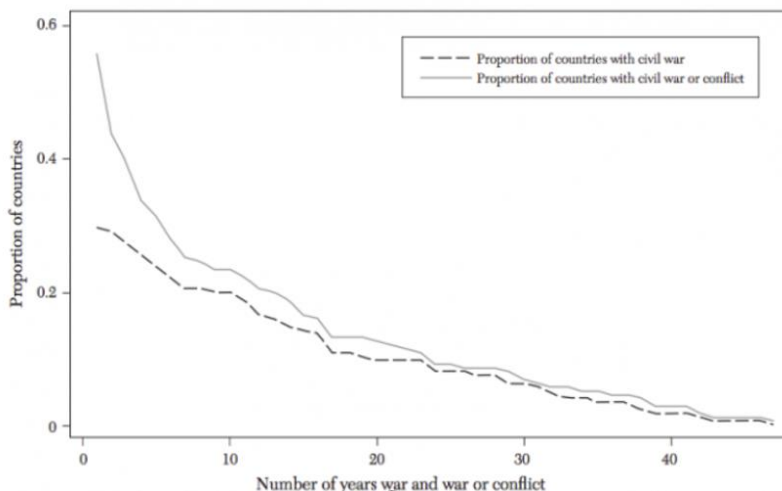


Figure 4. *Distribution of civil war or conflict wars across countries, 1960-2006*

Source: Blattman & Miguel (2006).

The opportunity cost of insurgency: opportunity cost measures such as male enrollment in secondary education, per capita income, and growth rate have conflict-reducing effects.

Military advantage: population dispersion provides insurgents with a military advantage and increases the risk of conflict.

Population size: population size increases the risk of conflict. Deterioration in living standards associated with population pressure leads to conflict.

Discontent (inequality, political rights, ethnic divisions, religious subdivisions, etc.): is not significant, but a single ethnic majority increases the risk of conflict.

Time: time since the last conflict was assumed to reduce new conflict risk.

Their results showed that conflict factors are primarily economic (including the acquisition of political power and resources) and not ethnic or religious conflict, inequality, or the acquisition of rights. The challenge of civil war was reasoned to be a rational individual assessment based on cost-effectiveness, with an estimated probability of success. Twenty percent of states have experienced more than 10 years of civil war.

Julia Palik *et al.* (2020) in a report by the Peace Research Institution Oslo (hereafter PRIO) classified conflict into four categories: state-based conflict, non-state conflict, One-sided violence, and Battle deaths.

3.5. Civil war repeats itself

The results of this study also provide theoretical support for the merits of repeated challenges by challengers, regardless of the reasons for the civil war. Empirically, Gates *et al.* (2016) showed that civil wars are repeated.

The benefits of repeated civil wars include that through civil wars, the challenger brings in on his side a population that is sympathetic to his civil war objectives. The benefits of repeated civil wars have the potential to outweigh the costs associated with civil wars. The challenger can gain a base of support in areas that are sympathetic to his or her stated political ideology and expand his or her base of support. Expansion of the support base increases the likelihood of victory in the civil war.

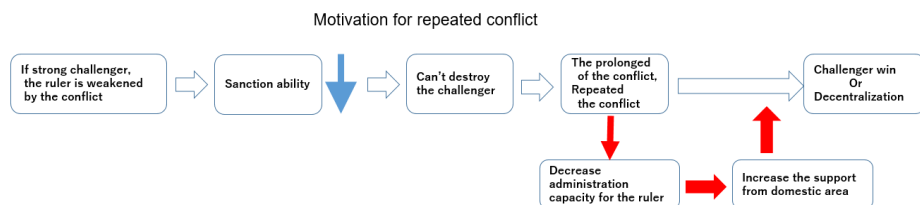


Figure 5. Motivation for repeated conflict

Second, the government's use of foreign loans to purchase weapons to end an armed conflict can induce hyperinflation that damages people's property rights and public goods and makes people distrust the government's ability to take charge of the government. This distrust of the government's ability to govern may not increase the number of allies of the challenger, but it will increase the number of regions and neutral organizations that do not support the government, thereby weakening the government and increasing the probability of victory in a civil war.

Third, by weakening the government, even if the challenger loses the civil war, it can reduce the percentage reduction in the support base upon defeat. Securing the support base after defeat will lead to an increase in the reserved gains of the civil war for the challenger. Compared to the case in which the challenger loses all of its support based upon defeat in a civil war, the challenger has less to lose through the civil war and is therefore motivated to repeat the civil war.

Fourth, by challenging the government to a civil war, it is perceived as an enemy to the government. Once perceived as an enemy, it is likely to be unable to set the stage for subsequent discussions.

When a challenger uses force as a form of protest, the challenger has likely given up, even temporarily, on the idea of opposing the policy through debate. Civil war may also result when the challenger loses an argument with the government about a policy that the challenger does not accept and the government forcefully implements that policy. In some cases, a compromise between the government and the challenger's arguments cannot be found.

For the above reasons, it is difficult for the government and the challenger to reengage in future discussions. Armed resistance represents a final, emergency measure of strong

opposition, and a compromise is likely to be difficult to find. It is also likely that the challenger and the government will find it difficult to consider future joint policymaking as a group.

Fifth, through the deaths of allies in civil wars, civil wars will be repeated based on the idea that one cannot give up to reward one's allies for their deaths. If the challenger is too weak to prolong the civil war, it has no incentive to continue or carry it out.

The creation of a new government that includes not only the groups that contributed to the victory of the civil war but also those that did not contribute to it, is necessary to prevent civil war from occurring. It is also necessary for the new government to have institutions to coordinate the interests of various groups. Through coordinated institutions, it will be necessary to continue to provide public goods suited to diverse populations. The ability to build such institutions depends on the existence of shared institutional resilience among the public. The presence or absence of institutional resilience will be the turning point between the creation of a new government through civil war, resulting in a new institutional transition, or the realization of a stable system.

The model

An infinite period economic model starts with three groups, where the status quo is regulator R, potential adversary A and opportunity-driven B. Each group has state capacity. They are pledged to their political party to govern, and when necessary, they mobilize for civil war or public goods formation in response to the party's call.

Political power $s(t)$:

Let $S_{R(t)}, S_{A(t)}, S_{B(t)}$ be indices of the political power of the governing party R, party A, and party B in period t . Each of

these relationships can defeat the governing party R if party A and party B stand together, but after R is overthrown, party A and party B will form a coalition government. Party B and Party A initially cannot overthrow the governing party R alone.

$$a + b > r > \max\{b, a\}$$

All state capacities are the sum of the regions where people belong to R, A, and B, and the rest of the urban $S_{u(t)}$ and rural $S_{r(t)}$.

$$S_{(t)} = S_{R(t)} + S_{A(t)} + S_{B(t)} + S_{r(t)} + S_{u(t)}$$

The second term can be represented by the following model

$$S_{B(t+1)} = S_{B(t)} + k(\alpha_u S_{u(t)} + \alpha_r S_{r(t)}) + \lambda(S_{(t)} - S_{B(t)} - S_{A(t)} - S_{r(t)} - S_{u(t)})$$

In each period, each party R, A, and B has the option of peace or civil war.

Residents are divided into urban residents C and rural residents D. The utility of belonging to each party is determined after the choice of action by each party R, A, and B, and they decide which party they belong to. Residents C and D desire peace the most and hope for an early end to civil war as a preliminary step, but if civil war breaks out, they change their party affiliation according to their utility.

Public goods $S_{g(t)}$:

The state capacity of the government is defined by $S_{g(t)}$, which determines the total amount of public goods $G(t) = S_{g(t)}$. $S_{g(t)}$ is determined by the combined state capacity of all parties including the administration in period t. During periods of peace, each party can combine public goods with a fixed unit of labor to produce its consumption.

Introducing the price level $P_{(t)}$ and asset W into the utility function:

The utility function u is a function of each party's real public good value $\frac{S_{g(t)}}{P_{(t)}}$ and real private good value $\frac{W}{P_{(t)}}$. Concerning the variable for the governing party, the government R , both public and private goods are real values, while the variables for the other parties are expected values.

$$u_{B(t)} = u\left(\frac{1}{P_{(t)}}(S_{gb(i)}, W)\right), u_{R(t)} = u\left(\frac{1}{P_{(t)}}(S_{gr(i)}, W)\right)$$

W is the nominal asset value of the people. The price level P is a function of the increase in the amount of additional foreign loans N due to arms procurement by the government, etc., divided by the central government revenue T . The price level increases as the number of foreign loans as a percentage of central government revenue increases. The expected inflation rate increases through residents' expectations of higher tax rates and higher money issuance.

Furthermore, as a stock indicator, GDP Y as a percentage of central government debt St is also included as a function of the price level and is an increasing function of the price level. Decreases in debt outstanding St and increases in GDP help stabilize the price level. An increase in the price level diminishes private property, W , and diminishes public goods, $S_{gb(i)}$. A decrease in public goods implies job insecurity, property rights instability, and security. We consider that a decrease in public and private goods, taking into account the price level, implies the ability of the government to take charge of the regime.

$$P = P\left(\frac{N}{T}, \frac{St}{Y}\right)$$

The utility of party B, $u_{B(t)}^g$, compares the utility of supporting the party in power, R, with that of supporting party B.

The utility function for the urban population is

$$u_{u(t)}^g = \beta[u_{B(t)} - u_{R(t)}]$$

The utility of the urban populace is the utility that would be obtained from each party minus the party in power, with the utility being greater for the largest party.

For the rural populace, the first term is a model based on Fehr and Schmidt's social preference model, and the second term is a hybrid of magnitudes from the utility reserved for the survival level. It reflects an ideology that abhors disparity and implies outcome egalitarianism. Outcome egalitarianism is more common among poor households and has historically taken root in rural areas. Rural areas are also predominantly rural and historically poor. These are regions that emphasize the equality of outcomes in conditions above the poverty level.

$$u_{r(t)}^g = \beta[u_{B(t)} - \varphi_B(u_{R(t)} - u_{B(t)}) + (u_{B(t)} - \underline{u}_B)]$$

The differences in the utility functions of urban and rural populations reflect ideological differences. Urban residents, who emphasize the equality of opportunity, are closer to a capitalist mindset, while rural residents, who emphasize the equality of outcome, are closer to a socialist mindset. The \underline{u}_B is the reservation utility at the margin of survival.

$$S_{u(t)} = S_{u(t)}(u_{u(t)}^g), \quad S_{r(t)} = S_{r(t)}(u_{r(t)}^g)$$

The state capacity of urban and rural residents is determined by their respective utility functions.

People move based on the above utility functions during civil wars.

Productivity β :

Beta represents the productivity of the economy. Each party can govern, and each political power has different public goods, but the same level of technology is required to produce the public goods. Each of the three parties wishes to be integrated into one political force; each of the three parties has a different preference for a particular public good, and when one political force chooses a particular public good, the other political forces are disutilized.

Politics of the gridlock I_A, I_B :

I_A refers to the political disparity between R and A in charge of government and I_B refers to the political disparity between R and B in charge of the government. Once a political power has a government monopoly, it cannot share institutional formation or government charge with other political powers. The number of coalition governments is limited to two. Under a coalition government, they work with each other to implement policies within the framework of state capacity.

This political disparity coincides with the reduction in gains during the coalition. Even if they win the civil war, the greater the political disparity with their coalition partners, the more difficult it will be to manage policy. The greater the political disparity, the more the public good realized under the coalition is different from the public good he seeks. Therefore, the utility of a coalition government is smaller than that of a single government. Utility under a coalition government is a decreasing function of political disparity. In the case of a single government, $i = 0$.

Military Technology θ :

During a civil war, the side with greater (state capacity \times military technology) wins the civil war. Military technology is $\theta(0 < \theta < 1)$, and the more advanced the technology, the closer θ is to 1. Winning the civil war depends on two factors: the size of state capacity and the level of military technology. During civil war, $S_{(t)}$ of state capacity corresponds to the size of mobilization and supply as an army, and thus represents the quantitative factor for civil war victory. Military technology θ is a qualitative factor for civil war victory. The party in power can also increase military technology through foreign loans. θ_r is an increasing function of N .

$$\theta_r = \theta_r(N)$$

Discount factor δ :

When civil war breaks out, production comes to a halt and a deadweight of the discount factor δ .

Blank zone State capacity expansion α :

Civil war brings consolidation and expansion of state capacity to political parties. Political forces that are defeated by political power lose the loyalty of the people, state capacity, and instead receive loyalty from new people.

Through the support of different political forces, only a certain percentage α of the state capacity of the party that loses the civil war becomes the state capacity of the winner. Losing political power means that state capacity cannot be maintained; the expansion of state capacity is $0 < \alpha < 1$.

Percentage of movement from existing parties to state capacity λ :

α was the percentage of migration to the own party from the vacancy, while λ was the percentage of migration to the

own party from S_R , S_B and S_A already included in the party as state capacity (as random as α)

$$S_{B(t+1)} = S_{B(t)} + k(\alpha_u S_{u(t)} + \alpha_r S_{r(t)}) + \lambda(S_{(t)} - S_{B(t)} - S_{A(t)} - S_{r(t)} - S_{u(t)})$$

After winning in cooperation in period t , the state capacity of $S_{(t+1)}$ as a result of integration is randomly distributed and extended with two political forces S_i and S_j with probability $S_i/(S_i + S_j)$ shares. In other words, a partner that is weak as a cooperative partner will remain small and weak in state capacity even after winning a civil war as a result of cooperation. After the first civil war, the winning side of the civil war becomes clear. Since they fight jointly with different parties, they will make compromises even after the civil war is won, and they are more likely to fail to realize their policies as their party claims than if they win the civil war as a single party. The discount variable $k(0 < k < 1)$ for support assumes a coalition government in both urban and rural areas with compromised policies. λ Inclusion of λ allows us to take into account the spillover to other parties due to the failure of the governing party's policies. It also allows us to account for the transfer of state capacity from the governing party to B after a civil war.

4.1. Rule

At $t=0$, A decides whether to challenge R. A and B have private information so that R cannot be severely punished before A's challenge; B is opportunistic and always waits for A to move first; when R and A enter a civil war, B decides whether to work with A, R, or neutral; A's challenge is Through B's actions, all political power is revealed.

In the first case, the coalition of A and B challenges R to a civil war, and if A and B win, A and B decide whether to form a coalition government or clash; a civil war between A

and B ensues, with the winner taking sole charge of the government.

In the second case, B initially takes neutrality and the winner of the civil war and B face off.

In the third, B acts in concert with R. Even if R is the winner, A's victory in the civil war results in A's administration of the regime, and the initial B status quo does not continue.

In the first coordination case above, stronger political forces lead the design of public goods. The weaker political power decides whether to accept it. If they do not accept it, they clash.

At the end of the civil war, the political power of the defeated side does not necessarily lose all state capacity.

The equilibrium concept in this game is Markov perfect equilibrium: $\beta > \max\{I_A, I_B, i\}$. This implies that the gap between regulators and the rest of the ideologues is, to some extent, small. Assume that the regulators in each period have the ability to fully control the maximum state capacity and that no particular party is extraordinarily large. Ensure that peace results from equilibrium. Let j be the percentage of state capacity lost in the event of defeat. In contrast, let i be the percentage lost from winning the civil war but not being able to occupy a major party in the subsequent coalition government. Let $j > i$, assuming that the fraction lost from losing the civil war is greater than the fraction lost from not being a major party. This assumption seems reasonable. Also, if j is set to 1, B will disappear after defeat, which is consistent with the model in Aoki (2016) and is a generalized model. If state capacity S_r for rural residents and state capacity S_t for urban residents are set to 0, the model becomes that of Aoki (2016).

Aoki (2016) had the following strong assumptions, but this study loosened the following assumptions.

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- If $r > a$, the regime manager and strongman R win the civil war with a probability 1.
- A will not fight R without partnering with B.
- If B partners with A, it will defeat R with probability 1.
- When B enters a civil war between A and R, the winner of the civil war gains all state capacity.

On the other hand, the following points are the same

- The size of the state capacity is the gain.
- B chooses between a) cooperating with A, b) cooperating with R, and c) neutrality.

The flow assumed when B decides on its strategy is as follows. The decisions of residents and policy makers are taken into account, which in this study are taken into account during B's decision making based on B's forecasts. In other words, there is no turn of local residents or policy makers.

Strategy of Opportunist B to Challenger A, Ruler R

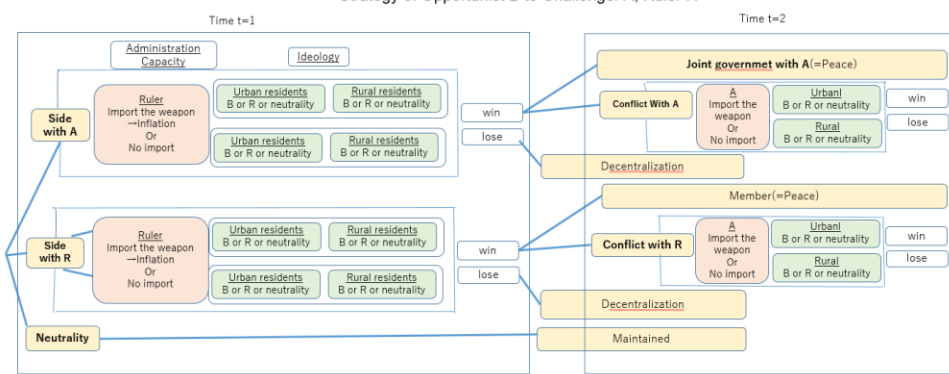


Figure 6. Strategy of Oppotunist B to Challenger A, Ruler R

4.2. First round

4.2.1. B cooperates with A:

1.a.1) B decides to work with A and the adversary, R, decides whether to import arms above revenue.

1.a.2) Based on the magnitude of the proximity indices α_u and α_r of political ideology when aligned with A and R's

decision in 1.a.1), the price level is determined and the utility of the population is determined. Based on the magnitude of S_u and S_r , the state capacity based on the utility of urban and rural residents, the state capacity of B changes during the civil war.

1.a.3) The sum of the state capacity of A and B, taking into account military technology θ , exceeds the state capacity of R. The allied forces of A and B win the civil war when

When B's state capacity does not exceed R's state capacity, it loses the civil war. In the case of defeat, state capacity decreases as a percentage of μ . μ is smaller the larger B's state capacity is after the change in the state capacity of the population due to 1.a.2). It is the percentage loss of state capacity at the time of defeat. The larger the state capacity before the defeat of the war, the more state capacity is maintained. The stronger the support base is, the smaller the percentage of state capacity lost due to defeat, meaning that support can be retained.

At the time of defeat $S_{B(t+2)} = (1 - j(\mu))S_{B(t+1)}$

4.2.2. *B cooperates with R:*

1.b.1) As in 1.a.1), B decides to work with R, and R on its side decides whether to import arms above revenue.

1.b.2) Based on the magnitude of the proximity indices α_u and α_r of political ideology when allying with R and R's decision in 1.a.1), the price level is determined and the utility of the population is determined. Based on the magnitude of S_u and S_r , the state capacity based on the utility of urban and rural residents, the state capacity of B changes during the civil war.

1.b.3) The sum of the state capacity of R and B, taking into account military technology θ , exceeds the state capacity of A.

The allied forces of R and B win the civil war when

Ch.2. Why return to an electoral authoritarian state?

At the time of victory: $S_{B(t+2)} = (1 - I_{B(t)})\beta[S_{B(t)} + \alpha_u S_{u(t)} + \alpha_r S_{r(t)}]$

When the player does not surpass challenger A, he loses the game.

At the time of defeat $S_{B(t+2)} = (1 - j(\mu))S_{B(t+1)}$

4.2.3. Neutrality

1.c.1) $S_{B(t+2)} = (1 - I_{B(t)})\beta[(r + a)S_{B(t)} + \alpha_u S_{u(t)} + \alpha_r S_{r(t)}]$

When B does not cooperate with either R or A, but acts as a third party, it obtains the above utility.

The above r and a are $\frac{\theta_R r}{\theta_A a + \theta_R r}$ and $\frac{\theta_R a}{\theta_A a + \theta_R r}$. The state capacity, which takes military power into account, indicates the probability of victory.

4.3. Second round

4.3.1. A and B are paired:.

B's turn: If A and B win in 1.a.3) above, A and B assume coalition government.

They choose whether to d) fight a civil war or e) continue the coalition.

4.3.2 A and B become a civil war:

2.d.1) A's turn: after B decides to go to war with A, A, the enemy, decides whether to import arms above its revenue.

2.d.2) Residents: Based on the magnitude of the proximity indices α_u and α_r of political ideology in the case of civil war with A and A's decision in 2.d.1), the price level is determined and residents' utility is determined. Based on the magnitude of S_u and S_r , the state capacity based on the utility of urban and rural residents, B's state capacity fluctuates during the civil war.

Ch.2. Why return to an electoral authoritarian state?

2.d.3) Result: B wins the civil war when B's state capacity, taking into account military technology θ , exceeds A's state capacity.

On victory: $\delta\beta S_{B(t+3)} = \delta\beta \{S_{B(t+2)} + \alpha_u S_{u(t+2)} + \alpha_r S_{r(t+2)}\}$

If A is not exceeded, the civil war is lost.

On defeated: $\delta\beta S_{B(t+3)} = (1 - j(\mu))\delta\beta S_{B(t+2)}$

e) A and B remain in coalition

2.e.1) When in coalition, the utility of 1.a.3) is obtained.

$$\delta\beta S_{B(t+3)} = (1-i)\beta \{S_{B(t+2)} + \alpha_u S_{u(t+2)} + \alpha_r S_{r(t+2)}\}$$

i means the loss incurred by a coalition government compared to a stand-alone government.

4.3.3. B and R form a coalition:

3. B's turn: If B wins in 1.b.3) above, R and B do not carry a coalition government. They will be treated like any other majority force that followed the original government. The choice is to either d) fight a civil war or e) continue the coalition.

4.3.4. R and B will have a civil war:

3.d.1) R's turn: after B decides to go to war with R, the enemy R decides whether to import arms above revenue.

3.d.2) Residents: Based on the magnitude of the proximity indices α_u and α_r of political ideology in the case of civil war with R and A's decision in 3.d.1), the price level is determined and residents' utility is determined. Based on the magnitude of S_u and S_r , the state capacity based on the utility of urban and rural residents, B's state capacity fluctuates during the civil war.

3.d.3) Result: B wins the civil war when B's state capacity, taking into account military technology θ , exceeds R's state capacity.

Ch.2. Why return to an electoral authoritarian state?

On victory: $\delta\beta S_{B(t+3)} = \delta\beta \{S_{B(t+2)} + \alpha_u S_{u(t+2)} + \alpha_r S_{u(t+2)}\}$

If A is not exceeded, the civil war is lost.

On defeat: $\delta\beta S_{B(t+3)} = (1 - j(\mu))\delta\beta S_{B(t+2)}$

e) Continue the coalition.

Even if they teamed up with R and defeated A in a civil war, B could not be a member of the coalition, as it was before the civil war.

4.4. Analysis

The model of this study holds the following.

$$S_{(t)} = S_{R(t)} + S_{A(t)} + S_{B(t)} + S_{r(t)} + S_{u(t)}$$

$$S_{B(t+1)} = S_{B(t)} + k(\alpha_u S_{u(t)} + \alpha_r S_{r(t)}) + \lambda(S_{(t)} - S_{B(t)} - S_{A(t)} - S_{r(t)} - S_{u(t)})$$

4.4.1. A Cooperation with B for a first term

1) Peace (A and coalition government) for a second term.

In the first term, B chooses to work with A and fights a civil war with R. Assume further that the coalition of B and A defeats R. After the victory, B and A form a coalition government, and in the second term, B can choose to fight a civil war with A or not. Consider B's gain if B does not go to war in the second term and maintains a coalition government with A. The second term is peaceful and the state at B's victory in the first term capacity is B's gain at the end of the second term.

If B's state capacity is greater than A's, then as the major party in a coalition government of B and A, B's gain is greater than when B is smaller than A. In parentheses, p means peace and c means civil war. Alphabets in the upper right of the gain V are groups that are aligned with B. Underbars mean groups with greater state capacity.

$$S_{B(t+1)} > S_{A(t+1)};$$

$$V_B^{AB}(p) = \delta \beta S_{B(t+1)} \quad (1.1)$$

To $S_{B(t+1)}$, the state capacity in the second period, we add productivity β and the deadweight δ of productivity in B. The deadweight δ is a discount factor for state capacity due to the civil war in the first period.

$$S_{B(t+1)} < S_{A(t+1)}:$$

$$V_B^{AB}(p) = (1-i)\delta \beta S_{B(t+1)} \quad (1.2)$$

If A, which forms a coalition force, is larger than B, it fights a civil war with A as a coalition force in the first term, and the second term is peaceful. state capacity at the time of B's victory in the first term is B's gain at the end of the second term. In (1-1), B was the main party in the coalition government, but in (1-2), B is not the main party in the coalition government, so it cannot form a unique public good. Therefore, B's gain is smaller than in (1-1) by a factor of (1-i).

2) The second term was a civil war (civil war with A)

B Victory

$$S_{B(t+2)} > S_{A(t+2)}:$$

$$V_B^{AB}(c) = \delta^2 \beta \{S_{B(t+2)}\} = \delta^2 \beta \{S_{B(t+1)} + k(\alpha_u S_{u(t+1)} + \alpha_r S_{r(t+1)}) + \lambda(S_{(t+1)} - S_{B(t+1)} - S_{A(t+1)} - S_{r(t+1)} - S_{u(t+1)}))\} \quad (1.3)$$

In the first term, B works with A and wins against R. In the second term, B is at war with A. As a result, B wins against A. B has the opportunity to expand its state capacity by gaining urban and rural support in the first term and to shift its support base away from the governing party R. Since both the first and second terms are civil wars, a deadweight delta occurs in both terms, which is a discount factor for state capacity.

B Defeat

$$S_{B(t+2)} < S_{A(t+2)}:$$

$$V_B^{BA}(c) = (1-j)\delta^2\beta\{S_{B(t+2)}\} = (1-j)\delta^2\beta\{S_{B(t+1)} + k(\alpha_u S_{u(t+1)} + \alpha_r S_{r(t+1)}) + \lambda(S_{(t+1)} - S_{B(t+1)} - S_{A(t+1)} - S_{r(t+1)} - S_{u(t+1)}))\} \quad (1.4)$$

In (1-3), the second term is also a civil war and A wins, but in (1-4), A is defeated in the second term. In the case of defeat, the state capacity of the ratio $(1-j)$ disappears compared to (1-3). The model in this paper assumes that the group's power continues to exist after the civil war defeat, although it is weakened by a proportion of j .

3) Defeated in the first term (A and B allies defeated)

$$S_{B(t)} + S_{A(t)} < S_{R(t)}:$$

$$V_B^{AB}(c) = (1-j)\delta\beta S_{B(t+1)} \quad (1.5)$$

In cases (1-1) through (1-4), the A-B coalition forces work with A in the first period and win against R. In case (1-5), the A-B coalition forces lose against R. In case (1-6), the A-B coalition forces win against R. In case (1-7), the A-B coalition forces lose against R. In case (1-8), the A-B coalition forces lose against R. Compared to the case of (1-1), where they win the civil war, they lose state capacity by a ratio of $(1-j)$. As in (1-4), the loss of the civil war weakens the forces but the group survives, but the game ends after one period.

4.4.2. R Cooperation with B for a first term

1) Peace (R and coalition government) in a second term.

$$S_{B(t+1)} < S_{R(t+1)}:$$

$$V_B^{RB}(p) = (1-i)\delta\beta S_{B(t+1)} \quad (1.6)$$

1 in one's second term $S_{B(t+1)} > S_{R(t+1)}$ No assumption is made that the

In this case, B and R are allied with R, the governing party, in the first term, and the coalition of R and B engages in a civil war with A. The coalition wins the war by choosing civil war in the first term and winning through a change in state capacity, which determines the gain at the end of the first term.

Since the governing party R has added B to the coalition forces as the government, we do not assume that B has a greater state capacity than R through the civil war. Also, B wins in the first term, but its state capacity is reduced by the ratio (1-i) because B cannot form its public goods.

2) The second term was a civil war (R and civil war).

