Stan Hok-wui Wong
University of California – Los Angeles
(Not to be cited)

Political Survival in Authoritarian Regimes

Abstract

Many authoritarian leaders are removed in coups d'etat and staging a coup usually requires only a handful of defectors. These observations reflect that the logic of political survival in dictatorship is essentially different from that in democracy: removing a dictator does not require having a challenger with a numerical advantage in terms of supporters over the incumbent. If that is the case, how can dictators maximize their likelihood of political survival? I argue that there exist two general methods: (a) regime personalization and (b) regime bureaucratization. I further argue that the choice of method affects the course of evolution of the regime. In this paper, I constructed a simple model to characterize the distinct aspects of political survival in authoritarian regimes. I also tested my arguments with Barbara Geddes' authoritarian regimes dataset. The tests not only confirm my arguments, but also challenge the existing view about the recurrent nature of coups d'etat (the so-called "coup trap" argument).

Key Words: Regime Transitions, Authoritarian Politics, Political Economy, Coups d'Etat

If most of a dictator's supporters, such as the members of the ruling party, decide to stage a *coup* to depose of their boss, the demise of the regime is very likely. Sometimes, however, *coups* involve much fewer people. Since removing a dictator can be accomplished with much fewer people than removing a democratic leader (though not necessarily easier), using a democratic voting model to understand the political survival of authoritarian regimes is problematic. An example helps to illustrate my point. Some political scientists (most notably, Bueno de Mesquita et al. (2003)) argue that political leaders would dole out private benefits to their coalition of supporters in exchange for loyalty. In a democracy, this may mean that the president gives out pork to at least a plurality, if not half, of the voting population, to win re-election. What should a dictator do to continue to stay in power? Specifically, to whom and to how many people should the dictator dole out private benefits, if she can be removed by just a random few? In this paper, I explore these questions by modeling the unique aspects of political survival in authoritarian regimes.[1][2]

It is important to note that there exist different sorts of dictatorship. For the purpose of analysis, I will focus only on three in this paper: the personalistic, single-party, and military.[3]

The central argument of this paper is that political survival of democracies is different from that of authoritarian regimes: the former involves a competition

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[1] Authoritarian regimes and dictatorships will be used interchangeably in this article.

[2] Authoritarian regimes are distinguished from democracies in that the ruling party cannot be removed by vote.

[3] See Geddes (1999) for the classification of authoritarian regimes.

in the size of support between the incumbent and the challenger, while the latter does not. A democratic president needs to contest with potential challengers to gain the support of, for example, the median voter. In contrast, the critical mass required for either seizing or staying in power in authoritarian regimes is much smaller. The median voter, even if existent, is unimportant to the outcome of authoritarian regime transitions. I further argue that dictators would rely on two methods to enhance their political survival: (a) regime personalization and (b) regime bureaucratization. The method chosen will influence the type of dictatorship into which the regime evolves.

Although the main audience of this paper are the students of regime transitions, its empirical findings may be also relevant to literature on *coups d'etat* (most notably, Londregan and Poole, 1990) and developmental states (for example, Haggard, 2004). In the case of the former group, the results of my first empirical test challenges the idea of "*coup* trap." In the case of the latter, the second empirical test shows that incentives for dictators to develop the economy vary across regime types, which may explain the inconsistent findings on the relationship between authoritarianism and economic development in previous research.

Obviously, no two dictatorships (or democracies) are exactly alike. Building a general theory compromises the reality. The compromises that I make in this paper are as follows. First, assume that dictators are interested in staying in power for as long as possible.[4]

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[4]In reality, not all dictators desire to stay in power. For one, as Barbara Geddes (2004a)

Second, my model does not consider ideology. Some dictators are more motivated by ideology than the others. Ideological differences may lead to a variation in, for example, the distribution of economic benefits across regimes. Though interesting, ideological factors play no role in my model.

This paper is organized as follows. Part I reviews literature on regime transitions. Part II offers an informal description of my model. The result of the formal model is provided in Part III. Part IV provides empirical data that comport with the model. The last part discusses the model's results and empirical implications.

Part I

Literature Review

Authoritarian regimes have long been understudied in comparative politics. Those who study them often are either area specialists or democratic theorists. The former group offers revealing insights into the inner working of authoritarian regimes through fascinating historical accounts or case studies (for instance, Stepan, 1971; Waterbury, 1981; Fitzpatrick, 1982; Farouk-Slugett and Slugett, 1987; MacIntyre, 2000; Magaloni, 2005). Interesting as these works are, they

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observes, leaders of the military regimes are relatively less attracted to political office. Huntington (1968) also contends that the military may return to the barracks as soon as they replace the chief executive.

may not satisfy those who look for general theories.

As for the latter group, their primary interest is not authoritarian regimes *per se*, but the conditions under which democratization takes place and is consolidated (most notably, Lipset, 1959; Moore, 1966; Epstein, 1984; O'Donnell and Schmitter, 1986; Collier and Mahoney, 1997; Przeworski and Limongi, 1997; Boix, 2003; Acemoglu and Robinson, 2006). These works no doubt enrich our understanding of authoritarian regimes. Yet, owing to their narrow focus on authoritarian-democracy transitions, the picture they depict is far from complete, if not based on a biased sample. As can be seen from the upper panel of Figure 1, authoritarian-authoritarian transitions greatly outnumbers authoritarian-democratic transitions.

(Figure 1 about here)

Many works focusing on the authoritarian regimes have emerged since the last decade. On the empirical side, Geddes (1999) and Cheibub and Ghandhi (2004) respectively develop a more subtle classification of authoritarian regimes. These attempts reflect scholars' growing dissatisfaction with the dichotomous regime classification (i.e. democracy v. dictatorship). Yet, how regimes evolve into different distinct types remains understudied.

On the theoretical side, McGuire and Olson (1995) study the relationship between an autocrat and her subjects. More specifically, they argue that an autocrat has an incentive to lower taxation, in order to avoid bearing the social loss assoicated with incentive-distorting taxes. Wintrobe (1998) examines the relationship between a dictator and her followers and points out a quintessen-

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tial paradox confronting all dictators: the greater their power, the less they can trust their followers. Ghandhi and Przeworski (forthcoming) observe that dictators need to generate rents to reduce the risk of rebellion. While these authors focus on a specific aspect of dictatorial politics, Bueno de Mesquita and colleagues (2003) attempt to construct a unifying framework to explain the political survival of all regimes, including, of course, dictatorships.

They argue that incumbents in authoritarian regimes, like their counterparts in democracies, have to compete with potential challengers for the support of a certain number of coalition members. On Page 86, they write,

> To depose the incumbent the challenger needs to win the support
> of at least W selectors. He also needs to attract a sufficient number
> of the incumbent's supporters that she [the incumbent] retains the
> support of less than W members of her coaliton. To achieve these
> goals the challenger forms a coalition of size W that includes at least
> one individual who is also in the incumbent's coalition.

Their argument is problematic in two ways. First, in their model, the removal of a leader depends solely on the preferences of a subset of residents known as the selectorate.[5] Those who live in the polity but outside of the selectorate (the disenfranchised) play no part in their model of regime survival. In history,

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[5] The selectorate, according to their definition, is "a set of people whose endowments include the qualities or characteristics institutionally required to choose the government's leadership and necessary for gaining access to private benefits doled out by the government's leadership (p. 42)." In the content of authoritarian regimes, the selectorate may be the members of the aristocracy, military officers, or members of a dominant ruling party.

however, dictators were often overthrown by the disenfranchised. The American, Russian, and Chinese Revolution, to name just a few, are prime examples.[6]

Even if we confine our attention to the preferences of the selectorate, their model has a more critical flaw. The number W can be arbitrary, namely, not necessarily the median voter. But no matter what W is, their argument rests on the assumption that supporters' number matters. That is, the successful seizure of power requires the challenger to outnumber the incumbent with respect to supporters. This may be true in democracies. In dictatorships, however, challengers can stage *coups d'etat* to remove the incumbents and the success of *coups* rarely depends on numerical advantages. Edward Luttwak (1968) succinctly defines *coups d'etat* as "the infiltration of a small but critical segment of the state apparatus, which is then used to displace the government from its confrol of the remainder." Luttwak's definition provides a glimpse into the nature of *coups d'etat*.[7]

Nor do successful *coups* require plotters to conspire with the members of the incumbent's coalition. Many successful *coups* were accomplished in a matter of hours. Direct confrontation with the incumbent's supporters was often avoided whenever possible. In fact, a key element of *coup* execution is to paralyze the communication and transportation systems of the government, so that

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[6]Bueno de Mesquita and colleagues do mention the possibility of revolutions in authoritarian regimes. The threat of revolts by the disenfranchised, however, does not enter into the incumbent's rational calculation in their selectorate model.

