

The Foundations of Limited Authoritarian Government: Institutions and Power-sharing in Dictatorships*

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Abstract

Why do some dictatorships establish institutions that are typically associated with democracy, such as legislatures or political parties? We propose a new theoretical model of institutions and power-sharing in dictatorships. We argue that by facilitating power-sharing, political institutions promote the survival of dictatorships. However, authoritarian power-sharing through institutions is feasible only when it is backed by the crude but credible threat of a rebellion by the dictator's allies. Whereas the allies' political opportunities – rather than their focal coordination of beliefs – determine the credibility of the threat of a rebellion, institutions alleviate the commitment and monitoring problems that stem from the secrecy in authoritarian governance. We use both historical and large-N data to assess these new predictions about the relationship between political institutions, dictator tenure, and the concentration of power in dictatorships.

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1 Introduction

Tyranny, or the unconstrained rule of a polity by one person, has long been treated as the standard type of dictatorship. The classical literature on dictatorship investigated mainly personal autocracies and the mechanisms employed by dictators to govern and secure the acquiescence of their subjects ([Machiavelli 1513/1985](#); [Xenophon/Strauss 1961](#)). Similarly, the postwar literature focused on the phenomenon of totalitarianism and the means by which the dictator and his party exercised absolute control over society ([Neumann 1957](#); [Friedrich and Brzezinski 1965](#); [Arendt 1973](#); [Linz 1975, 2000](#)).¹ The more recent literature did not abandon one of the basic points of departure within the traditional research: dictatorships continue to be modeled as regimes in which a single tyrant governs free from any constraints or influence ([Tullock 1987](#); [Kuran 1991](#); [Wintrobe 1998](#); [Haber 2007](#)).

Yet for all their historical and theoretical prominence, single-ruler dictatorships constitute a minority of the universe of authoritarian regimes. As [Figure 1](#) shows, a majority of dictatorships since 1950 have had either legislatures or at least one political party. Only during the mid-seventies did the proportion of dictatorships with a legislature fall to less than 60 percent. The proportion of dictatorships with at least one political party was even larger and fluctuated between 80 and 90 percent from 1950 to 1990. Even in dictatorships without legislatures or parties, the leadership often maintains some smaller institutional body, such as a ruling council or a politburo, that may restrain the tyrannical tendencies of any single ruler.

[Figure 1](#) about here.

Why do some dictatorships establish political institutions that may constrain their leaders? We develop a new theory of institutions and power-sharing in dictatorships that

¹[Linz \(1975, 2000\)](#) is an exception in that he also examines non-totalitarian regimes.

identifies the conditions under which dictatorships establish governing institutions such as parties, committees of notables, and even parliaments. The theory also allows us to uncover the ways in which those institutions become a key component of authoritarian regimes. Specifically, they enhance the stability of power-sharing among the governing elites and thus contribute decisively to the survival of dictatorships.

We start with the basic observation that most dictators do not directly control enough resources to govern alone. Dictators therefore seek the support of a set of notables and agree to share power with them. However, an important commitment problem complicates power-sharing in dictatorships: No independent authority exists that can guarantee that the spoils of joint rule will be divided as the dictator and his allies agreed, since such an authority would imply a check on the very powers that they wish to monopolize. In other words, the power-sharing agreement constitutes the *only* source of political authority within this polity. Therefore, the central dilemma of any dictatorship is to establish a mechanism that allows the dictator and the ruling elite to credibly commit to joint rule.

We argue that power-sharing in authoritarian regimes is ultimately sustained by the ability of the ruler's allies to credibly threaten a rebellion that would replace the dictator should he violate the power-sharing agreement. The dictator violates the agreement when he refuses to share the spoils of joint rule as agreed or when he exploits his privileged access to information about the government and misrepresents the amount of benefits that may be shared. The dictator and his allies have strong incentives to establish political institutions that will alleviate these moral hazard problems because the only punishment available to the dictator's allies – the threat of a rebellion – is so crude in nature.

More precisely, we argue that a regular, institutionalized interaction between the ruler and his allies reduces the asymmetries of information that exist between them as a result of the secrecy that pervades authoritarian politics. We argue that the regular interaction

between the ruler and his allies in institutionalized bodies, such as politburos, governing councils, and legislatures, that employ respected participation and decision rules results in greater transparency among those in power. Hence, once such institutions are in place, the ruler and his allies can maintain a more stable ruling coalition under less favorable circumstances than would be possible without those institutions. In short, political institutions enhance the survival of authoritarian regimes.

Still, this effect of political institutions is conditional on a permissive balance of power between the ruler and the allies. Institutions facilitate power-sharing only when the crude threat of an allies' rebellion against the dictator is credible. We show that rulers will abandon institutions when the distribution of power within the ruling coalition shifts markedly in favor of the dictator.

Several scholars have recently examined the potential role of legislatures ([Gandhi and Przeworski 2007](#); [Wright 2008](#)), parties ([Smith 2005](#); [Magaloni 2006](#); [Brownlee 2007](#); [Geddes 2008](#); [Gehlbach and Keefer 2008](#); [Greene 2007](#)), and elections ([Levitsky and Way 2003](#); [Lust-Okar 2006](#); [Blaydes 2007](#)) in dictatorships. This body of work has made important contributions to the study of dictatorships. However, this literature remains incomplete in two ways. First, with some exceptions, the existing research focuses narrowly on the analysis of particular cases. More importantly, although it generally concludes that institutions in dictatorships facilitate authoritarian governance, this literature has not clearly identified how they do so, why the same results could not be accomplished without them, and why they are adopted in some cases but not others. We develop a theory of institutions in dictatorships that provides a comprehensive answer to this set of questions.

Notably, we depart from two predominant explanations of the role of political institutions in dictatorships. The first is that autocrats adopt institutions in order to broaden their basis of support by *coopting opposition* to the regime ([Gandhi and](#)

Przeworski 2006). By contrast, we argue that political institutions in dictatorships lead to durable ruling coalitions by reducing the moral hazard problem of *power-sharing*, whether it is among those who already support the ruler or between the ruler and newly recruited supporters.

The second predominant view holds that institutions facilitate the maintenance of *norms of collective action* among the dictator's allies or opposition (North and Weingast 1989; Myerson 2008). Although such a norm-driven coordination of beliefs is possible in principle, it is unlikely to be the key determinant of whether a rebellion against a dictator occurs or succeeds, given how high the stakes are. Instead, we argue that the key determinants of successful collective action in dictatorships are political *facts*, such as the distribution of power or the benefits from supporting the dictator, rather than a focal coordination of beliefs.

Our model of an allies' rebellion builds on the global games methodology (Carlsson and van Damme 1993; Morris and Shin 2003) and we obtain a unique equilibrium by assuming that allies do not have common knowledge of the benefit from joining a challenger against the incumbent leader. Our theoretical model thus contributes to the research on collective action problems in regime and leaderships change. Chwe (2001) and Medina (2007) develop alternative approaches to collective action with a motivation similar to ours, whereas Bueno de Mesquita et al. (2003), Gehlbach and Keefer (2008), Myerson (2008), and Svobik (2009) share our focus on institutions and commitment problems in authoritarian politics.

An important advantage of our theoretical approach is that it yields testable empirical predictions about the relationship between political institutions in dictatorships, leader tenure, and the concentration of power in dictatorships. First, our model predicts that institutions will collapse and power-sharing will not be possible when changes in the distribution of power favor the dictator at the expense of his allies. We assess this

prediction using panel data on the emergence and maintenance of legislatures in dictatorships and find that two proxy measures for shifts in the balance of power between the ruler and his allies – export concentration and the end of the Cold War – affect the existence of legislatures in directions as predicted by our theory. Our qualitative analysis of the operation of the Soviet Politburo provides further support for the proposed effect of the balance of power between the ruler and his allies on the success of institutionalized power-sharing. Second, we predict that the tenure of institutionalized ruling coalitions, and by extension of their leaders, will be more durable and less susceptible to economic downturns than coalitions and leaders in dictatorships that do not have such institutions. We find empirical support for this in our statistical analysis of new data on leader tenures in dictatorships as well as in a historical case study of Mexico’s political development leading up to the stable PRI regime.

We proceed as follows. In section 2, we develop our theoretical model of institutions and power-sharing in dictatorships. We then employ two strategies in order to examine the empirical implications of our theoretical model for the existence of institutions in dictatorships and their consequences for leader tenure. In section 3, we examine the long-run variation in the relationship between the balance of power among the ruling elite and institutionalized power-sharing in two historical cases, Mexico and the Soviet Union. In section 4, we turn to the statistical analysis of data on institutions in dictatorships and dictators’ tenures. We conclude with a summary and discussion of our findings in section 5.

2 The Theoretical Model

In order to investigate when and how institutions facilitate power-sharing in dictatorships, we proceed with the help of a formal model. We develop our argument in three steps.

First, we construct a simple model of a dictatorship in which the dictator must command a majority of power in a polity in order to exclude the rest of the population from any control over the government. In order to do so, the dictator recruits a ruling coalition of allies and offers them a power-sharing agreement, according to which each member receives a share of the benefits from governing. These benefits may take the form of government revenue, bureaucratic appointments, or favorable policy choices. The allies may value these benefits because of pecuniary or ideological reasons, or because they allow them to compensate their followers and cultivate their local political influence. We argue that a major obstacle to successful power-sharing between the dictator and his allies is the dictators's incentive to renege on his promise to share power as agreed and instead to reap as large a proportion as possible of the benefits from ruling. Because the power-sharing agreement is the very foundation of political authority within a dictatorship, the allies cannot rely on any higher authority to prevent such behavior.

As a second step, we recognize that in a dictatorship, the only threat that the allies may use to deter the ruler from reneging on the power-sharing agreement is to stage a rebellion in favor of a challenger. The choice of the word "rebellion" should not be taken too literally; many modern rebellions are called coups, plots, or even revolutions (as in the 1968 July Revolution that brought the Baath Party to power in Iraq.) We examine the collective action problem of staging such a rebellion as well as the centrality of the allies' expectation of its success and their well-being under a different leader in the credibility of any threat of rebellion. This allows us to identify the circumstances – such as the balance of power between the dictator and his allies – under which the threat of a rebellion is credible.

