

The Foundations of Limited Authoritarian Government: Institutions, Commitment, and Power-Sharing in Dictatorships

Carles Boix Princeton University

Milan W. Svobik University of Illinois at Urbana-Champaign

Why do some dictatorships establish institutions that may constrain their leaders? We argue that institutions promote the survival of dictatorships by facilitating authoritarian power-sharing. Specifically, institutions such as parties, legislatures, and advisory councils alleviate commitment and monitoring problems between the dictator and his allies caused by the secrecy in authoritarian governance. However, because authoritarian power-sharing succeeds only when it is backed by a credible threat of a rebellion by the dictator's allies, institutions will be ineffective or break down when an imbalance of power within the ruling coalition undermines this threat's credibility. Our arguments clarify the complex interaction between collective action, commitment, and monitoring problems in authoritarian governance. We use both historical and large-N data to assess new empirical predictions about the relationship between political institutions, leader survival, and the concentration of power in dictatorships.

Why do some dictatorships establish institutions that may constrain their leaders? The vast majority of authoritarian regimes govern with the help of political institutions such as parties and legislatures that may restrain their leaders' autocratic tendencies. We argue that dictatorships establish these institutions because they facilitate power-sharing among the ruling elites. Specifically, deliberative and decision-making bodies within authoritarian parties and legislatures alleviate commitment and monitoring problems caused by the secrecy that pervades authoritarian governance. As a result, power-sharing institutions stabilize dictatorships and lengthen dictators' tenures.¹

The central dilemma of any dictatorship is to establish a mechanism that allows the dictator and his allies to credibly commit to joint rule. Most dictators do not directly control enough resources to govern alone and therefore seek the support of notables with whom they promise to share power. However, power-sharing in dictatorships is complicated by a fundamental

commitment problem: no independent authority can guarantee that the spoils of joint rule will be divided as the dictator and his or her allies agreed.

Power-sharing in authoritarian regimes is therefore ultimately sustained by the ability of the dictator's allies to credibly threaten a rebellion that would replace the dictator should he violate the power-sharing agreement. This violation may happen in two related but distinct ways. First, the dictator can refuse to share the benefits of joint rule as agreed. But second, the secrecy that marks authoritarian governance allows dictators to exploit their privileged access to information about the government and misrepresent the amount of available benefits to be shared. Crucially, secrecy also limits the allies' ability to monitor the dictator's compliance. The allies may suspect that the dictator is reneging on the power-sharing agreement—even when he is not—and such suspicions may escalate into unnecessary rebellions. Because the threat of a rebellion is such a crude deterrent, the dictator and his allies would benefit from establishing political

¹An online appendix with supplementary material for this article is available at www.journals.cambridge.org/jop. Data and supporting materials necessary to reproduce our statistical results are available at each author's personal website.

institutions that may alleviate these commitment and monitoring problems.

We argue that institutionalized interaction between the dictator and his allies contributes to the stability of authoritarian power-sharing in two ways. First, regular interaction between the dictator and his allies in high-level, deliberative, and decision-making bodies within authoritarian parties and legislatures results in greater *transparency* among those in power. Interaction within politburos, presidiums, revolutionary councils, as well as ruling and advisory councils within monarchies frequently involves the deliberation over major policy changes and periodic reviews of government revenue and spending. By reducing the potential for misperceptions about the dictator's compliance with a power-sharing agreement, these institutions avert unnecessary rebellions. Second, once power-sharing is institutionalized, formal rules concerning membership, jurisdiction, protocol, and decisionmaking embody the power-sharing compromise between the dictator and his allies. In turn, the dictator's compliance with these rules constitutes a *publicly observable signal* of the dictator's commitment to sharing power.

In short, formal political institutions have the potential to facilitate power-sharing and thus enhance the survival of authoritarian regimes: once such institutions are in place, the dictator and his allies can maintain a more stable ruling coalition under less favorable circumstances than would be possible without those institutions. At the same time, however, our analysis clarifies the limits to this benefit. Because authoritarian power-sharing succeeds only when it is backed by a credible threat of a rebellion by the dictator's allies, institutions will be ineffective or break down when an imbalance of power within the ruling coalition undermines this threat's credibility. Our arguments thus clarify the complex interaction between collective action, commitment, and monitoring problems in authoritarian governance.

Several scholars recently examined the role of legislatures (Gandhi and Przeworski 2007; Ramseyer and Rosenbluth 1995; Wright 2008; Malesky 2009) and parties (Brownlee 2007; Geddes 2008; Gehlbach 2008; Greene 2007; Keefer 2008; Magaloni 2006; Smith 2005) in authoritarian politics.² Although this body of work has made important contributions to the study of dictatorships, it remains incomplete in

two ways. First, with some exceptions, existing research focuses on the analysis of particular cases rather than general mechanisms that work across dictatorships. More importantly, although this literature generally concludes that institutions in dictatorships facilitate authoritarian governance, few authors clearly identify how institutions do so, why the same results could not be accomplished without them, and why they are adopted in some cases but not others. Our analysis provides a unified answer to these questions.

We depart from two predominant explanations of the role of political institutions in dictatorships. The first argues that autocrats adopt some institutions, especially legislatures, in order to broaden their basis of support by coopting opposition to the regime (Gandhi 2008; Gandhi and Przeworski 2006). This argument is unfortunately less specific about why such co-optation could not occur without institutions. The present article proposes that political institutions in dictatorships alleviate commitment and monitoring problems, whether in coopting opposition or in power-sharing between the dictator and existing allies. In our emphasis on the latter, we build on Brownlee (2007), Geddes (1999, 2003), and Magaloni (2006, 2008), who examine how single and dominant parties facilitate cooperation among authoritarian elites. We broaden our institutional focus to high-level, deliberative and decision-making bodies within both authoritarian parties and legislatures and explain why—even though power-sharing may occur both with and without institutions—institutionalized power-sharing results in more durable ruling coalitions and succeeds under less favorable circumstances than power-sharing without institutions.