[7]As will be explained in the next section, there is a practical reason for *coup* plotters to maintain a small coalition. Too large a coalition jeopardizes confidentiality, which may enable the incumbent to preempt the *coup* attempt.

plotters can easily depose the incumbent before her supporters can react to the impending threat. Only when a coup is finished, as Farcau (1994) vividly illustrates, would the plotters make "public declaration of the coup...calling for other nonconspirators, both military and civilian, to support the *coup* or to remain neutral (p. 14)." In other words, although the existence of defectors of the incumbent's coalition may increase the probability of *coup* success, there is no theoretical reason or empirical evidence to suggest that this is a necessary condition for seizure of power.

In brief, Bueno de Mesquita and his colleagues fail to pay sufficient attention to the possibility of revolutions and *coups d'etat* when constructing their model of political survival. Clearly, such analytical oversight matters only when revolutions and *coups d'etat* affect authoritarian survival. But do they have such an effect? Statistics may give us an answer. Based on the dataset that I compiled,[8] there were 143 authoritarian regimes transitions between 1950 and 1997.[9] Of these 143 transitions, 88 involved either a *coup* or a revolution (Figure 1, lower panel).

If the majority of authoritarian breakdowns is a result of mass uprisings or *coups d'etat*, it is hard to believe that dictators do not take these events seri-

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[8] The dataset is based on data taken from Bueno de Mesquita and colleaques (2003) and Geddes (2000).

[9] Transitions include not only authoritarian-democracy transitions, but also authoritarian-authoritarian ones. Geddes (2000) counted an authoritarian regime as defunct "if either the dictator and his supporters had been ousted from office or a negotiated transition resulted in reasonably fair, competitive elections and a change in the party or individual occupying executive office."

ously. If these events enter into dictators' survival calculus and condition their decision making, any model of authoritarian survival that fails to incorporate these events stands to be far from satisfactory. Drawing from the insights of previous scholars, I intend to offer another perspective on authoritarian survival, with an explicit focus on the threats of *coups d'etat* and mass uprisings.

Part II

The Story

Consider a stylized picture of an authoritarian polity. There is a dictator, who holds the highest political office in the country. How the dictator comes to power is exogenous to the model.[10] The dictator has a coalition of supporters, drawn from the population (also known as the residents). The residents are distinguished from the dictators and supporters in two respects. First, they share no political benefits as other two groups do.[11] Second, they are the only taxpayers in the polity. As for the dictator and her supporters, both share political benefits. The key distinction between them is that the dictator can set the tax rate and determine the distribution of both political and economic benefits.[12]

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[10] It could be by inheritance or by seizure of power.

[11] The meaning of political benefits will be defined in the later paragraph.

[12] One can see a dictatorial regime as a stock company and the dictator as the largest shareholder. The largest shareholder needs not hold more than fifty per cent of the shares,

There exist different types of supporters, differentiated by their loyalty to the dictator. The true level of loyalty of the supporters is unobservable to the dictator, who nevertheless has a second-order knowledege about the distribution of the type.[13]

Political benefits refer to power to control the coercive apparatus of the state, including, but not limited to, the power to command the army, police, and security forces.[14] Note that even the dictator herself may not be able to monopolize all the political benefits for two reasons: division of labor and exchange for political support.[15]

Economic benefits simply refer to the wealth of the country. Again, the dictator does not necessarily have a monopoly over economic benefits. For example, she may need to buy supports by giving out economic benefits. In this sense, it can be said that the dictator is sharing economic benefits with her supporters and the residents.[16]

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but she nevertheless has the power to make important decisions.

[13] I believe that this is a realistic assumption. Wintrobe (1998) cogently argues that the problem confronting all dictators is that they can trust no one. A dictator can threaten their subjects, "If you do not tell me the truth, I will kill you." But he can never verify whether his frightened subjects are indeed speaking the truth or not under threat. The dictator's problem is particularly salient when it comes to the issue of loyalty. Every subject, including the would-be *coup* plotters, is inclined to claim that he is loyal to the dictator.

[14] From now on, I will use the terms "political benefits" and "political power" interchangeably.

[15] For the latter case, the early career of Pinochet as a dictator offers an illustrative example. After the seizure of power, Pinochet, who came from the army, was sharing the dictatorship with the generals from the navy and air force.

[16] From now on, for simplicity sake, we ignore the economic benefits accrued to the dictator

The objective of the dictator is to stay in power. She may lose power in one of the two ways (or both): mass uprisings and *coups d'etat*. The practical implication of saying that a dictator can be removed in a *coup* is that overthrowing an incumbent does not require having a challenger with a numerical advantage in terms of supporters.

Mass uprisings refer to the political mobilization against the regime by the residents, while *coups d'etat* refer to attempts to remove the dictator by some of her supporters.[17] Note that they are not mutually exclusive events. In fact, mass uprisings usually involve a *coup* at some point. A notable example is the October Revolution in Russia in 1917. The Bolsheviks orchestrated a brilliantly executed *coup*, which successfully paralyzed the Kerensky government and paved the way for the subsequent revolution.[18]

To survive, the rational dictator needs to reduce the probabilities of both events. What can she do? She can take two actions: (1) reduce the share of political benefits of her coalition of supporters and (2) reduce the net tax imposed on the residents. The logic for these two actions will be explained immediately.

First, consider economic benefits. The more the national wealth (for in-

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(i.e. only the economic benefits of the supporters and residents are considered). That is, economic benefits are assumed to be divided between the supporters and residents.

[17] Technically, a coup can be initiated by someone other than the dictator's supporters. Sometimes, ironically, even the dictator herself needs to stage a coup to reinforce her power. For instance, Guangxu, the second to last emperor of China, launched a failed coup against anti-reformists.

[18] See Farcau (p. 76-77, 1994) for a detailed analysis of the Bolsheviks' coup strategy.

stance, the aggregate taxation) transferred away from the public to the ruling clique, the larger the mass uprisings would be, if they occur.[19] An extreme example would be kleptocracy, where all taxes go to the rulers' own purse and public welfare is non-existent. For such kind of government, few would defend it in times of political crisis, except for, perhaps, a coterie of the dictator's supporters. Rather, many would be attracted to revolutionary camp. Intuitively, dictators are more easily toppled by large uprisings than small ones. Therefore, the dictator may, *ceteris paribus*, want to increase the residents' share of economic benefits in order to reduce the size of potential mass uprisings and hence the likelihood of being overthrown.

While economic benefits affects the size of mass uprisings (which in turn affects the probability of the dictator's political survival), political benefits have a strong influence over the risk of *coups d'etat*. To see this, one should consider the nature of *coups d'etat*. *Coups d'etat* differ from democratic elections in one important aspect: size of support does not matter.[20]

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[19]Two points merit elaboration. First, clearly, the distribution of economic benefits is not the sole determinant of the size of mass uprisings. Other factors including the level of repression exist. Second, economic benefits affect the size of mass uprisings, not their likelihood. I simply assume that the probability of mass uprisings is independent of economic benefits. Namely, a mass uprising may occur at any time, regardless of the level of economic benefits the residents enjoy. Of course, some may counter-argue that mass uprisings are more likely to occur when the residents receive less economic benefits. Yet, even if this is true, the intuition of my argument remains intact because the probability of overthrowing the dictator is still increasing in the economic benefits taken away from the residents

[20]The other differences between *coups d'etat* and democratic elections include timing and participants. Staged elections notwithstanding, democratic elections generally have a publicly

In democratic elections, success hinges upon size of support (i.e. electoral votes). The success of *coups*, however, may not depend on this factor. In fact, because of its clandestine nature, a *coup* often involve only a few people in the first place.

When size of support does not matter much, what can a dictator do to lower the risk of *coups d'etat*? Powerless as she may seem, the dictator can nevertheless reduce the probability of *coups d'etat* by manipulating the distribution of political benefits.

Although the success of a *coup* does not depend on the number of people involved, it does depend on the number of *important* people involved. Adding an extra police officer to the team of *coup* plotters probably has no effect on the *coup* outcome, yet attracting another general from the army to join certainly increases the likelihood of *coup* success. The difference lies in the varying degrees of political resources possessed by the police officer and the general. In this case, obviously, the latter commands significantly more political benefits than the former. Succinctly put, the effect of political benefits on *coup* outcomes is twofold. First, those who possess more political benefits, such as the general, tend to have more resources to be used to organize the coup. These resources can

announced date, known at least a short time before they are held. In contrast, the occurrence of *coups d'etat* often comes as a surprise, at least to the target to be overthrown – that is, the incumbent. In fact, a non-surprising *coup* is likely to fail, as the incumbent can preempt.