Finally, we compare the success of power-sharing in dictatorships with and without institutions. In our model, asymmetries of information between the dictator and the allies exacerbate the suspicion among the allies that the dictator is reneging on the

power-sharing agreement, even when in fact, he is not. We assume that the rules that govern an institution’s functioning reduce asymmetries of information between the dictator and his allies, and any violation of these rules can be observed by the allies. In turn, we demonstrate that such institutions allow for the formation of more stable ruling coalitions, under less favorable circumstances, than would be possible without them. Importantly, this positive effect of institutions is conditional; it can be realized only when the threat of an allies’ rebellion is sufficiently credible, which crucially depends on the balance of power between the dictator and his allies.

2.1 A Model of an Authoritarian Polity

Consider an authoritarian polity in which political power is controlled by a *ruler* and a continuum of *notables*. In substantive terms, we assume that the notables enjoy significant influence locally, but the power of any *single* notable is of little consequence at the national level.² The ruler controls a share λ of the total power, while the notables control the rest, $1 - \lambda$. In order to stay in office, the ruler needs to maintain a *ruling coalition* that commands at least a κ majority of the total power; we call κ the *effective power threshold*. When $\lambda > \kappa$, the ruler controls a sufficient amount of power in order to rule alone. But when $\lambda < \kappa$, the ruler must recruit some *allies* from among the notables in order to stay in office, and we focus on that case in our analysis. We assume that the ruler recruits allies with the minimum joint power required for him to stay in office, $\mu = \kappa - \lambda$. Furthermore, we assume that an alternative coalition of notables that would *not* include the ruler but would survive in office is also feasible, $\lambda < 1 - \kappa$. Thus $\lambda \in (0, 1 - \kappa)$. Figure 2 illustrates this model of an authoritarian polity.

²The assumption that notables are atomless players simplifies the analysis below, but our results also hold in a setting with a finite number of allies.

Figure 2 about here.

When the ruler recruits allies, he promises each a share $\beta > 0$ of the total *benefits* from joint rule *per unit of power* that the ally holds. For instance, when $\beta = 1$, then the share of benefits paid to the allies is $\mu\beta = \mu$. That is, the share of benefits paid to the allies corresponds to the power held by them. However, the total benefits from joint rule may differ across periods as a result of exogenous conditions, such as administrative costs, economic performance, or political turmoil. In order to keep our analysis as simple as possible, we assume that the total benefits are 1 with probability π (good times) and they are 0 with probability $1 - \pi$ (a crisis). Thus when the ruler keeps his promise, each ally receives the payoff β with probability π and the payoff 0 with probability $1 - \pi$. Furthermore, during good times, any power-sharing agreement must satisfy the budget constraint $\mu\beta \leq 1$.

We assume that power-sharing between the ruler and his allies is politically desirable: In expectation, the ruler maintains μ allies and still keeps a positive share of total benefits, $\pi - \mu\beta > 0$. On the other hand, our assumptions about the payoffs to the allies imply that, as long as the ruler keeps his promise to pay a β fraction of benefits to each ally, each ally receives a nonnegative payoff in any period as well.

2.2 Allies' Rebellion as a Collective Action Problem

In order to understand when power-sharing between the ruler and his allies will succeed, we start by examining a central feature of authoritarian politics: The only punishment that the allies may use to deter the ruler from renegeing on his promise to compensate them for their support is to rebel and replace him with a challenger. Whereas any single ally is too weak to compel the ruler to comply with the power-sharing arrangement, a collection of

allies may be able to credibly threaten to join a challenger – they may be able to stage a *rebellion*. As we show below, the credibility of the threat of a rebellion in turn determines the terms of any power-sharing agreement that the ruler will abide by in the first place.

In a rebellion, each ally may either *support* the ruler or *rebel* against the ruler by joining a *challenger*. As long as the ruler remains in power, each ally who supports the ruler receives her share of benefits $b \geq 0$. If the ruler keeps his promise and shares β with the allies as agreed, then $b = \beta$. However, the ruler may also renege, in which case $b = 0$. Alternatively, if a rebellion is staged and succeeds, then the allies who joined the challenger will enjoy the share of benefits promised by the challenger, θ . In this case, however, the allies who supported the ruler will lose any benefits and receive the payoff zero. On the other hand, if a rebellion fails, an ally who joined the challenger will receive the payoff $\theta - r$, where $r > 0$ represents the ruler’s punishment of those who participated in a failed rebellion.³ Thus while rebelling entails the risk of a lower payoff in the case of a failure, supporting the ruler is also risky since a rebellion may succeed.

Whether a rebellion succeeds depends on the proportion of allies that join the challenger, which we denote ρ . The rebellion succeeds when $\rho > \rho^*$ and fails otherwise. We summarize these payoffs in Figure 3.

Figure 3 about here.

We assume that all aspects of this setting except for the payoff from a successful rebellion θ are common knowledge. More precisely, each ally privately observes an imperfect signal s_i of the payoff from a successful rebellion θ . The signal s_i is distributed

³ That is, we allow for the possibility that the quantities θ and r will be sufficiently high and low, so that an ally would rather join a rebellion that is going to fail but be “treated well” (a high θ) by the challenger once the rebels are in the opposition than support but be “abused” (a small b) by the current leader. For instance, an ally may prefer to be the “second in command” if the rebels continue to exist in opposition or exile after a failed rebellion than support the ruler for a very small reward.

uniformly on the interval $[\theta - \varepsilon, \theta + \varepsilon]$, and the realizations of s_i are independent across allies. We think of $\varepsilon > 0$ as “small.” In turn, we can say that each ally’s signal s_i comes with a small, idiosyncratic noise. This assumption is realistic: In a dictatorship, any communication about alternatives to the current leadership must occur in secret. In turn, allies may learn about the challenger’s offer via separate, private channels, and each ally may assess the challenger’s offer differently because of small differences in individual’s positions, networks, or beliefs about the credibility of the challenger’s offer. For expositional simplicity, we assume that θ has a uniform prior density on the interval $[1 - \sigma, 1 + \sigma]$, $\sigma > 0$. In other words, before observing the signal s_i , each ally assigns the same probability to any value of θ in the interval $[1 - \sigma, 1 + \sigma]$.⁴

When does an ally join a rebellion against the ruler? To answer this question, consider first a simpler, alternative setting in which the benefit from a successful rebellion θ is public information and thus common knowledge among the allies. If $\theta < 0$, each ally prefers supporting the ruler to rebelling, regardless of how many allies plan to rebel. Alternatively, if $\theta > b + r$, rebelling strictly dominates supporting the ruler.

However, when the payoff from a successful rebellion θ is in the interval $[0, b + r]$, this model resembles a multi-person Stag Hunt. That is, supporting the ruler is an ally’s optimal choice whenever at most ρ^* allies rebel, and rebelling is her optimal choice as long as more than ρ^* allies rebel. Thus whether a rebellion succeeds is unrelated to the benefit from supporting the ruler b , the cost of a failed rebellion r , or the participation threshold ρ^* ; it depends exclusively on what each ally believes about the intended actions of the others.⁵

⁴These simplifying distributional assumptions are inconsequential as long as the support of θ contains the interval $[0, b + r]$.

⁵In an equilibrium in mixed strategies, the success of a rebellion does depend on b , r , θ , and ρ^* , but it does so in an empirically implausible way. For instance, the likelihood of a successful rebellion is greater when the challenger offers the allies less.

This multiplicity of equilibria disappears in the present setting where each ally observes only an imperfect signal s_i of the payoff from a successful rebellion θ . Given our assumptions about the distribution of s_i , each ally has an unbiased estimate of θ . More precisely, after ally i observes the signal s_i , she believes that θ is distributed uniformly on the interval $[s_i - \varepsilon, s_i + \varepsilon]$, and her expectation of θ is s_i . However, she does not know the signals $s_{\sim i}$ that other allies observed, and in turn, the true value of θ is not common knowledge. In other words, each ally is uncertain about both the true benefit from defecting to a challenger and the way in which other allies perceive the benefits of defection.

Suppose therefore that each ally follows a threshold strategy according to which she rebels when her signal s_i exceeds some threshold s^* and supports the ruler otherwise. Then in equilibrium, each ally must be indifferent between supporting and rebelling against the ruler whenever $s_i = s^*$. When $s_i = s^*$, ally i 's expected payoff from supporting the ruler is

$$\Pr(\rho \leq \rho^*)b + [1 - \Pr(\rho \leq \rho^*)]0 = \Pr(\rho \leq \rho^*)b.$$

On the other hand, her expected payoff from rebelling is

$$\Pr(\rho \leq \rho^*)(s^* - r) + [1 - \Pr(\rho \leq \rho^*)]s^* = s^* - r\Pr(\rho \leq \rho^*),$$

given that the expectation of θ is s_i . Therefore, for an ally who observes the signal $s_i = s^*$, we have

$$\Pr(\rho \leq \rho^*) = \frac{s^*}{b + r}. \tag{1}$$

In order to find the threshold signal s^* , we need to compute the equilibrium probability that a rebellion will fail $\Pr(\rho \leq \rho^*)$ for an ally with the signal $s_i = s^*$. Given the threshold strategy, the proportion of allies ρ who rebel corresponds to the proportion of allies with

the signal $s_i > s^*$. Given some payoff from a successful rebellion θ , this proportion is

$$\rho = \frac{\theta + \varepsilon - s^*}{2\varepsilon}.$$

In turn, $\rho \leq \rho^*$ when

$$\frac{\theta + \varepsilon - s^*}{2\varepsilon} \leq \rho^*,$$

or equivalently, when

$$\theta \leq s^* + 2\varepsilon\rho^* - \varepsilon. \tag{2}$$

Thus we have

$$\Pr(\rho \leq \rho^*) = \Pr(\theta \leq s^* + 2\varepsilon\rho^* - \varepsilon) = \frac{s^* + 2\varepsilon\rho^* - \varepsilon - (s^* - \varepsilon)}{2\varepsilon} = \rho^*.$$

In other words, an ally with the signal $s_i = s^*$ believes that the proportion of allies that will rebel is distributed uniformly,

$$\Pr(\rho \leq \rho^*) = \rho^*. \tag{3}$$

Substituting (3) into (1), we see that in equilibrium, the allies follow a threshold strategy, with the threshold signal

$$s^* = \rho^*(r + b). \tag{4}$$

In effect, the signal s_i coordinates allies' beliefs about the likelihood of a successful rebellion. Importantly, this equilibrium is unique and thus requires no additional assumptions about the formation of allies' beliefs.⁶

⁶That is, our setting satisfies the general conditions for a unique equilibrium in a global game, as discussed in [Morris and Shin \(2003\)](#).