B Victory

$$S_{B(t+2)}S_{R(t+2)}: \\ V_B^{RB}(c)=\delta^2\beta\{S_{B(t+2)}\}=\delta^2\beta\{S_{B(t+1)}+k(\alpha_uS_{u(t+1)}+\alpha_rS_{r(t+1)})+ \\ \lambda(S_{(t+1)}-S_{B(t+1)}-S_{A(t+1)}-S_{r(t+1)}-S_{u(t+1)}))\} \quad (1.7)$$

In the first period, B works with R to defeat A. In the second period, B chooses a civil war with R. As a result of the civil war with R, B wins; because of the two civil wars, the discount factor δ decreases state capacity twice; through two civil wars, B has the opportunity to expand state capacity twice.

B Defeat

$$S_{B(t+2)} < S_{R(t+2)}: \\ V_B^{BR}(c) = (1-j)\delta^2\beta\{S_{B(t+2)}\} = (1-j)\delta^2\beta\{S_{B(t+1)}+ \\ k(\alpha_uS_{u(t+1)}+\alpha_rS_{r(t+1)})+ \lambda(S_{(t+1)}-S_{B(t+1)}-S_{A(t+1)}- \\ S_{r(t+1)}-S_{u(t+1)}))\} \quad (1.8)$$

In the first period, B works with R to defeat A. In the second period, B chooses to fight a civil war with R. As a

result of the civil war with R, B is defeated. As a result of the defeat, state capacity is reduced by $(1-j)$.

3) Defeated in the first term (R-B coalition forces defeated)

$$S_{B(t+1)} + S_{R(t+1)} < S_{A(t+1)}:$$

$$V_B^{RB}(c) = (1-j)\delta \beta S_{B(t+1)} = (1-j)\delta \beta [S_{B(t)} + k(\alpha_{u(t)}S_{u(t)} + \alpha_{r(t)}S_{r(t)}) + \lambda (S_{(t+1)} - S_{B(t+1)} - S_{A(t+1)} - S_{r(t+1)} - S_{u(t+1)}))] \quad (1.9)$$

In case (1-9), B works with R and the allied forces fight a civil war with A, but the allied forces are defeated in the first period. By losing the civil war, state capacity is reduced by the ratio $(1-j)$, and the game ends.

4.4.3 Neutrality

$$V_B^R = (1-i)\beta [(r+a)S_{B(t)} + k(\alpha_{u(t)}S_{u(t)} + \alpha_{r(t)}S_{r(t)}) + \lambda (S_{(t+1)} - S_{B(t+1)} - S_{A(t+1)} - S_{r(t+1)} - S_{u(t+1)}))] \quad (1.10)$$

This is the case where B does not work with either R or A. Even if R defeats A, or even if R is defeated, B is not involved in the civil war. As a fishing expedition, there is an opportunity for state capacity to expand, moving from R's support base and urban/rural support base to B. Also, regardless of who wins, a coalition of state capacity between R and A will be formed, and through the coalition, more state capacity will be expanded.

4.5. Strategies that take into account the win rate

In the previous section, we showed the gain of each strategy for B. In this section, we obtain the expected gain for each of the cases in which B works with A, works with R, and is neutral. The probability of winning the civil war is created from each party's military technology θ and the

standardized state capacity, r , a , b . The gains for each strategy are presented in the previous section.

4.5.1. *R and cooperation: s_2 (equilibrium point s where peace gains = civil war gains)*

The gain V_B^{RB} when B works with R can be considered in three patterns.

The first case is the case (2-1) that does not consider the second period of civil war: victory in the first period and subsequent peace and defeat in the first period; the case in which peace is best achieved in conjunction with R; the second case (2-2) that does not consider the second period of civil war: victory in the first period of civil war and subsequent peace and defeat in the first period; the case in which peace is best achieved in conjunction with R.

This is the sum of the case in which the R and B allied forces fight A in the first period and the allied forces are defeated, and the case in which the R and B allied forces defeat A in the first period and peace is achieved thereafter.

In the former case, the allied forces are defeated by A in the first term of the civil war, and in the latter case, the allied forces are defeated by A in the first term. It is the sum of the expected gain multiplied by $V_B^{RB}(c)$ in (1-9) and the probability that the allied forces of R and B are defeated $\frac{\theta_a a}{\theta_a a + \theta_b b + \theta_r r}$, and multiplied by $V_B^{RB}(p)$ in (1-6) and the Probability of Allied Victory $\frac{\theta_r r + \theta_b b}{\theta_a a + \theta_b b + \theta_r r}$.

The second case is (2-2), which considers all cases of both defeat in the first term and civil war and peace in the second term. Both cases of peace in the second term and civil war in the second term are shown in (2-1).

The probability that R and B are in a civil war and B wins $\frac{\theta_b b}{\theta_r r + \theta_b b}$ and B's gain in that case

Ch.2. Why return to an electoral authoritarian state?

(1-8) indicates a confident conclusion $V_B^{RB}(c)$ and the probability that B loses by deriving the expected gain from $1 - \frac{\theta_b b}{\theta_r r + \theta_b b}$ and B's gain in that $V_B^{BR}(c)$ in (1-9). When a civil war occurs in the second term, it means that the coalition forces win in the first term, so the probability of a coalition victory $\frac{\theta_r r + \theta_b b}{\theta_a a + \theta_b b + \theta_r r}$ to all expected gains in the second period.

The third case (2-3) does not assume peace in the second period and considers only civil war. It does not include the gain $V_B^{RB}(p)$ in the case of peace in (2-2) above.

B can be divided from the above three cases by backward induction into three patterns: a case in which the first-period option is determined assuming only peace in the second period, a case in which the first-period option is determined assuming civil war in the second period, and a case in which the first period is determined assuming both peace and civil war in the second period, leaving both as options. Decide among them based on expected gains.

If $s(t) = (s_2, 1]$ (when B's s can get large and large gain) 1st round loss and 1st round win peace

$$V_B^{RB} = \frac{\theta_a a}{\theta_a a + \theta_b b + \theta_r r} V_B^{RB}(c) + \frac{\theta_r r + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} V_B^{RB}(p) \quad (2.1)$$

If $s(t) = (s_1, s_2]$, 1st round loss and 1st round win peace and 2nd round win and löse

$$V_B^{RB} = \frac{\theta_r r + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} [V_B^{RB}(p) + \{ \frac{\theta_b b}{\theta_r r + \theta_b b} V_B^{RB}(c) + (1 - \frac{\theta_b b}{\theta_r r + \theta_b b}) V_B^{BR}(c) \}] + \frac{\theta_a a}{\theta_a a + \theta_b b + \theta_r r} V_B^{RB}(c) \quad (2.2)$$

If otherwise,

$$V_B^{RB} = \frac{\theta_a a}{\theta_a a + \theta_b b + \theta_r r} V_B^{RB}(c) + \frac{\theta_r r + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} \{ \frac{\theta_b b}{\theta_r r + \theta_b b} V_B^{RB}(c) + (1 - \frac{\theta_b b}{\theta_r r + \theta_b b}) V_B^{BR}(c) \} \quad (2.3)$$

Ch.2. Why return to an electoral authoritarian state?

4.5.2. *A and cooperation: s1 (equilibrium point s where peace gains = civil war gains)*

The gain V_B^{AB} when B works with A can be considered in three patterns.

The first case (2-4) does not consider the second period of civil war: gain from victory in the first period of civil war and subsequent peace, and gain from defeat in the first period. probability of defeat in the first period $\frac{\theta_r r}{\theta_a a + \theta_b b + \theta_r r}$ and the expected gain from the gain V_B^{AB} (c) at that time. Also, in the first period, the allied forces of A and B win probability of doing $\frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r}$ and, after winning, the gain when B's state capacity is greater than A $V_B^{AB}(p)$ and gain when A is large $V_B^{AB}(p)$ The expected gain is derived from the sum of A and B. B does not know whether B is greater than A after the first period of civil war when working with A.

The second case (2-5) considers the case where the country loses the civil war in the first term and the case where the country wins the first term and maintains peace in the second term or becomes a civil war. When peace is maintained in the second term, the expected gain is the sum of the expected gains when A is large and when B is large; when the second term is a civil war, the expected gain is the sum of the expected gains when B wins and when B loses.

The third case (2-6) assumes that A loses the civil war in the first period and that B wins or loses the civil war with A in the second period.

If $s(t) = (s1, 1]$, 1st round negative + 1st round win peace (coalition strong and weak, respectively)

$$V_B^{AB} = \frac{\theta_r r}{\theta_a a + \theta_b b + \theta_r r} V_B^{AB}(c) + \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} [V_B^{AB}(p) + V_B^{AB}(p)] \quad (2.4)$$

Ch.2. Why return to an electoral authoritarian state?

If $s(t) = (s_2, s_1]$, 1st round negative + 1st round win peace (coalition strong and weak respectively) and 1st round win (strong \times (win/weak) and weak \times (win/weak))

$$V_B^{AB} = \frac{\theta_r r}{\theta_a a + \theta_b b + \theta_r r} V_B^{AB}(c) + \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} \left[\frac{\theta_b b}{\theta_a a + \theta_b b} V_B^{AB}(p) + \frac{\theta_a a}{\theta_a a + \theta_b b} V_B^{BA}(c) \right] + \frac{\theta_b b}{\theta_a a + \theta_b b + \theta_r r} \left[\frac{\theta_b b}{\theta_a a + \theta_b b} V_B^{AB}(c) + \left(1 - \frac{\theta_b b}{\theta_a a + \theta_b b}\right) V_B^{BA}(c) \right] \quad (2.5)$$

if otherwise, 1st round lose and 1st round win and 2nd round battle

$$V_B^{AB} = \frac{\theta_r r}{\theta_a a + \theta_b b + \theta_r r} V_B^{AB}(c) + \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} \left[\frac{\theta_b b}{\theta_a a + \theta_b b} V_B^{AB}(c) + \left(1 - \frac{\theta_b b}{\theta_a a + \theta_b b}\right) V_B^{BA}(c) \right] \quad (2.6)$$

4.5.3 Neutral:

For the neutral case (2-7), the gain is V_B^R , which is consistent with (1-10), since there is no need to consider the probabilities related to winning or losing the civil war.

$$V_B^R = (1-i)\delta \beta S_{B(t+1)} = (1-i)\delta \beta \left[(\theta_r r + \theta_a a) S_{B(t)} + k(\alpha_{u(t)} S_{u(t)} + \alpha_{r(t)} S_{r(t)} + \lambda(S_{(t)} - S_{B(t)} - S_{A(t)} - S_{r(t)} - S_{u(t)})) \right] \quad (2.7)$$

4.6. Partial game equilibrium

Lemma1

▪ if $S_{(t)} = (s_1, 100]$,

1. if $(2-4) \geq (2-1)$, then B is paired with A. In other words, we have the following.

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$$\begin{aligned} & \frac{\theta_r r}{\theta_a a + \theta_b b + \theta_r r} V_B^{AB}(c) + \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} [V_B^{AB}(p) \\ & + V_B^{AB}(p)] \\ & \geq \frac{\theta_a a}{\theta_a a + \theta_b b + \theta_r r} V_B^{RB}(c) + \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} V_B^{RB}(p) \end{aligned}$$

2. Otherwise, B is paired with R.

$$\cdot S_{(t)} = [s_2, s_1],$$

As $S_{(t)}$ increases, there exists i^* such that $(2-5) \geq (2-2)$. That is, as follows.

$$\begin{aligned} & \frac{\theta_r r}{\theta_a a + \theta_b b + \theta_r r} V_B^{AB}(c) + \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} \left[\frac{\theta_b b}{\theta_a a + \theta_b b} V_B^{AB}(p) + \frac{\theta_a a}{\theta_a a + \theta_b b} \right. \\ & \quad \left. V_B^{AB}(p) + \frac{\theta_b b}{\theta_a a + \theta_b b} V_B^{AB}(p) \left\{ \frac{\theta_b b}{\theta_a a} V_B^{AB}(c) + (1 - \frac{\theta_b b}{\theta_a a}) V_B^{BA}(c) \right\} \right] \geq \\ & \frac{\theta_b b}{\theta_a a} V_B^{BA}(c) + \frac{\theta_a a}{\theta_a a + \theta_b b} V_B^{BA}(p) \left\{ \frac{\theta_b b}{\theta_a a} V_B^{AB}(c) + (1 - \frac{\theta_b b}{\theta_a a}) V_B^{BA}(c) \right\} \\ & \quad \frac{\theta_a a}{\theta_a a + \theta_b b + \theta_r r} V_B^{RB}(c) + \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} [V_B^{RB}(p) + \left\{ \frac{\theta_b b}{\theta_r r} V_B^{RB}(c) + (1 - \frac{\theta_b b}{\theta_r r}) V_B^{BR}(c) \right\}] \end{aligned}$$

1. If $1 - \delta < i^*$, then B is paired with R.

2. Otherwise, B is paired with A.

Lemma2

If $S_{(t)} \leq s_1$, then

Regardless of whether B sides with R or not, a civil war ensues; since A is weaker than R, B chooses to partner with A instead of R. In other words, the alliance with A dominates the alliance with R. In other words, B chooses to partner with A or remain neutral. This means that $(2-5) \geq (2-1)$, $(2-5) \geq (2-2)$ will be realized regardless of whether $(2-2) \geq (2-1)$ or $(2-1) \geq (2-2)$.

If $(2-7) \geq (2-5)$, that is, if the following equality holds, then the neutral dominates the partnership with A.

$$\begin{aligned} \delta \beta S_{B(t+1)} &= (1-i) \delta \beta [(\theta_r r + \theta_a a) S_{B(t)} + k(\alpha_{u(t)} S_{u(t)} + \\ & \alpha_{r(t)} S_{r(t)}) + \lambda(S_{(t)} - S_{B(t)})] \geq \end{aligned}$$

Ch.2. Why return to an electoral authoritarian state?

$$\frac{\theta_r r}{\theta_a a + \theta_b b + \theta_r r} V_B^{AB}(c) + \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} \left[\frac{\theta_b b}{\theta_a a + \theta_b b} V_B^{AB}(p) + \frac{\theta_a a}{\theta_a a + \theta_b b} V_B^{AB}(p) + \frac{\theta_b b}{\theta_a a} V_B^{AB}(c) + (1 - \frac{\theta_b b}{\theta_a a}) V_B^{BA}(c) \right]$$

When $(2-7) \geq (2-5)$ above holds, we define $s_3 = \min\{s_3^*, s_1\}$.

4.7. The results of equilibrium

A fights R if it can work with B. Even after that victory, peace if $S_{(t)} > s_1$, $(s_3, s_1]$, choose civil war if $[0, s_3]$. Given a partial equilibrium game in which A and B bring about peace

If $(1-6) \geq (1-1)$, then A does not fight R.

$S_p^*(i)$ under the condition that $(1-6) \geq (1-1)$ inequality holds, then $S_p(i) = \max\{s_1, S_p^*(i)\}$. $S_p(i) = 1$ when the inequality does not hold. $(1-6) \geq (1-1)$, then $S_p^*(i)$ is a decreasing function of i .

$\hat{i}(s(t)) = i^*(s(t))$ is between $(s_1, s_2]$ if $(s_2, 1]$. $\hat{i}(s(t))$ between $(S_{(t)}, 1]$, status quo is maintained because B is likely to work with R, status quo bounds are drawn

Proposition1

If $S_{(t)} = (s_1, 1]$, then the value is between,

1. If $i \geq \hat{i}(s(t))$, then status quo is maintained

2. If $i < \hat{i}(s(t))$

(a) $(S_p(i), 1]$ The status quo is maintained if $S_{(t)}$ is between.

(b) $(s_1, S_p(i)]$ If $S_{(t)}$ between B and A are at peace after war with B and R in coordination with A

Given the equilibrium outcome of the partial game in which A and B are in a civil war, A does not fight R if $(2-2) \geq (2-4)$.

$$S_c^* \text{ if } (2-2) \geq (2-4).$$

In other words, it is the following.

$$\frac{\theta_a a}{\theta_a a + \theta_b b + \theta_r r} V_B^{RB}(c) + \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} [V_B^{RB}(p) + \{\frac{\theta_b b}{\theta_r r} V_B^{RB}(c) + (1 - \frac{\theta_b b}{\theta_r r}) V_B^{BR}(c)\}] \geq$$

$$\frac{\theta_r r}{\theta_a a + \theta_b b + \theta_r r} V_B^{AB}(c) + \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} [\frac{\theta_b b}{\theta_a a + \theta_b b} V_B^{AB}(p) + \frac{\theta_a a}{\theta_a a + \theta_b b} V_B^{AB}(p)]$$

Proposition2

if $S_{(t)}$ is between $(0, s_1]$, there exists the following S_C

1. If $(2-7) \geq (2-5)$, then

And if $(2-2) \geq (2-4)$ then $S_C = \min\{S_C^*, s_1\}$

And if $(2-2) \leq (2-4)$ then $S_C = S_1$

(a) The status quo is maintained when $S_{(t)}$ in $[0, s_3] \cup (S_C, S_1]$.

(b) $S_{(t)}$ in $(S_3, S_C]$, then B and R in conjunction with A fight a civil war, and A and B also then fight a civil war.

2. if $(2-7) < (2-5)$

And if $(2-2) > (2-4)$ then $S_C = \min\{S_C^*, S_3\}$

And if $(2-2) \leq (2-4)$, then $S_C = S_3$

(a) The status quo is maintained when S_t between $(S_C, S_1]$.

(b) $S_{(t)}$ between $[0, S_C)$, then B and R in conjunction with A fight civil war, and A and B fight civil war.

Figure shows the results when $(2-7) \geq (2-5)$.

The figure shows when $S_{(t)}$ is between $(0, S_1]$. When it is between $(0, S_3]$, the status quo is maintained.

$(S_3, S_1]$ When it is between two civil wars, it is between two civil wars.

$(S_1, 1]$ between $\hat{t}(s(t))$, showing a gradual increase in the figure when the status quo is unchanged.

Policy change analysis

This paper focuses on civil war as a watershed of institutional change and examines it from three perspectives.

The first confirms that the increase in the amount of foreign loans N in line with the availability of loans of the regime group R weakens the support base of the regime group R through hyperinflation, resulting in the loss of R 's ability to take charge of the regime; as R weakens, the outflow from R 's support base to A and B affects the win or loss of civil war. Not only will R 's support base move to B , but also from the fourth force, urban and rural, which has not made its support for R , A , and B clear. In addition to the civil war in the first term, consider whether to adopt the A , R , or neutral option in the first term, taking into account the execution of the civil war in the second term; a victory in a civil war against a coalition partner in the second term would provide greater gains than a coalition government. In addition to the amount of foreign loans as a flow, we treat debt outstanding as a stock and the price level as three economic variables that contribute to hyperinflation.

The simulation is based on a status capacity ratio of $R:A:B$: urban-rural = 3.5:2.5:1.5:3.5.

The second factor that causes variation in state capacity is the ideological proximity of urban residents to each party and the ideological proximity of rural residents to each party. As in the first case, we assume that the inflow ratio increases due to ideological proximity only in the first term, but not in the second term. In the case of a civil war in the second term, the assumption is that the closer the ideology is to that of the coalition partner, the greater the inflow will be.

The third is the percentage of blank spaces. When the governing party continues the civil war, it not only opposes the party with military power, but also necessarily the residents of the immediate area who participate in the civil war, as well as the fourth force of urban and rural residents who are domestic residents but whom the governing party has yet to support as the immediate area of the governing party, the percentage of areas is given. The larger the

percentage of the total urban-rural area in the country, the greater the opportunity for the party challenging the civil war to expand its support base through civil war.

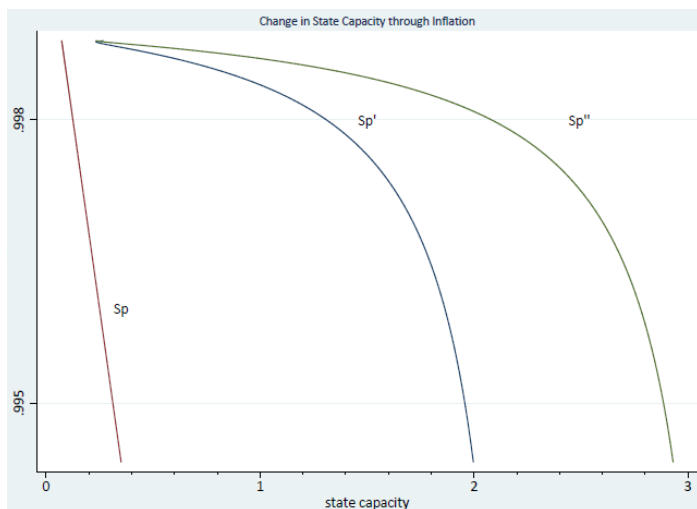


Figure 7. *Change in state capacity through inflation*

Figure 7 shows that the equilibrium S_p of the state capacity subgame in B expands as P rises; S'_p is the equilibrium S_p at a 0.1% rise in P, starting at the top left-most S'_p and increasing by 0.1%, and at the bottom is the equilibrium value at a 10% rise in P. S_p The upper left of S''_p is the equilibrium point when P rises by 0.1%, increasing by 0.2%, and the lower right is the equilibrium value when P rises by 20%.

Inflation reduces the ability of the government to take charge and broadens B's base of support from urban and rural areas of the country.

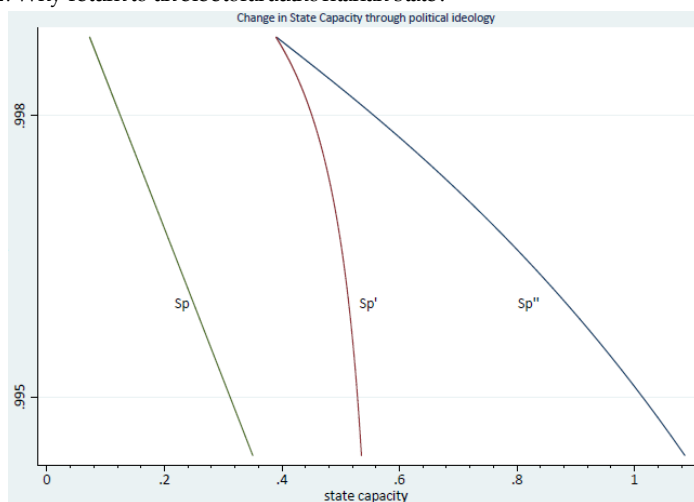


Figure 8. Change in state capacity through Political ideology

Figure 8 shows that the equilibrium S_p of the state capacity subgame in B expands as P rises; S'_p is the equilibrium S_p at a 0.1% rise in P, starting at the top left-most S'_p and increasing by 0.1%, and at the bottom is the equilibrium value at a 10% rise in P. S_p The upper left of S''_p is the equilibrium point when P rises by 0.1%, increasing by 0.2%, and the lower right is the equilibrium value when P rises by 20%.

Inflation reduces the ability of the government to take charge and broadens B's base of support from urban and rural areas of the country.

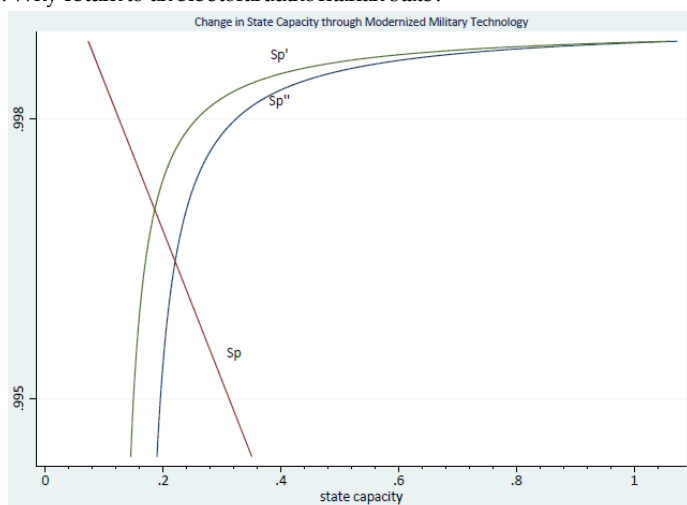


Figure 9. Change in state capacity through Military Technology

Figure 9 shows the change in state capacity with increasing military technology in B. S_p'' is the case with a change of 0.1% each, and S_p' is the case with a change of 0.2% each.

It is confirmed that the higher the level of military technology, the more likely it is to win the civil war, but the gain does not increase as much when the possibility of defeat is taken into account. In the model in which state capacity is considered as a gain and military technology is exogenous to state capacity, the increase in military technology is not a direct factor that increases state capacity, as is the case with the price level and political ideology described above.

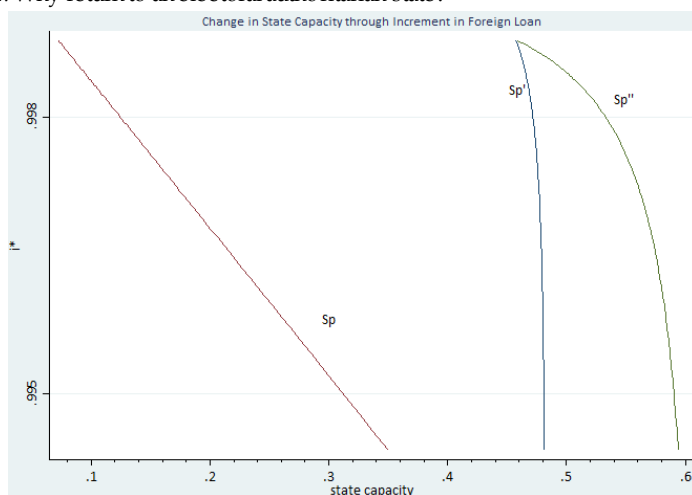


Figure 10. Change in state capacity through Investment in Foreign Loan

Figure 10 shows the change in state capacity with an increase in external loans; S_p' represents the case where the change is 1% each, and S_p'' represents the case where the change is 5% each.

It is confirmed that state capacity increases with an increase in foreign loans. Although the increase in foreign loans is both a cause of hyperinflation and an increase in the military technology of the party in power, the model in this study results in an increase in B's state capacity. It is confirmed that state capacity shifts from rural and urban residents and R to B, expanding B's power base.

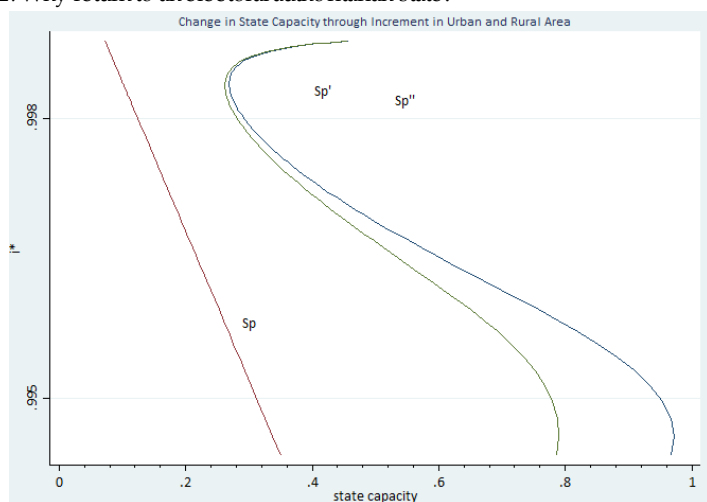


Figure 11. *Change in state capacity through Increment in Urban and Rural Area*

Figure 11 shows the change in B's state capacity when both urban and rural initial state capacity percentages increase by 0.15% each and the initial state capacity percentages of A, B, and R decrease by 0.1% each. and that they can expand their power based on the migration of their support base from urban and rural areas.

5.1. Tactical space during the civil war

Finite Repeated Games

In this section, we examine theoretically why repeated civil wars occur. During the duration of a civil war, governments can change their policies, such as importing weapons or changing monetary policy. Suppose that the gains of A and coordination, R and coordination, and neutrality in the strategic space can be divided by the number of civil wars. In this section, we confirm that the optimal response is to repeatedly challenge the challenger to a civil war until the challenger wins. compare (1-7) and (1-8) in which B and R fight a civil war after linking with R. B's

gain (1-7) when the civil war is won in the second period is as follows.