Nor are the *coup* participants known by the incumbent in advance. Again, if this is not the case, the dictator may preempt the trouble-makers well in advance and hence no *coup* will occur.

be tangible things such as artillery and soldiers or intangible matters including informational advantages.[21] Second, more political benefits usually come with more reputation, which is necessary to install a new regime. Consider again the police officer. Even if he could successfully assassinate the dictator, he would never be named the next emperor. By backward induction, if he knows that he would never be able to take the throne, he would have no incentive to initiate a *coup* in the first place (though he may be invited to join one).

In short, to enhance her chance of survival, the dictator has a strong incentive to reduce her supporters' political benefits whenever possible.[22] There are many ways to achieve this, depending on the tastes or political clout of the dictator. Brutal dictators may choose to kill their former supporters,[23] while the more benign ones may use job demotions. Sometimes job promotions may also achieve the same effect. By promoting more people to important positions, the dictator can dilute the power of the existing supporters.

The supporters are not passive, waiting for their benefits to be reduced. The deeper the cut the dictator is going to execute, the more likely the supporters are to stage a *coup* to preempt.

Hitherto, the discussion of political benefits focuses primarily on *coups d'etat.*

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[21] For instance, generals may know where the key government officials, the one to be captured in the coup, like to have dinner, but the police officer probably lack such information.

[22] In addition to the concern of political survival, the dictator has at least two more reasons to cut her supporters' political benefits. First, there is an intrinsic value of holding power - the more the better. Second, losing political benefits may also lead to losing economic benefits, as political benefits include the power to set the taxation rate.

[23] For example, Bukharin was executed under Stalin.

One may argue that even in dictatorships, there exists formal institutions of leadership removal. Namely, *coups d'etat* are not the only game in town. For example, the removal of Nikita Khrushchev was done at a formal meeting of the Central Committee. Be that as it may, having formal rules concerning leadership removal would not change the dictator's desire to decrease the benefits given to her supporters. In fact, the very reason why the dictator has to be constrained by the formal rules is that she lacks enough political power *vis-a-vis* her supporters. Therefore, the dictator's goal of reducing the probability of *coups* is consistent with that of formal removal.

Appendix A contains the main assumptions of the story.

Part III

The Model

The dictator has n supporters,[24] each of whom receives $x_t > 0$ political benefits at time t.[25] The value of x_t is assumed to be exogenously given.[26] Without adding a subscript i to x_t, I am making an assumption that the supporters

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[24] where n is exogenously given.

[25] x cannot be be zero, because ruling a polity requires at least some minimum level of coercive power.

[26] If the dictator is a successor of an authoritarian regime, x_0 could be set by the previous dictator. If the dictator is the founder of an authoritarian regime, x_0 could be set by herself before the seizure of power.

obtain homogeneous political payoffs.[27]

The concept of economic benefits is captured by R_t, which comes from the net tax that residents have to pay at time t. By net, I mean the amount of tax deducted from the welfare that an individual resident receives from the state. The net tax, therefore, can also be interpreted as a wealth transfer from the residents to the ruling elites (including the dictator and her supporters). The higher the net tax, the less social welfare the residents receive (or the more the wealth is available for the dictator and her supporters). For simplicity, assume that the dictator transfers all R_t to her supporters.[28] Each supporter receives $r_t = R_t/n$ economic benefits at time t.

The dictator's objective is to stay in power in the current and subsequent period. The dictator achieves this goal by setting the political and economic benefits for the next period (x_{t+1} and r_{t+1}).

For the political benefits, define h_{t+1} to be the amount of supporters' political benefits cut by the dictator at time $t + 1$ and $S(.)$ the dictator's survival risk function. The dictator would set the political benefits such that

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[27] This assumption has a substantive meaning. The dictator, not knowing who is loyal to her, clearly does not want to mistakenly reward her future defectors with more political benefits. Thus, the best she can do is to maintain a homogeneous payoff structure across all supporters. Note that the supporters' loyalty with respect to the dictator is observable only to themselves.

[28] Another interpretation is that r is just part of the net tax, R, that the residents have to pay. The dictator has deducted her "salary" from R and left r for her supporters.

$$h_{t+1} = \begin{cases} x_t & if \ \ x_t = x_{\min} \\ x_{\min} - x_t & if \ \ x_t \neq x_{\min} \end{cases} \tag{1}$$

where $x_{\min} = \arg\min\limits_{x} \left\{ S(x) = x + \frac{1}{x^m} + \frac{k_i a x}{1 + k_i b x} \right\}$.

For the economic benefits,

$$r_{t+1} = \frac{k_i a x_{\min}}{1 + k_i b x_{\min}}.$$

The above results are explained in Appendix B.

1 Comparative Statics

Owing to the complicated structure of $S(.)$, simulation was employed to generate comparative statics, which will be discussed below.

Dictator's Survival and Supporters' Political Benefits

(Figure 2 about here)

The probability of failure is not monotonically increasing in x; either too high or too low of x would result in a high probability of failure (See Figure 3). This is not surprising because the splits of political benefits have an *intertemporal tension*. Substantively, it means that giving too much political power to the supporters is risky because it would increase the probability of *coup* success in the next period. On the contrary, taking too much power power back, so that the probability of *coup* success in the next period is diminished, may also cause

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troubles because doing so may infuriate the supporters who may rather choose to stage a *coup* to preempt at time t.

Dictator's Survival and Supporters' Economic Benefits (or the Net Tax)

The probability of failure is monotonically increasing in the net tax, r.[29] As was explained, r represents the net transfer from the residents to the supporters. For this reason, the population becomes worse off and hence more prone to mass uprisings, when the net transfer is great.

From (2), it is clear that economic benefits are a function of political benefits: the more politically powerful the supporters, the greater the net tax the dictator needs to collect in order to please them.

Note that the net tax is monotonically increasing in K (See Figure 3). The term, K, captures the tradeoff between *coup* risks and the danger of revolutions. Recall that k_i refers to supporter i's loyalty for D. Since $r(.)$ is monotonically increasing in K, substantively, the higher the value of k_i, the more the net tax transfer is required. In other words, the more the disloyal the dictator wants to buy off, the more funds she needs to raise. Hence, to completely insure against the risk of *coups* is very costly, if not impossible.[30] This further explains the dictator's incentive to suppress her supporters' political benefits; using economic benefits to buy support to secure office is effective only up to a point,[31] beyond which she needs to resort to other political means.

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[29] Or more precisely, in $R = n \cdot r$, where n is fixed.

[30] especially when $\theta(K)$, the distribution of loyalties, is left skewed.

[31] the extent of which depends on the dictator's taste, self-confidence, capability to tax, and suchlike.

More specifically, the problem confronting the dictator is the lack of a first order knowledege about the supporters' loyalty.[32] Had their loyalties been fully observable, (A2) in Appendix B would have been written as

$$r_i = k_i(ax_i + bx_i r_i) \tag{2}$$

In (2), a subscript is attached to both x and r, indicating that the dictator can offer a tailor-made payoff scheme for each individual supporter, according to his loyalty. The payoff structure is fully efficient now.

Because (2) is unattainable in reality, the dictator needs to maintain an inefficient payoff structure. If she wants to purchase the support of i, she needs to offer him r economic benefits. The problem is that for those who are more loyal ($< k_i$) than i are also entitled to the same r as i does. The more the disloyal supporters the dictator wants to buy, therefore, the greater the deadweight loss. From this perspective, scaling down political benefits is a way to solve the inefficient distribution of economic benefits.

Multiple Equilibria

Since the probability of the dictator's failure, $S(.)$, is quadratic in x, whether or how much D chooses to change x (i.e. h_{t+1}) depends on the initial allocation of political benefits, x_t, *ceteris paribus*. In general, there exist three possible scenarios: (a) $x_t > x_{\min}$, (b) $x_t = x_{\min}$, and (c) $x_t < x_{\min}$.

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[32] Perhaps the only incidence in which the dictator comes to know the supporters' true preferences is when a *coup* is staged against her.