The equilibrium threshold (4) implies a simple and intuitive relationship between the likelihood of a successful rebellion and the key elements in our political setting. In order for an ally to rebel, the imperfect signal s_i of the payoff from a rebellion θ must be higher when (i) a greater proportion of allies is required for a successful rebellion (high ρ^*), (ii) the payoff from supporting the ruler is high (high b), and (iii) the cost of a failed rebellion is high (high r).

The equilibrium threshold (4) also implies that the punishment of those who participated in a failed rebellion and their benefits from the membership in the ruling coalition are substitutes from the ruler's point of view. The choice of the two policies may therefore depend on the cost of repression relative to that of conferring benefits, which may vary across regimes (e.g. military vs. civilian dictatorships) or circumstances (e.g. economies at different stages of development.) In fact, [Wintrobe \(1998\)](#) assumes that repression and benefits (loyalty in his terminology) are substitutes; we derive this relation within a fully strategic model of an allies' rebellion.

When should the ruler expect a rebellion to succeed? The ruler must form an expectation about the likely success of a rebellion without observing the signal s_i . The threshold signal s^* implies that there is a threshold benefit from a successful rebellion θ^* , such that a rebellion succeeds for any $\theta > \theta^*$. Using (2) and (4), we have

$$\theta^* = \rho^*(r + b) + 2\varepsilon\rho^* - \varepsilon \quad \text{for } \theta^* \in [1 - \sigma, 1 + \sigma].$$

Thus the ruler expects that the allies' rebellion succeeds when $\theta > \theta^*$ and fails otherwise.

Then the probability of a successful rebellion is

$$\Pr(\theta > \theta^*) = \begin{cases} 0 & \text{if } \theta^* < 1 - \sigma, \\ \frac{1+\sigma-\theta^*}{2\sigma} & \text{if } \theta^* \in [1 - \sigma, 1 + \sigma], \\ 1 & \text{if } \theta^* > 1 + \sigma. \end{cases} \quad (5)$$

Like the threshold signal s^* , the threshold benefit from a successful rebellion θ^* also depends on the key elements in our political setting in an intuitive way: A large payoff to the allies b , a large proportion of allies that is required for a successful rebellion ρ^* , and high cost of a failed rebellion r raise the equilibrium threshold benefit from a successful rebellion θ^* and thus lower the probability of its success. Simply put, the ruler knows that a rebellion is more likely to succeed if he pays his allies poorly, when a small fraction of them must defect to the challenger in order for a rebellion to succeed, or when the punishment for those who participate in a failed rebellion is lenient.

In fact, recall that the ruler recruits the minimum number of allies with enough joint power to satisfy the effective power threshold, $\mu = \kappa - \lambda$. In order for the notables to form a coalition that excludes the ruler and commands a κ majority of the total power, $2\kappa - 1$ allies must abandon the ruler. Thus the fraction of allies required for a successful rebellion is

$$\rho^* = \frac{2\kappa - 1}{\kappa - \lambda}.$$

Note that ρ^* is increasing in the ruler's relative power λ . In other words, weak rulers – rulers who need to maintain a large coalition of allies in order to stay in power – are more vulnerable to a rebellion, because in that case a smaller fraction of allies can successfully rebel.

Proposition 1. *In a unique Bayesian Nash equilibrium, each ally supports the ruler if $s_i \leq s^*$ and rebels if $s_i > s^*$, where $s^* = \rho^*(r + b)$. An allies' rebellion succeeds if $\theta > \theta^*$, where $\theta^* = \rho^*(r + b) + 2\varepsilon\rho^* - \varepsilon$ and $\rho^* = (2\kappa - 1)/(\kappa - \lambda)$.*

2.3 Authoritarian Power-Sharing without Institutions

We have established how the credibility of the threat of a rebellion depends on the key factors in our political setting: The allies' payoff from supporting the ruler, the number of allies that the ruler needs in order to stay in power, and the punishment for those who participate in a failed rebellion. We can now examine how the credibility of this threat affects the possibility as well as the terms of a power-sharing agreement between the ruler and the allies.

The timing of actions in this extensive game is as follows. In period $t = 0$, the ruler and the allies form a power-sharing agreement according to which the ruler pays the allies a β share of the total benefits from joint rule in each period. The timing of actions in any period $t \geq 1$ is as follows. First, nature determines the size of the total benefits. Then the ruler privately observes the size of these benefits, reports it (and possibly lies) to the allies, and finally, pays each her share. Next the allies observe the ruler's report and their compensation, but *not* the size of benefits. Finally, if a rebellion is staged, each ally observes a signal of her payoff under the challenger and either supports the ruler or rebels against him. If the rebellion succeeds, the game ends and a new power-sharing agreement forms between the former challenger and his allies. On the other hand, if the rebellion fails, the same power-sharing agreement remains in place. However, the rebellious allies are replaced by new ones from among the broader continuum of notables. We study a Markov Perfect Equilibrium in which the allies condition their actions in any period $t \geq 1$ only on

the ruler's announcement of the total benefits in that period, the compensation that the allies receive, and if a rebellion is staged, the challenger's offer.⁷

Recall that a rebellion is the only punishment with which the allies can threaten the ruler. In order to compel the ruler to share power as agreed, the threat of rebellion must fulfil two objectives: First, it must discourage the ruler from reneging on his promise to pay the allies the fraction β of the benefits. Yet the same threat must also deter the ruler from lying about the size of the benefits. Both types of defection in fact hurt the allies equally and yield the same benefit to the ruler. Thus the two types of defection are indistinguishable when the size of the benefits is observed only by the ruler.

In order to deter the ruler from misreporting the benefits from joint rule as well as from reneging on his promise to share with each of them a β fraction of the total benefits, the allies may threaten to rebel in any period in which they receive a payoff other than β . In turn, the threat of a rebellion will outweigh the immediate benefit to the ruler from lying when

$$1 - \mu\beta + \delta V \geq 1 + (1 - \phi_{\rho^*})\delta V, \quad (6)$$

where $\delta \in (0, 1)$ is a discount factor, ϕ_{ρ^*} is the probability of a successful rebellion when each ally receives the payoff 0 and the proportion of allies required for a successful rebellion is ρ^* , and V is the ruler's expected discounted payoff given the allies' threat,

$$V = \pi(1 - \mu\beta + \delta V) + (1 - \pi)(1 - \phi_{\rho^*})\delta V = \frac{\pi(1 - \mu\beta)}{1 - \delta[1 - \phi_{\rho^*}(1 - \pi)]}.$$

Since the two types of defection on the part of the ruler – not sharing benefits and lying

⁷In contrast to strategies that condition on the past history of play in a richer way, this strategy is the least demanding on coordination by the allies: It only asks the allies to consider the challenger's offer in the period in which a suspected defection occurred and not in any previous period, in which the membership of the ruling coalition may have been different.

about their size – are indistinguishable, and the same punishment – an allies’ rebellion – is used to discourage both, the incentive constraint (6) also describes the incentives that will discourage the ruler from not sharing benefits as agreed.⁸ But note that the threat of a rebellion does not imply that each ally will unconditionally join any challenger.

Importantly, when we say that “allies rebel,” we only require that, once the ruler defects or claims that the size of benefits is 0, each ally considers the challenger’s offer (based on her signal s_i) and decides whether to rebel.⁹ Solving (6) for δ , we see that the ruler will comply with the power-sharing agreement as long as

$$\delta \geq \frac{\mu\beta}{\mu\beta + \phi_{\rho^*}(\pi - \mu\beta)}. \quad (7)$$

Recall that $\pi - \mu\beta > 0$. Therefore, the greater the probability that a rebellion will succeed and the lower the payoff to each ally β , the greater the range of discount factors under which power-sharing is possible.¹⁰ But the likelihood of crises also affects the feasibility of power-sharing: The more likely such crises are, the harder it is to share power.

2.4 Political Institutions and Authoritarian Power-Sharing

The discussion so far highlights the limits to authoritarian power-sharing when the threat of an allies’ rebellion is the sole deterrent against the ruler’s opportunism: Although the threat of a rebellion may be sufficient to compel the ruler to share benefits as agreed, it does so at the price of potentially collapsing in any period of crisis, which happens with the

⁸Both constraints bind only during good times, when total benefits are 1.

⁹We can check that once a rebellion is in place, the ruler pays allies 0 and that each ally considers the challenger’s offer. Alternatively, no ally has an incentive to consider the challenger’s offer when a rebellion is not in place, as long as other’s do not. Thus the ruler’s and allies’ actions constitute a Bayesian Nash equilibrium in each period, both during a rebellion and when a rebellion is not in place.

¹⁰The effect of ruler’s initial power λ is ambiguous: A higher λ implies a lower μ and thus lower total expenditures on allies, which lowers the attractiveness of a defection. But a higher λ also implies a higher ρ and decreases the credibility of a rebellion and thus raises the attractiveness of a defection.

probability $(1 - \pi)\phi_{\rho^*}$. Therefore both the ruler and the allies would prefer to eliminate any asymmetries of information among each other. This is precisely what an institutionalized power-sharing agreement may accomplish.