$V_B^{RB}(c) = \delta^2 \beta \{S_{B(t+2)}\}$ and the gain (1-8) in case of defeat is as follows

$$V_B^{BR}(c) = (1 - j) \delta^2 \beta \{S_{B(t+2)}\}$$

Suppose that the civil war is not limited to one time and that B challenges N times. Suppose then that the gain of (1-8) is obtained for each of N. Let ϑ be the discount rate at that time.

$$\begin{aligned} V_B^{BR}(c) &= \frac{1}{N_1} (1-j) \delta^2 \beta \{S_{B(t+2)}\} + \frac{1}{N_2} (1-j) \vartheta \delta^2 \beta \{S_{B(t+2)}\} + \dots \\ &\quad + \frac{1}{N_{N-1}} \vartheta^{N-1} (1-j) \delta^2 \beta \{S_{B(t+2)}\} + \frac{1}{N_N} (1-j) \vartheta^N \delta^2 \beta \{S_{B(t+2)}\} \quad (N_1 = N_2 = \dots = N_{N-1} = N_N = N) \\ &= \frac{1}{N} (1-j) [\delta^2 \beta \{S_{B(t+2)}\}] (1 + \vartheta + \dots + \vartheta^{N-1} + \vartheta^N) \\ &= \frac{1}{N} (1-j) \frac{V_B^{BR}(c) N}{[\delta^2 \beta \{S_{B(t+2)}\}] (1 + \vartheta + \dots + \vartheta^{N-1} + \vartheta^N)} \\ &\quad \frac{\partial j}{\partial N} < 0 \end{aligned}$$

The larger N, the larger the denominator, and thus $\partial j / \partial N$ becomes smaller and more negative.

In other words, as the number of civil wars increases, the percentage of state capacity lost when B is defeated decreases. As a result, the challenger has motivation to repeat the civil war.

Even if the challenger's S is small in the early stages of the civil war, he will have an incentive to challenge if the ratio λ supported by the population is high.

Realistically, too, even if the challenger suffers a temporary military defeat in addition to an increase in the number of chances by repeating the civil war, along with the decrease in state capacity associated with the defeat, depending on the relationship between the urban and rural areas of state capacity and the gains from the governing

party, the military defeat may not lead to a serious state. It does not lead to a decrease in capacity.

Since j is not endogenized in this section, it is not modeled that a temporary defeat of the governing party further reduces j . However, the closer j is to 0, the closer it is to the gain from a civil war victory, since the challenger loses less disadvantage from repeated civil wars. It can be assumed that civil wars will be repeated and civil wars will not end.

5.2. Power relations between challengers and opportunists

It was confirmed that after the first civil war, any disparity in power relations or ideological differences would lead to a second civil war, bringing about a weakening of the new government's support base. If $S_A < S_B$ immediately after the first civil war, a coalition government is more likely, and under certain conditions (S_B is much larger), the opportunist B will challenge the civil war and try to form a single government by B, resulting in two civil wars and political instability.

The vertical axis is the political disparity between A, the challenger, and myself, the opportunist B. The higher the value, the greater the disparity. The horizontal axis means the size of state capacity, the more to the right, the greater.

The right side of S_1 means S collaborates with A and maintains peace after the collaboration.

The right side of S_2 means S collaborates with R and maintains peace after the collaboration.

The right side of S_3 means S which is neutral. The figure is divided into groups.

The figure is divided into two groups: upper and lower cases of high political disparity and low political disparity. Divide the left and right into three groups according to the size of state capacity. Of the group with high political

disparity, the group with a small S is considered extremist. Extremists have political disparities that are large enough to be uncoordinated with other groups. They are also unable to coordinate with other groups and the forces they support, which are generally small. For this reason, even if a coalition government is achieved through a civil war, a second civil war will occur if the group is extremist. In other words, extremist groups on the left are more likely to experience a second civil war. The group in the center, which has large political differences but not large enough state capacity, is small, and its political differences make it difficult to cooperate with other groups, but it has sufficient state capacity to challenge and win a second civil war. The second civil war will not be attempted because the country does not have the resources to fight a second civil war. The group to the right of the group with the greatest political disparity will fight a second civil war because it has greater political disparity and its state capacity is greater, and it expects to win a second civil war. The group with the largest political disparity has an incentive to go it alone because of the difficulty of managing the government if it continues to be a coalition government. The goal is to increase gains by achieving civil war.

Assume that when a single government is formed, it is likely to be centralized. Assume that when political disparities are large, it is easier to run an authoritarian government to facilitate policy management. This will be discussed in the case analysis.

Groups with low political disparity can also be grouped into three groups: the group with the smallest state capacity is less likely to win a civil war and therefore will not attempt a second civil war; the group with the largest state capacity is more likely to win a second civil war if its state capacity is greater than its state capacity; and the group with the smallest state capacity is more likely to win a second civil

war if its state capacity is greater than its state capacity. If they challenge the civil war and win, they will change to a single government, and policy management will be smoother. If the coalition is weak, it tends to remain in power and become peaceful. If the militant group is weak, the rational choice of the militant group is usually not to challenge civil war and become peaceful, because the political disparities are large and political instability is high. However, if the militants' military power is large, it is a rational choice for the militants to challenge a second civil war. If the political disparity is small and state capacity is low, it can be assumed that the central government will not challenge a civil war and that the central government is likely to devolve power to a coalition government or even to local governments, resulting in a federal system. If the power of the central government is weak and the power of its collaborators and allies is relatively strong, it is reasonable for each group to have a form of self-government within its sphere of influence. A central government coalition among ethnic minorities or religious groups is likely to be a compromise and less effective in its policies. Given such disadvantages, allowing local autonomy for ethnic minorities and different religious groups can make operations easier by narrowing the scope and authority of the central government's policy-making responsibilities and by reducing the scope of central government policy-making. Of the groups with lower political disparities, the central group, whose political disparities are small and whose state capacity is not large enough, would not challenge a second civil war even if they could expect to win a second civil war, due to the size of the gains from continued coalition government. The advantage of challenging a second civil war. The group does not challenge the civil war because of the difference between the small public good of its group from the realization of the coalition government, i.e., the

benefits it can gain from a single government through victory in the civil war due to its small gains, is not greater than the risks from the decrease in productivity and possible defeat in the civil war.

The left side of the figure means that the opportunist's initial S is small and the challenger A 's S is large relative to the opportunist's initial S . The right side of the figure means that the opportunist's initial S is large relative to the challenger's S . Because of the relative weakness of the opportunist's S , it will not engage in a subsequent civil war with R or A , with whom it has partnered after its initial civil war victory. This means that the coalition will remain in power and peace will persist.

5.2.1. Decrease in utility during the coalition government

Let i be the reduction in gains during the coalition government. Even if the coalition wins the civil war, the greater the political gap with its coalition partner, the more difficult it will be to manage policy, and the public goods realized under the coalition will differ from the public goods sought. Therefore, the utility of a coalition government is smaller than that of a stand-alone government. Utility during coalition government is a decreasing function of political disparity. In the case of a single government, $i = 0$.

5.3. Extremists

Extremists are often armed and militarily strong. They are also generally perceived as groups with radical ideologies, and therefore often lack the support of the local population. In our model, the militants have strong military power, but it is difficult for them to gain the support of the local population. In our model, we assume that the cases in which the political gap between challengers and opportunists is large are extremist groups. The political gap between challenger A and opportunist B is I . I is the political gap between challenger A and opportunist B . The political gap

between the challenger A and opportunist B is the political gap between challenger A and opportunist B.

Extremists can be defined as having a small initial S and a large political gap I with the challenger. He can be assumed to be located in the upper left of the table.

The political disparity I includes not only the ideological disparity but also the possibility of substantial cooperation or coordination with the challenger. We assume that there is a large political disparity between the challenger and the extremist.

Up to a certain level of I , S increases as I increases, but above a certain threshold, S_p becomes very small. This means that extremists with political disparities above a certain level will not see an increase in S . S_p is closest to and to the left of S_3 , implying a neutral choice. If he is an extremist, this means he chooses neutrality and does not work with the challenger or the government. If he is an extremist, this means he chooses neutrality, meaning he does not align with the challenger or the government, or he aligns with the challenger and fights a civil war and loses, or he wins a civil war but fights a second civil war and loses as a result. Thus, the final S is small.

The weaker the challenger is in the early stages of the civil war, the more likely it is to become a coalition government after the civil war, and the more likely peace will be sustained. However, if the challenger is an extremist group, the extremist group will not cooperate with other groups, so peace will not be sustained after the civil war is won and a new civil war is likely to occur with other groups that should cooperate under a coalition government.

5.4. Federalism and centralization

In our model, a centralized system is likely to be selected when the challenger creates a government alone after two civil wars, or when a militant challenger who does not have

the support of the population but has strong military power creates a government alone. On the other hand, we believe that a federal system is more likely to be introduced if a greater proportion of cooperation with the challenger by opportunists in the early stages of the civil war is provided by the challenger. If the challenger fights a civil war among opportunists, we assume that the challenger is more likely to choose a centralized system as a result. If the challenger in the early stages of the civil war has a low support base S and high I (including low λ and low α), the coalition is more likely to continue. Institutional factors leading to centralization and extremists have low support base S and high I in common. On the other hand, the difference between extremist and centrist elements is the strength of military power. When the challenger's ideology is very close to egalitarianism, the ideology of the rural population, the challenger is more likely to be oriented toward a centralized system. This orientation toward a centralized system was seen in Japan and China, where the disparity in domestic inequality was growing and foreign pressure was strong. We believe that groups oriented toward an egalitarian communist state, where the ability to mobilize resources is important, are more likely to have centralized and undemocratic institutions. Our model can explain whether the government will be a coalition or a single government after a civil war, but it cannot indicate whether it will have a centralized or federal system or a democratic system. We discuss this from the case study analysis below.

Theoretical interpretation of China and Japan

The analysis in the previous section shows the conditions under which each decision remains stable. In this section, we interpret the theoretical results of the previous section by making the case of China and Japan for institutional transitions. We consider two types of economies, taking into

account the differences between China and Meiji Japan. Assume that in both, peace is maintained with the status quo and that the total capacity of the government is weak compared to two opposing political forces, A and B, with large political differences between one (against Shanghai and China, or t Choshu and the Shogunate). Also assume that immediately before the institutional transition, there was a conversion that finally distinguished the two countries, China and Japan, institutionally. Issues related to state sovereignty hit China and Japan in the 19th century, and the impact on these two countries was very large; Aoki (2017) discusses three. (1) the awakening of both countries to the sudden arrival of much more advanced technology (Western technology), technology spearheaded by gunships from the West; (2) the lack of governing ability to defend against foreign powers, both countries were unable to protect their sovereignty from foreign aggression; (3) political differences between governing regimes and their potential political opposition, potential regime Political differences between adversaries diminished (the differences between Satsuma's kōbugyō and Chōshū's overthrow of the shogunate to eliminate the barbarians disappeared, and before China's Xinhai Revolution, differences in thinking between Sun Yat-sen and others were not emphasized as the Qing dynasty weakened, and the overthrow of the Qing dynasty took priority over the policy differences between challengers).

$$\beta \text{ if } s(t) < s, \beta^n \text{ if } s(t) > s$$

In other words, peace at $t > t^*$ and productivity gains only if $s(t) > s$. Peace at t , civil war at $t+1$, productivity gains after civil war if $s(t) + \alpha(1-s(t)) > s$. Further civil war at $t+2$, productivity gains after civil war if $s + \alpha(2-\alpha)(1-s) > s$. Two periods later. Two further thresholds were set: after the first

period of civil war, the expanded state capacity will further increase productivity by s^1

2 periods of civil war, followed by s^1 of state capacity to increase productivity

$$s^1 = (s - \alpha) / (1 - \alpha), s^2 = s - \alpha(2 - (s - \alpha)) / (1 - \alpha)^2, s^2 < s^1$$

In Figure 13, s^1, s^2 is shown by the blue line. s_1 falls between s^2 and s^1 . If A and B defeat R and the war becomes civil war again, s_1 shifts right to s_1^N from subsequent productivity. Without productivity shocks, under the status quo, economy C is just to the right of s_1 . s_p is the threshold at which A challenges R, which works with B and then becomes peaceful. In the range $[s^1, s]$, s_p shifts to s_p^N .

One civil war will bring the economy to exceed the threshold s . Thus, subsequent peace is profitable. However, one civil war is not enough to bring the economy above the threshold. In other words, when assuming peace between A and B, the gains from civil war do not increase.

For $s(t) > s^1$, s_p is constant because productivity does not change before or after the civil war. Economy J changes from status quo to civil war as a result of a productivity shock.

Compared to economy C, economy J is at peace because the political differences between A and B are smaller and the coalition government continues after the first civil war.

Figure 4 shows another mechanism by which productivity shocks move economies. The difference in Figure 4 is that economy C remains to the left of s_1 but between s_c and s_1 .

In such an economy, either A understands the disadvantages of challenging R, or A expects it to be a continuous civil war against B, or A wants B to remain neutral and A decides not to challenge R. For $\underline{s}^2 < s^1 < s_c$, productivity shocks benefit from two civil wars. With $s^3 (b < (1 - \alpha)(1 - b))$ and s_c^* shifting to the right, the economy C is

sent from the status quo to two civil wars. In economy J, where the political difference between A and B is smaller, it falls to a larger state capacity between s_1 and s . For the same reasons as in Figure 3, s_p shifts right to S_p^N and moves to economy J with one civil war.

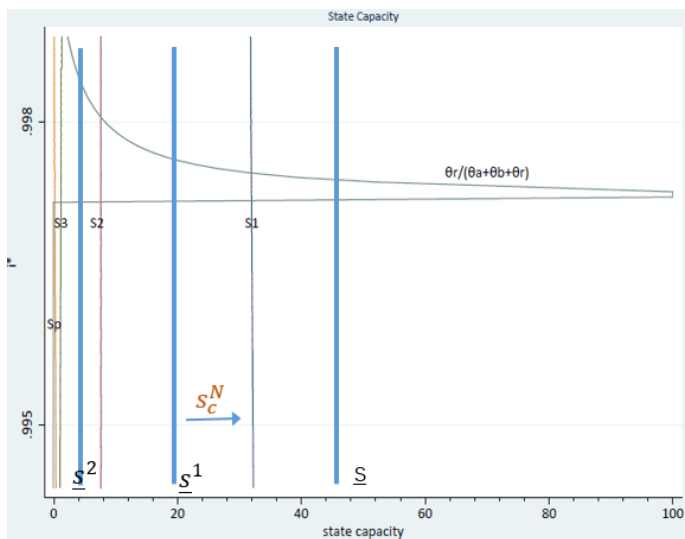


Figure 12. Change in state capacity

Empirical analysis

In this section, based on the theoretical analysis and simulation results in the previous section, we conduct an empirical analysis using actual data. It will be shown that hyperinflation and ideology are factors that cause civil wars and that the number of civil wars and other factors are factors that contribute to the success of civil wars. The former will be shown through survival analysis and the latter through regression analysis. The degree of democratization of the mechanism for determining the head of state will be included as a variable indicating the impact of ideology on civil war. Data are from POLITY5 [Retrieved from] and the Gini coefficient is WDI.

Table1. *Statistical Description*

	N	mean	Sd	min	Max
scoup1	5416	0.03	0.19	0	2
dcpi	5416	3.04	74.87	-1479.9	4464.1
atcoup2	5416	0.04	0.22	0	5
jini	1694	38.6	9.43	20.2	65.8
xr	5416	7.02	2.75	0	10
xrreg	5416	2.46	0.67	0	3
xropen	5416	2.94	1.53	0	4
xrcomp	5416	1.62	1.05	0	3
resignex	5416	0.01	0.09	0	1

Table 1 shows the descriptive statistics for the variables treated in this section.

The variable scoup1 is a dummy variable that is 1 if the civil war succeeds within the year and 0 if it fails, dcpi is the rate of change in the consumer price index, atcoup2 is the number of civil wars, xr is the xrreg is the regulation of chief executive recruitment xropen stands for openness of executive recruitment, whether hereditary, mandated, or elected, and xrcomp for the number of years in office. competitiveness of executive recruitment. Created by the number of people in power and the number of candidates through elections or by-elections, the resignex is 1 if the cause of the civil war calls for democracy and 0 otherwise. The combined variable xr is the sum of the three variables xrreg, xropen, and xrcomp.

7.1. Model for empirical analysis

The empirical analysis will determine the relationship between the variables addressed in the theoretical model of this study and the occurrence of civil war and the success of civil war. By considering both the impact on the probability of success of civil war and the impact on the probability of occurrence of civil war, we will examine the causes of civil

war and the factors that contribute to its outcome. The fact that the challenger of the civil war addressed in this section aims for civil war success through civil war and that the success and occurrence factors are the same suggests that the challenger anticipates success at the start of the civil war, i.e., that the challenger is acting strategically. The following is the model for the empirical analysis addressed in this section.

$$y = \alpha + \beta_1 \gamma + \beta_2 \delta + \varepsilon$$

y is a variable indicating the occurrence of civil war or the success of civil war.

γ is the variable used in this theoretical study, indicating the Gini coefficient, the number of civil wars, and price increases. This section explains the expected sign of the variable indicating the success of civil war as the dependent variable. We expect the Gini coefficient to be positive because we assume that the greater the inequality within a country, the more the local population expresses support for the challenger during a civil war, increasing the challenger's probability of success in the civil war. The sign is expected to be positive because the greater the number of civil wars, the greater the probability of success of the civil war. Expect the sign to be positive because higher price increases are assumed to increase the probability of a successful civil war challenger.

Similarly to the above, we expect the sign to be positive for the Gini coefficient, positive for the number of civil wars, and positive for price increases when analyzing the probability of civil war. The larger the Gini coefficient, the more the challenger expects to expand its base of support from the local population, creating an incentive to carry out civil war. We also believe that the greater the degree of inequality, the more social unrest will be fostered to carry

out civil war. This is also true for price increases; we believe that hyperinflation reduces the value of residents' assets and salaries, and fosters social unrest, which increases the likelihood of a successful civil war as well as the probability of its occurrence. We consider that the increase in the number of civil wars not only increases the probabilistic probability of success through repetition but also increases the probability of occurrence through changes in circumstances, such as an increase in the support base of the governing party due to its lack of ability to take charge of the government.

δ was a variable related to politics that affects the occurrence and outcome of civil wars.

7.2. Empirical results

Table 2 shows the results of a survival analysis conducted to explore the causes of the outbreak of civil war. For the survival analysis, we add the change in the consumer price index (dcp_i), the number of civil wars (atcoup₂), and a variable related to the appointment of the head of state (xr). As a factor for the success of civil wars, we can confirm that an increase in the number of civil war challenges increases the probability of winning a civil war, since both equations (1) and (2) are positive and significant. Since the consumer price index is positive and significant, inflation increases the probability of success, which confirms the results of this study. Inflation weakens the ability of the governing party to govern and succeed through the weakening of the governing party's support base and the strengthening of the challenger's support base. It is confirmed that the greater the restrictions on the appointment of the head of state and the lower the degree of openness, the greater the probability of success in a civil war.

Table 2. *The results of Survival-Analysis*

	(1)	(2)
dcpi	-0.249*** (0.0185)	-0.256*** (0.0188)
atcoup2	1.722*** (0.243)	1.655*** (0.264)
Xr		-0.0158*** (0.00353)
Jini		1.008 (0.01970)
Constant	-6.511*** (0.311)	-6.569*** (0.328)
N	2,624	1,690

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

While the above section on survival analysis was conducted to ascertain the factors that led to civil war, Table 3 shows the results of panel analysis to ascertain whether the dependent variable is the success of civil war or not. Variables that are relevant to the theoretical model of this study and that affect success in the analysis in this section may have been strategically selected by the challenger from the theoretical model of this study.

The dependent variable is the number of civil wars (atcoup2), the explanatory variables are the change in the consumer price index (dcpi), consumer price index x civil movement (dcpi x res), variables related to the appointment of the head of state (xrreg, xropen, xrcomp), and whether the civil war was triggered by a civil movement (resignex) is added.

Table 3. *The results of Regression*

Each conflicts: Regress Success for Conflicts						
	(1)	(2)	(3)	(4)	(5)	(6)
atcoup2	0.0779*** (0.0147)	0.101*** (0.0146)	0.0780*** (0.0148)	0.100*** (0.0146)	0.0786*** (0.0152)	0.106*** (0.0151)
cpi	-0.000176*** (4.71e-05)	-0.000207*** (4.19e-05)	-0.000173*** (4.70e-05)	-0.000204*** (4.19e-05)	-0.000146*** (4.64e-05)	-0.000201*** (4.09e-05)
cpi*res	0.000633 (0.000437)	0.000790* (0.000437)			0.000338 (0.000611)	0.000296 (0.000616)
xrreg					0.0506*** (0.00832)	0.0184*** (0.00463)
xropen					-0.0183*** (0.00470)	-0.0146*** (0.00318)
xrcomp					-0.0328*** (0.0101)	-0.00424 (0.00557)
resignex			0.00901 (0.0309)	0.0269 (0.0309)	-0.0879* (0.0452)	-0.0606 (0.0454)
Constant	0.0339*** (0.00398)	0.0349*** (0.00384)	0.0339*** (0.00399)	0.0348*** (0.00385)	0.0367*** (0.00865)	0.0466*** (0.00606)
Observations	3,072	3,072	3,072	3,072	3,023	3,023
R-squared	0.015		0.014		0.038	
Hausman		43.06***		43.07***		71.35***
Panel	FE	RE	FE	RE	FE	RE
Num. of obs.	69	69	69	69	69	69

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

As a success factor for civil war, we can confirm that an increase in the number of civil war challenges increases the probability of civil war victory, since both equations (1) and (2) are positive and significant. Since the consumer price index is positive and significant, inflation increases the probability of success, which confirms the results of this study. Inflation weakens the ability of the governing party to govern and succeed through weakening the base of support for the governing party and strengthening the base of support for the challenger. The greater the restrictions on the

appointment of the head of state, the lower the degree of openness, and the greater the probability of success in a civil war. These variables are often used throughout previous studies as variables that indicate factors in the occurrence of civil wars, but they are also used as factors in the success of civil wars. The civic movement variable did not yield significant results.

Through the analysis in this section, the results of the theoretical analysis were confirmed to be correct through the empirical analysis, as it was confirmed that inflation and the number of civil wars not only lead to the occurrence of civil wars, but also to their success. The results of the empirical analysis could affect the causes and consequences of civil wars regardless of region or time period, as they were confirmed through panel analysis using data from around the world since World War II.

Case study: Japan and China: Factors reducing regulators' ability to manage

8.1. Hyperinflation in Japan at the end of the Edo Period

Through the Japan-U.S. Treaty of Amity and Commerce of 1858, the monetary exchange ratio between the two countries and the free export of gold and silver ([Mikami, 2011](#)) were decided. Japan insisted to the U.S. on an exchange ratio of one U.S. dollar silver piece for one Japanese silver tith, but the U.S. insisted on three silver tithes for one U.S. dollar silver piece. As a result, the U.S. side's claim was adopted. However, the increase in the price difference between domestic and foreign currencies (the exchange ratio was 100:311) resulted in a very large outflow of gold (said to be as much as 100,000 ryo) during the six-month months from 1859 to 1860. The disruption caused by the massive gold outflow led to Harris's proposal to match the gold price with

the international price. exchange). The value of silver coins fell from one-fourth to one-twelfth of their gold counterparts, and the increase in the volume of money in circulation due to the issuance of new coins also contributed to the decline in the value of money, leading to higher prices. This led to a decline in the value of the market. In addition, the shortage of goods due to exports ("Edo Kaisensho Ordinance" issued by the shogunate) and the outflow of currency due to increased imports for the modernization of the clan's military equipment also contributed to hyperinflation.

The price of rice in Osaka increased approximately 11-fold between 1858 and 1866 (Kitou, 2010). Real wages were 65.7 from 1850 to 1859 and 47.9 from 1861 to 1868 for construction workers in Kyoto, taking real wages from 1801 to 1804 as 100. Hyperinflation benefited large employers who hired wage laborers, resulting in economic growth, but it also made life extremely difficult for the lower class of urban residents and peasants who performed wage labor, widening the economic gap. Society became unstable.

8.2. The Xinghai Revolution in China

In addition to reparations for the Opium War, European and Japanese intervention in and suppression of the Qing civil war (the Yihe Dan Rebellion) led to the Qing's expansion into China, costing the Qing 450 million ryos in reparations. However, the government was running a deficit every year with expenditures of 270 million ryos (Doi, 2014). Several military factories and state-owned enterprises were also created through the Western Affairs Movement. Even though tariffs were the main source of funding, the defeat in the Sino-Japanese War made it difficult for existing government-owned enterprises to survive. Subsequently, the handling of foreign loans for railroad construction became a challenge. The number of banks was 115 in 1910, as a result

of the need to create a financial market centered on banks in Shanghai. The relationship between domestic banks, foreign banks, and the railroads was also important, and by 1910, short-term loans from foreign banks to Shanghai banks had reached 20 million carats. However, in 1910 Shanghai experienced a financial crisis, and after the Xinhai Revolution, the number of banks plummeted to 28.

Heavy rains in 1909-1910 caused severe food shortages in the south of Qing due to flooding, and the food shortage led to a financial crisis that caused many banks to fail. Rent and rice prices also rose dramatically, resulting in inflation.

8.3. The conflict between the Chinese Nationalist Party and the Chinese Communist Party in China

In China, the authority to issue money was also held by the provinces, but in 1935 the government of Chiang Kai-shek of the Republic of China issued fiat money based on state credit to replace the silver yen under the silver standard, and only banknotes issued by the issuing bank were allowed to circulate, while banknotes issued by other banks were collected after a specified period. As a currency reform, it was a progressive monetary reform in that it was fiat money issued by the central bank. It is said that the issuance of legal tender was effective in unifying China's domestic currency, concentrating the authority to issue currency in the government, and attributing domestic silver and other coins to the government to maintain wartime system finances during the Sino-Japanese War, but there was much confusion in the provinces because silver circulation was suspended and the process of monetary credit was lengthy, so legal tender. It was believed that the issuance forced the government to collect the wealth of the private sector.

Prior to the outbreak of the Sino-Japanese War in 1937, the total amount of money (legal tender) issued amounted to 1,444 million yuan, and during the war period from 1937 to 1941, the Nationalist government borrowed 10 million pounds and 50 million dollars from the United Kingdom and the United States to maintain the credit of the legal tender, but the value continued to decline and in 1940 the government decided to withdraw the legal tender. A limit was set on the amount that could be exchanged for foreign currency, and this triggered a sharp decline in the value of the Hohonin. During the Sino-Japanese War, large amounts of banknotes were issued to supplement the ever-increasing fiscal expenditure, and by the end of the war in 1945, the outstanding amount of banknotes was 556.9 billion yuan, 400 times the prewar amount. In just three years, the amount had increased 1,000-fold, resulting in hyperinflation. In August 1948, the government issued gold yuan notes. However, the value of the gold yuan note dropped to one-fifth within three months, and credit for the gold yuan note continued to plummet, leading to its suspension. However, with the advance of the Chinese Communist Party, the silver-yen note also lost credibility, and with the declaration of the founding of the People's Republic of China in October 1949, the silver-yen note was withdrawn from circulation and the currency was unified into the renminbi, the currency of the People's Republic of China.

8.4. Change in the support base

8.4.1. China: Xinhai Revolution

In the late Qing Dynasty, trade between the Qing and European countries was triggered by the British presence in China. Opium flowed into China through trade, so opium was banned in 1796. However, opium continued to flow into China, and the Qing, fearing the further spread of opium, appointed Lin Zexu as minister plenipotentiary to confiscate

and burn opium. War broke out between the Qing and the British, who were angered, and the Qing fought two wars against the British and French after 1840 (the Opium Wars), but were defeated.