(a) When $x_t > x_{\min}$, the dictator should cut her supporters' political benefits for the next period. Substantively, this scenario is most likely to occur when the dictator is a founder of a regime. The reason is that seizing power and maintaining power require different levels of coercive forces. Overthrowing a regime usually involve combats and military operations. To ensure success, the dictator needs to either build a large coalition of support or attract more militarily resourceful defectors from the regime being overthrown (or both). Either way demands more power-sharing with her supporters. After seizure of power, battles subside and soldiers return home. The previous coalition of the revolt becomes oversized, if not useless. The erstwhile supporters now look more like potential challengers than comrades. The dictator, thus, has incentives to cut political benefits possessed by her supporters.

(b) When $x_t = x_{\min}$, the dictator should maintain the same level of political benefits in the next period. Substantively, this scenario tends to appear when the dictator is a successor of a single-party regime. Single-party regimes are characterized by extensive party rules and bureaucratic regulations (Geddes, 1999). Lacking the legitimacy as the regime founder, the succeeding dictator may be unable to reduce the political benefits owned by the pre-existing party leaders. Nor do those party leaders threaten to undermine the established arrangement of power-sharing. Both sides are constrained by party rules and regulations and hence maintain a balance of power for the following reasons. First, oversized coalition has been reduced by previous dictators, so what the current dictator inherits is the "optimal" allocation of political benefits. Second,

the current allocation is not optimal, but the dictator is too weak to tamper with the existing balance of power. Her weaknesses may reflect her lack of reputation (not the regime founder) and insufficient ability vis-a-vis the pre-existing ruling elite.

(c) When $x_t < x_{\min}$, the dictator should increase her supporters' political benefits for the next period. The closest substantive analog may be the successors of non-single-party regimes. While the successor may lack the ability to tamper with the balance of power, there exist little formal institutions checking ambitious supporters. The successor, thus, may be forced to give more political benefits to the supporters. Of course, such dictators are vulnerable: the supporters may simply depose the weak dictator and appropriate all political benefits, rather than waiting for the dictator's arrangement.

The location of $x_{\min}$

What determines the location of the minimum of $S(.)$? It turns out that it is the supporters' sensitivity to the political-benefit reduction, m. As can be seen from Figure 4, as m increases, the minimum of $S(.)$ shifts to the right, indicating that the more sensitive the supporters are, the smaller the room that the dictator can cut their political benefits.[33] Substantively, one can also interepret m as a measure of the relative strength of the dictator *vis-a-vis* her supporters. The relative strength refers to some idiosyncratic qualities such as social reputation, military experience, and leadership ability. Owing to the different values of m, founders and the successors of authoritarian regimes may

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[33] Assume that x_0 is not at the minimum to start with.

face different survival risks (different $S(.)$): the successors tend to have weaker relative strength than the founders. m increases and $x_{\min}$ shifts to the right. Under such circumstances, the succeeding dictator may need to increase her supporters' political benefits to lower her survival risks.

(Figure 3 about here)

Scaling Down Political Benefits

As was stated previously, there exist many ways for the dictator to scale down her supporters' political benefits. They, however, can be subsumed into two general categories: (a) reducing the aggregate size of benefits and (b) reducing the individual share. Let $X = nx$ be the aggregate political benefits held by supporters. Method (a) is equivalent to fixing n, while cutting X and method (b) fixing X, while cutting n. Obviously, the two methods are not mutually exclusive.[34]

Substantively, method (a) is analogous to what Geddes (2004b) calls "regime personalization." Geddes examines over 170 post-1945 dictatorships and finds that the size of support base tends to shrink after seizure of power. Dictators, she argues, have an incentive to personalize the regimes because authoritarian regimes need less support to remain in power than to seize power (p. 28). Pinochet is a prime example. After consolidating his power, he gradually marginalized the navy and air force from decision-making institutions, which eventually culminated in a personalistic dictatorship.

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[34]The decision that a dictator chooses one method but not another is beyond the scope of this paper.

While method (a) often implies regime personalization, method (b) is close to regime bureaucratization. Bureaucratization is not confined to the bureaucracy. It may also mean the creation or expansion of the ruling party and establishment of more decision-making positions. By enlarging her support base, the dictator can dilute the power held by her existing supporters. For instance, immediately after his seizure of power in 1961, Park Chung Hee set up various organizations such as the Korean Central Intelligence Agency and the Supreme Council for National Reconstruction to extend his power.

It is easy to see that regime bureaucratization has more far-reaching influences on the successors than regime personalization. For instance, self-succession is relatively less frequent in single-party regimes. The reason is that regime bureaucratization effectively creates more veto players in government. In isolation each supporter's "*coup*" threat is diminished. Taken together, however, they represent a stumbling block to changes in leader choice.

Part IV

Empirics

The general argument of this paper is that dictators manipulate the distribution of political and economic benefits in order to maximize their chance of political survival. Although a direct test of my argument may be difficult, it is possible to derive some testable implications from it. According to my argument, dictators

would maximize their chance of survival by reducing the political benefits of their supporters. I suggested two ways of achieving this: regime bureaucratization and regime personalization. I also argue that regime bureaucratization has more far-reaching influences on the successors than regime personalization.

If my conjecture is correct, then we would expect to see *coups d'etat* occur more frequently in less bureaucratized regimes. Although there exists no direct measure of regime bureaucratization, we can use a commonly empolyed regime classification as a substitute. Geddes' (1999) classification includes three generic types: the military, the single-party, and the personalistic. Of the three generic types, single-party regimes tend to have the most elaborate bureaucratic structure, given the dominant position of the party organ.

Hypothesis 1. Coups e'tat *occur least frequently in single-party regimes, more frequently in the personalist ones, and most frequently in military regimes.*

The reason that personalist regimes are placed in the middle is that they are less bureaucratized compared to single-party regimes. In addition, as discussed in the previous section, successors of personalistic regimes tend to face higher risks than their counterparts in single-party regimes. Thus, on average, we would expect to see more coups in the former regimes than in the latter ones. Leaders of military regimes that have successfully personalized or bureaucratized are coded, respectively, "personalistic" or "single-party" by Geddes. Those regimes left in the "professionalized military" category are those that have neither personalized nor increased the number of supporters via the creation of an influential support party. As a result of Geddes' coding scheme, they are regime that have chosen

neither of the survival strategies. The reason for doing nothing is probably that in military regimes, as Geddes (2000) observes, leaders, who come from the officer corps, have a relatively low exit cost as dictators, for they often find it easy to return to the barracks when things turn out of control.

Next, consider the risk of *mass uprisings*. As my model predicts, after reducing *coup* threats, a dictator will lower the net tax imposed on the residents in order to alleviate the risk of mass uprisings. The model also suggests that it is hard for successors in single-party regimes to reduce the political benefits of the existing supporters due to entrenched formal, party rules.

Taken these observations together, we would expect to see a positive relationship between net tax levels and dictators' length of tenure in more personalist regimes.[35]

Hypothesis 2. A positive relationship between net tax levels and dictators' length of tenure is more salient in personalist regimes than in military and single-party regimes.

To measure net tax rate, I used two proxies: central government's expenditure on education as a share of GDP, central government's expenditure on health as a share of GDP. The higher the government's expenditures on these goods desired by the residents, the lower is the net tax rate. Both variables are lagged one year. Note that the dependent variable is the length of tenure of the chief executive, not that of the regime.

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[35] Dictators in military regimes tend to invest less in the reduction of coup risks for the reason stated above.

Data on *coups d'etat* come from Bueno de Mesquita and colleagues' *The Logic of Political Survival Data Source* (2003). They used Arthur Banks' *The Cross-National Time-Series Data Archive* to construct the *coups* variable. Regime classification is based on Geddes' dataset of authoritarian regimes (1999). All other data come from the dataset of Przeworski and colleagues (2000).

2 Methodology

Because the dependent variable, *coups*, is dichotomous, I used logit to test Hypothesis 1 with a panel dataset covering the period between 1950 and 1999. I employed some standard control variables including recent successful *coups*, economic growth, and the log of GDP, as were used in Londregan and Poole (1990) and Galetovic and Sanhueza (2000). This past research finds that while recent successful *coups,* defined by successful coups occurred within the last five years, encourage more subsequent *coups*, economic growth and high levels of income tend to inhibit them.

In addition to these three controls, I also included the log of population, and ethno-linguistic fractionalization. Collective action costs increase with population size. Successful mass uprisings, therefore, may be less likely in countries with a sizable population. Fewer mass uprisings may in turn reduce the likelihood of internal dissension of the regimes (i.e. *coups d'etat*). Fragmented ethno-linguistic social structures may intensify political competition. Groups outside the governing coalition may stage *coups* in order to seize the lost power.