More specifically, the ruler and the allies will benefit from establishing institutional mechanisms that serve to reveal the size of the benefits from joint rule to all parties in each period. Such mechanisms may include practices such as periodic reviews of government spending and revenue or the consultation of major policies by a council composed of allies or their representatives. These institutional mechanisms reduce the ability of the ruler to lie about the size of benefits from joint rule. In turn, these institutional mechanisms alleviate the suspicion among the allies that the ruler is doing so. To simplify the analysis, we assume that institutions completely reveal the size of the benefits in any period to the allies.¹¹

Once such an institutionalized power-sharing agreement is in place, the threat of an allies' rebellion will serve to deter the ruler from both circumventing those institutions and from the downright refusal to share benefits as agreed; both are now observable to the allies. The ruler will comply with the power-sharing agreement as long as inequality (7) is satisfied. Now, however, the ruler's expected discounted payoff is

$$V = \pi(1 - \mu\beta) + \delta V = \frac{\pi(1 - \mu\beta)}{1 - \delta}.$$

Thus the ruler complies with an institutionalized power-sharing agreement when

$$\delta \geq \frac{\mu\beta}{\mu\beta + \pi\phi_{\rho^*}(1 - \mu\beta)}. \quad (8)$$

¹¹The intuition in the more realistic case, when institutions reveal the size of benefits via an imperfect but correlated signal, is similar to the argument here.

Importantly, the range of discount factors under which power-sharing is possible is always greater when power-sharing is institutionalized than when it is not. When we rewrite the threshold discount factors under power-sharing with institutions, δ^I from (8), and without institutions, $\delta^{\sim I}$ from (7), as

$$\delta^I = \frac{1}{1 + \pi\phi_{\rho^*} \left(\frac{1}{\mu\beta} - 1 \right)} \quad \text{and} \quad \delta^{\sim I} = \frac{1}{1 + \pi\phi_{\rho^*} \left(\frac{1}{\mu\beta} - \frac{1}{\pi} \right)}$$

we see that $\delta^I < \delta^{\sim I}$. This result is intuitive: When power-sharing is institutionalized, the allies no longer need to stage a rebellion every time the ruler claims there is a crisis since institutions provide mechanisms by which the allies may verify ruler's claims. In turn, the expected payoff from power-sharing is greater, which reduces the ruler's temptation to renege on it. Institutions therefore allow for power-sharing when it otherwise would not be possible, increasing the durability of the authoritarian regime.

Proposition 2. *In a Markov Perfect equilibrium, (i) the ruler complies with an institutionalized power-sharing agreement and allies support the ruler as long as $\delta \geq \delta^I$, (ii) the ruler honors a power-sharing agreement that is not institutionalized and allies support the ruler as long as $\delta \geq \delta^{\sim I}$, and (iii) $\delta^{\sim I} > \delta^I$.*

The implications of this result are sharpest when we consider how a change in a key factor in our political setting – the distribution of power between the ruler and the allies – affects the feasibility of power-sharing. Consider what happens when the distribution of power shifts in favor of the ruler: Once the ruler controls more power λ , the fraction of allies who must rebel in order to remove him ρ^* increases, which, according to (5), lowers the likelihood of a successful rebellion. As a result, defection is now more attractive to the ruler. In other words, both $\delta^{\sim I}$ and δ^I are increasing with a positive change in the ruler's

power $\Delta\lambda$, via a decline in the likelihood of a successful rebellion ϕ_{ρ^*} .¹² Thus an increase in the ruler's power reduces the range of discount factors under which power-sharing is feasible, both with *and* without institutions. In other words, institutions may not save a power-sharing agreement once the ruler's power grows too much. Importantly, however, because $\delta^{\sim I} > \delta^I$, there is a range of power shifts after which power-sharing will collapse without institutions, but will survive with them.

What happens when power-sharing breaks down? When power shifts substantially in favor of the ruler or when the expected benefits from joint rule decline sharply, power-sharing may no longer be feasible without renegotiating the share of benefits β that the allies receive in return for their support. If such a renegotiation does not succeed, the ruler violates the power-sharing agreement in every period while the allies support the ruler only because a more attractive challenger is not presently available. In fact, in this case the allies do abandon the ruler as soon as such a challenger appears. Thus our model predicts that these polities will be unstable, with frequent leadership changes.

To summarize, we show that the terms as well as the stability of power-sharing between the ruler and the allies depend on the credibility of the allies' threat of a rebellion. This threat is credible when the ruler needs to maintain a large number of allies in order to stay in office, when the cost of a failed rebellion is low, and when the challenger's offer to the allies is high relative to the benefits that they receive from the current ruler. Institutions expand the range of circumstances under which power-sharing is feasible by eliminating asymmetries of information between the ruler and the allies and allow for power-sharing when it otherwise would not be possible. Yet even institutionalized power-sharing agreements may collapse under unfavorable circumstances. In particular, power-sharing

¹²Both $\delta^{\sim I}$ and δ^I are also decreasing in π : When the expected payoff from power-sharing increases because crises are less likely, power-sharing is easier to sustain.

breaks down if the ruler's power grows too large or if the expected benefits from joint rule decline.

3 Historical Evidence: Authoritarian Institutions in Mexico and the Soviet Union

In order to provide support for our theoretical arguments, we first examine two historical cases. We start with the Soviet Politburo and show how the balance of power within the Soviet leadership constrained the extent to which this institution could be used to regulate the interaction among those in power. We then examine the history of independent, authoritarian Mexico and the emergence of the National Revolutionary Party (PNR, later the Institutional Revolutionary Party) in the 1930s. Consistent with our theoretical predictions, the institutionalization of elite political conflict within the PNR lead to non-violent and regular transitions in power.

3.1 Balance of Power and the Life of an Institution: the Soviet Politburo

The Politburo of the Central Committee of the Communist Party of the Soviet Union was the main political decision-making body throughout the existence of that regime (Suny 1998, 128).¹³ Over time, the Politburo's operation took on two distinct institutional forms that closely mirrored two sharply different balances of power within the Soviet leadership.

The first form can be characterized as “collective leadership,” whereby key decisions

¹³Key decisions were taken within other bodies, such as the Council of Ministers (the removal of Beria in 1953), the State Defense Committee (during World War II), or the Central Committee (during the Revolution and in 1957), only under extraordinary circumstances and often with membership that overlapped with the Politburo (Mawdsley and White 2000).

were consulted and decided within the Politburo and formal rules concerning membership, agenda, protocol, and decision-making were generally followed ([Zemtsov 1991](#), 56-58). The Politburo took this form from its emergence in 1919 until Stalin's consolidation of power during the Purges (1936-38) and was resurrected after Stalin's death in 1953. That system of "collective leadership" created enough transparency to alert its members about any attempts by its leader to sidestep its rules and consolidate his power. During the Anti-Party Plot of 1957, for example, the suspicion that Khrushchev's steps toward de-Stalinization and growing unilateralism were a prelude to the political elimination of several members of the Politburo convinced its key members to unseat Khrushchev.¹⁴ Although the plot ultimately failed, the key concerns for the allies taking opposite sides – the balance of power between the two camps, each participant's welfare under the alternative leaderships, and the desire to be on the winning side of the plot – were consistent with our model.

Although the extent of deliberation and dissent in the Politburo varied with the political fortunes of particular members and policies, there was a clear difference between its working as "collective leadership" and the second institutional form that it took between the Purges and Stalin's death in 1953. By the Purges, Stalin consolidated enough power to rule alone and could no longer be unseated by an allies' rebellion. The Politburo's formal rules remained essentially unchanged during this period. But key political decisions were taken by a much smaller "ruling group" consisting of Stalin and, depending on their position in favor, another four to eight members of the leadership. Stalin determined the group's jurisdiction and protocol, set its agenda, meeting location and time. The actual meetings were informal and often held late at night, without any records of actions. Stalin personally determined the group's membership, without them being formally elected or

¹⁴See [Mićunović \(1980\)](#), [Burlatsky \(1991\)](#), [Tompson \(1995\)](#), [Taubman \(2004\)](#), and the references therein.

expelled. The Politburo became an instrument of Stalin's personal rule and ceased to function as a political institution in any meaningful way ([Gorlizki and Khlevniuk 2004](#); [Montefiore 2003](#)). This is consistent with our theoretical model, which predicts that extreme imbalances in the distribution of power preclude successful power-sharing, with or without institutions.

Two exogenous sources of variation in the balance of power between Stalin and his inner circle suggest that the operation of the Politburo during this period was indeed the consequence of too much power in Stalin's hands, rather than any other factor. First, during World War II, as a result of its various, strong exigencies, Stalin's associates came to re-acquire a measure of bureaucratic autonomy that temporarily shifted the balance of power away from Stalin. In order to restore his absolute leadership that prevailed after the Purges, Stalin conducted a series of personal attacks against these close associates immediately following the war's end ([Gorlizki and Khlevniuk 2004](#), Chapter 1).

Second, as Stalin's health deteriorated and he more frequently left Moscow between 1950 and 1952, the rest of the ruling group continued to meet without him. As the Bureau of the Presidium of the Council of Ministers," the group formally held 39 meetings in 1950, 38 in 1951, and 42 in 1952 ([Gorlizki and Khlevniuk 2004](#), 106). In contrast to Stalin's Politburo, this group convened regularly and instituted a committee structure with clear membership rules, portfolios, procedures, and agendas. As our theory predicts, the markedly more equal distribution of power within the Presidium allowed its members to establish institutional rules that would later serve as the foundation for the revived, institutional "collective leadership" in the Politburo after Stalin's death.

3.2 The Institutionalization of Authoritarian Politics: Mexico

The authoritarian history of Mexico can be divided into two, distinct periods. Since the country's independence in 1821 until the 1930s, Mexican politics was dominated by "caudillos", transitions in power occurred through irregular, violent means, and presidential tenure was short. By contrast, the constitution of the National Revolutionary Party in 1929 ushered in a long period of stable authoritarianism, devoid of irregular, violent transitions and with institutionalized mechanisms for selecting a new president every six years.

In the first four decades after Mexico's independence, over 50 presidents – roughly one every nine months – filed in and out of office. After a brief period under a foreign-supported monarchy, Mexico was governed by Benito Juárez (until 1872) and Porfirio Díaz (from 1876 to 1911) by means of force and fraudulent elections. The regular rise of disproportionately powerful strongmen and military commanders, coupled with the lack of functioning institutions, resulted in the erratic turnover of consistently personalized leadership and political violence. This corresponds to the equilibrium that our theoretical model predicts will obtain when power is unevenly distributed among allies and in the absence of institutions; both of these conditions discourage authoritarian power-sharing.