The Western Affairs Movement, which aimed to fuse Chinese culture and institutions with Western technology, was promoted by Li Hongzhang, a Qing general who helped pacify a civil war (the Taiping Tianyuan Rebellion). The defeat of the North Sea Fleet in the Sino-Japanese War and the defeat in the Sino-Japanese War led to its failure, and furthermore, the Hen Pao Jiqiang movement led by Kang Youwei and the suppression by Empress Dowager Cixi (Boshin Rebellion) led many revolutionaries to believe that change from within was impossible and to seek the overthrow of the Qing dynasty. Flooding caused severe food shortages, and food shortages led to a financial crisis that bankrupted many banks. Rent and rice prices also rose substantially, resulting in inflation. The country also fell into financial difficulties. There was also a civil war (the Yihe Dan Rebellion), which resulted in foreign invasion and the partition of the Qing Dynasty. Nationalist capitalists campaigned to regain the concessions lost to foreign powers as a result of the partition of China. After two foreign wars, two civil wars, and two failed attempts at internal reform, the constitutional monarchists, who reformed from above, and the popular revolutionaries, who reformed from below, became unified in their efforts to overthrow the Qing dynasty. On the other hand, the Qing government had borrowed money from foreign countries to secure the right to build a railroad. The Sun Yat-sen Revolutionary Faction repeatedly staged armed uprisings in the wake of the firing on the people who went on strike to protect the Sichuan railroad. After several failed revolutions, the Qing dynasty was overthrown in 1911 (Xinhai Revolution) by a series of proclamations of independence in southern China's

provinces, including an armed uprising in Wuhan. In order to avoid a civil war between the two major Qing warlords, Yuan Shikai in the north and Sun Yat-sen in the south, Sun Yat-sen made Yuan Shikai the provisional president of the Republic of China, which Sun Yat-sen agreed to. After becoming Provisional Grand President, however, Yuan Shikai proceeded to abolish the National Assembly and strengthen the powers of the Provisional Grand President, finally abolishing the republic in 1915. In 1916, Yuan Shikai died, and a civil war (Beiting) broke out between the Kuomintang in the south and Yuan Shikai's subordinate warlords in the north. The first two were carried out by Sun Yat-sen, and after his death in 1925, Chiang Kai-shek carried out the third Northern Expedition, which led to the unification of China by the Kuomintang in 1928. After the Northern Expedition, some local military forces remained in power, and civil war continued. In 1929, the Soviet invasion of Manchuria and the defeat of the Kuomintang, along with the expansion of the Communist Party of China (CPC), caused political instability.

8.4.2. *China: The Communist Party's Civil War*

The Second World War ended with Japan's acceptance of the Potsdam Declaration in August 1945, which decisively resulted in Japan's defeat; in May 1945, the Kuomintang held a National Congress, the results of which the Communist Party expressed its disagreement. After Japan's defeat, Chiang Kai-shek, a representative of the Kuomintang, and Mao Zedong of the Communist Party of China held talks on domestic peace and unification (Chongqing talks) from August 30 to October 10, but both sides only confirmed their efforts to avoid a civil war. The civil war began. At the time of the civil war, the Chinese Nationalist Party was dominant. In some respects, the Communist forces were one-third of the KMT forces. The Communist forces numbered 1.2

million and the Kuomintang 4.3 million. The area of the districts was 2,285,800 square kilometers and 7,317,720 square kilometers, with 464 cities and 1,545 towns. The population was 136,060,000 and 338,993,000. In 1947, one year after the civil war, the number of party members had jumped from 1.36 million to 2.76 million, the number of troops had expanded from 1.2 million to 1.95 million, and the KMT military force had decreased from 4.3 million to 3.73 million. The reason for this was inflation caused by KMT rule and the Communist Party's method of distributing land confiscated from landowners to the rural population. In June 1948, the first of the three battles, the KMT had 3.65 million soldiers and the Communists 2.8 million; by April 1949, the KMT had 2.04 million and the Communists 3.57 million, a reversal of forces.

8.4.3. Japan

The *Edo* Shogunate, established in 1603, was a government of samurai. The feudal system was based on the *Tokugawa* family headquartered in *Edo* (Tokyo). It was a decentralization system comprising about 300 clans. The amount of rice produced by each clan was an indicator of productivity. The national production at the end of the *Edo* period was 30.55 million kokus of rice, while the *Tokugawa* family's stone height was 4.19 million kokus of rice and the imperial family was 40,000. The *Choshu* clan reported to the shogunate that there was 370,000 koku of rice, but at the end of the *Edo* period, it was about 1 million. The *Satsuma* clan was about 900,000 (Katsu, 1927). The Japan-US Treaty of Peace and Amity was signed, in 1858. Since 1854, many Japanese were afraid to invade foreign countries. In 1864, the *Choshu* clan, which was one of the domains that favored rule by an Emperor, planned to put an end to shogunate politics. At the time, the shogunate army was 150,000 strong, from 35 clans. No other clan sided with *Choshu*, which was defeated

in this early civil war. Sometime later, however, the *Satsuma* clan became an ally of the *Choshu* clan, and the two clans together defeated the shogunate forces. In 1868, a civil war, known as the *Boshin* War, occurred between Imperial forces and the shogunate, which was the enemy of the *Satsuma* and *Choshu* clans. Most of the clans were neutral or became allies of the *Satsuma* and *Choshu* clans, except for a few clans in the Tohoku region.

After the *Boshin* War, the *Satsuma* Clan and *Choshu* Clan took the place of the shogunate and eventually took control of the country. Their victory proved that the military power of the *Choshu* clan and the *Satsuma* clan together was superior to that of the shogunate. The two clans imported a good deal of military technology and weapons from Britain and the US, but they did not have much money to purchase the weapons. The shogunate side also imported weapons, in this case from France, but they also did not have the money to purchase the weapons. After the victory in the first battle of Kyoto in the *Boshin* War, the opposition to the *Satsuma* and *Choshu* clans declined sharply. In the early stages of the *Boshin* War, almost all regions except the Tohoku region and the Hokuriku region (Nagaoka City) were in obedience to the *Satsuma* and *Choshu* clan that declared the Emperor's army. This situation is consistent with the assertion in this study that the larger the state capacity of the challenger, the more that opportunistic third parties will cooperate with the challenger. The opportunist's confirmation of the superiority of the challenger is thought to have encouraged cooperation with the challenger.

8.5. Civil War between Myanmar and Syria

Large-scale civil wars that are continuing as of 2020 include the Syrian Civil War and the Mexican Drug War. In this study, the 8888 democratization movement of Myanmar in 1988 and the saffron revolution in 2007 are treated because

they are conflicts that originated in demonstrations. Conflicts that originate in demonstrations also can be explained by the analysis of this study, and as of June 2020, we believe that the democratization demonstrations in Hong Kong can be treated similarly.

8.5.1. Civil War in Myanmar: The 8888 Democratization Movement

The 8888 Democratization Movement is a national movement that took place in Burma (now Myanmar) in 1988. At that time, Burma was a military dictatorship with the Burmese Socialist Program Party (BSPP) headed by General *Ne Win*. In September 1987, the announcement of that high-value banknotes would no longer be circulated led to the dissatisfaction of the people who lost their property. On March 12, 1988, a quarrel between a student and the son of a powerful person at the Yangon Institute of Technology expanded into a collision between student demonstrators and security forces, in which one student was killed by the security forces. This led to anti-establishment and anti-dictatorship movements that demanded democratization, and the movements spread to the rural areas. The All-Burma Student Federation sought to break the one-party dictatorship and conducted a large-scale demonstration in the entire country in August. The military fired indiscriminately and suppressed the demonstration. On April 2, Aung San Suu Kyi, who was conducting research in Oxford while caring for her mother, gave a speech at a meeting and became a symbol of the democratization movement. Then, in September, General *Saw Maung* seized control of the democratic movement through military coups. He suppressed the democratization movement while promising to introduce a multi-party system and hold general elections. The National League for Democracy (NLD) was formed. It received an overwhelming 81% of the

vote in the general election in 1990, defeating the ruling party, which was supported by the military. So, the military administration refused to call the National Assembly, banned the activities of the NLD, and jailed many executives and members of parliament. In 1992, General *Than Shwe*, the head of the military regime, was appointed prime minister. Since then he has become head of state for life and Myanmar has been a dictatorship. In 2001, the NLD was allowed to resume its activities and the government began to release NLD political prisoners. However, the NLD refused to cooperate with the constitutional national conference held by the military government in 2004. In 2011, General *Than Shwe* transferred the status of head of state to Prime Minister *Thein Sein*, also a military officer.

8.5.2. *The Saffron Revolution*

The Saffron Revolution was a large-scale protest that took place in 2007. The primary cause of the protest was an increase in fuel prices, which had risen more than 9 times in two years, by another 500%. Protests by students and anti-government activists began on August 15, but since September they have been held by thousands of monks. There were almost 100,000 demonstrators in Yangon, but security forces attacked monasteries throughout the country and arrested about 500 monks. Following the death of Prime Minister *Saw Win*, *Thein Sein* became prime minister in October 2007. *Thein Sein* was democratized by a referendum to the new constitution in May 2008. Shortly after a general election in 2010, the house arrest of *Aung San Suu Kyi* was lifted, but *Thein Sein* took office as president, based on a congressional vote in March 2011.

8.5.3. *Movement to the democratic government by NLD in 2015*

In another general election in November 2015, *Aung San Suu Kyi* was elected president and the NLD won

overwhelmingly. However, due to provisions in the Constitution of the Union of Myanmar and because of the opposition of the armed forces, *Aung San Suu Kyi's* aide, *Hting Kyaw* was appointed and elected president by Congress in March 2016. *Aung San Suu Kyi* became a national adviser.

8.5.4. Price changes in Myanmar

Before 1988, prices were in the single-digit range, but since the military government was established, prices have risen sharply, and inflation has continued to rise by 20% to 30% each year. The Yangon Consumer Price Index, based on with 100 in 1986, jumped to 301.8 in 1992, 603.7 in 1995, and 1182.1 in 1997. Myanmar's currency, the kyat, has fallen sharply during that period, results that are closely linked to inflation. A more fundamental cause of inflation has been the loose fiscal and monetary policy of the military leaders. The deficit of government finances increased significantly from Kyat 198.6 million in 1987/1988 to Kyat 25,185.4 million in 1996/1997. Growth in military and capital spending, in particular, has increased (Mya Maung). Capital expenditures increased by 17.3 times between 1987/1988 and 1996/1997 due to the infrastructure development by the military government, which had switched from the traditional Burmese-style socialism to a market economy. Revenue remained 6.4 times higher during this period.

8.6. The Syrian conflict

Since 2011, the Syrian Civil War, which continues as of June 2020, began as one of the Arab springs, a wave of democratization that spread across Arab countries. Initially, this was a civil movement such as a demonstrative march. However, the free Syrian army was formed to carry out an armed uprising, but those rebels split internally. A civil war broke out between the Assad government armed forces, the

rebel army, and the Islamic nation, and despite the collapse of the Islamic nation, the civil war between the government armed forces and the rebel army has continued. A British surveillance group estimated that more than 370,000 people were killed since the civil war began in March 2019, about 13 million people were forced to evacuate and go into exile, and the total damage amounted to billions of dollars. (AFPBB News). The main conflict was between the Syrian army of the Assad regime and the militia of the opposition groups. However, but after the battle and because of confusion among the opposition groups, the movement became radical, including participation by militants such as ISIL. The Assad regime has been supported by Russia and Iran, which intervened in the civil war on the side of the Syrian army. As of 2017, internally displaced persons numbered more than 6.6 million, and more than 7 million refugees are in many countries, including Turkey, Uganda, Pakistan, and Greece. This is said to be the biggest humanitarian crisis of the 21st century. The burned suicide that took place as a protest against the Syrian government on January 26, 2011, began, and the protest movement spreads on March 15 in major cities all over Syria. On March 20, opposition to the 48-year-old law of emergency, release of political prisoners, trial of those who killed protesters. A demand for a demonstration took place in Daura, and on March 25, it became a protest by 100,000 or more people. Meanwhile, more than 20 people were killed. In April, the Emergency Situation Law was abolished, and a court called the National Supreme Security Court, which punishes political prisoners, was abolished. Demonstrations continued to expand, and in July the government tried to talk with the people, but many opposition parties were absent from negotiations with the government because the suppression of protests was stopped and political prisoners were not released. However, the Free Syrian Army is organized to fight security forces

that slaughter civilians. In September, the Syrian National Council was formed by dissidents demanding the retirement of President Assad. In November, President Assad announced his intention not to retire, after which the Free Syrian Army fired rockets at the ruling branch, and a statement by the Free Syrian Army was issued. In March 2012, while Homs, the largest base of dissidents, was conquered, in July, a fight between dissidents and the government group broke out in the capital, and the dissidents dominated eastern Aleppo.

8.6.1. Price changes in Syria

Syria suffered a civil war in 2011, and in the early part of the civil war it was part of the Arab spring aiming for democratization, but because armed groups were included in the organization to defeat the Assad regime, the civil war began in earnest. Also, participation in both camps of developed countries such as the United States and Russia, the participation of the IS in the civil war and the fighting of IS by the multinational army led by the United States and the collapse of IS, the intensification of the civil war between the Assad administration and the armed forces after that. And the situation of the civil war is changing to the rehabilitation of the Assad administration. Prices continued to rise in the Syrian economy before 2011, with prices rising 74% since 2000. Prices continued to triple each year as the Syrian currency, the Syrian pound (Lira), kept declining in value because of the Syrian civil war.

In Syria, prices more than doubled in the two years after the civil war broke out, but in 2014, prices dropped more than 150% in 2014 due to a sharp decline of 150% or more. The economy has been confused since the civil war, with sharp swings between inflation and deflation. The inflation rate rose by more than 50% in 2015 and then declined by nearly 50% in 2017. Thus, in Syria, large fluctuations in

prices have repeatedly occurred before and after the civil war. At the beginning of their civil wars, Myanmar and Syria both brought inflation with the aim of seeking democratization and affecting the outcome of the civil wars by avoiding the defeat of the challengers. However, in Syria, the internal divisions of the challengers helped to prolong the civil war. The Assad administration, which once dropped to 30% of the domestic power, but has revived to 70% as of 2020 and remains in control of Syria. In charge of the administration, the civil war has not ended. By contrast, the democratization movement in Myanmar has continued to show strength. Since 1988, the NDL has won many general elections, but those election results have not been reflected by changes in leadership, and the military administration continues. finally, the election results are reflected in 2015. Was done. Civil wars occur in many countries, but democratic states do not always last. Coups in many countries lead to governance by military personnel because of economic inactivity and military power. However, the inflation rate in many countries is like that in Myanmar. It rises because of increases in military spending and the cost of inflation rate.

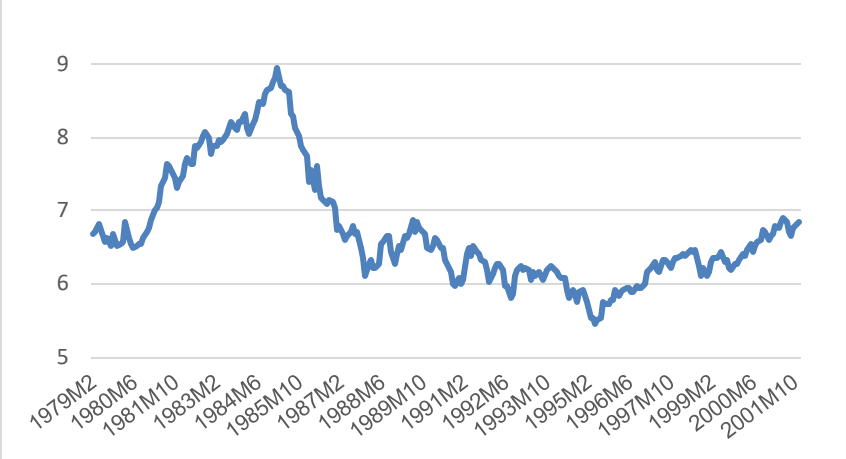


Figure 13. Exchange rate(chat - dollars) in Myanmar

*Created by the author from International Financial Statistics (IFS).

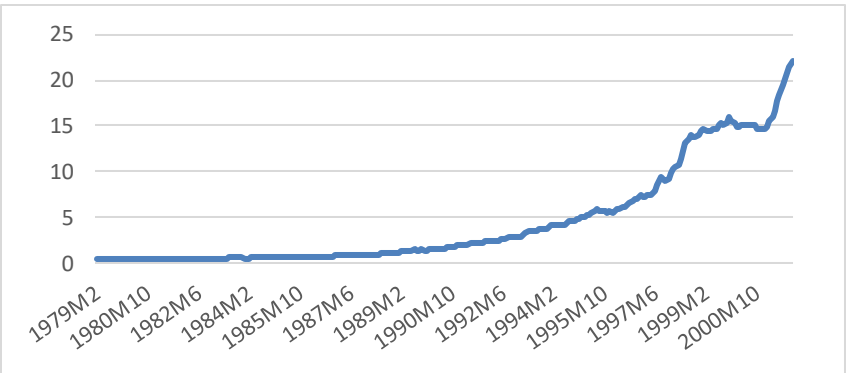


Figure 14. CPI in Myanmar

*1987M3=1 *Created by the author from IFS

Ch.2. Why return to an electoral authoritarian state?

Table 4. *Finances for state-owned enterprises in Myanmar*

	(million chat)			
	1994-95	1995-96	1996-97	1997-98
Revenue	319.1	393	545.8	715
Tax Revenue	201	226.4	313.6	388.5
State-owned enterprise payment	81.9	105.1	116.4	254.5
Others	36.1	61.5	65.8	72.1
Ordinary Expenditure	277.3	328.9	370.1	479.7
Foreign Borrowing	5.8	7.8	4.2	7.7
Financial Account	-3.4	-5.2	-2.6	3.7
Investment	201.4	318.2	429.2	447.6
Fiscal Balance	157.3	-251.6	-251.9	-208.3

*amyo:da: simankein hnin si:pwa:ye: phunphyo:tothem u unji:thana, 1997-98 bandaye: si:pwa:ye:thum uye: acheonmya ((Ministry of National Planning and Economic Development"1997-98 financial, economic, social report")

	(million chat)			
	1994-95	1995-96	1996-97	1997-98
Income	725.1	872.2	1086.1	2131.5
Ordinary Income	722	871.9	1085.6	2131
Others	1.2	0.4	0.5	1
Ordinary Expenditure	805.8	916.2	1199.4	2374.4
Foreign Borrowing	6.5	6.4	3.5	13.1
Financial Account	-4.8	-7	-12.3	-10.9
Investment	56.4	92.1	143.5	204.5
Fiscal Balance	-139.3	-116.7	-270	-444.7

*amyo:da: simankein hnin si:pwa:ye: phunphyo:tothem u unji:thana, 1997-98 bandaye: si:pwa:ye:thum uye: acheonmya ((Ministry of National Planning and Economic Development"1997-98 financial, economic, social report")

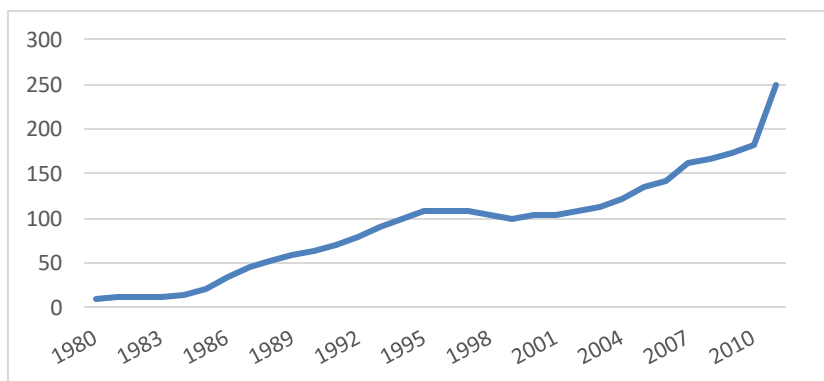


Figure 15. *Myanmar exchange rate*

※2000year=100 *Created by the author from IFS



Figure16. Annual Inflation rates in Syria
※Central Bureau of Statistics [[Retrieved from](#)].

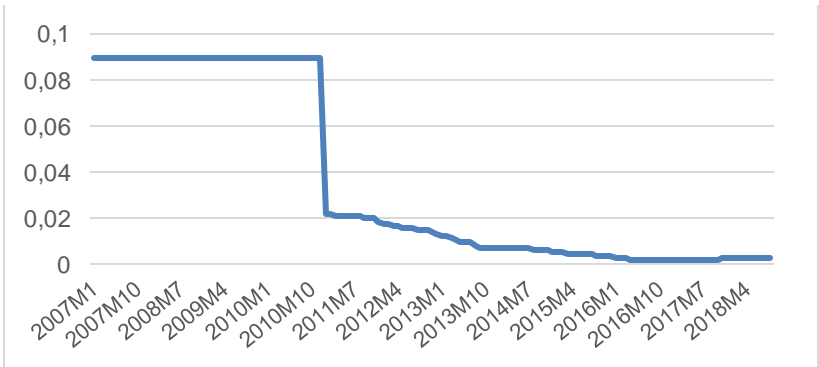


Figure 17. Exchange rates in Syria (US dollar per Domestic Currency)
*Created by the author from IFS.

8.7. Summary Case Study

In Japan, the challenger Choshu was defeated in the first conquest of Choshu, but after the second conquest of Choshu, the Choshu clan would win. Since then, many opportunists have sided with the Satsuma-Choshu clan to defeat the Shogunate.

In China's National Communist Civil War, hyperinflation caused by the ROC's failed monetary policy led to the expansion of the poor and a decline in the value of public and private property, which lowered the ROC's ability to

take charge of the government. The lack of ability to govern expanded the support base of the challenger, the CCP, because of the proximity of the local population, mainly the poor peasants, to the ideology of the Communist Party rather than to the ROC.¹⁹⁴ In 1948, the ROC, which was three times more powerful than the Communist Party in 196, reversed its power ratio. The impetus for this was the Communist Party's victory in the early civil war. It was important for the Communists to distribute land during the civil war.

8.8. Federalism, centralization and democratic institutions

One way to sustain peace was through a high degree of federalism. However, when the momentum to overthrow a regime arose in preparation for foreign aggression, civil war could not be avoided even if the government advocated a shift to a federal system, which is a weaker method of resource mobilization than a centralized system. When the perception of an enemy with more powerful military forces abroad than at home and the difficulty of victory over a foreign enemy justifies a centralized system over a federal system, the challenger has introduced a centralized system through civil war.

In this study's model, a centralized system is likely to be chosen when a challenger creates a government alone after two civil wars, or when a militant challenger who does not have the support of the population but has strong military power creates a government alone. On the other hand, we believe that a federal system is more likely to be introduced if a larger proportion of opportunists cooperate with the challenger in the early stages of the civil war.

Although our model can explain whether a government becomes a coalition or a single government after a civil war,

it cannot indicate whether a centralized system or a federal system will be introduced. For this reason, we considered case studies from several countries.

In strong governments such as Myanmar and Syria, a substantive democratic system that allows for regime change is desired, and as a result, a federal system is chosen.

In the cases of China and Japan, the collapse of the traditional system was seen as essential because the rise in military and economic power due to the concentration of domestic resources was considered essential. Japan's transition to a centralized system of government during the Meiji period enabled a change in the taxation system from one based on land to one based on money. With the central government taking the lead mainly in industrial development and education, the government strengthened the military by selecting the necessary sectors and investing capital in them in a concentrated manner. After World War II, Japan took two similar paths in that the government selected the necessary sectors and strengthened the economic side of the economy.

This study accepts that civil wars can occur due to the magnitude of the obstacles, such as when transitioning from federalism to centralization. When major changes are needed in the political economy and the traditional institutions are unable to implement the changes, i.e., when there is a threat of colonization or domination, or when the rights to life and property as an ethnic or resident population are threatened, major criticism of the local population and third parties arises against the government. In order to achieve peace, a country must have (1) a system in which the ruling party can actually be replaced and (2) a backup bureaucracy that is strong enough to destroy the current system and regenerate it under a different system, without violence. We believe that this is the case. (3) Furthermore, we believe that it is especially important to educate the military personnel for

civilian governance of the nation's military power. The above three are necessary to balance the trade-off between a strong government that implements powerful resource mobilization and democratization.

Japan and China both adopted centralized government after civil wars. In Japan, the government was a coalition of Satsuma and Chosun, while in China the government was a one-party dictatorship.

After the Xinhai Revolution, a federal system was also oriented for a time, but it became a centralized system, and it remained a centralized system after the National Communist Civil War. Japan and China became centralized systems as strong governments were oriented due to the magnitude of external pressure. However, Japan introduced a democratic system and experienced a change of government through elections, while China does not allow a change of government. It may be more appropriate to consider Japan's democratic system as an exception because its purpose was to revise the unequal treaties it had at the time with the West, and because the government introduced a parliamentary cabinet system and the military had a strong influence on government decision making, rather than the people winning the introduction of a democratic system.

Myanmar has a bicameral legislature and a multi-party system. There is also a large number of forces other than the ruling party. However, 25% of the seats in both houses of parliament are allocated to the military, regardless of the election results. A certain percentage is also allocated to ethnic minorities. There are also three vice presidents, at least one for each ethnic minority and one for the military. In other words, there is a pre-determined quota for Congress. Currently, there is no alternative party to the NDL. It has a multi-party system and the executive branch can be considered a coalition government. The democratic system is introduced because democratic parties have continued to

win elections. It is a federal system that allows for autonomy for ethnic minorities.

Syria remains under the Assad regime and is a single-party government.

It may be said that countries with centralized regimes do not actively introduce democratic systems. In addition, states with coalition governments have either adopted a federal system in which authority is decentralized to the regions, as in Myanmar, or a democratic system in which power rotates, as in Japan during the Meiji period. From the examples of Japan and China, it can be said that a single government tends to choose a centralized system. The Myanmar example shows that if the proportion of opportunist support is large compared to the size of the challenger's support base, it will tend to move toward a federal system.

8.9. Extremist

The Choshu clan in Japan was a radical faction and did not have the support of many clans, but it had a coalition government because of the cooperation between Satsuma and Choshu and their military strength. Ten years after the first civil war, Satsuma launched a civil war against the government, but the government won.

After the Xinhai Revolution, Sun Yat-sen wanted to establish a republic or federal system in China, but Yuan Shikai established a government and called himself emperor, which caused confusion. Also, after Yuan's death, China became a one-party dictatorship government by the Chinese Nationalist Party as it overthrew warlords in various regions. Sun Yat-sen and the Chinese Kuomintang he created could be considered extremists because they had been involved in civil wars in various parts of China before the Xinhai Revolution.

After the Xinhai Revolution, China became the People's Republic of China, a one-party dictatorship with a

centralized government that did not adopt a democratic system. The Communist Party and Mao Zedong in the early days were extremists because they were engaged in a prolonged struggle for power with the Kuomintang through military force. However, the CCP won the civil war by gaining the support of the population and increasing the number of military personnel. However, the CCP won the civil war by gaining the support of the population and increasing the number of soldiers. The two Chinese case studies above show that either there were no opportunists with significant power, or there were opportunists, but they were all destroyed.

Aung San Suu Kyi in Myanmar cannot be called an extremist because she did not act on the back of military force. The political party to which Aung San Suu Kyi belongs has significant support from the population and opportunists.

Syria can be called extremist because there are many armed forces, including the Free Syrian Army, and they are expanding their power on the back of military force. They have little support from the population, and their inability to coordinate with other armed groups confirms their inability to coordinate with opportunists and challengers.

The above multiple cases confirm the following. If the challenger is an extremist, he or she has strong military power, little support from the population, or small support from opportunists, and high political instability even after forming a government.

Discussion

In this study, we analyzed civil wars in order to examine the juncture of institutional change.

By endogenizing political, economic, and military factors in the model, we have clarified the mechanisms by which civil wars occur. The robustness of the model is evident from

simulation analysis and real-life cases. We showed that the weaker the initial challenger to the government, the greater the contribution of cooperation from the population and a third force to the challenger in the process of civil war, and thus the challenger cannot create a new autocratic government with a single group after winning the civil war.

The challenger also has the advantage of prolonging the civil war. For the challenger, the probability of winning the civil war increases with the proximity of the challenger's political ideology to the population, and the probability of the challenger winning the civil war is also higher when the government loses the maintenance of the population's property and public goods and the stability of the price level.

The weaker the challenger is in the early stages of the civil war, the more likely it is to be a coalition government in the post-civil war period, and the more likely peace will be sustained. However, if the challenger is an extremist group, the extremist group will not cooperate with other groups, so peace will not be sustained after the civil war victory and a new civil war is likely to occur with other groups that should cooperate under a coalition government.