The estimation strategy for Hypothesis 2 is ordinary least squares (OLS) with panel-corrected standard errors (PCSE's), recommended by Beck and Katz (1995). I regressed the length of dictators' tenure respectively on the variables of interest, central government's health and education expenditures (proxies for the level of net tax), together with a few control variables. It is possible that the longer a dictator has been in power, the more likely she would continue to stay in power. Such an autocorrelation problem may create bias in the OLS estimates. To check if autocorrelation exists in the dependent variables, I applied Woodridge test for autocorrelation by using STATA's `xtserial` command, which shows that first-order serial correlation does exist. I corrected the problem by using autoregressive model (AR1) in the OLS with PCSE.

Control variables include economic growth, the log of GDP, the log of population, the level of ethnic fractionalization, and wars. Economic growth is likely to strengthen the power of the incumbent. The reason for controlling for GDP is that low welfare can be a result of two factors. One is that the dictators are not willing to offer more welfare. Another is that dictators are unable to collect taxes and hence lead to a lower level of welfare. Controlling for GDP reduces the influence of the second factor because a government's ability to collect taxes should be highly correlated with the level of development of the country. Ethnic fractionalization may lead to intense political contests, which may in turn stimulate more *coups* and hence reduce the tenure of the executive. Social welfare tends to be underprovided during periods of war. Including the variable of wars, which takes a value of 1 if a civil or interstate war occurs in the year and 0

otherwise, prevents the omitted variable bias. Central government's health and education expenditures, economic growth, and the log of GDP are all lagged by one year.

3   Samples

Ideally, all authoritarian regimes should fall into one of those three generic categories (i.e. the personalistic, the single-party, and the military). The reality is more complicated, however. As Geddes suggests, "in the real world, many regimes have characteristics of more than one regime type." For this reason, her dataset contains some hybrid categories[36] in addition to the three ideal types. These hybrid categories reflect a lack of agreement about coding between area specialists rather than distinctive species of regimes. To prevent measurement errors introduced by these controversial cases, I included only the unambiguous cases – that is, those belong to one of the three pure types – in the regression samples. Fortunately, the loss of cases is limited. Cases that fall under the pure types make up more than 75 per cent of total cases.

4   Results

Table 1 presents the regression results related to the test of Hypothesis 1. Model 1 is a baseline model, intended to replicate the models of previous research

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[36] The hybrid categories are military/personalistic hybrid, single-party hybrid with either the military or the personalistic, and military/single-party/personalistic amalgam.

(Londregan and Poole, 1990; Galetovic and Sanhueza, 2000).

(Table 1 about here)

As is shown in column one, recent successful *coups* are positively correlated with *coups* in the current period, while lagged growth and lagged GDP tend to inhibit coups. These results are consistent with the previouse research findings. Nevertheless, the effects of recent successful coups and lagged GDP are not statistically significant even at 10 per cent. The log of population and ethno-fractionalization have no statistically significant effects on *coups d'etat* either.

Interestingly, as I added the variables of interest, regime types, in Model 2, the effect of growth, which is statistically significant in Model 1, becomes in-significant at 10 per cent. What is statistically significant now is the regime dum-mies (i.e. Personalistic Regime and Single-Party Regimes) and ethno-linguistic fractionalization. How should we interpret the negative coefficients of those regime dummies? Note that the military regimes are chosen as the base group. The negative signs of the single-party and personalistic dummies, therefore, in-dicate that these two regime types have fewer coups than military regimes on average. Since the coefficient of the single-party dummy is smaller than that of the personalistic one, Hypothesis 1 is confirmed. In fact, the difference is also substantively significant, as the personalistic coefficient is almost twice as large as the single-party coefficient (-1.37 v. -2.66). Single-party dictators are much less vulnerable to *coups d'etat* than their personalistic counterparts.

The findings here challenge the existing views regarding the causes of *coup d'etat*. The variables that display important effects on the occurance of *coups*

d'etat in previous research become statistically insignificant once we control for regime types. Sepcifically, the claim of "*coup* trap" is not substantiated by the data. It may not be the case that "once the ice is broken, more coups follow (Londregan and Poole, 1990)." Rather, those who inherit a particular regime type are more susceptible to *coup* attempts than others.

Table 2 shows the results of the test of Hypothesis 2. I ran the same regression models in three separate samples: the personalistic, the single-party and the military samples. As can be seen from the table, the variables of interest, central government's education and health spendings, are consistent with my expectation across all models: they are statistically and substantively significant only in the sample of personalistic regimes.

(Table 2 about here)

Education Spending

Model 1 of the personalistic sample shows that a one per cent increase in the central government's education spending would lengthen a dictator's tenure by 1.53 years. If a dictator makes a two standard deviation increase in education spending, then he can stay in power for about seven more years (2X2.19X1.53=6.7). This change is substantively important, considering that the average tenure for dictators is just seven years. The effect is also statistically significant at 0.01 level.

The effect of education spending on the tenure of single-party dictators is modest. A one per cent increase lengthens a dictator's tenure by only 7 days (365daysX0.02=7.3days). Nor is the effect statistically significant. As for mili-

tary regimes, education spending actually shortens a military dictator's tenure. This coefficient is statistically insignificant, however.

Health Spending

Health spending has an even bigger effect on personalistic dictators' tenure than education's. A one per cent increase in health spending results in almost three more years (2.82) in office. Why would health spending have a bigger effect? My conjecture is that investments in health tend to generate more visible and immediate results than those in education and therefore, the incumbents can earn more credit in consequence. The effect of health spending is also statistically significant at 0.01 per cent in the personalistic sample.

It seems that single-party dictators should also invest more in health, as Model 2 of the single-party sample indicates that health spending is positively correlated with the incumbent's tenure. A one per cent increase in health spending adds one more year of tenure. The effect, however, is statistically insignificant.

The military sample shows some interesting pattern; the more the incumbent spends on health investments, the shorter her tenure is. More specifically, a one per cent increase in health spending reduces a military dictator's tenure by more than one year (-1.11). The relationship is statistically significant at 10 per cent. This result is not surprising, when one considers that military dictators generally have a much lower exit cost than other dictators, as they can often return to the barracks. For this reason, their incentive to regime bureaucratization or personalization, as a way to reduce the political benefits,

x, of potential plotters, is relatively weak. My model predicts that lowering the net tax, r (i.e. increasing the social welfare such as education and health spending) while leaving x unchanged is likely to disappoint the supporters and hence increase the likelihood of *coups d'etat*.

Other variables

Both war and growth rate seem to have no statistically significant relationship across all models and samples. Income level, measued by Logged GDP lagged by a year, is negatively correlated with the length of tenure in personalistic and military regimes. But its effect is statistically significant only in personalistic regimes; personalistic dictators find it particularly hard to survive in rich countries. The relationship between population size and incumbent's tenure is also statistically significant in the personalistic samples. The more populous a country is, the longer a personalistic dictator can stay in office.

Finally, ethno-linguistic fractionalization has hugely diverging effects on different regimes. It is negatively correlated with the executive's tenure in both personalistic and military regimes. The relationship is less statistically significant in the personalistic sample, but highly significant in the military sample. As for single-party regimes, high ethnic fractionalization is actually advantageous to the incumbents. A one standard deviation rise in ethno-linguistic fractionalization seems to increase a dictator's tenure by about 9 years (30.66X0.3=9.2). The effect is very big and statistically significant. That said, one should interpret this result with caution. Many single-party dictatorships have formal regulations over the executive's tenure. Ethno-linguistic fractionalization may

not necessarily enable the incumbent to self-succeed in defiance of the party rule. Rather, it may well be the case that ethnic fractionalization induces the ruling party to set a longer term of office for the executive, to foster political stability. At any rate, the result here seems to suggest that regime bureaucratization, exemplified by single-party rule, can reduce the political threats of ethnic fractionalization significantly more than regime personalization (i.e. personalistic regimes) or doing nothing (i.e. military regimes).

In summary, the results displayed in Table 2 confirms the Hypothesis 2: welfare promotion as a strategy to secure office is particularly relevant to personalistic dictators. In the literature of developmental states, one of the most controversial argument is that authoritarianism has positive effects on economic development. The main idea of this argument is that authoritarian regimes are less susceptible to the influences of special interests and hence are more capable of promoting proinvestment policies and maintaining macroeconomic stability.[37] Although the current empirical test provides no definitive answer to the question, it does indicate that incentives to provide welfare vary from dictator to dictator, dependent on the regime type that they inherit or create. For this reason, empirical researchers on this subject should re-consider the validity of applying a simply dichotomy of authoritarianism v. democracy.