The revolutionary insurrection that ended the Porfiriato did not solve the governance problems of Mexico, however. Its "generals" or revolutionary chiefs, each controlling a particular state or territory, battled with each other in a protracted civil war until 1917. Three years later, a new insurrection toppled Carranza, the former commander of the constitutional army and the first president of Mexico under the new constitution of 1917, in response to his decision to back a civilian candidate (for the 1920 elections) against the military clique. Álvaro Obregón, the main military candidate to the presidency went on to win the presidency with 95 percent of all votes cast. In 1923, he had to put down a revolt

led by Adolfo de la Huerta (and followed by half of the army) to protest Obregón's selection of Plutarco E. Calles as the official presidential candidate. In turn, a failed coup tried to prevent Obregón from running for his reelection to a new presidential term four years later ([Matute 1980, 1995](#); [Krauze 1997](#)).

After the assassination of President Álvaro Obregón in 1927, Plutarco E. Calles, the acting president, inherited a country that still lacked any institutionalized, non-violent mechanisms to settle its political disputes. Although the political arena was broadly controlled by the “obregonista” clique and its allies in the military and labor unions, there were no longer any strong “caudillos” who could easily seize power from the president. In the context of a relative balance of power among notables and considerable political uncertainty, Calles called for a transition from the traditional system of a “one-man country” to a “nation of institutions and laws.” He then barred all top generals from running for president and agreed with representatives of the main political parties to establish a unified, country-wide party, the National Revolutionary Party ([Meyer 1977](#)). In response to the founding convention of the PNR in March 1929, about a fourth of the army rose in arms against Calles. The insurrection, which was easily crushed, proved to be the last one in Mexican politics. In the following years, Calles worked both to neutralize the formation of any one powerful faction in government and to bind labor and agrarian unions as well as local and state authorities to the organizational structures of the PNR ([Meyer 1978](#); [Meyer et al. 1978](#)).

By 1934, when Lázaro Cárdenas became president of Mexico, leadership selection and government appointments were made through institutionalized rules. Coups ceased to be a common tool employed to punish and replace the executive. Although Mexican presidents had an extraordinary amount of control over the appointment of their cabinets and the nomination of their successors, the latter had to be executed according to the interests of

the party bureaucracy, its allies in the society (such as the labor movement), and the governing class in the legislature and across state governments (Cosío Villegas 1975; Smith 1979; Castañeda 1999). This implied that presidents could not build a permanent, expanding basis of support that could in turn upset the political machinery put in place during the 1930s and 1940s. National policies remained stable, shifting only gradually over the course of several decades. Thus the construction of a set of institutions where the different elements of the power elite could share information and articulate their demands and the introduction of an institutionalized procedure to select policy-makers had a sharp impact on the stability and performance of Mexico.

Figure 4 shows the evolution of per capita income in Mexico since 1820 along with years associated with violent power transitions or new presidents. Political turmoil and economic stagnation prevailed until 1930. Institutionalization and steady economic growth followed afterwards.

4 Empirical Analysis: Legislatures and Dictator Tenures in a Panel of Dictatorships

Using large-N data on institutions in dictatorships and dictators' tenures, we first investigate the proposition that the introduction and maintenance of political institutions as a power-sharing mechanism is conditional on a permissive balance of power between the dictator and his allies. We then test our claim that, by reducing asymmetries of information between the dictator and his allies, these institutions lower the likelihood of rebellions and thus result in longer dictator tenures.

More specifically, we employ large-N data on legislatures in dictatorships. Our results,

which strongly support our theoretical claims, come with two caveats. First, a legislature is only one of several institutions which may serve to reduce asymmetries of information between the ruler and his allies and thus lead to more stable authoritarian power-sharing. Other such institutions include parties and less formal bodies, such as ruling councils. Second, large-N data only approximate the extent to which the formal rules concerning membership, procedures, and decision-making are followed and therefore the extent to which the regular interaction within any institution actually reduces asymmetries of information between the ruler and his allies. We nonetheless employ these data on legislatures because they represent a very “strong” form of institutionalization in dictatorships and may therefore be less susceptible to manipulation by the dictator than other, weaker institutions.

4.1 Covariates of Legislatures in Dictatorships

For the purposes of our large-N analysis, we define as a *dictatorship* any regime that does not satisfy at least one of the following two requirements: i) free and competitive legislative elections and ii) an executive that is accountable to its citizens, either directly via presidential elections or indirectly through legislative elections in parliamentary systems.¹⁵

In order to construct a universe of dictatorships with legislatures, we use Banks’s (2001) dataset for the period from 1950 to 1995 in combination with Keefer’s “Database of Political Institutions” (Keefer 2002) through 1999. We classify a dictatorship as having a legislature when it has an independently elected legislative body. Whenever there are discrepancies between the two datasets, we reconcile them by employing direct written sources.

Since measuring directly the distribution of power within the ruling coalition of any

¹⁵The definition and the coding is taken from Boix and Rosato (2001).

dictatorship is extremely difficult, we employ two proxy variables: *production structure* and *foreign support*. First, we expect that dictators will need fewer allies in countries where the economy can be easily controlled and exploited by the government. An extreme example of such a country is one with a single natural resource that is located at a unique location and easily susceptible to extraction. The dictator who controls such a resource may then pay off subordinates who would substitute for allies. In our analysis, we include two measures of production structure: the oil share of exports and an index of export concentration. The former is a dummy variable that equals 1 if oil accounts for a third or more of total exports and 0 otherwise. The latter measure is the Hirsch-Herfindhal index of export concentration, collected by UNCTAD and varies from 0.045 (a highly diversified economy) to 1 (an economy that exports only one product.)

Our second proxy measure for the distribution of power between a dictator and his allies, foreign support, may substitute for domestic sources of power and thus reduce a dictator's need to share power with allies. We therefore expect legislatures to be less frequent in dictatorships that enjoy strong foreign support. Given that during the Cold War, a considerable number of dictators received a great amount of support from one of the two superpowers, we measure foreign support with a dummy variable for the Cold War period (1950-90). After 1990, the strategic value of vast swaths of the Third World declined and the United States and the Soviet Union withdrew economic and military support from many of their beneficiaries.¹⁶

Additionally, we employ a set control variables that may affect the existence of legislatures. We control for a dictatorship's level of economic development, economic growth, type, population size, ethnic and religious fractionalization, and the nature of a

¹⁶Our reasoning is related to [Fearon and Laitin \(2008\)](#) and [Balcells and Kalyvas \(2008\)](#), who find that the decline in foreign support that followed the end of the Cold War put an end to numerous civil conflicts across the world.

dictator’s entry into office. These covariates come from [Alesina et al. \(2003\)](#), [Cheibub and Gandhi \(2005\)](#), [Svolik and Akcinaroglu \(2006\)](#), [UNCTAD \(2005\)](#), and [WorldBank \(2008\)](#). We lag all time-varying covariates by one year.

In order to avoid confounding the effect of a covariate on the emergence of legislatures in dictatorships that did not previously have them with the effect of the same covariate on the maintenance of legislatures in dictatorships that already have them, we estimate a *dynamic probit model* with two sets of coefficients, α and β . The α coefficients affect the probability that a legislature will be created when none exists, $Pr(Y_t = 1|Y_{t-1} = 0)$, where Y_t denotes whether a legislature exists in year t . The β coefficients affect the probability that a legislature is maintained once it already exists, $Pr(Y_t = 1|Y_{t-1} = 1)$.¹⁷

Table 1 about here.

Table 1 displays the estimates from four alternative models. Model 1 includes the covariates described above for which the largest number of observations is available, notably including the Cold War and oil export dummies. Model 2 adds the index of export concentration. Finally, Models 3 and 4 also consider the nature of a dictator’s entry into office. For each model, we report the α coefficients in the first column and the β coefficients in the second column, along with the associated standard errors.

We find that two out of the three covariates that we employ as proxies for the distribution of power between the dictator and his allies affect the existence of legislatures in the direction that our theory predicts. The effect of export concentration on the existence of legislatures is both statistically and substantively significant. With all the other covariates held at their median values, the annual probability that a dictator

¹⁷We depart slightly from the notation used in previous estimations of the dynamic probit model in political science, where the coefficients associated with $Pr(Y_t = 1|Y_{t-1} = 0)$ are labeled β and the coefficients associated with $Pr(Y_t = 1|Y_{t-1} = 1)$ are labeled $\beta + \alpha$. See e.g. [Przeworski et al. \(2000\)](#) and [Boix \(2003\)](#).

governing a highly diversified economy (with a concentration index of 0.2) will set up a legislature is about 1 in 8. Meanwhile, the chances that a dictator does so in a single-product economy (with a concentration index of 1) drop to 1 in 28. We do not, however, find a statistically significant association between oil exports and the existence of legislatures in dictatorships.

Table 2 about here.

The impact of foreign support on the existence of legislatures in dictatorships is also substantial. Both the α and β coefficients associated with the post-Cold War dummy are statistically significant in Models 1 and 2. The α coefficient for this covariate remains statistically significant in Model 3, whereas the β coefficient is statistically significant in Model 4. Thus we find that the decline in foreign support after the end of the Cold War raises both the probability that a legislature will be created as well as the probability that an existing legislature will be maintained.

In Table 2, we simulate the effect of the end of the Cold War on both of these probabilities for different levels of export concentration, while holding all other variables at their median values. In single-export economies, the end of the Cold War doubles the annual probability of establishing a legislature from 3.6 to 6.9 percent. In highly diversified economies, this probability increases from 17 to 26 percent.

Finally, the estimated effect of most control variables on the existence of legislatures is very intuitive. The level of development and economic growth have no impact on the emergence of legislatures but they do stabilize existing legislatures. Communist regimes as well as dictators who came to power in an election tend to keep their legislatures once they were established. And dictators who came to power in a coup or during a civil war destroy their legislatures.

4.2 Legislatures and the Survival of Dictators

Our argument implies that power-sharing between the ruler and the allies will be more stable when supported by political institutions. In terms of the observable pattern of leadership change in authoritarian regimes, this proposition implies that political institutions should be associated with longer dictator tenures, and that leadership transition will occur within these institutions rather than outside them. As earlier, we will use the available data on the existence of legislatures to examine these hypotheses.