We have shown that the challenger is motivated to repeat the civil war by the government's inability to take charge of the government. In addition to showing the complementarity of institutions, we showed that even if the challenger is defeated as a result of the civil war, if the government is not powerful enough to destroy the challenger, there is an advantage for the challenger to repeat the civil war, resulting in the expansion of the challenger's power and the dispersion of power, which in turn destabilizes the political situation.

9.1. Factors contributing to civil war and political instability

Political instability in this study refers primarily to the transition to a popularly supported polity through civil war, whereby the people support challengers to the government. These situations have been common in developed countries since the French Revolution, and in many developing countries for about 70 years since World War II, and are still a widespread phenomenon in many parts of the world.

In this study, three cases of political instability factors are assumed.

The first is the case in which the ruling power (or the power or government in power) borrows from foreign countries and buys weapons in order to militarily overthrow its challengers. When Japan's Meiji government and the People's Republic of China were formed, the former governments of the Republic of China and the Edo Shogunate provided foreign loans, resulting in hyperinflation several years before the change of government.

In addition to the above two countries, many other countries have experienced hyperinflation as a result of large foreign loans to purchase weapons. Hyperinflation lowers the value of money, and the economy and people become confused as they lose confidence in money. The loss of confidence in money reduces the value of public goods, destroying the provision of public services and the guarantee of property rights, both of which are considered important missions of government. It diminishes the utility that citizens can gain through the diminution in the value of private property of all citizens. The utility gained by supporting the government is reduced, and the expected utility is increased when the opposing party becomes the ruling party relative to the government.

Second, the challenger's military technology modernizes and becomes more powerful. In the post-WWII civil war between the People's Republic of China (PRC) and the Republic of China (ROC), weapons provided by the United States and other countries to fight Japan during World War II, as well as weapons from the Soviet Union, were also provided to the challenger, the Chinese Communist Party. The Choshu and Satsuma clans, which established the Meiji government, imported weapons from Britain. Both countries were able to secure more modernized weapons than the ruling party.

Third, they expanded their support base. In this study, local residents can change their support from the government forces in charge of the administration to the challengers, the rival forces. We also assumed the existence of opportunists outside the areas controlled by the forces in charge of the regime, thereby making the situation closer to that of an actual civil war. The support of a third force expands the challenger's base of support. The change in the support base is endogenously determined by introducing ideological differences between the government and challenger forces. The population is divided into urban and rural residents, with the urban residents' ideology being capitalist and the rural residents' ideology being egalitarian. It is assumed that regions (either urban or rural) with ideologies closer to those of each power will have a more shifting base of support.

The decrease in the value of public and private goods of the population due to the hyperinflation described above will lower the utility of both urban and rural residents. Also, by assuming that the longer a civil war lasts, the greater the opportunity for shifting the support base, we assume that even a victory by the opposing forces in the first half of the civil war will result in more of the support base shifting to the opposing forces.

In the case of the establishment of the People's Republic of China (PRC), the hyperinflation triggered by the Republic of China (ROC) since World War II has triggered an increase in support for the Chinese Communist Party (CCP). In addition, the CCP's victories in several civil wars led to an increase in the number of regions expressing support for the CCP as the victor in the early stages of the civil wars.

Similar to the above, at the time of the establishment of the Meiji government, the Edo shogunate brought about hyperinflation, and the victory of Choshu in the second conquest of Choshu and the victory of the combined forces of Satsuma and Choshu in the Boshin War led to subsequent expressions of support for Satsuma and Choshu.

In China, the prolonged civil war brought impoverishment to rural workers in the countryside, which led to demands to correct the disparity with urban areas and opposition to urban residents, and concentrated rural support on the Chinese Communist Party, which upheld egalitarianism and land distribution to the peasantry. In Japan, the shift to a centralized system of government as a modern state centered on the emperor, rather than a decentralized system centered on the shogun to avoid foreign domination, was called for.

The dispersion of power is caused by the existence of rival forces backed by military power, the second of the above, and in addition to this, hyperinflation, which makes the people aware of their lack of ability to take charge of government, can be historically confirmed as a situation where the popularity and presence of the challenger increases, leading to an expansion of its support base. If the challenger wins the civil war, or if the civil war is prolonged, the support base expands further. The opportunistic third force assumes a short-term defeat of the challenger, but only a prolonged civil war will cause potential opponents to the government to support the challengers, or the challenger will

become a symbolic presence of potential opponents, encouraging the denunciation of the challengers and increasing the probability of victory in the civil war.

The situation described above was a time when colonial rule prior to World War II was widely recognized and armed rule was justified. In Myanmar and Syria, where student demonstrations triggered the country's plunge into civil war, the rapid price fluctuations before or during the civil war were confirmed, and the political and economic turmoil probably contributed to a decline in the ability of the regime to take charge.

In Syria, despite starting from a student movement, the civil war has been protracted due to the emergence of armed groups as challengers and the lack of coordination among the challengers. During this period, the emergence of IS and the intervention of multinational forces, as well as the collapse of IS, resulted in a significant loss of livelihood for the population. The lack of coordination among challengers to effectively shift the support base to the challengers was, in our view, not envisioned by the challengers as a strategy in the early stages of the civil war.

In Myanmar, on the other hand, general elections were held through student demonstrations, but the military who seized power through a military coup ignored the results of the general elections. Aung San Suu Kyi of the NDL, who won the general election, failed to achieve a transition of power and democratization as a challenger, but the military who launched the military coup d'état took up the challenge of a coup and seized power. Both the military, which possesses military power, and the NDL, which does not, have a base of support in the form of the military and the people. Our model is consistent with both the Syrian and Myanmar civil wars in that military forces are influential in regime change and the maintenance of power, regardless of the presence or absence of armed conflict. In addition, when

the defeat of a civil war can avoid a decisive reduction in the challenger's power, as was the case with Aung San Suu Kyi and the student demonstrators in Syria, or when the loss of life of the challenger cannot be implemented due to world conditions and other factors, the civil war will be repeated and the probability of victory by the challenger will increase.

This study assumes that the two factors that bring about institutional change are the economic factor of the value of money and the political factor of ideology. As groups, we introduced not only the government and the challengers but also the forces that determine who supports the challengers and the utility of the citizens, both urban and rural residents. These situations are elements considered historically necessary to explain real regime change. Their inclusion clarified the political economy and the relationship between individual citizens and the forces that support the opposing forces.

9.2. Extremist

The relationship with extremists can also be confirmed by applying the model.

Civil wars occur mostly when a particular group decides that the policies sought by the challenger will not be implemented as long as the current regime remains in power, and when they believe that the current regime will continue for a very long time.

Myanmar was a nonviolent democracy movement that started as a student movement, but as a result, it was the military that used the power of the student movement to come to power. However, the democratization movement did not lead to a civil war, and discussions between the government and the political parties that were engaged in the democratization movement continued based on nonviolent principles.

Although the Syrian democratization movement (demonstration movement) started as a student movement, the rebel forces, receiving various kinds of support from neighboring countries, rose in arms and formed the Free Syrian Army, which is believed to be the reason why the civil war arose. The Free Syrian Army subsequently split. The participation of Hezbollah, a Shiite militant group, on the government side with support from Russia and Iran, and the entry of the Islamic State (ISIS), a Sunni militant group based in Iraq, has prolonged the civil war due to the participation of militant groups from both sides and the split in the rebel side. Unlike Myanmar, Syria's civil war began with a student movement that led to a democratic movement that was eventually led by the Free Syrian Army, an armed force. Armed challengers also invaded from outside the country, and the civil war became a quagmire. Myanmar, realizing that the military in power lacked popular support, gradually introduced democratic policies, but the Syrian regime of Bashar al-Assad still opposed the democratic movement, even with the help of foreign military forces. The military size of the challenger militants and the ideological centripetal force of the challenger can both be considered elements of the challenger's success.

Furthermore, extremists may participate in civil wars to influence the post-civil war regime, which differs from the objectives of the initial democratization movement, making it important to build relationships between extremists and other forces.

In the model of this study, this can be considered by assuming that the challenger is a case of extremists.

The weaker the challenger is in the early stages of the civil war, the more likely it is to become a coalition government after the civil war, and the more likely peace will be sustained. However, when the challenger is an extremist group, the result is that the extremist group does not

cooperate with other groups, so peace does not persist after the civil war is won and a new civil war is more likely to occur with other groups that should cooperate under a coalition government.

Extremists often do not accept ideological compromise and are often not willing to resolve issues through debate. If these extremist groups participate in the civil war and play a major role but are not a decisive enough force to win the civil war, the civil war will be protracted and the regime will become tyrannical and the politics insecure because the organization does not have a democratic culture, even if it comes to power. If the main group of challengers is extremist, it will be difficult for the coalition to sustain itself after the civil war is won. The civil war tends to become a quagmire as new civil wars arise between groups in the coalition and the civil war becomes protracted. On the other hand, as long as a coalition government is maintained, dictatorial behavior by certain groups is discouraged, and democratic institutions tend to be introduced.

Just as the state and the military are governed by civilian officials, it is necessary to create an environment in which extremists can be controlled by moderates. This is not limited to the military or other forces. It is important to have a high level of bureaucracy and thorough democratic education so that extremists do not gain electoral support and can overcome national challenges moderately. In other words, it is necessary to work for coordination between extremists and moderates and public understanding of a middle-of-the-road policy.

Ch.2. Why return to an electoral authoritarian state?

The change of objective for the conflict
(Before and after WWII, and correspondent with militant)

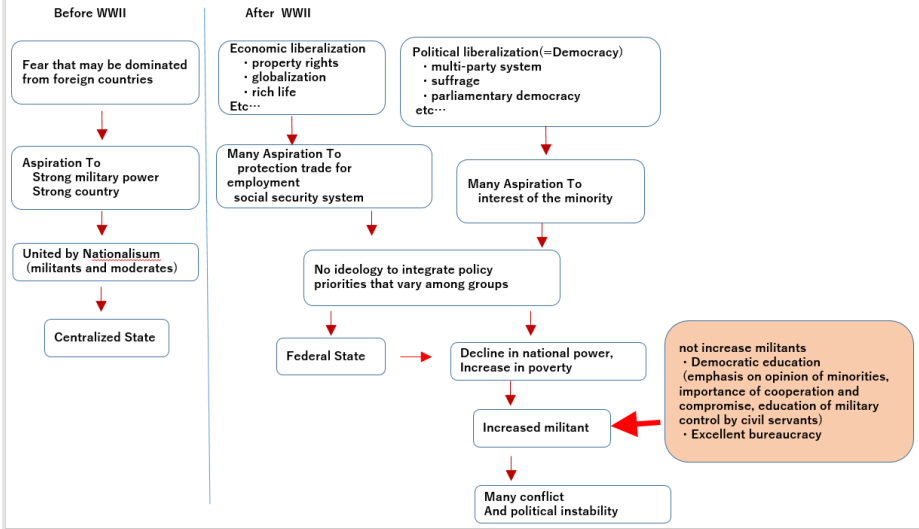


Figure 18. The change of objective for the conflict

In the past, as represented by China and Japan, nationalism was able to unite nations before World War II, but today it is difficult to unite various forces through nationalism. Before World War II, when nationalism functioned effectively, extremists and moderates were able to unite. Today, the policies of globalization have created both domestic gainers and losers, and conflicts exist. For example, when economic and political liberalization takes away jobs, the line of international cooperation and the principle of prioritizing one's own country is in conflict. The former is opposed as a moderate and the latter as an extremist. When moderate policies cause economic hardship for many people, the extremists gain the upper hand in elections and want to establish an economic system that does not depend on foreign demand or foreign workers through coercive policies. People demand that the government and domestic businesses hire domestic workers.

When a is an extremist case and the ideology is far from that of B, who is an opportunist (including after civil war and with the prospect of no long-term coalition government), it is more likely that a and b will not work together and will choose to remain neutral. Even if they align with extremists, they are more likely to align with extremists if there is a high likelihood of a post-civil war civil war with extremists and a high likelihood of winning the fight against the extremists.

9.3. Institutional Choice through Civil War

States are subject to either external or internal pressures, and institutions are often changed.

When a nation is under strong military pressure from abroad, the creation of a government by a force with high military power that has won a civil war is justified. There is a need to strongly mobilize domestic resources to develop a domestic environment that is resistant to external pressures. In such cases, some states tend to choose a centralized system that can concentrate domestic resources at the center, rather than a federal system that delegates authority to the regions. Many are small countries.

Where economic pressures from abroad exist, e.g., loss of domestic industry and domestic employment due to globalization, it may be a large as well as a small country. Nations can choose between globalization and protectionism. Centralization is often chosen because protectionism requires a strong centralized authority to protect the country's industries. However, in the case of large countries that can change their systems democratically, even if they do not choose a centralized system, the central government has the financial resources to revitalize the regions at the same time by delegating authority to the regions. Therefore, a federal system may be selected if the country is large and democratic.

Presidential and parliamentary cabinet systems are also considered in the same way as above. In the case of small countries, a presidential system, which gives stronger authority to the top, tends to be chosen in environments where domestic resources need to be mobilized. Therefore, both presidential and centralized systems tend to be introduced. In a parliamentary cabinet system, the government is often not strong enough because the boundaries between executive and parliamentary authority are blurred and because parliamentary authority is strong. After poverty is reduced and people's lives are stabilized, people generally seek freedom and autonomy. Because the parliamentary system is better suited than the presidential system to reflect freedom and autonomy, and because it is more common in large countries, the parliamentary system tends to be introduced along with the federal system.

As for the choice between capitalism and socialism, socialism is more likely to be realized with the support of the poor population when there is great economic inequality and a fairly large population of poor people. Capitalism, on the other hand, is chosen when it is supported by the wealthy who fund civil wars or by those who seek the opportunities and economic benefits associated with institutional change.

Most civil wars occur in small countries. Therefore, after civil wars, many small countries adopt centralization, presidential systems, and a certain level of protectionism. In the case of non-small countries, federalism is chosen if the center can afford to distribute domestic resources to the regions. In the case of non-small countries, the government tends to choose a parliamentary cabinet system if the people of that country are afraid of concentrating power in the hands of individuals because of past history, or if they want to emphasize freedom and autonomy for minority opinions.

As for globalization, if the disadvantages, such as reduced employment due to the decline of some domestic industries, are greater than the advantages of increasing the demand of domestic consumers through the inflow of inexpensive goods, the government of the country, most of which are small, will tend to choose protectionism. Even in large countries, if the number of domestic industrial workers in decline is greater than a certain value, the government will choose protectionism.

This study found that governments established through civil wars tend to form centralized institutions. A coalition government, as in Japan during the Meiji period, may also introduce centralized institutions. The cases of China, Myanmar, Japan in the Meiji period, and Syria were treated as examples of governments established through civil wars that introduced a centralized system, similar to a presidential system in the sense that strong authority is concentrated in the hands of the leader. There are exceptions depending on the objectives of the challenger, as in the case of Myanmar, which introduced a federal system when it advocated democratization and emphasis on minority opinion in the process of regime transition. When extremists are in power, domestic forces and the population do not sufficiently support the extremists, and institutions with a particularly strong centralized element are introduced to stabilize the political system.

Institutional Complementarity and Equilibrium

By modeling a partial game equilibrium, we analyzed how the following four changes would move the equilibrium.

(1) Prolonged civil war (2) Expansion of foreign loans by the regime (3) A third force with ideological proximity to the rival force (4) Strengthening of military technology by the rival force.

Analytical analysis confirms that all of the above will expand Sp and increase the likelihood of entering civil war.

We examined the relationship between an increase in the probability of civil war victory due to an increase in military technology through foreign loans by government forces and a decrease in the probability of civil war victory due to a shift of the support base to the challenger due to a decrease in the value of a private property and public services of the people through increased foreign loans.

The impact on post-civil war institutions not only through civil war victories and defeats but also through the balance of power among affiliated groups after the civil war. It was observed that after the initial civil war, power differentials and ideological differences can lead to a weakening of the new government's support base.

On the other hand, an increase in the military technology of the opposing group increases the probability of victory in the civil war for the opposing group.

In addition, if the ideology of the opposing force is the ideology desired by the rural and urban residents, the challenger's support base will expand more significantly through the civil war, and even if the opposing force is weaker than the ruling group in the early stages of the civil war, as long as the civil war is prolonged, the opposing force will expand its support base, and in the long run, it will likely win the civil war. The report also noted that the number of people in power is high and that regime change can be achieved.

Although the political systems and economic systems and cultural backgrounds of the countries addressed in the case studies complement the institutions, detailed identification of individual institutions and the relationships among them is beyond the model of this study.

As an occasion for the loss of the political context of regime competence, this study considers the economic

dimension of price instability and the financial condition of the state that brings about this instability. When the majority of the people's political ideology is expected to correspond to the ideology espoused by the challenger during the challenger's civil war, the challenger is more likely to be determined to challenge the civil war. Furthermore, the idea that repeated civil wars will lead to successful civil wars is apt to influence subsequent civil war victories of the challenger, as one success of the challenger on the military front is viewed by opportunists as the challenger's ability to take charge of the government. Also, if the challenger and ideology are close, local residents and opportunists are more likely to align with the challenger.

While Aoki (2017) showed the importance of the existence of institutional complementarities besides the description of the game, this study is also unique in that it shows institutional complementarities by endogenizing important elements in the political, economic, cultural, military, and other aspects of the game in the model. Through politics, economics, culture, and military, the multiple equilibria may change to one or status quo changes. The decline in the capacity of the government to take charge also lowers the cost of civil war as a challenger, and also creates a predisposition for decentralization. After the civil war, despite the gradual increase in state capacity and allies, there is a difference between cases where the civil war itself is lost due to military defeat in the early stages of the civil war and cases where the civil war is ultimately won, which is due to the expansion of the local population and the third force's support base for a long-term civil war. The model confirms that it depends on the presence or absence of the ability to carry out the war, the increased likelihood of winning the civil war due to the relative weakening of the governing party R's ability to take charge of the government, and the size of j , the sanction in the event of civil war defeat. China

and Japan, the two countries given in this study, can be examined in terms of the relationship between the economic gains from continued peace and the expected economic gains that would increase the quality and productivity of future public goods through civil war.

The state must 1) foster healthy extremism that society can tolerate and defend the various rights of its citizens; 2) the state must be able to combine a centralized system with strong state resource mobilization to become a prosperous country and a diverse 2) The government must choose the appropriate system between a decentralized system composed of a decentralized society. 3) It is necessary to develop, through education, a flexible system and bureaucrats and citizens who will operate the system so that civil war will not occur every time a change in policy priorities is demanded by the people. 4) The local Internalize the expansion of power as an institution of federalism and decentralization. Alternatively, local power needs to be internalized as an institution so that it can be treated as a powerful party in the central government and a democratic transition of power between that party and the ruling party can take place. In our view, the realization of the above four will strengthen the complementarity of institutions.

Appendix

Appendix 1

Proof of Lemma 1

If $S_{(t)} = (s1, 100]$,

S1 is the condition for being peaceful when working with A, which is $(2-4) \geq (2-5)$. On the other hand, S1 chooses to work with A if $(2-4) \geq (2-1)$, since the condition for peace in working with R is $(2-1) \geq (2-2)$.

As long as $(2-4) \geq (2-6)$ and $(2-5) \geq (2-6)$ are obvious, as long as $(2-4) \geq (2-6)$ and $(2-5) \geq (2-6)$ are assumed to be zero or positive gains only, then peace is realized by linking with A if $(2-4) \geq (2-5)$.

As long as we assume only zero or positive gain, $(2-1) \geq (2-3)$ and $(2-2) \geq (2-3)$ are obvious, so if $(2-1) \geq (2-2)$, then peace is realized in conjunction with R.

In the case where $S_{(t)}$ exists between $(s2, s1]$, the following inequality holds.

$$V_B^{AB}(p) < V_B^{RB}(c) = V_B^{AB}(c) < V_B^{RB}(p)$$

• Team with A to defeat R and peace < team with R and then civil war with R < team with R to defeat A and peace

$$\begin{aligned} & \delta \beta [S_{B(t)} + k(\alpha_{u(t)} S_{u(t)} + \alpha_{r(t)} S_{r(t)}) + \lambda(S_{(t)} - S_{B(t)})] \\ & < \delta^2 \beta \{S_{B(t+1)} + (\alpha_u S_{u(t+1)} + \alpha_r S_{r(t+1)}) + \lambda(S_{(t+1)} - S_{B(t+1)})\} \\ & < (1-i) \delta \beta [S_{B(t)} + k(\alpha_{u(t)} S_{u(t)} + \alpha_{r(t)} S_{r(t)}) + \lambda(S_{(t)} - S_{B(t)})] \end{aligned}$$

When you look at whether you get an A or an R, you see

$$\begin{aligned} & \delta^2 \beta \{S_{B(t+1)} + (\alpha_u S_{u(t+1)} + \alpha_r S_{r(t+1)}) + \lambda(S_{(t+1)} - S_{B(t+1)})\} \\ & < V_B^R < (1-i) \delta \beta [S_{B(t)} + k(\alpha_{u(t)} S_{u(t)} + \alpha_{r(t)} S_{r(t)}) + \lambda(S_{(t)} - S_{B(t)})] \end{aligned}$$

If $1 - \delta < i^*$, then it will be on R

If $s2$ is between $(0, 1)$, then the left inequality holds when $S_{(t)} = s2$. Thus, if $(2-5) \geq (2-2)$, then B pairs with A

Proof of Lemma2

If $S_{(t)} \leq s1$, then Civil war ensues.

If $(2-7) \geq (2-5)$, then $s3 = \min\{s3^*, s1\}$

If $(2-7) \leq (2-5)$, then $s3 = 0$

S3 is a weakly decreasing function of iB

(a) if $S_{(t)} = (s3, s1]$, B choose neutrality.

(b) If $S_{(t)} \leq s3$, choose the partnership with A

Appendix 2

A2. Equilibrium Analysis

Considering the second period, after winning the civil war in the first period, the following is the case when working with R

The case of cooperation with R: a) if $(2-1) > (2-2)$ and $(2-1) > (2-3)$, then peace with R after cooperation with R. b) if only one of a) is true, then after cooperation with R, in the second period, the player fights a civil war with R. c) if $(2-1) > (2-3)$, then peace with R after cooperation with R.

Considering the second term, the case of cooperation with A is as follows.

In the case of cooperation with A: a) If $(2-4) > (2-5)$ and $(2-4) > (2-6)$, then peace with A after cooperation with A. b) If only one of a) is true, then civil war with A in the second period after cooperation with A.

For B, there are three possible strategies: cooperation with A, neutrality, and cooperation with R. The following six types of sequential relationships among the three strategies are possible.

- (1) Cooperation with A > Neutral > Cooperation with R
If $t=2$ and $S_a > S_b$ and $S_R > S_b$, then $(2-4) > (2-7) > (2-1)$
If $S_a < S_b$ and $S_R > S_b$, then $(2-5) > (2-7) > (2-1)$
- (2) Cooperation with A > Cooperation with R > Neutral
If $t=2$ and $S_a > S_b$ and $S_R > S_b$, then $(2-4) > (2-1) > (2-7)$
If $S_a < S_b$ and $S_R > S_b$, $(2-5) > (2-1) > (2-7)$
- (3) Neutrality > Cooperation with A > Cooperation with R
If $t=2$ and $S_a > S_b$ and $S_R > S_b$, then $(2-7) > (2-4) > (2-1)$
If $S_a < S_b$ and $S_R > S_b$, then $(2-7) > (2-5) > (2-1)$
- (4) Neutrality > Cooperation with R > Cooperation with A
If $t=2$ and $S_a > S_b$ and $S_R > S_b$, then $(2-7) > (2-1) > (2-4)$
If $S_a < S_b$ and $S_R > S_b$, then $(2-7) > (2-1) > (2-5)$
- (5) Cooperation with R > Cooperation with A > Neutral
If $t=2$ and $S_a > S_b$ and $S_R > S_b$, then $(2-1) > (2-4) > (2-7)$
If $S_a < S_b$ and $S_R > S_b$, then $(2-1) > (2-5) > (2-7)$
- (6) Cooperate with R > Neutral > Cooperate with A
If $t=2$ and $S_a > S_b$ and $S_R > S_b$, then $(2-1) > (2-7) > (2-4)$
If $S_a < S_b$ and $S_R > S_b$, then $(2-1) > (2-7) > (2-5)$

A2.1 Conditions for peace in conjunction with A S_1

(peace in conjunction with A vs. civil war with A after conjunction with A)

S_1 is derived using $(2-4) > (2-6)$.

$$S_{B(t+1)} > (2-j) \delta^2 \beta [k(\alpha_u S_{u(t+1)} + \alpha_r S_{r(t+1)})]$$

Ch.2. Why return to an electoral authoritarian state?

$$+\lambda(S_{(t+1)} - S_{A(t+1)} - S_{r(t+1)} - S_{u(t+1)})/\delta\beta[(2-i)\delta(2-j)(1-\lambda)]$$

S_1 is located on the right side of the diagram more than S_2 and S_3 , which raises B's gain more than neutrality and cooperation with R. After the regime change from R to A, supporting A's regime maintains B's gain and peace is built.

$$S_{1(t+1)} = S_{B(t+1)} >$$

Molecule

$$\frac{\theta_{bb}}{\theta_{aa} + \theta_{bb}} (1-j)\delta^2\beta\{k(\alpha_u S_{u(t+1)} + \alpha_r S_{r(t+1)}) + \lambda(S_{(t+1)} - S_{A(t+1)} - S_{r(t+1)} - S_{u(t+1)}))\} \\ + (1 - \frac{\theta_{bb}}{\theta_{aa} + \theta_{bb}}) (1-j)\delta^2\beta\{k(\alpha_u S_{u(t+1)} + \alpha_r S_{r(t+1)}) + \lambda(S_{(t+1)} - S_{A(t+1)} - S_{r(t+1)} - S_{u(t+1)}))\}$$

Denominator

$$[\delta\beta + (1-i)\delta\beta - \frac{\theta_{bb}}{\theta_{aa} + \theta_{bb}}(1-j)\delta^2\beta(1-\lambda) - (1 - \frac{\theta_{bb}}{\theta_{aa} + \theta_{bb}})(1-j)\delta^2\beta(1-\lambda)] S_{B(t)}(1-\lambda)$$

$$+ k(\alpha_u S_{u(t)} + \alpha_r S_{r(t)}) + \lambda(S_{(t)} - S_{A(t)} - S_{r(t)} - S_{u(t)})$$

$S_{1(t+1)} > 0$ is the case where the denominator is positive: $1 + (1-i) > (1-j)\delta(1-\lambda)$, but $S_{1(t+1)} > 0$ is guaranteed because j , δ , and λ are less than 1, so the left side is less than 1.

$$S_{B(t+1)} = S_{B(t)} + k(\alpha_u S_{u(t)} + \alpha_r S_{r(t)}) + \lambda(S_{(t)} - S_{B(t)} - S_{A(t)} - S_{r(t)} - S_{u(t)}) \\ = S_{B(t)}(1-\lambda) + k(\alpha_u S_{u(t)} + \alpha_r S_{r(t)}) + \lambda(S_{(t)} - S_{A(t)} - S_{r(t)} - S_{u(t)}) > 0$$

$$S_{B(t)} >$$

Molecule

$$\frac{\theta_{bb}}{\theta_{aa} + \theta_{bb}} (1-j)\delta^2\beta\{k(\alpha_u S_{u(t+1)} + \alpha_r S_{r(t+1)}) + \lambda(S_{(t+1)} - S_{A(t+1)} - S_{r(t+1)} - S_{u(t+1)}))\} \\ + (1 - \frac{\theta_{bb}}{\theta_{aa} + \theta_{bb}}) (1-j)\delta^2\beta\{k(\alpha_u S_{u(t+1)} + \alpha_r S_{r(t+1)}) + \lambda(S_{(t+1)} - S_{A(t+1)} - S_{r(t+1)} - S_{u(t+1)}))\} - k(\alpha_u S_{u(t)} + \alpha_r S_{r(t)}) - \lambda(S_{(t)} - S_{A(t)} - S_{r(t)} - S_{u(t)})$$

Denominator

$$[\delta\beta + (1-i)\delta\beta - \frac{\theta_{bb}}{\theta_{aa} + \theta_{bb}}(1-j)\delta^2\beta(1-\lambda) - (1 - \frac{\theta_{bb}}{\theta_{aa} + \theta_{bb}})(1-j)\delta^2\beta(1-\lambda)](1-\lambda)$$

There are two conditions for $S_{1(t)} > 0$. The first is that the denominator is positive.