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[37] Haggard (2004) provides a nice summary of the causal mechanisms between authoritarianism and growth.

5 Robustness Check

The difference in data source may cause the null result found in this paper. I used the data of Arthur Banks' *The Cross-National Time-Series Data Archive*, while Londregan and Poole (1990) and Galetovic and Sanhueza (2000) employed Jodice's and Taylor's *World Handbook of Political and Social Indicators III* (henceforth the *World Handbook*). These two datasets differ in at least two respects. First, Banks' dataset contains many more years than the *World Handbook*.

The second difference between the two datasets comes down to a matter of coding. In the *World Handbook*, *coups d'etats* are defined as "unsuccessful irregular executive transfer" (failed *coups*) and "successful irregular executive transfer" (successful *coups*), while in the Banks' dataset, *coups* are defined as "extraconstitutional or forced changes in the top government elite and/or its effective control of the nation's power structure in a given year." Their term "*coup*" also includes the term "successful revolution." Unsuccessful *coups*, however, are not counted in their dataset. Perhaps for this reason, the correlation between these two datasets' *coup* variables is just 0.58.

To prevent potential bias caused by coding erros, I re-ran all the regressions related to the test of Hypothesis 1 with the data in the *World Handbook*. The effect of recent *coups*, as previous reseach finds, is statistically significant now, but only insofar as the regime dummies are not controlled for.[38] In other words, Hypothesis 1 is confirmed again.

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[38] The results are available from the author upon request.

Part V

Discussion

Many comparativists try to apply, in one way or another, the theoretical framework of democracy to the study of authoritarian regimes. Yet, doing so often leads one to oversee some interesting aspects of authoritarian regimes. This paper is intended to shed new lights on these interesting aspects.

First, this paper departs from literature on regime transitions by explicitly modeling both political and economic benefits. The reason for doing so is to highlight the fact that dictators have two different games to play regarding their political survival. One game is between dictators and their supporters and another between dictators and the residents. Theorists, especially those who are accustomed to the theoretical framework of democracy, tend to ignore the distribution of political benefits between dictators and their supporters. The reason is probably that the distribution of political benefits in democracy is often a constant, not a variable. The power of the executive is largely constitutionally provided. She cannot purge political rivals. She cannot succeed herself arbitrarily and indefinitely. In short, unlike her counterparts in dictatorships, she cannot "personalize" the regime in any meaningful sense of the word. Yet, regime personalization is not uncommon in dictatorships, as Geddes (2004) demonstrates.

For this reason, theorists of regime transitions are accustomed to modeling

the distribution of economic benefits, i.e. pork, rather than that of political benefits. For instance, Bueno de Mesquita and colleagues (2003) make no distinction between political and economic benefits.

My model's second point of departure from recent works on regime transition is that it explicitly models the political uncertainty unique to authoritarian regimes. Power transition in democracies, as Przeworski argues, is uncertain, as the results of democratic elections are uncertain. Though facing fewer electoral uncertainties than in democracies, dictatorial leaders are confronted with grave political survival risks characterized by *coups d'etat*. For this reason, a realistic model of regime transition in authoritarian regimes should focus on the uncertainties of internal dissensions, not electoral uncertainties.

To eliminate the risk of *coups d'etat* is hard because to stage a *coup,* it may take only a handful of military officers. What a dictator can do, as I argue in this paper, is to cut the political power of potential defectors whenever possible. Or at least, she should guarantee that her loyal fraction is properly fed, so that in times of *coups*, she still has someone to fight for her. As the uncertainty of political survival faced by dictators markedly differs from that faced by democratic leaders, the way of modeling should also be different. For example, electoral competition models are not applicable to the political survival of authoritarian regimes because there exists no unique point of contest, such as the median voter, between the incumbent and would-be challengers. Technically, this implies that the action space of the both players is not continuous and hence, according to Kakutani's fixed point theorem, no Nash equilibrium exists.

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Appendix A

Assumption 1A. The objective of the dictator is to stay in power at time $t + 1$.

Assumption 1B. The objective of the supporters is to maximize their political and economic benefits at time $t + 1$.

Assumption 1C. The objective of the residents is to maximize their economic benefits at time $t + 1$.

Assumption 2A. Economic benefits refer to the size of the economy before tax.

Assumption 2B. Political benefits refer to the power to control the coercive apparatus of the state.

Assumption 2C. Political benefits are zero-sum, divided between the dictator and her supporters.

Assumption 2D. Economic benefits are zero-sum, divided between the supporters and the residents.

Assumption 3A. Supporters are drawn from the population by either Nature or the dictator herself *a priori*, depending on the identity of the dictator. If the dictator is a founder of a regime, she selects the supporters herself. If the dictator is a successor of a regime, it is Nature who selects the supporters for her.

Assumption 3B. There are different types of supporters differentiated by their loyalties for the dictator.

Assumption 3C. Supporter i's type is drawn from a probability density function K, which is normally distributed.

Assumption 3D. Supporter i's type is observable only to himself.

Assumption 3E. The dictator knows the probability density function K, though he has no information about each supporter's type.

Assumption 4A. At time t, the dictator decides the splits of both political and economic benefits for time $t + 1$.

Assumption 4B. The dictator's decision, which is public information, will be realized at time $t + 1$.

Assumption 4C. After observing the dictator's decision, at time t, the supporters decide whether to attempt a *coup* or remain loyal.

Assumption 4D. After observing the dictator's decision, at time t, the residents decide whether to start a mass uprising or not.

Assumption 4E. A *coup* can be organized by $n \geq 1$ supporters, while a mass uprising by $n \geq 1$ residents.

Assumption 5A. The dictator loses power when either one of the following events (or both) succeeds: (a) *coup* and (b) mass uprising.

Assumption 5B. When the dictator loses power at time t, a new dictator will be drawn randomly from among the *coup* plotters or revolutionaries (or both) at time $t + 1$, depending on the event in which the former is deposed.

Assumption 5C. When a *coup* or a mass uprising fails at time t, the dictator

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continues to stay in power at time $t+1$, while *coup* plotters and revolutionaries will lose all their benefits (economic and political) previously held.

Assumption 5D. The supporters' inclination to attempt a *coup* at time t decreases in their political and economic benefits received at time $t+1$.

Assumption 5E. The probability of *coup* success at time t increases in the coup plotters' political benefits at time t.

Assumption 5F. The probability of success of mass uprising at time t increases in the net tax at time $t+1$ (i.e. decreases in the residents' economic benefits).

Appendix B

The dictator aims at lowering her survival risk S:

$$\min_{x,r} S(x,r) = v(x) + w(r), \tag{A1}$$

where $v(x)$ denotes the risk of *coups d'etat* and $w(r)$ the risk of mass uprisings.

First, consider the risk of *coups d'etat*, which consists of two components:

$$v(x) = g(x) + f(x),$$

where $g' > 0$, $g'' \leq 0$ and $f' < 0$, $f'' \leq 0$. The first component, $g(x)$ is the probability of *coup* success at time $t+1$, while the second component, $f(x)$, the probability that supporters would attempt a coup at time t. For simplicity, Iet $g(x) = x$ and $f(x) = x^{-m}$. Then,

$$v(x) = x + \frac{1}{x^m}$$

The dictator's minimization problem with respect to the risk of *coups d'etat*, thus, is as follows:

$$\min_x \ x + \frac{1}{x^m}$$

Next, consider the risk of mass uprisings. As was explained, the risk of mass uprisings increase with the net tax. For simplicity, let $w(x) = r$.

Hence, the dictator's minimization problem with respect to the risk of mass uprisings is

$$\min_r \ r \quad \text{s.t.} \quad r \geq k_i B(x, r; s) \tag{A2}$$

The constraint in (A2) is concerned about the supporter i's decision between loyalty and defection. If the supporter chooses to be loyal, he receives economic benefits, r, from the dictator. When he defects, he gets $B(x, r; s)$, which takes the following functional form:

$$B(x, r; s) = s \cdot p(x, r),$$

where s is the payoff that he obtains when his *coup d'etat* succeeds and $p(x, r)$ is the probability of success. For simplicity, I normalize s to 1. The probability of success is a function of both supporters' political benefits and the size of potential mass uprisings. A *coup* staged by the defense minister (who

has a high x) is more likely to succeed than one organized by a regular police officer (who has a low x_t). A *coup* is also more likely to succeed when public discontent with the existing regime runs high,[39] which can be captured by the amount of net tax imposed on the residents. It is noteworthy that the influence of the supporters' political benefits is much greater than that of the size of potential mass uprisings in determining the success of failure of a *coup*; a *coup* orchestrated by the defence minister is still more likely to succeed in times of low public discontent than one staged by a police officer in times of high public discontent. Formally, $p(\text{high } x)$ first order stochastically dominates $p(\text{low } x)$:

$$p(r|x_i) > p(r|x_j),$$

where $x_i > x_j$, for all $i \neq j$.