Table 3 lists the absolute and relative frequencies of the different ways in which leaders leave office in dictatorships with and without legislatures. Coups are the most frequent type of leader exit in dictatorships both with and without legislatures. Coups are followed by natural causes and elections in dictatorships with legislatures, and by revolts and natural causes in dictatorships without legislatures. Importantly, however, the relative frequency of coups and revolts differs greatly between dictatorships with and without legislatures: In dictatorships without legislatures, leaders are about three times more likely to be removed in a coup or a revolt than dictators with legislatures, and only about half as likely to leave office due to natural causes. This pattern is consistent with our theoretical analysis, which implies that allies' coups or rebellions should occur more often in dictatorships without institutions.

Dictatorships with and without legislatures also differ in the mean duration of their leaders' tenures, again, as predicted by our theoretical model. Leaders in dictatorships with legislatures survive in office for an average of 8.47 years, whereas the corresponding figure is 6.06 years in dictatorships without legislatures. However, the difference in the mean duration of leader tenures could be the result of the different circumstances under which dictatorships with and without legislatures are observed. For instance, dictatorships

without legislatures may disproportionately emerge in poor countries and a low level of development may be associated with shorter leader tenures. We therefore examine the effect of legislatures on the likelihood of coups, revolts, and natural deaths, while controlling for the effect of other covariates that may plausibly affect these outcomes.

The results of this competing risks survival analysis are summarized in Table 4. As previously, we estimate two specifications per mode of exit, one with a partial set of covariates that preserves the largest number of observations and one with the full set of covariates. A positive coefficient implies that the associated covariate lowers the risk of the mode of exit considered.

First, consider dictator exits due to natural causes, which we use as a benchmark against which other types of leader exit may be compared. If our data are reliable, then the key factor associated with exits due to natural causes should be the age of the leader, which is in fact the case. But note that the coefficients for GDP per capita and the dummies for civilian and military dictatorship are on the margin of the 10% significance level, although not in both specifications. These results suggest that there may be some spurious association between these variables and leader exits due to natural causes and we should be careful in their interpretation.

Now consider the effect of the existence of a legislature on the likelihood of coups, the primary empirical counterpart to the allies' rebellions in our theoretical model. Consistent with our theoretical claims, the existence of a legislature has a large, positive and statistically significant effect on the survival of dictators. At the median level of the remaining covariates, the existence of a legislature reduces the hazard of a coup by about eightfold. This result is robust to the exclusion of any controls that reduce the size of our sample and to alternative parameterizations of the hazard (loglogistic, lognormal, generalized gamma). Furthermore, our estimates imply that the existence of a legislature

also reduces the risk of revolts. However, we should be cautious in our interpretation of these results, as we observe only 17 and 26 revolts when using the partial and full set of covariates, respectively.

Finally, coefficient estimates on the control variables are very sensible. Economic recessions raise the hazard of coups and revolts, whereas legislatures tend moderate the negative effect of recessions. However, these results are on the margins of statistical significance. Leaders in both civilian and military dictatorships face a higher risk of a coup or a revolt than do leaders in monarchies, although that higher risk is not significantly different between civilian and military dictatorships. And dictators who rule over more populous polities are more like to be deposed in a revolt.

5 Conclusion

In the vast majority of authoritarian regimes, dictators govern with the help of political institutions such as parties, legislatures, advisory councils or committees of notables. In this paper we offer a theory of both the conditions under which dictatorships will establish those institutional arrangements and the consequences that follow their introduction.

In order to govern, most dictators seek the support of a set of allies and agree to share power with them. Power-sharing in dictatorships is, however, bedeviled by a central problem: the possibility that the dictator may renege on his promise to share power and reward his allies. Moreover, this commitment problem cannot be solved by establishing any higher authority capable of coercing every party in the agreement. Hence, power sharing between the dictator and his allies is ultimately sustained by the capacity of the ruler's allies to credibly threaten the dictator with a rebellion should the latter violate the agreement.

Political institutions alleviate the moral hazard problems associated with a system in which the threat of rebellion is the only mechanism that allies have to discipline the ruler. Because the regular interaction of the dictator and allies in political bodies with respected rules of membership, jurisdiction and protocol creates much higher levels of informational transparency, it reduces the need to resort to rebellions. Hence, institutionalized dictatorships will have more stable and durable ruling coalitions. Still, those institutions (and their beneficial effects) will only be in place as long as any shifts in the balance of power between the dictator and his allies do not undermine the credibility of the allies' threat to replace the dictator.

After formalizing these insights, we test them by looking at the evolution and role of the Politburo in the Soviet Union and the Institutional Revolutionary Party in Mexico. We also exploit data on legislatures in all dictatorships since 1950. We show that leaders in dictatorships without legislatures are more likely to be removed by a coup or revolt and less likely to leave due to natural causes than are leaders in dictatorships with legislatures. In addition, leaders in dictatorships with legislatures stay in office longer than leaders in dictatorships without legislatures, even after controlling for a large set of other factors that may affect dictator tenure. These findings support our theoretical claim that institutions in dictatorships lead to more stable ruling coalitions. Our empirical findings also support our main theoretical claim that, while dictatorships benefit from having political institutions, this positive effect is conditional upon the existence of a permissive balance of power with the ruling coalition. Using export concentration as a proxy for the balance of power between the dictator and his allies, we find that single-export dictatorships are less likely to establish legislatures. We obtain similar results when we use the end of the Cold War as a measure of withdrawal of foreign support and the corresponding shift in the internal balance of power away from the dictator.

References

- Alesina, Alberto, Arnaud Devleeschauwer, William Easterly, Sergio Kurlat, and Romain Wacziarg. 2003. "Fractionalization." *Journal of Economic Growth* 8(2).
- Arendt, Hannah. 1973. *The Origins of Totalitarianism*. New York: Harvest Books.
- Balcells, Laia and Stathis N. Kalyvas. 2008. "International System and Technologies of Rebellion: How the Cold War Shaped Internal Conflict." Unpublished Manuscript, Yale University.
- Banks, Arthur S. 2001. "Cross National Time Series Data Archive."
- Blaydes, Lisa. 2007. "Electoral Budget Cycles under Authoritarianism: Economic Opportunism in Mubarak's Egypt." Unpublished Manuscript, Stanford University.
- Boix, Carles. 2003. *Democracy and Redistribution*. Cambridge: Cambridge University Press.
- Boix, Carles and Sebastian Rosato. 2001. "A complete dataset of political regimes, 1800-1999."
- Brownlee, Jason. 2007. *Authoritarianism in an Age of Democratization*. New York: Cambridge University Press.
- Burlatsky, Fedor. 1991. *Khrushchev and the First Russian Spring*. London: Weidenfeld & Nicolson.
- Carlsson, Hans and Eric van Damme. 1993. "Global Games and Equilibrium Selection." *Econometrica* 61:989–1018.
- Castañeda, Jorge G. 1999. *La herencia: Arqueología de la sucesión presidencial en México*. México: Alfaguara.
- Cheibub, José Antonio and Jennifer Gandhi. 2005. "Classifying Political Regimes: A Six-Fold Measure of Democracies and Dictatorships."
- Chwe, Michael. 2001. *Rational ritual: Culture, coordination, and common knowledge*. Prince-

- ton, NJ: Princeton University Press.
- Cosío Villegas, Daniel. 1975. *La sucesión presidencial*. México: Editorial Joaquín Mortiz.
- Fearon, James and David Laitin. 2008. “Civil War Termination.” Unpublished Manuscript, Stanford University.
- Friedrich, Karl and Zbigniew Brzezinski. 1965. *Totalitarian Dictatorship and Autocracy*. Cambridge, MA: Harvard University Press.
- Gandhi, Jennifer and Adam Przeworski. 2006. “Cooperation, Cooptation, and Rebellion Under Dictatorships.” *Economics & Politics* 18(1):1–26.
- Gandhi, Jennifer and Adam Przeworski. 2007. “Authoritarian Institutions and the Survival of Autocrats.” *Comparative Political Studies* 40(11):1279–1301.
- Geddes, Barbara. 2008. “Party Creation as an Autocratic Survival Strategy.” Unpublished Manuscript, UCLA.
- Gehlbach, Scott G. and Philip Keefer. 2008. “Investment without Democracy: Ruling-Party Institutionalization and Credible Commitment in Autocracies.” Unpublished Manuscript, University of Wisconsin, Madison.
- Gorlizki, Yoram and Oleg Khlevniuk. 2004. *Cold Peace: Stalin and the Soviet ruling circle, 1945-1953*. Oxford University Press.
- Greene, Kenneth F. 2007. *Why Dominant Parties Lose: Mexico’s Democratization in Comparative Perspective*. New York: Cambridge University Press.
- Haber, Stephen H. 2007. “Authoritarian Regimes.” In Weingast, Barry R. and Donald Wittman (Eds.), “The Oxford Handbook of Political Economy,” Oxford University Press.
- Keefer, Philip. 2002. *DPI2000: Database of Political Institutions*. Washington, DC: Development Research Group, The World Bank.
- Krauze, Enrique. 1997. *Biografía del poder: Caudillos de la Revolución mexicana (1910-1940)*. México: Tusquets.