$1 + (1-i) > (1-j)\delta(1-\lambda)$ and $j \leq 1, \delta \leq 1, \lambda \leq 1$. Therefore, since the left side is 1 or less, $S_{1(t)} > 0$ is guaranteed. The second is that the numerator is positive, but since it is negative by definition, $S_{1(t)} = 0$.

$$(1-j)\delta^2\beta\{k(\alpha_u S_{u(t+1)} + \alpha_r S_{r(t+1)}) + \lambda(S_{(t+1)} - S_{A(t+1)} - S_{r(t+1)} - S_{u(t+1)}))\} \\ > k(\alpha_u S_{u(t)} + \alpha_r S_{r(t)}) + \lambda(S_{(t)} - S_{A(t)} - S_{r(t)} - S_{u(t)})$$

A2.2 R Condition S_2 for peace in conjunction with R

(peace in conjunction with R vs. civil war with R after cooperation with R)

S_2 is derived using (2-1)>(2-3), where we analyzed whether B would challenge R to a civil war if it chose to work with R. It is theoretically clear that B would not challenge R.

$$S_{B(t+1)} > (2-j) \delta^2 \beta [k(\alpha_u S_{u(t+1)} + \alpha_r S_{r(t+1)}) + \lambda(S_{(t+1)} - S_{A(t+1)} - S_{r(t+1)} - S_{u(t+1)})] / \delta \beta [(2(1-i) - \delta(2-j)(1-\lambda))]$$

S_2 has a smaller numerator than S_1 , which means that $S_2 > S_1$, implying that cooperation with A is a loss for B over cooperation with R.

In addition, S_2 is located in the middle of S_1 and S_3 , which means that B maintains B's gain by supporting R's regime and peace is built.

$$\begin{aligned} S_{B(t+1)} & [(1-i)\delta\beta \frac{\theta_{bb}}{\theta_{rr} + \theta_{bb}} \delta^2 \beta (1-\lambda) - (1 - \frac{\theta_{bb}}{\theta_{rr} + \theta_{bb}})(1-j)\delta^2 \beta (1-\lambda)] \\ & > \frac{\theta_{bb}}{\theta_{rr} + \theta_{bb}} \delta^2 \beta \{k(\alpha_u S_{u(t+1)} + \alpha_r S_{r(t+1)}) + \lambda(S_{(t+1)} - S_{A(t+1)} - \\ & S_{r(t+1)} - S_{u(t+1)})\} \\ & + (1 - \frac{\theta_{bb}}{\theta_{rr} + \theta_{bb}}) (1-j) [\delta^2 \beta \{k(\alpha_u S_{u(t+1)} + \alpha_r S_{r(t+1)}) + \\ & \lambda(S_{(t+1)} - S_{A(t+1)} - S_{r(t+1)} - S_{u(t+1)})\}] \end{aligned}$$

$$S_{2(t+1)} = S_{B(t+1)} >$$

Molecule

$$\begin{aligned} & \frac{\theta_{bb}}{\theta_{rr} + \theta_{bb}} \delta^2 \beta \{k(\alpha_u S_{u(t+1)} + \alpha_r S_{r(t+1)}) + \lambda(S_{(t+1)} - S_{A(t+1)} - S_{r(t+1)} - \\ & S_{u(t+1)})\} \\ & + (1 - \frac{\theta_{bb}}{\theta_{rr} + \theta_{bb}}) (1-j) [\delta^2 \beta \{k(\alpha_u S_{u(t+1)} + \alpha_r S_{r(t+1)}) + \\ & \lambda(S_{(t+1)} - S_{A(t+1)} - S_{r(t+1)} - S_{u(t+1)})\}] \end{aligned}$$

Denominator

$$(1-i)\delta\beta \frac{\theta_{bb}}{\theta_{rr} + \theta_{bb}} \delta^2 \beta (1-\lambda) - (1 - \frac{\theta_{bb}}{\theta_{rr} + \theta_{bb}})(1-j)\delta^2 \beta (1-\lambda)$$

There are two conditions for $S_{2(t+1)} > 0$. The first is that the denominator is positive.

$$(1-i) > \delta(1-\lambda) [\frac{\theta_{bb}}{\theta_{rr} + \theta_{bb}} + (1 - \frac{\theta_{bb}}{\theta_{rr} + \theta_{bb}})(1-j)]$$

If the above does not hold, then $S_{2(t+1)} = 0$.

$$\begin{aligned} S_{B(t+1)} & = S_{B(t)} + k(\alpha_u S_{u(t)} + \alpha_r S_{r(t)}) + \lambda(S_{(t)} - S_{B(t)} - S_{A(t)} - S_{r(t)} - \\ & S_{u(t)}) \\ & = S_{B(t)}(1-\lambda) + k(\alpha_u S_{u(t)} + \alpha_r S_{r(t)}) + \lambda(S_{(t)} - S_{A(t)} - S_{r(t)} - S_{u(t)}) \end{aligned}$$

From the above equation,

$$S_{2(t)} = S_{B(t)} >$$

Molecule

$$\begin{aligned} & \{k(\alpha_u S_{u(t+1)} + \alpha_r S_{r(t+1)}) + \lambda(S_{(t+1)} - S_{A(t+1)} - S_{r(t+1)} \\ & - S_{u(t+1)})\} [\frac{\theta_{bb}}{\theta_{rr} + \theta_{bb}} \delta^2 \beta \end{aligned}$$

$$j)[\delta^2\beta]]-1] + (1 - \frac{\theta_b b}{\theta_r r + \theta_b b}) (1 -$$

Denominator

$$[(1-i)\delta\beta - \frac{\theta_b b}{\theta_r r + \theta_b b} \delta^2\beta(1-\lambda) - (1 - \frac{\theta_b b}{\theta_r r + \theta_b b})(1-j)\delta^2\beta(1-\lambda)] (1-\lambda)$$

The condition for $S_{2(t)} > 0$ is that both the denominator and the numerator are positive.

$$(1-i) > \delta(1-\lambda) [\frac{\theta_b b}{\theta_r r + \theta_b b} + (1 - \frac{\theta_b b}{\theta_r r + \theta_b b})(1-j)]$$

$$\delta^2\beta [\frac{\theta_b b}{\theta_r r + \theta_b b} + (1 - \frac{\theta_b b}{\theta_r r + \theta_b b})(1-j)] > 1$$

Or both are negative.

$$(1-i) < \delta(1-\lambda) [\frac{\theta_b b}{\theta_r r + \theta_b b} + (1 - \frac{\theta_b b}{\theta_r r + \theta_b b})(1-j)] \delta^2\beta [\frac{\theta_b b}{\theta_r r + \theta_b b} + (1 - \frac{\theta_b b}{\theta_r r + \theta_b b})(1-j)] < 1$$

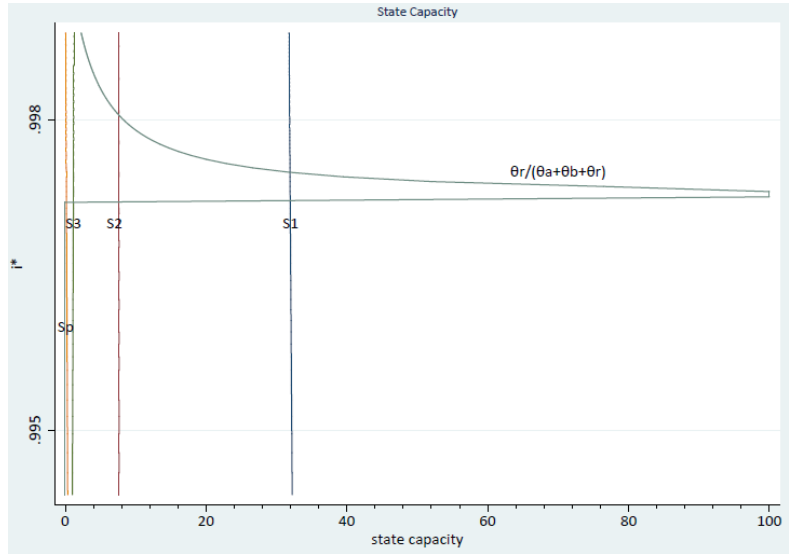


Figure A1. State capacity after coalition with R

Appendix 3

A3.1 Conditions for choosing neutrality S_3 (neutral vs. working with A)

S_3 is derived using (2-7)>(2-5). When the gain from a neutral strategy (2-7) exceeds the gain from a strategy that works with A (2-5), B does not work with A and chooses neutrality. The right side of S_3 in Figure 7 means that B chooses to coordinate with A. Since S_3 is close to 0, the neutral strategy does not lead to an increase in state capacity for B and does not lead to an increase in gain.

$$\begin{aligned}
 & S_{B(t+1)} > \\
 & \text{Molecule} \\
 & - \frac{\frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} \frac{\theta_b b}{\theta_a a + \theta_b b}}{\frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r}} \delta^2 \beta \{ k(\alpha_u S_{u(t+1)} + \alpha_r S_{r(t+1)}) + \lambda(S_{(t+1)} - S_{A(t+1)} - S_{r(t+1)} - S_{u(t+1)})) \} - \frac{\frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r}}{\frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r}} (1 - \frac{\theta_b b}{\theta_a a + \theta_b b}) (1 - j) \delta^2 \beta (1 - \lambda) - \\
 & \frac{\frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r}}{\frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r}} (1 - \frac{\theta_b b}{\theta_a a + \theta_b b}) (1 - j) \delta^2 \beta \{ k(\alpha_u S_{u(t+1)} + \alpha_r S_{r(t+1)}) + \lambda(S_{(t+1)} - S_{A(t+1)} - S_{r(t+1)} - S_{u(t+1)})) \} - (\theta_r r + \theta_a a - 1) S_{B(t)} \\
 & \text{Denominator} \\
 & [1 - \frac{\theta_r r}{\theta_a a + \theta_b b + \theta_r r} (1 - j) \delta \beta + \frac{\frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} \frac{\theta_b b}{\theta_a a + \theta_b b}}{\frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r}} \delta \beta + \frac{\frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} \frac{\theta_a a}{\theta_a a + \theta_b b}}{\frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r}} (1 - j) \delta \beta] \\
 & - [\frac{\frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} \frac{\theta_b b}{\theta_a a + \theta_b b}}{\frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r}} \delta^2 \beta (1 - \lambda)] \\
 & S_{3(t+1)} > \text{There are two conditions under which the value is 0.}
 \end{aligned}$$

A3.2 The denominator and numerator are both positive and negative.

$$\begin{aligned}
 & 1 - \frac{\theta_r r}{\theta_a a + \theta_b b + \theta_r r} (1 - j) > \frac{\frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r}}{\frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r}} [(1 - \frac{\theta_a a}{\theta_a a + \theta_b b}) \delta (1 - \lambda) - \frac{\frac{\theta_a a}{\theta_a a + \theta_b b}}{\frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r}} (1 - j) \frac{\theta_b b}{\theta_a a + \theta_b b}] \\
 & \text{And} \\
 & \frac{\frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} \frac{\theta_b b}{\theta_a a + \theta_b b}}{\frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r}} \delta^2 \beta \{ k(\alpha_u S_{u(t+1)} + \alpha_r S_{r(t+1)}) + \lambda(S_{(t+1)} - S_{A(t+1)} - S_{r(t+1)} - S_{u(t+1)})) \} + \frac{\frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r}}{\frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r}} (1 - \frac{\theta_b b}{\theta_a a + \theta_b b}) (1 - j) \delta^2 \beta (1 - \lambda) + \frac{\frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r}}{\frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r}} (1 - \frac{\theta_b b}{\theta_a a + \theta_b b}) (1 - j) \delta^2 \beta \{ k(\alpha_u S_{u(t+1)} + \alpha_r S_{r(t+1)}) + \lambda(S_{(t+1)} - S_{A(t+1)} - S_{r(t+1)} - S_{u(t+1)})) \} < (\theta_r r + \theta_a a - 1) S_{B(t)} \\
 & \text{or} \\
 & 1 - \frac{\theta_r r}{\theta_a a + \theta_b b + \theta_r r} (1 - j) < \frac{\frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r}}{\frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r}} [(1 - \frac{\theta_a a}{\theta_a a + \theta_b b}) \delta (1 - \lambda) - \frac{\frac{\theta_a a}{\theta_a a + \theta_b b}}{\frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r}} (1 - j) \frac{\theta_b b}{\theta_a a + \theta_b b}] \\
 & \text{And}
 \end{aligned}$$

Ch.2. Why return to an electoral authoritarian state?

$$\begin{aligned} & \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} \frac{\theta_b b}{\theta_a a + \theta_b b} \delta^2 \beta \{ k(\alpha_u S_{u(t+1)} + \alpha_r S_{r(t+1)}) + \lambda(S_{(t+1)} - S_{A(t+1)} - \\ & S_{r(t+1)} - S_{u(t+1)})) \} + \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} (1 - \frac{\theta_b b}{\theta_a a + \theta_b b}) (1 - j) \delta^2 \beta (1 - \lambda) + \\ & \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} (1 - \frac{\theta_b b}{\theta_a a + \theta_b b}) \\ & (1 - j) \delta^2 \beta \{ k(\alpha_u S_{u(t+1)} + \alpha_r S_{r(t+1)}) + \lambda(S_{(t+1)} - S_{A(t+1)} - S_{r(t+1)} - \\ & S_{u(t+1)})) \} \\ & > (\theta_r r + \theta_a a - 1) S_{B(t)} \\ & S_{B(t+1)} = S_{B(t)} + k(\alpha_u S_{u(t)} + \alpha_r S_{r(t)}) + \lambda (S_{(t)} - S_{B(t)} - S_{A(t)} - S_{r(t)} - \\ & S_{u(t)}) \\ & = S_{B(t)} (1 - \lambda) + k(\alpha_u S_{u(t)} + \alpha_r S_{r(t)}) + \lambda(S_{(t)} - S_{A(t)} - S_{r(t)} - S_{u(t)}) \end{aligned}$$

From above,

$$S_{3(t)} >$$

Molecule

$$\begin{aligned} & - \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} \frac{\theta_b b}{\theta_a a + \theta_b b} \delta^2 \beta \{ k(\alpha_u S_{u(t+1)} + \alpha_r S_{r(t+1)}) + \lambda(S_{(t+1)} - S_{A(t+1)} - \\ & S_{r(t+1)} - S_{u(t+1)})) \} - \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} (1 - \frac{\theta_b b}{\theta_a a + \theta_b b}) (1 - j) \delta^2 \beta (1 - \lambda) - \\ & \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} (1 - \frac{\theta_b b}{\theta_a a + \theta_b b}) (1 - j) \delta^2 \beta \{ k(\alpha_u S_{u(t+1)} + \alpha_r S_{r(t+1)}) + \lambda(S_{(t+1)} - \\ & S_{A(t+1)} - S_{r(t+1)} - S_{u(t+1)})) \}] - (\theta_r r + \theta_a a - 1) S_{B(t)} - k(\alpha_u S_{u(t)} + \\ & \alpha_r S_{r(t)}) - \lambda(S_{(t)} - S_{A(t)} - S_{r(t)} - S_{u(t)}) \end{aligned}$$

Denominator

$$[1 - \frac{\theta_r r}{\theta_a a + \theta_b b + \theta_r r} (1 - j) \delta \beta + \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} \frac{\theta_b b}{\theta_a a + \theta_b b} \delta \beta + \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} \frac{\theta_a a}{\theta_a a + \theta_b b} (1 - j) \delta \beta]$$

$$- [\frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} \frac{\theta_b b}{\theta_a a + \theta_b b} \delta^2 \beta (1 - \lambda)] (1 - \lambda)$$

There are two conditions for $S_{3(t)} > 0$.

Both denominator and numerator are positive and negative cases.

The positive case is

$$[1 - \frac{\theta_r r}{\theta_a a + \theta_b b + \theta_r r} (1 - j) \delta \beta + \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} \frac{\theta_b b}{\theta_a a + \theta_b b} \delta \beta + \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} \frac{\theta_a a}{\theta_a a + \theta_b b} (1 - j) \delta \beta]$$

$$> [\frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} \frac{\theta_b b}{\theta_a a + \theta_b b} \delta^2 \beta (1 - \lambda)] (1 - \lambda)$$

and

$$\begin{aligned} & \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} \frac{\theta_b b}{\theta_a a + \theta_b b} \delta^2 \beta \{ k(\alpha_u S_{u(t+1)} + \alpha_r S_{r(t+1)}) + \lambda(S_{(t+1)} - S_{A(t+1)} - \\ & S_{r(t+1)} - S_{u(t+1)})) \} + \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} (1 - \frac{\theta_b b}{\theta_a a + \theta_b b}) (1 - j) \delta^2 \beta (1 - \lambda) + \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} \\ & (1 - \frac{\theta_b b}{\theta_a a + \theta_b b}) (1 - j) \delta^2 \beta \{ k(\alpha_u S_{u(t+1)} + \alpha_r S_{r(t+1)}) + \lambda(S_{(t+1)} - S_{A(t+1)} - \\ & S_{r(t+1)} - S_{u(t+1)})) \}] < (\theta_r r + \theta_a a - 1) S_{B(t)} + k(\alpha_u S_{u(t)} + \alpha_r S_{r(t)}) + \lambda (S_{(t)} - \\ & S_{A(t)} - S_{r(t)} - S_{u(t)}) \end{aligned}$$

Negative cases are

$$[1 - \frac{\theta_r r}{\theta_a a + \theta_b b + \theta_r r} (1 - j) \delta \beta + \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} \frac{\theta_b b}{\theta_a a + \theta_b b} \delta \beta + \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} \frac{\theta_a a}{\theta_a a + \theta_b b} (1 - j) \delta \beta]$$

Ch.2. Why return to an electoral authoritarian state?

$$<[\frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} \frac{\theta_b b}{\theta_a a + \theta_b b} \delta^2 \beta (1 - \lambda)] (1 - \lambda)$$

and

$$\frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} \frac{\theta_b b}{\theta_a a + \theta_b b} \delta^2 \beta \{k(\alpha_u S_{u(t+1)} + \alpha_r S_{r(t+1)}) + \lambda(S_{(t+1)} - S_{A(t+1)} - S_{r(t+1)} - S_{u(t+1)})\} + \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} (1 - \frac{\theta_b b}{\theta_a a + \theta_b b}) (1 - j) \delta^2 \beta + \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} (1 - \frac{\theta_b b}{\theta_a a + \theta_b b}) (1 - j) \delta^2 \beta \{k(\alpha_u S_{u(t+1)} + \alpha_r S_{r(t+1)}) + \lambda(S_{(t+1)} - S_{A(t+1)} - S_{r(t+1)} - S_{u(t+1)})\}] > (\theta_r r + \theta_a a - 1) S_{B(t)} k(\alpha_u S_{u(t)} + \alpha_r S_{r(t)}) \lambda (S_{(t)} - S_{A(t)} - S_{r(t)} - S_{u(t)})$$

A3.4 A Conditions for choosing linkage with S_p Linkage with A vs. linkage with R

S_p is derived using (2-5)>(2-1) We analyzed whether B would adopt a strategy of cooperation with A or with R. It is theoretically clear that B would cooperate with R. The results of the analysis show that B is more likely to cooperate with A than with R. The results of the analysis show that B is more likely to cooperate with A than with R. The results of the analysis show that B is more likely to cooperate with A than with R.

S_p

$$S_{B(t+1)} >$$

Molecule

$$- \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} \frac{\theta_b b}{\theta_a a + \theta_b b} \delta^2 \beta \{k(\alpha_u S_{u(t+1)} + \alpha_r S_{r(t+1)}) + \lambda(S_{(t+1)} - S_{A(t+1)} - S_{r(t+1)} - S_{u(t+1)})\} - \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} (1 - \frac{\theta_b b}{\theta_a a + \theta_b b}) (1 - j) \delta^2 \beta \{k(\alpha_u S_{u(t+1)} + \alpha_r S_{r(t+1)}) + \lambda(S_{(t+1)} - S_{A(t+1)} - S_{r(t+1)} - S_{u(t+1)})\}$$

Denominator

$$[\frac{\theta_r r}{\theta_a a + \theta_b b + \theta_r r} (1 - j) \delta \beta + \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} \frac{\theta_b b}{\theta_a a + \theta_b b} \delta \beta + \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} \frac{\theta_a a}{\theta_a a + \theta_b b} (1 - i) \delta \beta + \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} \frac{\theta_b b}{\theta_a a + \theta_b b} \delta^2 \beta (1 - \lambda) + \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} (1 - \frac{\theta_b b}{\theta_a a + \theta_b b}) (1 - j) \delta^2 \beta (1 - \lambda)]$$

$$- [\frac{\theta_a a}{\theta_a a + \theta_b b + \theta_r r} (1 - j) \delta \beta + \frac{\theta_r r + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} (1 - i) \delta \beta]$$

The condition for $S_{p(t+1)} > 0$ is when both the denominator and the numerator are positive.

$$[\frac{\theta_r r}{\theta_a a + \theta_b b + \theta_r r} (1 - j) \delta \beta + \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} \frac{\theta_b b}{\theta_a a + \theta_b b} \delta \beta + \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} \frac{\theta_a a}{\theta_a a + \theta_b b} (1 - i) \delta \beta + \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} \frac{\theta_b b}{\theta_a a + \theta_b b} \delta^2 \beta (1 - \lambda) + \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} (1 - \frac{\theta_b b}{\theta_a a + \theta_b b}) (1 - j) \delta^2 \beta (1 - \lambda)]$$

$$> [\frac{\theta_a a}{\theta_a a + \theta_b b + \theta_r r} (1 - j) \delta \beta + \frac{\theta_r r + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} (1 - i) \delta \beta]$$

$$\text{And } \frac{\theta_b b}{\theta_a a + \theta_b b} > (1 - \frac{\theta_b b}{\theta_a a + \theta_b b}) (1 - j)$$

Or both are negative cases.

Ch.2. Why return to an electoral authoritarian state?

$$\begin{aligned} & \left[\frac{\theta_{rr}}{\theta_{aa}+\theta_{bb}+\theta_{rr}} (1-j) \delta\beta + \frac{\theta_{aa}+\theta_{bb}}{\theta_{aa}+\theta_{bb}+\theta_{rr}} \frac{\theta_{bb}}{\theta_{aa}+\theta_{bb}} \delta\beta + \frac{\theta_{aa}+\theta_{bb}}{\theta_{aa}+\theta_{bb}+\theta_{rr}} \frac{\theta_{aa}}{\theta_{aa}+\theta_{bb}} (1-i) \delta\beta \right. \\ & \quad \left. + \frac{\theta_{aa}+\theta_{bb}}{\theta_{aa}+\theta_{bb}+\theta_{rr}} \frac{\theta_{bb}}{\theta_{aa}+\theta_{bb}} \delta^2\beta (1-\lambda) + \frac{\theta_{aa}+\theta_{bb}}{\theta_{aa}+\theta_{bb}+\theta_{rr}} (1-\frac{\theta_{bb}}{\theta_{aa}+\theta_{bb}}) (1-j) \delta^2\beta (1-\lambda) \right] < \left[\frac{\theta_{aa}}{\theta_{aa}+\theta_{bb}+\theta_{rr}} (1-i) \delta\beta + \frac{\theta_{rr}+\theta_{bb}}{\theta_{aa}+\theta_{bb}+\theta_{rr}} (1-i) \delta\beta \right] \end{aligned}$$

and

$$\frac{\theta_{bb}}{\theta_{aa}+\theta_{bb}} < (1-\frac{\theta_{bb}}{\theta_{aa}+\theta_{bb}})(1-j)$$

$$\begin{aligned} S_{B(t+1)} &= S_{B(t)} + k(\alpha_u S_{u(t)} + \alpha_r S_{r(t)}) + \lambda (S_{(t)} - S_{B(t)} - S_{A(t)} - S_{r(t)} - S_{u(t)}) \\ S_{B(t)} &= (1-\lambda) + k(\alpha_u S_{u(t)} + \alpha_r S_{r(t)}) + \lambda(S_{(t)} - S_{A(t)} - S_{r(t)} - S_{u(t)}) \end{aligned}$$

From above,

$S_{p(t)} >$

Molecule

$$\begin{aligned} & - \frac{\theta_{aa}+\theta_{bb}}{\theta_{aa}+\theta_{bb}+\theta_{rr}} \frac{\theta_{bb}}{\theta_{aa}+\theta_{bb}} \delta^2\beta \{ k(\alpha_u S_{u(t+1)} + \alpha_r S_{r(t+1)}) + \lambda(S_{(t+1)} - S_{A(t+1)} - S_{r(t+1)} - S_{u(t+1)}) \} \\ & - \frac{\theta_{aa}+\theta_{bb}}{\theta_{aa}+\theta_{bb}+\theta_{rr}} (1-\frac{\theta_{bb}}{\theta_{aa}+\theta_{bb}}) (1-j) \delta^2\beta \{ k(\alpha_u S_{u(t+1)} + \alpha_r S_{r(t+1)}) + \lambda(S_{(t+1)} - S_{A(t+1)} - S_{r(t+1)} - S_{u(t+1)}) \} \\ & - k(\alpha_u S_{u(t)} + \alpha_r S_{r(t)}) - \lambda(S_{(t)} - S_{A(t)} - S_{r(t)} - S_{u(t)}) \end{aligned}$$

Denominator

$$\begin{aligned} & (1-\lambda) \left[\frac{\theta_{rr}}{\theta_{aa}+\theta_{bb}+\theta_{rr}} (1-j) \delta\beta + \frac{\theta_{aa}+\theta_{bb}}{\theta_{aa}+\theta_{bb}+\theta_{rr}} \frac{\theta_{bb}}{\theta_{aa}+\theta_{bb}} \delta\beta + \frac{\theta_{aa}+\theta_{bb}}{\theta_{aa}+\theta_{bb}+\theta_{rr}} \frac{\theta_{aa}}{\theta_{aa}+\theta_{bb}} (1-i) \delta\beta \right. \\ & \quad \left. + \frac{\theta_{aa}+\theta_{bb}}{\theta_{aa}+\theta_{bb}+\theta_{rr}} \frac{\theta_{bb}}{\theta_{aa}+\theta_{bb}} \delta^2\beta (1-\lambda) + \frac{\theta_{aa}+\theta_{bb}}{\theta_{aa}+\theta_{bb}+\theta_{rr}} (1-\frac{\theta_{bb}}{\theta_{aa}+\theta_{bb}}) (1-j) \delta^2\beta (1-\lambda) \right] \\ & - \left[\frac{\theta_{aa}}{\theta_{aa}+\theta_{bb}+\theta_{rr}} (1-i) \delta\beta + \frac{\theta_{rr}+\theta_{bb}}{\theta_{aa}+\theta_{bb}+\theta_{rr}} (1-i) \delta\beta \right] (1-\lambda) \end{aligned}$$

The condition for $S_{p(t)} > 0$ is whether both the numerator and denominator are positive or negative. If positive,

$$\begin{aligned} & \left[\frac{\theta_{rr}}{\theta_{aa}+\theta_{bb}+\theta_{rr}} (1-j) \delta\beta + \frac{\theta_{aa}+\theta_{bb}}{\theta_{aa}+\theta_{bb}+\theta_{rr}} \frac{\theta_{bb}}{\theta_{aa}+\theta_{bb}} \delta\beta + \frac{\theta_{aa}+\theta_{bb}}{\theta_{aa}+\theta_{bb}+\theta_{rr}} \frac{\theta_{aa}}{\theta_{aa}+\theta_{bb}} (1-i) \delta\beta \right. \\ & \quad \left. + \frac{\theta_{aa}+\theta_{bb}}{\theta_{aa}+\theta_{bb}+\theta_{rr}} \frac{\theta_{bb}}{\theta_{aa}+\theta_{bb}} \delta^2\beta (1-\lambda) + \frac{\theta_{aa}+\theta_{bb}}{\theta_{aa}+\theta_{bb}+\theta_{rr}} (1-\frac{\theta_{bb}}{\theta_{aa}+\theta_{bb}}) (1-j) \delta^2\beta (1-\lambda) \right] \\ & > \left[\frac{\theta_{aa}}{\theta_{aa}+\theta_{bb}+\theta_{rr}} (1-i) \delta\beta + \frac{\theta_{rr}+\theta_{bb}}{\theta_{aa}+\theta_{bb}+\theta_{rr}} (1-i) \delta\beta \right] \end{aligned}$$

and

$$\delta^2\beta \frac{\theta_{aa}+\theta_{bb}}{\theta_{aa}+\theta_{bb}+\theta_{rr}} \left[\frac{\theta_{bb}}{\theta_{aa}+\theta_{bb}} + (1-\frac{\theta_{bb}}{\theta_{aa}+\theta_{bb}})(1-j) \right] < -1$$