To characterize the stochastic dominance of $p(.)$, I use the following equation:

$$p(x, r) = ax + bxr,$$

where a and b are exogenous parameters such that $a > b$.

Now, consider k_i, supporter i's weight attached to the benefit of defection. The higher the value of k_i, the more he values revolting. This weight, therefore, can be interpreted as a measure of supporter i's loyalty with respect to the

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[39] When public discontent with the regime is high, the *coup* plotters are likely to meet with less public opposition. Their *coup* attempt may even be assisted by, if any, concurrent mass uprisings.

dictator. In the interests of simplicity, I order the set of supporters' loyalties, K, from highest to lowest: $k_1 < k_2 < ... < k_i < ... < k_n$. Also, let K follow a distribution whose density function is $\theta(K)$. Although supporters' individual loyalty, k, is unobservable to the dictator, she nevertheless has a "second-order" knowledge about the distribution of their loyalties, $\theta(K)$.

In brief, if the dictator wants to have supporter i to remain loyal, she needs to ensure that

$$r \geq k_i(ax + bxr)$$

or equivalently,

$$r \geq \frac{k_i ax}{1 + k_i bx} \tag{A3}$$

Plug (A3) into (A2), we have

$$\min_r \ r \quad \text{s.t.} \quad r \geq \frac{k_i ax}{1 + k_i bx}$$

It is easy to see that the dictator can solve the minimization problem with respect to the risk of mass uprisings by setting

$$r = \frac{k_i ax}{1 + k_i bx}$$

With different sources of risks explicitly defined, we can write down the dictator's general minimization problem (Equation A1):

$$\min_{x,r} S(x,r) = \min_x S(x)$$

$$= \min_x \ x + \frac{1}{x^m} + \frac{k_i a x}{1 + k_i b x} \qquad \text{(A4)}$$

At time t, the dictator needs to determine the splits of political benefits and economic benefits for the next period – that is, x_{t+1} and r_{t+1}. For the political benefits, define h_{t+1} to be the amount of supporters' political benefits cut by the dictator at time $t+1$. With Equation (A4), it is easy to see that
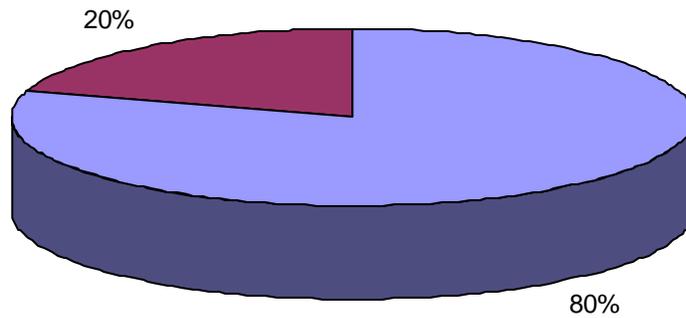
$$h_{t+1} = \begin{cases} x_t & if \ x_t = x_{\min} \\ x_{\min} - x_t & if \ x_t \neq x_{\min} \end{cases} \qquad \text{(A5)}$$

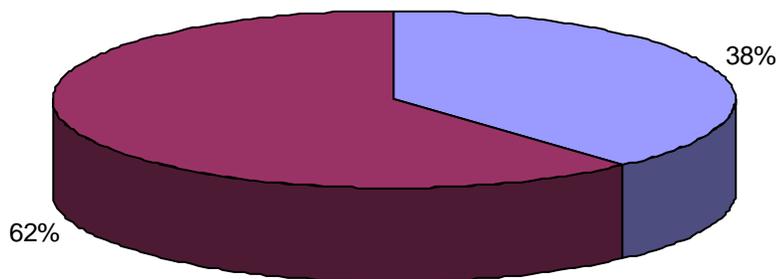where $x_{\min} = \arg\min_x S(x)$.

For the economic benefits,

$$r_{t+1} = \frac{k_i a x_{\min}}{1 + k_i b x_{\min}}.$$

Relative Frequencies of Types of Regime Transitions in Dictatorships

20%

80%

☐ Authoritarian-Authoritarian Transitions ☐ Authoritarian-Democratic Transitions

Relative Frequencies of Regime Changes With and Without Coups and Revolutions in Dictatorships

38%

62%

☐ Regime Change without Coups and/or Revolutions
☐ Regime Change with Coups and/or Revolutions

Figure 1.