- Kuran, Timur. 1991. "Now Out of Never: The Element of Surprise in the East European Revolution of 1989." *World Politics* 44:7–48.
- Levitsky, Steven and Lucan A. Way. 2003. "Autocracy by Democratic Rules: The Dynamics of Competitive Authoritarianism in the Post-Cold War Era." Unpublished manuscript, Harvard University.
- Linz, Juan. 1975. "Totalitarian and Authoritarian Regimes." In Greenstein, Fred and Nelson Polsby (Eds.), "Handbook of Political Science," vol. 3. Reading, Mass.: Addison Wesley Publishing Company, pp. 191–357.
- Linz, Juan J. 2000. *Totalitarian and Authoritarian Regimes*. Boulder: Lynne Rienner.
- Lust-Okar, Ellen. 2006. "Elections under authoritarianism: Preliminary lessons from Jordan." *Democratization* 13(3):456–71.
- Machiavelli, Nicolò. 1513/1985. *The Prince*. Chicago: The University of Chicago Press.
- Magaloni, Beatriz. 2006. *Voting for autocracy: Hegemonic party survival and its demise in Mexico*. New York: Cambridge University Press.
- Matute, Álvaro. 1980. *Historia de la Revolución mexicana 1917-1924: La carrera del caudillo*. México: El Colegio de México.
- Matute, Álvaro. 1995. *Historia de la Revolución mexicana 1917-1924: Las dificultades del nuevo Estado*. México: El Colegio de México.
- Mawdsley, Evan and Stephen White. 2000. *The Soviet Elite from Lenin to Gorbachev: The Central Committee and Its Members, 1917-1991*. New York: Oxford University Press.
- Medina, Luis Fernando. 2007. *A Unified Theory of Collective Action and Social Change*. Ann Arbor: University of Michigan Press.
- Bueno de Mesquita, Bruce, Alastair Smith, Randolph M. Siverson, and James D. Morrow. 2003. *The Logic of Political Survival*. Cambridge: MIT Press.
- Meyer, Jean. 1977. *Historia de la Revolución mexicana, período 1924-1928: Estado y so-*

- ciudad con Calles*. México: El Colegio de México.
- Meyer, Lorenzo. 1978. “La etapa formativa del Estado mexicano contemporáneo (1928-1940).” In et al., Meyer (Ed.), “Las crisis en el sistema político mexicano 1928-1977,” México: El Colegio de México.
- Meyer, Lorenzo, Rafael Segovia, and Alejandra Lajous. 1978. *Historia de la Revolución Mexicana, 1928-1934: Los inicios de la institucionalización*. México: El Colegio de México.
- Mićunović, Veljko. 1980. *Moscow Diary*. Garden City, NY: Doubleday.
- Montefiore, Simon Sebag. 2003. *Stalin: The Court of the Red Tsar*. London: Weidenfeld and Nicolson.
- Morris, Stephen and Hyun Song Shin. 2003. *Advances in Economics and Econometrics*, chap. Global Games: Theory and Applications. Cambridge University Press, pp. 56–114.
- Myerson, Roger B. 2008. “The Autocrat’s Credibility Problem and Foundations of the Constitutional State.” *American Political Science Review* 102(1):125–139.
- Neumann, Franz. 1957. *The Democratic and Authoritarian State*. New York: Free Press.
- North, Douglass C. and Barry R. Weingast. 1989. “Constitutions and Commitment: The Evolution of Institutions Governing Public Choice in Seventeenth-Century England.” *Journal of Economic History* 49(4):803–832.
- Przeworski, Adam, Michael E. Alvarez, Jose Antonio Cheibub, and Fernando Limongi. 2000. *Democracy and Development: Political Institutions and Well-Being in the World, 1950-1990*. New York: Cambridge University Press.
- Smith, Benjamin. 2005. “Life of the Party: The Origins of Regime Breakdown and Persistence Under Single-Party Rule.” *World Politics* 57(3):421–51.
- Smith, Peter H. 1979. *Labyrinths of power: Political recruitment in twentieth-century Mexico*. Princeton, N.J.: Princeton University Press.
- Suny, Ronald Grigor. 1998. *The Soviet experiment: Russia, the USSR, and the successor*

- states*. New York: Oxford University Press.
- Svolik, Milan. 2009. "Power-sharing and Leadership Dynamics in Authoritarian Regimes." *American Journal of Political Science* 53(2):477–494.
- Svolik, Milan and Seden Akcinaroglu. 2006. "Government Change in Authoritarian Regimes."
- Taubman, William. 2004. *Khrushchev: The Man and His Era*. New York: W.W. Norton.
- Tompson, William J. 1995. *Khrushchev: A Political Life*. New York: Macmillan.
- Tullock, Gordon. 1987. *Autocracy*. Boston: Kluwer Academic Publishers.
- UNCTAD. 2005. *Handbook of Statistics 2005*. Geneva: UNCTAD.
- Wintrobe, Ronald. 1998. *The political economy of dictatorship*. Cambridge: Cambridge University Press.
- WorldBank. 2008. *World Development Indicators*. WorldBank.
- Wright, Joseph. 2008. "Do Authoritarian Institutions Constrain? How Legislatures Impact Economic Growth and Foreign Aid Effectiveness." *American Journal of Political Science* 52(2).
- Xenophon/Strauss. 1961. *On Tyranny*. Chicago: The University of Chicago Press.
- Zemtsov, Ilya. 1991. *Encyclopedia of Soviet life*. New Brunswick: Transaction Publishers.

Table 1: Covariates of legislatures in dictatorships

	Model 1		Model 2		Model 3		Model 4	
	α	β	α	β	α	β	α	β
<i>GDP per capita</i>	-0.064 (0.078)	0.190*** (0.071)	-0.151 (0.107)	0.026 (0.097)	0.010 (0.089)	0.113 (0.080)	-0.132 (0.124)	0.014 (0.106)
<i>Growth</i>	0.368 (0.593)	1.283*** (0.488)	0.361 (0.841)	1.007 (0.928)	0.909 (0.695)	1.408*** (0.523)	0.417 (0.903)	1.327 (1.005)
<i>Fuel exports</i>	-0.077 (0.160)	-0.144 (0.152)	0.098 (0.225)	0.271 (0.245)	-0.215 (0.180)	0.103 (0.171)	0.020 (0.254)	0.359 (0.259)
<i>Export conc.</i>			-0.891** (0.418)	-0.684 (0.420)			-1.006** (0.456)	-0.367 (0.457)
<i>Post-Cold War</i>	0.344** (0.161)	0.381** (0.152)	0.370** (0.183)	0.441** (0.187)	0.326* (0.179)	0.267 (0.165)	0.305 (0.206)	0.457** (0.209)
<i>Civilian</i>	0.223 (0.224)	0.220 (0.140)	0.509 (0.311)	0.352* (0.197)	0.029 (0.311)	0.030 (0.239)	0.208 (0.473)	-0.131 (0.432)
<i>Military</i>	0.056 (0.180)	-0.013 (0.145)	-0.024 (0.243)	0.045 (0.197)	-0.003 (0.267)	0.342 (0.231)	-0.228 (0.385)	-0.081 (0.429)
<i>Communist</i>	0.179 (0.198)	0.600*** (0.174)	0.297 (0.309)	0.074 (0.279)	0.290 (0.221)	0.724*** (0.194)	0.289 (0.332)	0.229 (0.292)
<i>Population</i>	0.036 (0.047)	0.006 (0.036)	-0.021 (0.062)	-0.008 (0.054)	0.066 (0.049)	0.058 (0.040)	0.002 (0.064)	0.042 (0.060)
<i>Ethnic fract.</i>	-0.150 (0.229)	0.124 (0.188)	-0.034 (0.308)	0.194 (0.257)	-0.085 (0.257)	-0.009 (0.219)	-0.047 (0.329)	0.044 (0.283)
<i>Religious fract.</i>	0.206 (0.282)	0.013 (0.239)	0.073 (0.372)	0.139 (0.333)	0.461 (0.315)	0.049 (0.273)	0.253 (0.407)	0.209 (0.360)
<i>Civil war</i>					-0.390 (0.315)	-0.820*** (0.255)	-0.679 (0.479)	-1.513*** (0.467)
<i>Consensus</i>					0.184 (0.328)	0.104 (0.261)	-0.017 (0.391)	-0.206 (0.341)
<i>Coup</i>					-0.139 (0.237)	-0.949*** (0.181)	-0.095 (0.303)	-0.961*** (0.276)
<i>Elections</i>					0.548 (0.338)	0.461** (0.202)	0.501 (0.450)	-0.023 (0.283)
<i>Foreign int.</i>					0.122 (0.410)	-0.351 (0.331)	0.053 (0.705)	-0.679 (0.602)
<i>Revolt^a</i>					0.681 (0.720)	-0.567 (0.530)		-1.045 (0.676)
<i>Succession</i>					-0.009 (0.355)	-0.232 (0.311)	-0.106 (0.483)	-0.924* (0.517)
<i>Intercept</i>	-1.210 (0.850)	0.067 (0.650)	0.399 (1.253)	1.496 (1.106)	-1.974** (0.948)	0.462 (0.767)	0.320 (1.487)	1.818 (1.289)
Observations	3539		2019		3353		1918	
Log-likelihood	-712.39		-415.94		-625.46		-378.89	

Note: Standard errors in parentheses. Significance levels *10%, **5%, ***1%.

^aCovariate dropped when a perfect predictor.

Table 2: Export concentration, the Cold War, and legislatures in dictatorships

	<i>No legislature yet</i>					
Export concentration:	0	0.2	0.4	0.6	0.8	1
1950-1990	0.170	0.131	0.099	0.076	0.052	0.036
1991-1999	0.259	0.208	0.163	0.125	0.094	0.069

	<i>Legislature already exists</i>					
Export concentration:	0	0.2	0.4	0.6	0.8	1
1950-1990	0.990	0.987	0.985	0.982	0.978	0.974
1991-1999	0.997	0.997	0.996	0.995	0.993	0.992

Note: Predicted probabilities are based on Model 4 in Table 1.

All other variable are held at median values.

Table 3: Leader exit in dictatorships with and without legislatures, 1945-2001^a

	coup	revolt	foreign transition	elections^b	natural	other^c	total
Legislature	68 (19.71)	11 (3.19)	6 (1.74)	28 (8.12)	52 (15.07)	50 (14.49)	139 (37.68)
No legislature	114 (58.46)	16 (8.21)	7 (3.59)	1 (0.51)	1 (0.51)	14 (7.18)	42 (21.54)
							195 (100.00)

Sources: [Banks \(2001\)](#), [Svolik and Akcinaroglu \(2006\)](#).

^aRelative frequencies (percentages) in parantheses.

^bIncludes exits due to term limits and cases when incumbents did not contest elections.

^cIncludes exits due to assassinations, civil wars, interim terms, and exits that did not fit any of the above categories.