If both are negative, it is as follows.

$$\begin{aligned} & \left[\frac{\theta_{rr}}{\theta_{aa}+\theta_{bb}+\theta_{rr}} (1-j) \delta\beta + \frac{\theta_{aa}+\theta_{bb}}{\theta_{aa}+\theta_{bb}+\theta_{rr}} \frac{\theta_{bb}}{\theta_{aa}+\theta_{bb}} \delta\beta + \frac{\theta_{aa}+\theta_{bb}}{\theta_{aa}+\theta_{bb}+\theta_{rr}} \frac{\theta_{aa}}{\theta_{aa}+\theta_{bb}} (1-i) \delta\beta \right. \\ & \quad \left. + \frac{\theta_{aa}+\theta_{bb}}{\theta_{aa}+\theta_{bb}+\theta_{rr}} \frac{\theta_{bb}}{\theta_{aa}+\theta_{bb}} \delta^2\beta (1-\lambda) + \frac{\theta_{aa}+\theta_{bb}}{\theta_{aa}+\theta_{bb}+\theta_{rr}} (1-\frac{\theta_{bb}}{\theta_{aa}+\theta_{bb}}) (1-j) \delta^2\beta (1-\lambda) \right] \end{aligned}$$

Ch.2. Why return to an electoral authoritarian state?

$$\begin{aligned} &<[\frac{\theta_a a}{\theta_a a + \theta_b b + \theta_r r} (1 - j) \delta \beta + \frac{\theta_r r + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} (1 - i) \delta \beta] \\ &\text{and} \\ &\delta^2 \beta \frac{\theta_a a + \theta_b b}{\theta_a a + \theta_b b + \theta_r r} [\frac{\theta_b b}{\theta_a a + \theta_b b} + (1 - \frac{\theta_b b}{\theta_a a + \theta_b b}) (1 - j)] > -1 \end{aligned}$$

A3.5 R Work with A, then civil war with R vs. Work with A, then civil war with A

i^* is derived using (2-2)>(2-4), where B works with R and then remains at peace with R (2-2) exceeds A and then remains at peace with A (2-4), indicating a condition under which R's gain exceeds A's gain.

$$\begin{aligned} &i^* > 1 + \frac{\theta_r r}{\theta_a a + \theta_b b + \theta_r r} (1 - j) \delta \beta S_{B(t+1)} + (1 - \frac{\theta_r r}{\theta_a a + \theta_b b + \theta_r r}) \delta \beta S_{B(t+1)} - \\ &\frac{\theta_a a}{\theta_a a + \theta_b b + \theta_r r} (1 - j) \delta \beta S_{B(t+1)} - (1 - \frac{\theta_a a}{\theta_a a + \theta_b b + \theta_r r}) [\frac{\theta_b b}{\theta_r r + \theta_b b} \delta^2 \beta F + (1 - \frac{\theta_b b}{\theta_r r + \theta_b b}) \delta^2 \beta F] / \left(1 - \frac{\theta_a a}{\theta_a a + \theta_b b + \theta_r r}\right) \delta \beta S_{B(t+1)} - (1 - \frac{\theta_r r}{\theta_a a + \theta_b b + \theta_r r}) \delta \beta S_{B(t+1)} \\ &F = [S_{B(t+1)} + k(\alpha_u S_{u(t+1)} + \alpha_r S_{r(t+1)}) + \lambda(S_{(t+1)} - S_{B(t+1)} - S_{A(t+1)} - S_{r(t+1)} - S_{u(t+1)})] \end{aligned}$$

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3

Rational decisions and responses of dictatorships in authoritarian states with veto power

Introduction

The optimal behavior of states bordering nearly on the enemy camp differs between democracies and authoritarian states with dictatorships. This study explains the response to Taiwan for China, an authoritarian state, and to Ukraine for Russia.

The psychology of dictatorships is that they maintain their dictatorships by suppressing criticism of their regimes in the media and elsewhere with military and police power, so a relative decline in military power is negative for the long-term maintenance of the dictatorship. It is also important for a dictatorship to determine whether its military power is large enough not only to maintain domestic power but also relative to foreign military power. A decline in a dictatorship's military power relative to foreign military power can destabilize its influence. This is because the possibility of the emergence of domestic forces to overthrow dictatorship increases when the dictatorship

works with other countries that have stronger military power. The threat of aggression in one's own country is strong for both the dictatorship with strong military power and the countries bordering the dictatorship. The threat of war and the probability of victory in the event of war depend first on the distance from the enemy country, specifically the distance between the country's capital and its borders, second on the size of the enemy country's military power against the country, and third on the country's possession of nuclear weapons. Even if a dictatorship uses nuclear weapons against an invading country, nuclear deterrence will not function without the possibility of retaliation in the form of nuclear weapons being used against its capital or itself.

The presence of an ally to a dictatorship not only reduces damage to the dictatorship through economic support when economic sanctions arise for the dictatorship but also has the advantage of facilitating ceasefire talks if the ally becomes a mediator in the ceasefire talks. If a dictatorship can expect that military intervention by another country will not occur in the event of an invasion by a dictatorship, the threat of war is greatly reduced for the dictatorship by decreasing the probability of defeat in the war. Military intervention by other countries is affected by the probability of membership in a military alliance of the enemy camp or the intervention of a multinational force. If an authoritarian state with a dictator is a permanent member of the UN Security Council, it can be predicted that no UN forces will be deployed because of the veto power. However, if the war is protracted, the dictatorial state could be subject to any sanction other than the invocation of the veto. Through a war of aggression, it is likely to be subject to economic sanctions, the damage of which will increase as the war is prolonged. The damage of economic sanctions would be reduced to some extent by securing economic support from prior allies. If the damage

from economic sanctions becomes so great that the country is unable to secure the funds to carry out the war, or if criticism from domestic political parties and the military, which are the domestic support base, increases through economic sanctions, the country will have no choice but to agree to ceasefire talks, even if the content is unsatisfactory. Authoritarian states can manipulate their approval ratings, so domestic demonstrations are not too costly for dictatorships. However, if they become so large that the military or the party's base of support is diminished, the likelihood of regime change increases. In authoritarian states, the priority for gaining support is the military, followed by the party. In democracies, the priority is first the people, then the party, although there are some differences from country to country. In a dictatorship, if the military cannot adequately repay the sacrifices made in the war, or if the goal of occupying the invading country cannot be achieved, regime change is likely.

The military will expect the dictatorship to be supported by domestic public opinion in the long run through its role as the voice of the military, by securing the military's budget and other influences on domestic politics, and through war results that are commensurate with the costs of the war, such as casualties. If the military were to agree to cease-fire talks to the contrary, subsequent support for the dictatorship would be lost from the military. For the dictator, this means that the defeat of the war would create for the dictator the possibility of being punished as a war criminal by a replacement dictator or, depending on the circumstances, by the incoming regime. This means that if a dictator launches a war, the only way to win the war is to kill or maim civilians. The dictator cannot give up on victory because of the possibility of being killed himself. For the dictator, his political base of support, the supporting political parties, will demand from him the stable assurance of benefits and

authority, including money, that comes with maintaining a one-party dictatorship. However, the rising number of casualties, war without cause, and the damage to the domestic economy caused by economic sanctions will turn domestic public opinion against the war, and they will be willing to accept ceasefire talks and, if necessary, replace the dictator before the anti-war movement reaches a level that makes a one-party dictatorship unsustainable. Balancing the support of both the military and the political parties becomes more difficult as the war drags on.

In addition, if a dictatorship is terrorized, it can lead to wars of aggression and the use of nuclear weapons by the dictatorship and can be a factor in the arms buildup and the arms race of neighboring countries as a deterrent to contain the dictatorship.

Dictatorships demand neutralization and demilitarization of the invading country. The purpose of neutralization is not only to create a military vacuum with the enemy camp but also to ensure that if the possibility of war with the enemy camp increases through demilitarization, the country can invade militarily at its convenience. If there is a dictator who wants to create a puppet regime or ruling power through the war in a neighboring country, demilitarization and neutralization will result in a state that is not independent and threatens the protection of human rights, freedoms, and property of its citizens. In such a situation, the security of the dictatorship through the demands of the dictator leads to the greatest anxiety for the neighboring democracies. For dictatorships, starting a war is easy because domestic public opinion can be ignored. The start of war does not require direct public consent or the support of a parliament that reflects the will of the citizens and can proceed behind closed doors, depending on the circumstances. If a dictator expects that the other side will avoid a major-power war, all but the

major powers and nuclear powers can become targets of his war.

Consider the countries that mediate ceasefire talks. Before World War I, many ceasefire talks were conducted by a mediating country other than the United States. However, while there is no benefit to the mediating country, the mediating country itself will offer itself as a mediator if it is recognized by both countries as militarily strong or otherwise wishes to avoid incurring significant losses by agreeing to a ceasefire on terms that are fatally disadvantageous to one of the countries as the war drags on.

Consider an ally, a country that has provided economic support to a dictatorship that is the target of economic sanctions. We should also impose economic sanctions on allies. The reason is that countries that wage wars of aggression are most likely to be economic powers. If a dictatorial state or an ally is an economic power, sanctions such as legal sanctions and economic sanctions will have limited effect, and if a Security Council member with veto power is a dictatorial state, the effect of economic and military sanctions may be nullified because UN troops will not be deployed.

This study deals with a model. However, rather than selecting the optimal behavior by deriving an equilibrium from the model, the optimal behavior of each player is considered through the presentation of the model. The reason is that the presentation of the model simplifies the behavior of each player. The conclusion that can be obtained by deriving an equilibrium is the cease-fire condition, but this is because the equilibrium point cannot be a politically effective compromise point as long as one of the warring parties aims to maintain an independent state and the other aims to collapse the independent state. This study examines clues to resolving wars, which tend to be complex, by presenting a simplified representation of the war situation

through a model. In addition, the purpose of this study is to provide policy recommendations for creating a new postwar world order with deterrence when the warring parties are authoritarian dictatorships with veto power and nuclear powers.

Advance research

2.1. Prior research on new institutional transitions through civil wars and wars

Several studies have examined the impact of fiscal capacity and the level of military technology on political equilibrium; Gennaoli & Voth (2013) examined the process by which powerful nation-states emerge from many small states through military competition. They examined it under two types of actors: those with strong fiscal capacity and those with weak fiscal capacity. Besley & Persson (2011) modeled the competition of challengers to rulers and analyzed the conditions that lead to the defeat or survival of rulers.

Aoki (2017), using a multi-period game model, found that satisfying the Kuhn-Tucker Condition and ensuring that there is always one equilibrium because it is Super Modular, and compensating for the ruler's reduced losses due to institutional transitions through civil war is the ruler's. The study found that resistance could be reduced. He showed that the probability of a successful transition to a new system increases as the fixed costs of transitioning to a new system decrease and as challengers to the regime and opportunists shift their positions from competitive to complementary. The results of the analysis are applied to Japan and China. As a way to compensate for the reduced losses of the rulers in the transition to the new system, the shogunate returned power to the emperor in the final days of the Japanese shogunate through the "Taisei-hokan" (return of power to the

shogunate), thereby avoiding the costs of war and the future destruction of the shogunate, and the shoguns lived as an aristocratic class (nobility) after the civil war. In exchange for a certain guarantee of the ruling class's life and property, the guarantee of a reduction in the ruler's losses reduced the cost of transition. Such cases of regime transitions and the end of civil wars have been seen in the past in many countries to speed up the end of wars. An example of lowering the fixed costs of transition to a new system is the alliance between Satsuma and Choshu at the end of the Tokugawa Shogunate: rather than having one clan provide all supplies, arms, ammunition, etc., if multiple players could share the costs of arms, ammunition, supplies, etc., they could form an alliance and engage in civil war. A similar case can be seen in the alliance between the Kuomintang and the Communist Party against Japan during World War II and the Sino-Japanese War.

2.2. Previous research on the choices and differences in political institutions

Acemoglu & Robinson (2001, 2006), Rosendorff (2001), Boix (2003), Zak & Feng (2003) focused on the choice of regime type of elites in government. They showed that the type of regime chosen differed by adding the threat of economic class struggle and insurgency by citizens. The characteristics of authoritarian dictatorships, such as Russia, which elect a president through elections but have elections that are not internationally recognized as fair, are that elections make the regime more acceptable to its citizens. There are numerous studies on the informational effects of elections in authoritarian dictatorships (Magaloni, 2006; Cox, 2009; Malesky & Schuler, 2011; Miller, 2011).

Studies dealing with the strategic incentives of democratization players include Weingast (1997), Sutter

(2000), Acemoglu & Robinson (2001, 2006), Rosendorff (2001), Boix (2003, 2008), Zak & Feng (2003), Lizzeri & Persico (2004), Llavador & Oxoby (2005), Przeworski (2005), Ansell & Samuels (2010). The first motivation for the choice of democratization is the product of strategic choices by elites (Acemoglu & Robinson 2001, 2006; Rosendorff 2001; Boix 2003; Lizzeri & Persico 2004; Llavador & Oxoby 2005). Cases in which democracy is founded purely by forces from below are very rare (Karl 1990); O'Donnell *et al.* (1986) emphasize divisions within the ruling class elite and argue that democratization occurs when the dominant faction strategically supports democracy. The "Municipalities of the World," which is the name of the government, is a good example. Second, the main motivation for a dictator to choose democracy is the threat of a candidate or group with the support of the citizens, leading to an insurgency (Weingast, 1997; Acemoglu & Robinson, 2001, 2006; Boix, 2003; Gandhi & Przeworski, 2006; Smith, 2008) to prevent large-scale revolts, policy concessions are achieved by the dictator to introduce democracy.

Third, there is a class struggle over redistribution (Acemoglu & Robinson, 2001, 2006; Rosendorff, 2001; Boix, 2003, 2008; Ansell & Samuels, 2010). Existing political elites have incentives to introduce institutions that allow them to maintain their monopoly on political power while introducing democracy.

Gains and costs for each player and responses

3.1. Gains and costs

The following shows the benefits and costs to the warring and neighboring countries and the United Nations.

Table1. Profit and Cost of Dictator

Profit of Dictator

1) Maintenance of power
2) Expansion of power (external: acquisition of territory through invasion)
3) Expansion of power (Internal: strengthening the domestic support base.)
Outside of military and non-military parties

Cost of Dictator

1) Cost of information disclosure to the enemy *If war can only be initiated by dictatorial or presidential authority, Dictator does not need consent in parliament. *If the consent of the National Assembly is required, the release of information on war preparations will be made public, which will also prepare the hypothetical adversary to defend itself against progress, thus reducing the probability of success associated with an invasion.
2) Cost of favoring parliamentary management (Dictator needs parliamentary support to wage war) *If a one-party dictatorship system, He needs political power of a dictator plus Own influence on base party x Ratio to opposing forces within the base party *If a multi-party system, he needs political power of a dictator plus Own influence over base party x Ratio of influence of opposing party over the base party in parliament *Replacement of the president through the deliberation of disapproval of the dictatorial president or a decision on a parliamentary-led ceasefire.
3) The cost of gaining support from one's citizens (Promoting a war of aggression requires the legitimacy of the war of aggression and a high level of support from the public, including the families of soldiers fighting for the war of aggression.) *In the case of dictatorships, fabricated massacres of their people by a hypothetical enemy nation, etc., tend to be used as support and justification by their people for invasion. There have been several past cases of invasion for the protection of one's people on the grounds of massacres, discrimination, etc., including the civil war (Yihe Dan Incident) in the Qing Dynasty (present-day China) in 1900. In order to resolve the Yihe Dan Incident, a coalition of eight countries suppressed the civil war, and the Russian presence in Qing China even after the Yihe Dan Incident was suppressed was a factor in the Russo-Japanese War.
4) Cost of military coups *The decline in support for the president in the military as the war bogged down and casualties increased. An increase in the probability of a coup d'état by the military due to declining support.

Factors that increase the probability of victory of a dictatorship after the outbreak of war

The first is whether or not nuclear weapons are possessed. In the case of an invasion by a nuclear power against a non-nuclear power, the leaders of the nuclear power have an incentive to avoid entering the war to avoid nuclear war; the second is that the invaded country invades before forming a military alliance with neighboring countries. Although many states have incentives to join military alliances to deter the enemy camp, the incentives to engage in a war with another state may be scarce. Therefore, there is an incentive for members of military alliances to avoid joining military alliances of countries with high war risks.

Neighboring or surrounding country

Strategy options based on gain/cost

If the possibility of the threat of invasion of one's own country increases sufficiently in the event of occupation, then one enters the war. If the likelihood of invasion of the country is not sufficiently high in the medium to long term, then we will not enter the war. As long as the likelihood of invasion is low, we will limit ourselves to military and economic assistance to the invaded country. If the invaded country is recognized as a military ally, we will not join the alliance if the threat of war is more likely.

3.2. War objectives and ceasefire conditions for each party

War aims of dictators

It wants to create a military vacuum to avoid contact with its own country by a multinational enemy camp that possesses nuclear weapons. At the same time, they want to operate as a puppet government of a dictatorship and use it to protect the dictatorship politically as well. Since occupation is not possible given the current world situation and the UN Charter, we want to create a puppet government and provide political and economic support through that puppet government. We want to reduce the threat to our country through demilitarization.

Conditions for a ceasefire in the country being invaded

It is the maintenance of an independent state. To be an independent state in both name and reality, it is essential to possess military power. Acceptance of a demand from a dictatorship for neutralization and demilitarization is unacceptable because it means always running the risk of being invaded by a dictatorship under a puppet government.

3.3. Response of each player

Table 2. *Common ways for dictators to gain the upper hand in a war*

1) Calls on neighboring countries to return territories previously controlled by dictatorships
2) Fabricated reports of massacres of their people by a hypothetical enemy nation
3) In the event of open war, we will secure allies in anticipation of economic sanctions and isolation of our economy from the global economy. *As part of the support for economic sanctions by allied countries, the company joined CIPS, which allows for settlement of allied currencies even if they are excluded from SWIFT, the dollar-settled international interbank market, but the effect is limited. *For banks wishing to settle in dollars in allied countries, economic support for dictatorships is limited because a major economic power in a neighboring country (the U.S.) has enacted a law punishing foreign companies whose governments have done business with sanctioned companies, nations, and individuals.
4) Various initiatives aimed at increasing foreign currency reserves to withstand economic sanctions
5) Expansion of military forces in anticipation of an invasion
6) Military exercises in the vicinity of a hypothetical enemy country
7) Decision to start a war in the Diet.
Post-war of aggression
8) In areas where massacres are alleged to have occurred in a hypothetical enemy country, influential people who support the dictator unilaterally declare independence. Saying, immediately, the dictatorship recognizes independence. The dictatorship deploys troops at the request of the independent states and in the name of protecting its citizens.
9) Invasion of areas other than those falling under
10) Cyber Attacks as Preparation for a Full Land Invasion
11) Invasion by the air force to secure air control
12) Demilitarization and neutralization and other ceasefire conditions
13) Destruction of military and infrastructure facilities and nuclear power plants by both air and ground forces
14) Indiscriminate bombing of major cities by missiles and other means from air forces and dictators. *The 1994-1996 Chechen conflict killed 30,000 people or about 10% of the population of a city of 300,000. *They carried out indiscriminate attacks trying to overthrow the Assad regime in Syria.
15) Announced readiness to use nuclear weapons to avoid intervention by other countries
16) Aiming to control major cities
17) Ceasefire talks. Even if a ceasefire resolution is passed, the attack is aimed at the gap where the enemy's resistance is weakened by the ceasefire resolution. Nullify ceasefire talks.
18) Order to stop foreign media from disseminating information about the war and invasion in order to hide the truth from their citizens.
19) Enactment of a law that allows the public and foreign media to be severely punished if they are deemed to be disinformation.
20) Consent to secure routes (humanitarian corridors) for the escape of civilians from the conflict area in order to stop attacks on civilians. After consent, the dictatorship attacks the humanitarian corridors. *Attacks on civilians are perceived by the dictatorship as an effective way for the leaders of a democratic state elected by its citizens to surrender.
21) Defense against indiscriminate attacks on civilians and criticism of indiscriminate attacks by the international community.
22) Increase in armaments by neighboring countries to increase deterrence
23) Wealthy in dictatorships speak out against economic sanctions on dictatorships
24) Attacks aimed at shutting down nuclear power plants and exposing the public to radiation
25) Armed attack on the domestic media of the invaded country
26) A simultaneous attack on the capital of the invaded country

Table 3. Response of the invaded country

1)Application for membership in a multinational coalition force (NATO) with military capabilities
2)Acceptance of Volunteer Soldiers
3)Arms to the People
4)Application for membership in the Economic Union (EU)
5)Requested the military alliance (NATO) to secure airspace control and establish a no-fly zone that would lead to attacks on the air forces of dictatorships in response to attacks to secure airspace control of dictatorships and bombing of major cities.
6)Agreeing with the dictator to negotiate with the dictator to secure routes for the escape of civilians from the conflict area to stop attacks on civilians.

Table 4. Response of Neighboring Countries

1)Rejection of request for a military alliance
2)Rejection of military alliance
3)Implementation of economic sanctions
4)Military assistance to invaded countries
5)Increase in the country's military buildup
6)Acceptance of Economic Union (EU) Provided thousands more weapons, including tanks, surface-to-air missiles, and anti-tank shells.
7)Economic Union (EU) generates a budget for arms procurement from peacekeeping funds and provides
8)NATO deploys the National Rapid Reaction Force (NRF) to enhance NATO's deterrence capabilities
9)Sanctions and clampdowns on emerging conglomerates and wealthy individuals in dictatorships
10)Consideration of introduction of state-of-the-art weaponry and revival of conscription in response to the doubling of defense spending by economic powers in neighboring countries *Europe's economic powers had restrained their military budgets because of their pacifism. However, they have decided to approximately double their military budgets. They have come up with a plan to renew all of their current mainstay weapons, which were imported about 40 years ago, with the latest weapons. *Citizen support for conscription and increased defense spending exceeded opposition by about half.
11)Neighboring countries were increasing their economic dependence on the dictatorship in the area of lifelines. Shifted to less dependence on dictatorships to protest wars of aggression
12)In presidential elections in neighboring countries, support is also higher for leaders who take a firm stand against dictatorships.
13)Neighboring countries prepared to enter the war as a single nation, not as a coalition with a functioning military alliance.
14)Reduction or suspension of imports and exports from or to dictatorships
15)Military superpowers capable of opposing dictatorships decide to station troops in the next country they are likely to invade after they have conquered the current invader.
16)Rejected request to establish military alliance (NATO) flight airspace control *In effect, NATO's military power is the U.S. military, so the downing of a dictatorship's air force by the U.S. military is rejected, fearing that it could lead to World War III. Western nations are unable to resolve conflicts arising in their regions on their own without U.S. forces. *In the Bosnian Civil War, the U.S. bombed the positions of Serbian armed groups in Serbia, which did not possess nuclear weapons, leading to a ceasefire agreement. In the Kosovo conflict, NATO bombed Serbia and Kosovo in response to the Serbian president's attack on Kosovo.
17)If a neighboring country supports military assistance such as fighter jets to an invaded country, a superpower capable of opposing a dictatorship decides to indirectly provide military assistance to the neighboring country.

Table 5. UN Response

1) UN resolution to determine if there is a violation of the UN Charter
2) The Security Council resolution to deploy UN troops is deliberated but is rejected through the veto of a permanent member of the Security Council, the dictatorial state.

Response of invaded citizens

The civilian population of the aggressor country is also resisting the dictatorship. Recognizing that not only military personnel and military installations are targets, but also civilians, many civilians volunteer to defend their country.

Citizens' Response to Dictatorships

Ordinary citizens of a dictatorship also resist the dictatorship. The dictatorship not only controls information on the war against the domestic media but also controls information on the war by the foreign media through laws and regulations so that the public will not know that the war is a unilateral war of aggression. Foreign media report on the bombings of civilian targets in the invading country, the progress of the war, and the response of neighboring countries. Citizens, however, learn about the information through the Internet, and civilian demonstrations grow as the war drags on.

Table 6. Allies Respond to Dictatorships

1) Economic Support for Dictatorships
2) Suggestions for possible involvement as an arbitral tribunal
3) Establishment of a possible funds settlement system between allies and dictatorships
4) Allies themselves begin preparing for war (because of the dispersion of military power among neighboring countries in support of dictatorships)
5) Control of areas that threaten civil unrest within the allied country (dispensing criticism of the dictatorship's war of aggression by exposing the allied country to international criticism)
6) Allies themselves carry out wars of aggression

Model

The strategic option for an invaded country is to fight/surrender. In practice, the advantage is that through surrender, the number of deaths is reduced, but the increase in casualties is not taken into account. The loss of

independence by one's people may lead to the deprivation of freedom and human rights. In addition, in practice, there are calls for assistance to other countries, etc. This study includes the participation of other countries in the war. Strategic options for a dictatorship include fighting (invading only some areas, invading the entire country, invading the entire country and using nuclear weapons), fighting

Not to fight. The strategic options for other countries are to intervene (with the threat of nuclear war), not intervene militarily but implement economic sanctions, military assistance, or do nothing, but the gains and costs associated with the actions of other countries are simplified by including them in the gains and costs of the dictatorial state and the invaded country. Strategic options for allies include providing economic support or not providing economic support along with the alliance. However, the model is simplified by including the gains and costs associated with the actions of intermediary countries in the gains and costs of the dictatorship and the invaded country. Military alliances have the strategic option of entering or not entering the war. Civilians have the strategic option to rebel or not to rebel. The UN Security Council has the strategic option to veto or not to veto.

4.1. Invasion to protect the residents

Despotism

No war

$$R_r - k_r$$

The dictator gains R_r through the maintenance of power; k_r is the threat of arming countries close to the dictatorship and the associated cost of military buildup.

War (invasion to protect the residents)

An invasion into pro-dictatorship areas to protect the population of a settlement is subject to criticism from the international community, but is unlikely to result in intervention by other countries or damaging economic sanctions.

$$R_r + \theta_r(k_{r,p})[B_{r,p} - k_{r,p}] + (1 - \theta_r(k_{r,p}))[-k_{r,p}]$$

θ_r is the probability of victory for a dictatorship, $B_{r,p}$ is the gain from war, and $k_{r,p}$ is the cost paid through war. θ_r is a decreasing function of $k_{r,p}$. As the cost of war increases, the probability of victory decreases. This does not include the cost of building up the dictatorship's war preparations. It means the increase in dictatorship casualties associated with invasion and the cost of war in wartime.

$$\frac{\partial \theta_r}{\partial (k_{r,p})} < 0$$

$$k_r < k_{r,p}$$

Countries invaded

Resist

$$R_u + \theta_u(k_{r,p})[B_{u,p} - k_{u,p}] + (1 - \theta_u(k_{r,p}))[B_{u,p} - k_{u,p}]$$

Surrender

$$-k_{u,p}$$

R_u is the gain associated with maintaining the regime in the invaded country; θ_u is the probability of victory for the invaded country; $B_{u,p}$ is the gain from the war; and $k_{u,p}$ is the cost paid through the war. For the invaded country, even if it wins the war, it will not gain much since it will only be protected from maintaining its pre-war status as an

independent state, but the gain in $B_{u,p}$ is positive to show the difference between winning and losing the war. The probability of victory θ_u of the invaded state is an increasing function of the cost $k_{r,p}$ of the dictatorship. The probability of winning the cost of invasion increases as the war cost of the dictatorship increases.

$$\frac{\partial \theta_u}{\partial (k_{r,p})} > 0$$

4.2. Invasion of the whole country

The purpose of a total land invasion is for a dictatorship to create a puppet government by demanding that the invading country demilitarize and neutralize itself. Demilitarization allows the dictatorship to invade at any time. Neutralization assures the dictatorship that it is not part of the enemy camp while showing that it is politically neutralizable. On the other hand, it makes it possible to belong politically and militarily to one's camp. The essential objective is to reduce the threat to the country by establishing a puppet government and creating a military vacuum between the dictatorship and the enemy camp or a state that belongs to the home camp. It is desirable to avoid having a country bordering a dictatorship belong to a powerful enemy camp.