Figure 2. Logit transformation is applied to ensure that S(.) is bounded between 0 and 1. For illustrative purposes, the following hypothetical values are used: a=0.2, b=0.1, and m=0.2. As the picture shows, the dictator's survival risk is quadratic in x, but monotonically increasing in k; the curve shifts up as the value of k increases.
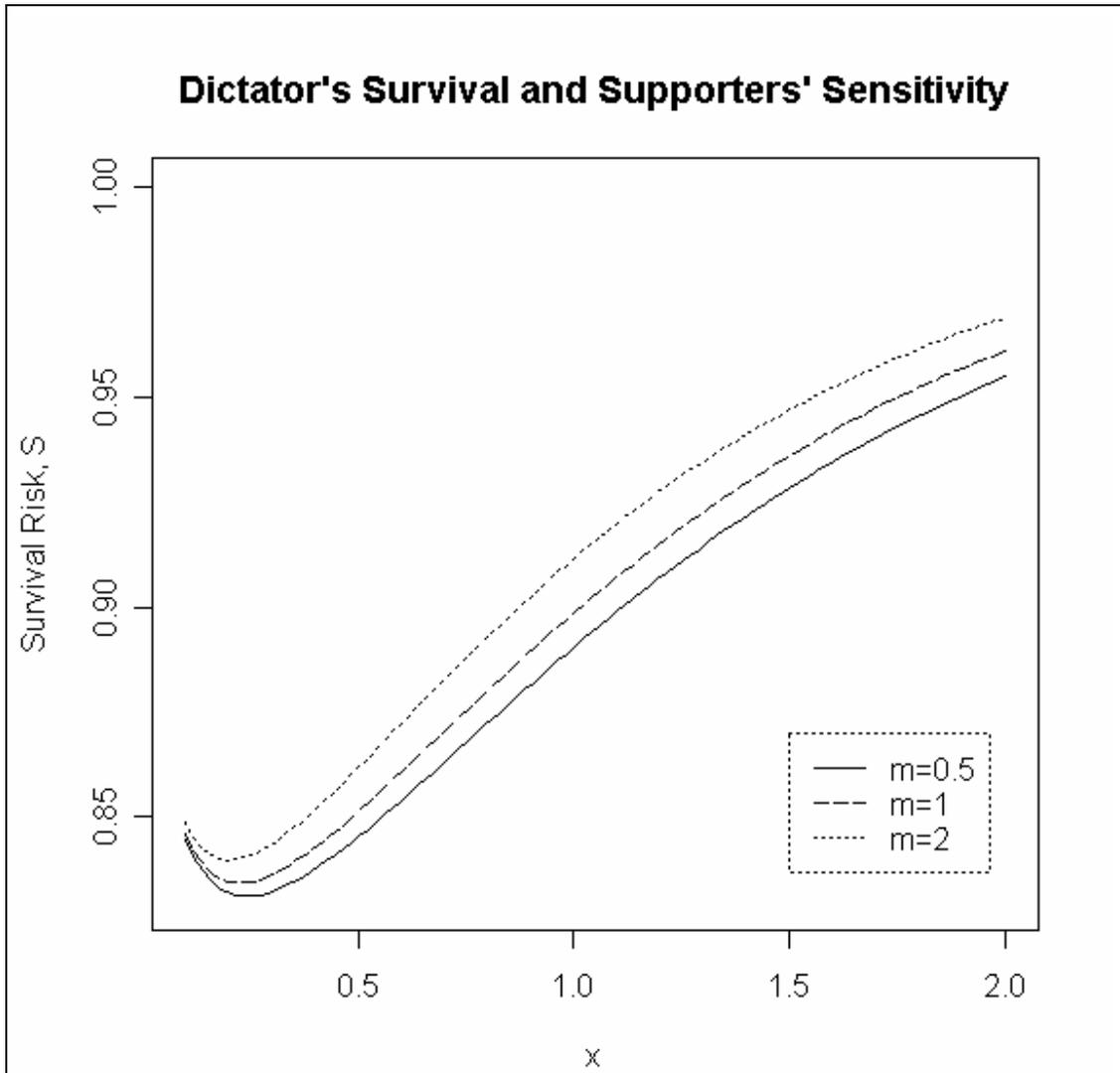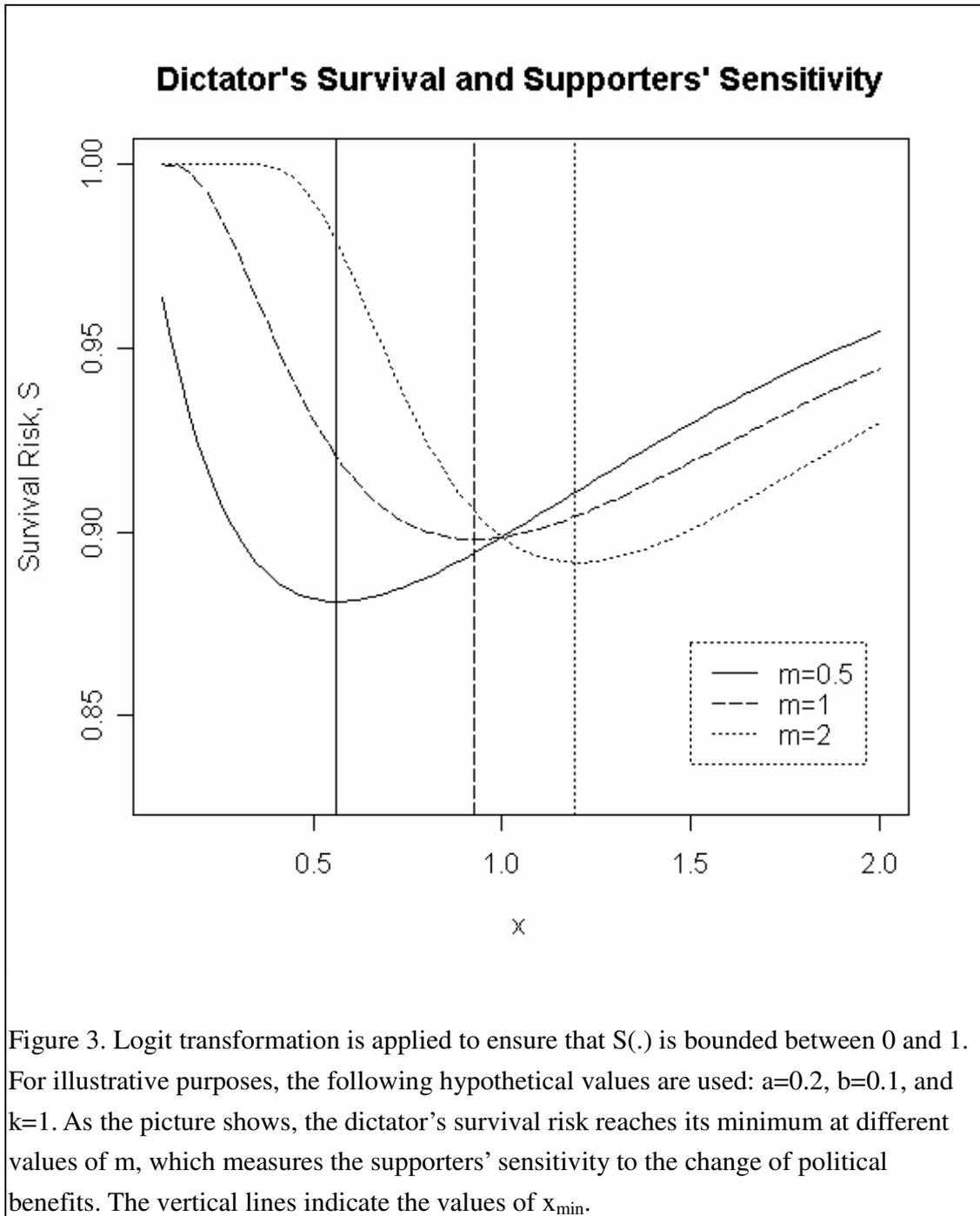
Figure 3. Logit transformation is applied to ensure that S(.) is bounded between 0 and 1. For illustrative purposes, the following hypothetical values are used: a=0.2, b=0.1, and k=1. As the picture shows, the dictator's survival risk reaches its minimum at different values of m, which measures the supporters' sensitivity to the change of political benefits. The vertical lines indicate the values of x_{min}.

Table 1. Coups and Regime Types

	Model 1	Model 2
Personalistic Regimes		**-1.37***
		(0.36)
Single-Party Regimes		**-2.66***
		(0.48)
Recent Successful Coups	0.57	0.14
(mean=0.04, s.d.=0.19, range=0 - 2)	(0.37)	(0.46)
Growth Rate Lagged 1 Year	-0.03**	-0.03
(mean=2.23, s.d.=6.29, range=-47.40 - 67.04)	(0.02)	(0.02)
Log GDP Lagged 1Year	-0.35	-0.90
(mean=3.38, s.d.=0.43, range=2.35 - 4.26)	(0.73)	(0.71)
Log Population	0.22	-0.43
(mean=3.88, s.d.=0.73, range= 1.78 - 6.05)	(0.38)	(0.33)
Ethno-Linguistic Fractionalization	0.34	1.70***
(mean=0.40, s.d.=0.30, range=0 - 0.93)	(0.77)	(0.65)
Constant	-2.54	2.87
Log Likelihood	-307.18	-233.54
N	1477	1088
Number of Cross-sectional Units	70	57

Note: Dependent variable is coups, a binary variable that takes a value of 1 if a coup occurs in the year and 0 otherwise.
Model 1 and 2 are run with a sample containing Personalistic, Single-Party, and Military regimes (classified by Geddes 2000)
Military regimes serve as the base sample in Model 2.
Regional dummies are not reported. N=country year. Standard errors are in parenthesis. * $p<0.1$, ** $p<0.05$, *** $p<0.01$.

Table 2. Welfare Spending, Executive Tenure, and Regime Types

	Sample					
	Personalistic Regimes		Single-Party Regimes		Military Regimes	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Education Spending Lagged 1 Year	**1.53*****		**0.02**		**-0.04**	
(mean=3.99, s.d.=2.19, range=0.06 - 12.62)	(0.47)		(0.50)		(0.35)	
Health Spending Lagged 1 Year		**2.82*****		**1.07**		**-1.11***
(mean=2.43, s.d.=1.94, range=0.11 - 10.67)		(1.01)		(1.02)		(0.66)
Growth Rate Lagged 1 Year	0.05	0.04	-0.02	-0.02	0.01	0.00
(mean=2.23, s.d.=6.29, range=-47.40 - 67.04)	(0.03)	(0.03)	(0.04)	(0.04)	(0.05)	(0.05)
Log GDP Lagged 1Year	-15.37***	-14.70***	10.75	11.15	-2.01	-3.41
(mean=3.38, s.d.=0.43, range=2.35 - 4.26)	(4.03)	(4.31)	(9.25)	(9.30)	(2.72)	(2.56)
Log Population	7.62***	7.00***	-4.56	-5.11*	1.27	0.77
(mean=3.88, s.d.=0.73, range= 1.78 - 6.05)	(2.50)	(2.50)	(3.08)	(2.83)	(1.22)	(0.84)
Ethno-Linguistic Fractionalization	-3.36*	-1.52	30.66***	33.73***	-4.89***	-4.82***
(mean=0.40, s.d.=0.30, range=0 - 0.93)	(1.94)	(2.41)	(9.39)	(9.70)	(1.79)	(1.56)
War	-1.68	-0.96	-.12	-0.21	0.84	0.55
	(2.40)	(2.71)	(2.81)	(2.85)	(2.16)	(2.16)
Constant	39.81	41.64	-23.59	-23.84	5.51	13.28
rho	0.59	0.66	0.75	0.74	0.43	0.40
R-squared	0.19	0.17	0.19	0.20	0.18	0.19
N	133	133	167	165	94	97
Number of Cross-sectional Units	17	17	13	13	11	11

Note: Dependent variable for all models is chief executives' length of tenure (mean=6.92, s.d.=6.96, range=1 - 39).

All models are assumed to have an AR1 structure. Regional dummies are not reported. N=country year.

Panel-corrected standard errors (PCSEs) are in parenthesis. * $p<0.1$, ** $p<0.05$, *** $p<0.01$.