Table 4: A survival analysis of dictators' tenures

	Coups		Revolts		Natural Causes	
	Partial	Full	Partial	Full	Partial	Full
<i>Legislature</i>	2.057*** (0.197)	2.243*** (0.280)	1.463*** (0.319)	1.744*** (0.412)	0.286 (0.268)	0.325 (0.314)
<i>Legislature*Growth</i>	3.037* (1.812)	1.856 (2.882)	2.284 (2.274)	4.266 (2.816)	-3.773 (2.767)	-4.245 (3.165)
<i>GDP per capita</i>	0.015 (0.038)	-0.008 (0.049)	0.012 (0.064)	0.141 (0.103)	-0.032 (0.028)	-0.055* (0.032)
<i>Growth</i>	0.805 (1.115)	2.270* (1.376)	4.720** (2.056)	3.322* (1.969)	3.889 (2.472)	3.274 (2.697)
<i>Fuel exports</i>	0.126 (0.250)	0.192 (0.329)	0.133 (0.381)	0.176 (0.551)	0.116 (0.277)	0.334 (0.388)
<i>Export conc.</i>		0.286 (0.595)		0.819 (1.019)		-1.040 (0.715)
<i>Post-Cold War</i>	0.516 (0.329)	0.392 (0.350)	0.276 (0.412)	0.548 (0.454)	0.300 (0.289)	0.311 (0.314)
<i>Population</i>	0.086 (0.066)	0.139 (0.096)	-0.286*** (0.101)	-0.353** (0.142)	-0.099 (0.070)	-0.154 (0.104)
<i>Ethnic frac.</i>	0.419 (0.298)	-0.169 (0.377)	0.680 (0.472)	0.301 (0.500)	-0.319 (0.398)	-0.273 (0.518)
<i>Religious frac.</i>	0.491 (0.387)	0.819* (0.476)	0.725 (0.697)	0.214 (0.823)	0.319 (0.521)	0.402 (0.656)
<i>Civilian</i>	-1.283*** (0.325)	-0.937 (0.589)	-1.197** (0.541)	0.639 (0.704)	0.555* (0.325)	-0.625 (0.762)
<i>Military</i>	-0.882*** (0.306)	-0.729 (0.549)	-0.861* (0.515)	0.425 (0.605)	0.621** (0.305)	-0.524 (0.700)
<i>Communist</i>	0.480* (0.282)	-0.264 (0.477)	0.950* (0.509)		0.250 (0.324)	-0.160 (0.508)
<i>Civil War^b</i>		1.013 (0.908)				-0.442 (0.668)
<i>Coup</i>		0.455 (0.283)		-0.407 (0.592)		-0.253 (0.479)
<i>Consensus</i>		0.175 (0.386)		-1.344** (0.656)		-0.265 (0.519)
<i>Elections</i>		0.222 (0.333)		-0.980 (0.673)		-0.010 (0.481)
<i>Foreign int.^b</i>		0.023 (0.676)				
<i>Revolt^b</i>						-0.247 (0.903)
<i>Succession^b</i>		2.066** (1.023)				-0.983 (0.852)
<i>Age</i>	-0.016** (0.008)	-0.005 (0.011)	-0.010 (0.013)	-0.003 (0.015)	-0.037*** (0.011)	-0.026* (0.014)
<i>Intercept</i>	2.569*** (0.659)	0.976 (1.151)	6.696*** (1.225)	5.670*** (1.488)	6.237*** (0.899)	7.694*** (1.584)
<i>Shape parameter α^a</i>	0.087 (0.064)	0.161* (0.083)	0.490*** (0.132)	0.648*** (0.145)	0.365*** (0.108)	0.435*** (0.150)
Leaders	522	318	522	318	522	318
Exits	152	90	26	17	56	35
Time at risk	3794	2123	3794	2123	3794	2123

Note: Standard errors in parentheses. Significance levels *10%, **5%, ***1%.

^aWeibull parameterization, hazard increasing for $\alpha > 0$, constant for $\alpha = 0$, and decreasing for $\alpha < 0$.

^bCovariate dropped when a perfect predictor.

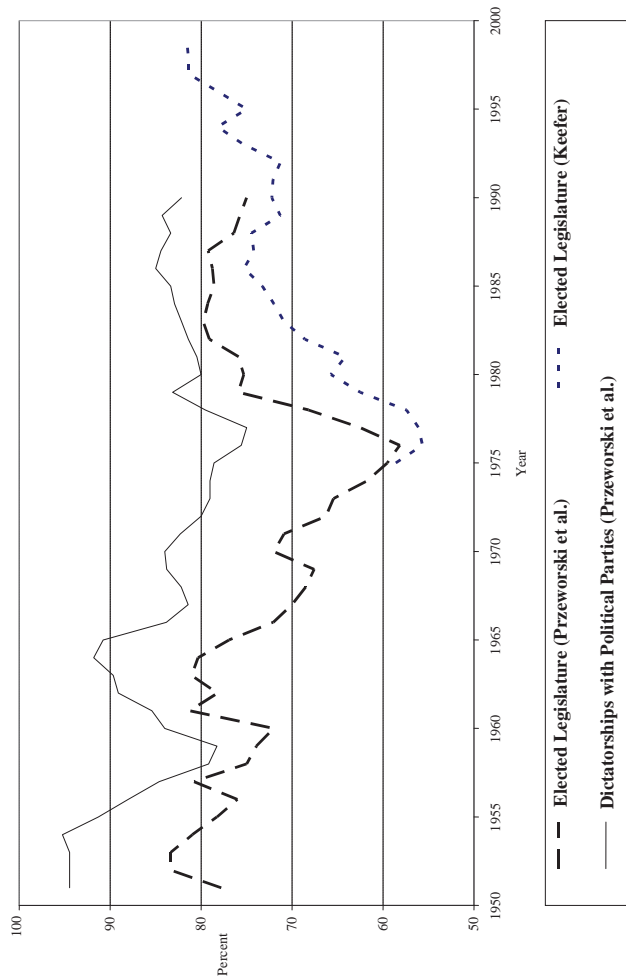


Figure 1: Proportion of dictatorships with a legislature or parties, 1951-1999.

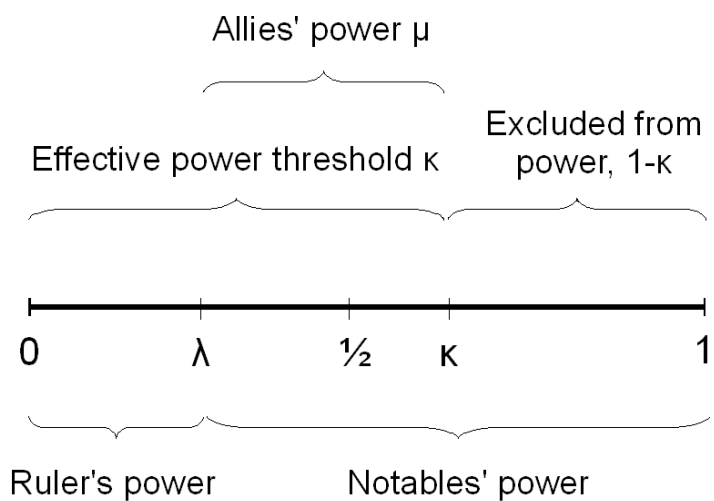


Figure 2: A model of an authoritarian polity

		Fraction of allies rebelling	
		$\rho \leq \rho^*$	$\rho > \rho^*$
Ally i	<i>Support</i>	b	0
	<i>Rebel</i>	$\theta - r$	θ

Figure 3: Payoffs to ally i , given the fraction of allies that rebel ρ

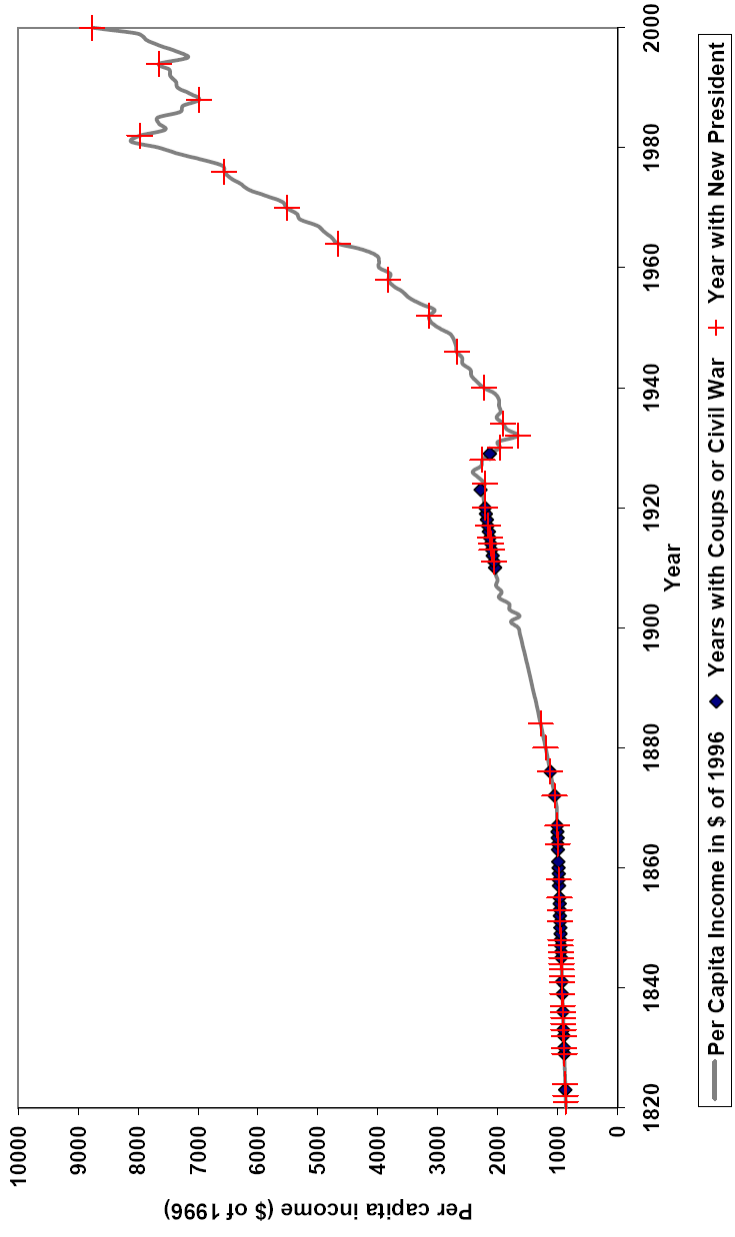


Figure 4: Economic development and political instability in Mexico, 1820-2000