The side of the country being invaded will cease to be an independent country. The creation of a puppet government of another country means the deprivation of the freedoms and rights of the people belonging to the nation, and there is a strong possibility that the invaded country will become a bulwark against the dictatorship, becoming the stage for a proxy war between the two sides.

The concepts of short-term and long-term are also important.

In the case of a war based on a short-term decisive battle, the country is not subject to simultaneous attacks from multiple locations or intervention by other countries, so it can take the initiative in attacking and can defeat each side individually.

However, if the war is prolonged, it will not only be necessary to secure supply lines, but it will also result in economic damage from economic sanctions, the rise of domestic opposition groups, counterattacks from multiple sides in the invading country, and guerrilla warfare by the invading country's citizens. By reducing the probability of victory due to the dispersion of forces of its armed forces, and by causing the dispersal and deployment of military equipment in anticipation of possible intervention by other countries, the country will not only lose the initiative but will also become the target of individual attacks.

4.2.1. *Short-term invasion of the entire land*

In the short term, the probability of victory of the dictatorship is high. If the invasion of the whole country is completed in the short term, the conditions at the time of ceasefire are better)

Despotism

War (invade the whole country)

$$R_r + \theta_r(k_{r,all})[B_{r,all} - k_{r,all}] + (1 - \theta_r(k_{r,all}))[-k_{r,all}]$$

$k_{r,all} > k_{r,p}$
 $B_{r,all} > B_{r,p}$

$B_{r,all}$ is the dictatorship's gain from a full invasion and $k_{r,all}$ is the cost of a full invasion.

The benefits and costs associated with a full-scale invasion of a dictatorship are greater than those associated

with the invasion of some areas to protect the residents of a settlement.

No war (only partial suppression to protect the residents of the settlement)

$$R_r + \theta_r(k_{r,p})[B_{r,p} - k_{r,p}] + (1 - \theta_r(k_{r,p}))[-k_{r,p}]$$

Consistent with the expected gains at the time of the invasion to protect the residents of the reservations.

Countries invaded

Resist

$$R_u + \theta_u(k_{r,all})[B_{u,all} - k_{u,all}] + (1 - \theta_u(k_{r,all}))[-k_{u,all}]$$

$$k_{u,all} > k_{u,p}$$

$$B_{u,all} > B_{u,p}$$

$B_{u,all}$ is the benefit of a total land invasion and $k_{u,all}$ is the cost of a total land invasion.

For the invaded country, if the invasion is a partial invasion to protect its residents, it will remain profitable if it survives as an independent country in the remaining areas, even if it loses some areas. However, if the country is defeated in a full invasion, it ceases to be an independent country and no governmental interests remain. The cost of defeat in a full invasion is greater than the cost of defeat in a partial invasion to protect the population.

Surrender

$$-R_u - k_{u,all}$$

R_u includes the entire benefit of retaining an independent country, in addition to the benefits of the person in charge of the government of the invaded country. Therefore, $-R_u$ includes not only the loss of regime change through the

surrender of the invaded country but also the disadvantages associated with becoming a puppet government and depriving the entire population of its freedoms and human rights as an independent country. Since a dictatorship is run for the benefit of the individual dictator and his entourage, and since it is easy to start a war, R_r represents only the interests of the individual dictator and his entourage, whereas R_u for the country being invaded includes the interests of the entire sovereign nation because it is a democratic state.

4.2.2. Prolonged invasion of the entire land

Prolonged invasion decreases the probability of victory of the dictatorship and tends to worsen conditions at the time of cease-fire.

Despotism

War (invade the whole country)

$$R_r + \theta_r(k_{r,all} + k_{r,out})[B_{r,all} - (k_{r,all} + k_{r,out})] \\ + (1 - \theta_r(k_{r,all} + k_{r,out}))[-(k_{r,all} + k_{r,out})]$$

$k_{r,out}$ is the cost to the dictatorship of prolonged war. It is the cost associated with resistance to the dictatorship, such as economic sanctions, acceptance of volunteer troops into the invaded country, and military assistance from other countries.

No war (accept ceasefire talks)

$$R_r + B_{r,st} - k_{r,all} \\ B_{r,all} > B_{r,st}$$

$B_{r,st}$ is the cost associated with being invaded throughout the country and prolonged. different from the gains from victory in a short-term war.

With prolonged dictatorships, the dictatorship receives smaller gains than in the case of a short-term victory in a full-scale invasion, because it is more likely to reach a compromise if it agrees to cease-fire talks.

Countries invaded

Resist

$$R_u + \theta_u(k_{r,all} + k_{r,out})[B_{u,all} - k_{u,all}] + (1 - \theta_u(k_{r,all} + k_{r,out}))[-k_{u,all}]$$

For the invaded country, if the battle is for its existence as an independent country, the cost of losing by defeat is consistent in the short and long term. Assume that the short-run and long-run costs coincide. The government and leaders of the invaded country, which is a democracy, may be more likely to agree to a ceasefire the greater the damage to civilians. Damage to civilians is likely to be greater the longer the war is protracted. However, the costs in this study do not include the psychological costs to governments and leaders associated with harm to civilians.

$$\frac{\partial \theta_r}{\partial (k_{r,all} + k_{r,out})} < 0$$

The more the cost of a dictatorship increases, the lower the probability of victory for the dictatorship.

$$\frac{\partial \theta_u}{\partial (k_{r,all} + k_{r,out})} > 0$$

The probability of victory for the invaded country increases as the cost of the dictatorship increases. Also, in the case of a war between two countries, if one side wins, the other side will naturally lose.

$$\theta_u = (1 - \theta_r)$$

Prolonged war reduces the probability of victory for the dictatorship from No invasion by a dictatorship and the invaded country is more likely to maintain its independence.

$$\frac{\frac{\partial \theta_u}{\partial(k_{r,all}+k_{r,out})}}{\frac{\partial \theta_r}{\partial(k_{r,all}+k_{r,out})}} > \frac{\frac{\partial \theta_u}{\partial(k_{r,all})}}{\frac{\partial \theta_r}{\partial(k_{r,all})}}$$

Surrender

$$-R_u - k_{u,all}$$

4.3. Prolonged invasion of the entire land + entry of nuclear powers into the war

If a dictatorship suffers a certain level of defeat in military operations, use of nuclear weapons (increase in the probability of nuclear use) = lower benefits and higher costs when a dictatorship uses nuclear weapons.

Despotism

War (invade the whole country)

$$R_r + \theta_r(\alpha(k_{r,all} + k_{r,out} + k_{r,nu}))[B_{r,all} - \alpha(k_{r,all} + k_{r,out} + k_{r,nu})] \\ + (1 - \theta_r(k_{r,all} + k_{r,out}))[-\alpha(k_{r,all} + k_{r,out} + k_{r,nu})]$$

$k_{r,nu}$ is the cost to the dictatorship of receiving entry into the war of another state. α is the probability that the dictatorship will use nuclear weapons to win, since both the dictatorship fears a nuclear first strike when a nuclear power enters the war and the probability of victory decreases due to costs such as troop dispersion as a response to another state. Above a certain cost \bar{k} , the dictatorship state will execute the use of nuclear weapons.

$$\alpha > 1 \text{ if } k_{r,all} + k_{r,out} + k_{r,nu} > \bar{k}$$

$$\frac{\partial \theta_r}{\partial \alpha} > 0$$

If a dictatorship is forced to incur costs above a certain level, the probability of using nuclear weapons increases. When nukes are used, the probability of victory is high.

$$\frac{\partial \alpha}{\partial (k_{r,all} + k_{r,out} + k_{r,nu})} > 0$$

No war (accept ceasefire talks)

$$R_r + B_{r,st} - k_{r,all} - k_{r,nu}$$

Countries invaded

Resist

$$R_u + \theta_u(\alpha(k_{r,all} + k_{r,out} + k_{r,nu}))[B_{u,all} - k_{u,all}] + (1 - \theta_u(\alpha(k_{r,all} + k_{r,out} + k_{r,nu})))[-k_{u,all}]$$

Decreased probability of victory due to increased costs on the part of the dictatorial state (damage from economic sanctions, cost of securing supply lines and dispersion of troops); increased probability of victory due to increased benefits on the invaded state (increased economic and military support from other states and increased domestic volunteer forces)

Once the troops of the dictatorship have been withdrawn to the point where the probability of nuclear use is not too high, cease-fire talks are necessary on the condition that the independent country is maintained. The conditions for a ceasefire could include the assurance by the military alliance of the enemy camp and the invaded country that it will not

belong to the enemy camp in most cases, and that it will not leave the entire invaded country as a military vacuum zone, but will leave the border area as a military vacuum zone.

$$\frac{\partial \theta_r}{\partial \alpha(k_{r,all} + k_{r,out} + k_{r,nu})} < 0$$

The more the cost of a dictatorship increases, the lower the probability of victory for the dictatorship.

$$\begin{aligned} & \frac{\partial \theta_u}{\partial \alpha(k_{r,all} + k_{r,out} + k_{r,nu})} > 0 \\ & \frac{\frac{\partial \theta_u}{\partial \alpha(k_{r,all} + k_{r,out} + k_{r,nu})}}{\frac{\partial \theta_u}{\partial (k_{r,all} + k_{r,out})}} > \frac{\frac{\partial \theta_u}{\partial \alpha(k_{r,all} + k_{r,out} + k_{r,nu})}}{\frac{\partial \theta_u}{\partial (k_{r,all} + k_{r,out} + k_{r,nu})}} > \\ & \frac{\frac{\frac{\partial \theta_u}{\partial \alpha(k_{r,all} + k_{r,out} + k_{r,nu})}}{\frac{\partial \theta_u}{\partial (k_{r,all} + k_{r,out})}}}{\frac{\partial \theta_r}{\partial \alpha(k_{r,all} + k_{r,out} + k_{r,nu})}} > \frac{\frac{\partial \theta_r}{\partial \alpha(k_{r,all} + k_{r,out} + k_{r,nu})}}{\frac{\partial \theta_r}{\partial (k_{r,all} + k_{r,out} + k_{r,nu})}} > \\ & \frac{\frac{\frac{\partial \theta_r}{\partial \alpha(k_{r,all} + k_{r,out} + k_{r,nu})}}{\frac{\partial \theta_r}{\partial (k_{r,all} + k_{r,out})}}}{\frac{\partial \theta_r}{\partial \alpha(k_{r,all} + k_{r,out} + k_{r,nu})}} > \frac{\frac{\partial \theta_r}{\partial \alpha(k_{r,all} + k_{r,out} + k_{r,nu})}}{\frac{\partial \theta_r}{\partial (k_{r,all} + k_{r,out} + k_{r,nu})}} > \\ & \text{Surrender} \\ & -R_u - k_{u,all} \end{aligned}$$

4.4. Prolonged invasion of the entire land + participation of non-nuclear powers or participation as individual states rather than at the military alliance level (NATO)

Even if a dictatorship suffers a certain level of defeat in a military operation, the probability of using nuclear weapons is zero.

Despotism

War (invade the entire country)

$$\begin{aligned} & R_r + \theta_r(k_{r,all} + k_{r,out} + k_{r,nu})[B_{r,all} - (k_{r,all} + k_{r,out} \\ & \quad + k_{r,nu})] \\ & + (1 - \theta_r(k_{r,all} + k_{r,out} + k_{r,nu}))[-(k_{r,all} + k_{r,out} + k_{r,nu})] \end{aligned}$$

Reasons why the possibility of using nuclear weapons increases for dictatorships when a nuclear power enters the war: nuclear weapons are effective in a first-strike situation.

and if used in the vicinity of an enemy leader's area of residence, the death of the enemy leader would likely prevent the war from being carried out. A direct attack on nuclear power could result in nuclear retaliation and possibly nuclear war. However, leaders of dictatorships know that democracies may not be able to stay in power if they are criticized for using nuclear weapons. Because democracies fear nuclear war, they are more likely to believe that a single use of nuclear weapons by a non-nuclear state is likely to be met with no repercussions and that they will be better able to advance ceasefire talks by carrying out the more militarily effective threat of using nuclear weapons than a democratic state.

The use of nuclear weapons is more likely to come not from a dictatorial state, but as an ally against an aggressor. By insisting that it is not its nuclear use, it hopes to avoid deadly economic sanctions and reduce the damage to its subsequent international political activities (G7 and suspension of its permanent membership).

Nuclear-using countries have an incentive to avoid launching nuclear weapons from their own countries because of the possibility of nuclear retaliation.

No war (accept ceasefire talks)

$$R_r + B_{r,st} - k_{r,all} - k_{r,nu}$$

Countries invaded

Resist

$$R_u + \theta_u(k_{r,all} + k_{r,out} + k_{r,nu})[B_{u,all} - k_{u,all}] + (1 - \theta_u(k_{r,all} + k_{r,out} + k_{r,nu}))[-k_{u,all}]$$

Surrender

$$-R_u - k_{u,all}$$

4.5. Economic sanctions against dictatorships and economic support for dictatorships through allies

Despotism

Dictatorships are subject to economic sanctions, but with allies, the cost of dictatorships is less than positive, the continuation of the war would be possible in the long run.

$$-P_r + I_c$$

P_r is the cost to the dictatorship of economic sanctions and I_c is the support to the dictatorship by its allies.

An ally of a dictatorship state can be expected to serve as an arbitrator as well as to provide economic support to the dictatorship state. On the other hand, if the country is very close politically and economically to the dictatorship, the optimal action for an ally would be to announce domestically and internationally that the ally is about to invade another country to avoid concentrating international condemnation on the dictatorship, entering the war against the dictatorship and increasing military support for the invaded country. The global expansion of the fear of developing into a world war differs from the scale required to enter a war against only dictatorships and to go to war with other countries in preparation for a world war. Leaders of neighboring countries can discourage participation in or military support for dictatorships because they will need more military buildup in the immediate future to prepare for a world war. This is effective military support for dictatorships. In addition, if a dictatorship controls an aggressor nation, the fact is that a nuclear power with veto power will be allowed to wage a war of aggression to a

certain degree. In such a case, the allies would be able to take the next step in their military buildup for deterrence.

It would justify the actual waging of a war of aggression, and it would also provide confidence to the leaders of the allied countries that even if they launched a war of aggression, it would not result in military intervention by other countries.

Countries of Military Alliances

If you're going to enter the race, you're going to have to

$$\theta_{eu}(k_{eu})[B_{eu} - k_{eu}(L_{EU})] + (1 - \theta_{eu}(k_{eu}))[-k_{eu}(L_{EU})]$$

θ_{eu} is the probability of victory if the military alliance enters the war, k_{eu} is the cost of the military alliance's entry into the war, and B_{eu} is the benefit of victory. L_{EU} is the distance of the country in the military alliance that is geographically closest to the dictatorial state. The entry into the war as a military alliance assumes here that the dictatorship does not invade the military alliance or use nuclear weapons against the military alliance. Therefore, it is assumed that the regime of the military alliance is maintained regardless of whether it wins or loses the war.

If $L_{EU} > 0$

If $L_{EU} = 0$

$$\frac{\partial k_{eu}}{\partial L_{EU}} > 0$$

The greater the proximity to the enemy camp, the greater the likelihood of war. When a country bordering a dictatorship joins a military alliance, the distance L_{EU} from the dictatorship becomes zero, maximizing the cost of the military alliance. This requires countries to have the deterrence of war to avoid war through membership in a military alliance but to avoid participation in the war.

Countries close to dictatorships or enemy camps will need to possess a military force that can counter the military power of the dictatorship or enemy camp on its own. If the people believe that defeat in the war would result in the loss not only of their independence but also of the human rights and freedoms of their people, an increase in military power would be acceptable to the Diet.

Citizen

If citizen in despotism don't revolt.

$$-(\theta_r x - y)$$

x is the benefit that a dictator can gain for his citizens with the victory of a war. A dictatorship winning a war benefits from reduced military spending due to reduced threats to its dictatorship, which in turn benefits the private sector and social security through taxes. y is the cost that citizens incur as a result of the war. It includes the damage caused by increased soldier casualties, increased military spending, and economic sanctions.

If citizen in despotism want to revolt.

$$\theta_{r,c}\{-k_c - (\theta_r x - y) + R\} + (1 - \theta_{r,c})D_c$$

k_c is the cost of insurgency, $\theta_{r,c}$ is the probability of victory during the insurgency, and D_c is the cost of failed insurgency. If the rebellion fails, it means being killed or punished; R is the benefit to the civilian side in the event of a successful rebellion, such as reduced military spending due to political regime transition or the end of the war.

Even if they rebel, if the citizens are militarily strong enough to win a civil war against the military to the extent that the transition from a dictatorship to a substantial democratic system is achieved, then the transition to a

democratic system, with the victory of the citizens over the military through civil war, will prevent the implementation of a war of aggression in the long term.

$$\theta_{r,c}\{-k_c - (\theta_r x - y) + R\} + (1 - \theta_{r,c})D_c > A_r$$

A_r is the military force a dictatorship can move to put down an insurgency during a war of aggression. The above equation implies that the expected gain for civilian rebellion is greater than the expected gain for the dictatorship to suppress the rebellion based on the military power possessed by the dictatorship. It also means that the dictatorship may be overthrown through rebellion.

Although the citizens do not have the military strength to win a civil war against the military, the conditions under which a combination of demonstrations and expressions of disapproval of the current regime to the extent that the war of aggression is stopped can undermine the dictator's base of support and implement a cessation of the war of aggression are as follows.

$$C_r < \theta_{r,c}\{-k_c - (\theta_r x - y) + R\} + (1 - \theta_{r,c})D_c < A_r$$

C_r represents the threshold of resistance that forces the dictatorship to abandon the war of aggression through peaceful criticism of the war by its citizens. The above equation implies that citizens have the power to renounce a war of aggression, but that they are not strong enough to overthrow a dictatorship.

Despotism

Expected gains from dictatorial states' suppression of civil uprisings

$$\theta_{r,cd}\{-k_{cd} + E + R_r\} + (1 - \theta_{r,cd})\{-k_{cd} + E\}$$

$$E = R_r + \theta_r(\alpha(k_{r,all} + k_{r,out} + k_{r,nu})) [B_{r,all} - \alpha(k_{r,all} + k_{r,out} + k_{r,nu})] + (1 - \theta_r(k_{r,all} + k_{r,out})) [-\alpha(k_{r,all} + k_{r,out} + k_{r,nu})]$$

$\theta_{r,cd}$ is the probability of success of a dictatorship in suppressing a civil uprising, k_{cd} is the cost of suppressing the uprising; E depends on the timing of the civil uprising. The above formula for a dictatorship state against an aggressor state when the fear of nuclear war is included as an example, but the expected gains of the dictatorship state corresponding to the timing of citizen rebellion can be included. Assuming that the dictator's regime is replaced if the rebellion fails to be crushed, E also includes R_r . The probability of a successful rebellion increases as the dictatorship requires more costs associated with a prolonged war.

The probability of civilian victory is equal to the probability of failure by the dictatorship to put down a civilian rebellion.

$$\theta_{r,c} = 1 - \theta_{r,cd}$$

UN Security Council

Exercise or not exercise the right of veto

Benefits and costs of exercising

$$[B_n - k_n] < 0$$

If so, do not veto.

The advantage of exercising the veto over the deployment of UN forces in response to a war of aggression is the ability to avoid the deployment of one's troops. Deployment of troops for reasons that do not enjoy the support of the public could reduce the approval rating of the government of the home country. In addition, wars have financial costs.

The disadvantages of exercising the veto over the deployment of UN troops include the disruption of world order and the increased possibility of invasion of one's own country. It also increases the likelihood of increased aggression against one's own country by neighboring countries because it leads to the legitimization of aggression by other countries.

$$[B_n - k_n] > 0$$

If so, the veto is exercised.

$$[B_n + C_n - k_n] > 0$$

The only country that initiates a war of aggression that has the advantage of exercising the veto, other than the above, especially the advantage of C_n apart from the purpose of expanding its territory and invading to its advantage, is the country that is complicit in the war of aggression.

$$C_n > 0$$

For a country that initiated a war of aggression, it would naturally want to avoid intervention by UN forces, since UN forces would be on the enemy side if the UN General Assembly resolved that it was a war of aggression. For a dictatorial state, the advantages of exercising the veto are very high.

If even one country exercises its veto, it cannot deploy UN troops. Any party to a war of aggression that is found by the UN General Assembly to violate the UN Charter should relinquish or be deprived of the power to exercise the veto. The reason for this is that the deployment of UN forces is intended to deter war, parties to a war of aggression to decide whether they should deploy to deter war. If a country

agrees to a ceasefire, the deployment of UN troops is unnecessary.

The UN veto was historically established as a method to prioritize cooperation among the major powers, based on the experience of the League of Nations' failure to stop World War II. The goal is to achieve world peace through the unanimous consent of the major powers.

However, allowing aggression by other countries in violation of the UN Charter creates the risk that aggression by war will become the norm. In such a case, the presence or absence of nuclear power could determine who wins or loses a war, and the risk of using nuclear weapons increases with each war. The result would also be an increase in the number of nuclear powers and the promotion of nuclear development. It promotes an arms race. Rather than avoiding a breakdown among the major powers, it brings about the risk of nuclear war, the risk of future world wars, an increase in puppet regimes, and an increase in dictatorships, authoritarian states, and military states that deny freedom and human rights. There is also a strong possibility of a return to imperialism. Parties to a war that has violated the UN Charter should not participate in any resolution to stop that war. We should focus solely on maintaining cooperation only among the major powers under circumstances that can be viewed objectively. If a party to a war that has violated the UN Charter is a permanent member of the Security Council, its veto power should be suspended and its participation in the Security Council is also undesirable. Unanimity among the major powers is not possible, and major UN resolutions should be passed only by those countries that abide by the UN Charter.

Conclusion of analysis

First, as long as the ceasefire condition is the abandonment of an independent state by a dictatorship or the retention of an independent state by an invaded state, ceasefire negotiations tend to be parallel unless a mediator is obtained; second, because democratic states require public consent before the decision to start the war, the obstacles to the start of the war. This is greater than in dictatorships. As a result, they tend to be able to respond only to risks that are more imminent for their countries than dictatorships. Third, the distance between a dictatorship and a country determines the decisions of its leaders. The greater the distance, the more likely it is to provide only economic assistance. The closer a country is to the point where it feels threatened if the occupation is tolerated, the more military assistance it will provide. Fourth, when a dictatorship initiates a war of aggression, neighboring countries tend to use economic sanctions to weaken the dictatorship's ability to wage war to avoid a major-power war. Fifth, it is essential to introduce a system in which the veto power of a permanent member of the UN Security Council is suspended if it violates the UN Charter or is a war party. The veto power was introduced based on the idea that cooperation among the major powers is indispensable for avoiding a world war. However, if a major power conducts a war of aggression, predicting that the other major powers fear a world war but are too afraid of it, which would not lead to a war among the major powers, it is necessary to dispatch a UN force. The emphasis on cooperation among the major powers may rather lead to the use of nuclear weapons by dictatorships and the spread of aggression around the world.

Discussion

The increase in the number of authoritarian states worldwide, especially those with permanent seats on the Council, has proven through the Ukraine crisis that it is likely to lead to a breakdown of international peace and international order that assumes no war.

To maintain the international order, the current UN and US-led international order need to be transformed. It is a reminder from World War I that the division of the great powers will lead to a world war. However, it is clear from history that the current invocation of the veto power by the permanent members of the UN Security Council prevents UN forces from intervening, resulting in the sacrifice of smaller countries. In the future, it will be difficult for the U.S. alone to intervene and lead the world to a ceasefire when it is difficult for UN forces to intervene. If the United States is allowed to use its nuclear weapons as a reason for advancing war to its advantage, it will be impossible to avoid the future promotion of nuclear weapons possession and proliferation by other nations.

Since the military power of the world's military superpowers cannot be expected, neighboring countries themselves strengthen their military capabilities. In addition, the leader of an invaded country is expected to be in the capital to inspire its citizens and military, but the leader of a dictatorship is likely to stay away from the capital and command from a nuclear shelter for fear of assassination. This is also a factor that can easily turn war into a nuclear war.

If, as a dictatorship, an ally is also a nuclear power and has veto power, the ally also has an incentive to wage a war of aggression. If an ally does wage a war of aggression, it is less likely to invite the intervention of other countries to avoid nuclear war. Nuclear and non-nuclear states have

different thresholds for inviting direct military intervention by other states even if they wage a war of aggression, and if nuclear states wage a war of aggression but are not subject to military intervention, then even if they do wage a war of aggression, after several years after waging war on one country, other countries will also wage a war of aggression. This can lower the risk to the citizens of neighboring countries, thus advancing the war of aggression in their favor. In addition, locking a country out of the banking payment system as an economic sanction is of questionable effectiveness when the allied country is an economic power. That is, simple economic support would be huge, the value of imports and exports for the dictatorship would be very large, and a new settlement system in the currency of the allied or dictatorial country would reduce the damage for the dictatorial country.

Apart from the conclusions drawn from this study's model, we would like to propose the following reforms to the United Nations.

(1) Permanent United Nations Forces

Can intervene in areas of conflict not by a Security Council resolution but by a certain number of resolutions of the UN General Assembly

(2) volunteer soldier

Volunteer soldiers may intervene in conflicts of their own free will around the world and may be accepted at the free will of the parties to the conflict. However, volunteer soldiers who are available to act when the UN Charter is violated register with the UN as volunteer soldiers, and the UN provides information to the volunteer soldiers. Currently, volunteer soldiers must have military experience, but the registration system will make it easier for those who do not have military experience to register. The size of the volunteer force is expected to grow, and even if the UN, NATO, and the U.S. are unable to move against an aggressor

state that violates the UN Charter, the force will act as a military deterrent against the aggressor state.

(3) Suspension of veto

States that violate the UN Charter, aggressor states that are resolved by the UN General Assembly to violate the UN Charter, and states that support aggressor states should lose their veto power over the war. By losing the veto, only states with veto power can implement Security Council resolutions and deploy UN forces.

(4) Wartime statements by dictators and leaders of invaded countries in the media should be made binding under international law.

For dictators, there is little incentive to defend their words and deeds, as long as their goal is to increase the probability of winning the war by catching the invading country and the international community off guard, such as not invading the entire country and not attacking its citizens. These words and deeds are used as tools to gain an advantage in the war, such as the sacrifice of civilians, the desire to advance ceasefire talks through the magnitude of civilian casualties, the delay of intervention by other countries, and the complete victory of the war such as a full-scale invasion in the meantime. The UN Charter, treaties, etc. should make them accountable for their words and actions and establish penalties not only for the aggressor country but also for the leaders themselves. Leaders of countries found to have violated the UN Charter should be required to appear before the UN in person and explain themselves as accused war criminals, even in times of war. It is essential to introduce a system similar to that used in democratic nations to interrogate members of parliament in parliament.

If the above situation does not progress, non-nuclear weapon states will always fear that nuclear weapons may be dropped on them unless they join a military alliance that includes nuclear weapon states or give up their sovereignty

as independent states. This means that we are entering an era in which nuclear deterrence will not work. To be an independent state, it will be essential to either develop nuclear weapons or join the ranks of the nuclear powers. In addition, dictators are less likely to be controlled by others, including the people, and are therefore more capable than leaders of democratic states of acting based on their own emotions and desires. If such a dictator has the power of veto, he or she is more likely to be induced to wage a war of aggression. Without a system in which military sanctions are enforced even against countries with veto power, a global arms race and nuclear proliferation will continue.

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Author: **Takaharu Ishii**

Business Breakthrough University, Departure of Management,
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Takaharu Ishii

Takaharu Ishii was appointed as a lecturer in the department of management in April 2016, specialising in developing countries.

I completed my PhD in 2009, undertaking a part-time PhD (2009-2011) and a lecturer in department of management (2011-2016, 2016-) in the study of Developing countries.

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