The second prominent view holds that institutions constrain dictators by maintaining norms of collective action among the dictator's allies (Myerson 2008; North and Weingast 1989). While such a norm-driven coordination of beliefs is possible in principle, its success or failure is unrealistically disconnected from the political setting in which the dictator and allies interact. It seems unrealistic, for instance, that the balance of power between the dictator and the allies would not affect the success of a rebellion. This and other intuitive factors shape the likelihood of a rebellion's success in the present article. Meanwhile, institutions have the potential to alleviate commitment and monitoring problems caused by the secrecy in authoritarian governance but only when backed by a credible threat of an allies' rebellion.

Our article also contributes to a growing literature that employs the tools of formal political theory to study authoritarian politics and related, weakly

²A related literature examines authoritarian elections, see, e.g., Blydes (2007), Levitsky and Way (2003), Lust-Okar (2006), Malesky and Schuler (2010) and Simpser (2006).

institutionalized settings.³ While our model of an authoritarian polity shares some features with Bueno de Mesquita et al.'s (2003) selectorate theory (see also Besley and Kudamatsu 2007; Haber 2007; Pepinsky 2009), we differ from most existing research in our explicit focus on the collective action problem that the dictator's allies face when staging a rebellion against the dictator, and the implications of that collective action problem for the credibility of the threat of a rebellion. We build on the global games methodology (Carlsson and van Damme 1993; Morris and Shin 2003) and obtain intuitive results by assuming that allies lack common knowledge of the regime's strength.⁴ We share this focus on authoritarian institutions and collective action with Gehlbach and Keefer (2008), who argue that authoritarian parties facilitate collective action among their members and thus create an environment favorable to investment and growth.

An important advantage of our theoretical model of institutions and power-sharing is that it yields testable, empirical predictions about the relationships between political institutions, 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 the allies to the extent that the threat of an allies' rebellion loses credibility. Using panel data on the emergence and maintenance of legislatures and parties in dictatorships, we find that two proxy measures for shifts in the balance of power between the dictator and the allies—export concentration and the extent of foreign support—affect the existence of institutions in directions predicted by our theory. Second, our theory implies 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 without such institutions. We find empirical support for this claim in our statistical analysis of leader tenures in dictatorships. Finally, we show that institutionalized dictatorships are more transparent than noninstitutionalized ones: a cross-country historical

comparison suggests that the level of transparency in the exploitation and management of natural resources is greater in dictatorships that institutionalize power-sharing, and cross-sectional evidence indicates that the breadth and quality of statistical data are indeed better in dictatorships with legislatures.

In the next section, we develop our theoretical model of institutions and power-sharing in dictatorships. We then assess the empirical support for our claims using large-N data on legislatures, leader tenures, and the sharing of statistical data by dictatorships as well as historical case studies of Mexico's political development and the management of natural resources in dictatorships. We conclude with a summary and discussion of our findings. Detailed proofs of all technical results and tests of alternative empirical specifications can be found in a supplementary appendix.

The Theoretical Model

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 some amount of power to exclude the rest of the population from any control over the government. The dictator therefore recruits a ruling coalition of allies and promises to share with each member of the ruling coalition the benefits from governing. As outlined earlier, a major obstacle to successful power-sharing is the dictator's incentive to renege on his promise to share power as agreed and instead to reap as large a benefit from ruling as possible.

As a second step, we recognize that the only threat that the allies may use to deter the dictator from renegeing on the power-sharing agreement is to stage a rebellion in favor of a challenger.⁵ We examine the collective action problem of staging such a rebellion and identify the circumstances 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 renegeing on the power-sharing agreement. We assume that the rules that govern

³See, e.g., Besley and Kudamatsu (2007), Dal Bo and Powell (2009), Debs (2009), Egorov and Sonin (Forthcoming), Lorentzen (2009), Myerson (2008), and Svulik (2009).

⁴Edmond (2007) and Persson and Tabellini (2009) have recently applied global games to collective action problems in regime and leadership change, whereas Chwe (2001) and Medina (2007) develop alternative approaches to the problem of collective action with a motivation similar to ours.

⁵The choice of the word "rebellion" should not be taken too literally. Many such rebellions are called coups, plots, or even revolutions—as in the 1968 July Revolution that brought the Baath Party to power in Iraq.

an institution's functioning increase the transparency in power-sharing and that any violation of these rules can be observed by the allies. Institutions thus preclude unnecessary rebellions and the ensuing expectation of stability allows for successful power-sharing when it otherwise would not be possible. However, this positive effect of institutions is conditional: it occurs 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.

A Model of an Authoritarian Polity

Consider an authoritarian polity in which 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.⁶ The ruler controls a share λ of the total power within this polity, while the notables control the rest, $1 - \lambda$. In order to assume office at the time $t = 0$, the ruler needs to form a *ruling coalition* that commands a κ^t fraction of total power, where $\kappa^0 \in [1/2, 1)$. When $\lambda \geq \kappa^0$, the ruler controls a sufficient amount of power in order to rule alone. But when $\lambda < \kappa^0$, the ruler must recruit some *allies* from among the notables in order to assume office. We focus on the case when $\lambda < \kappa^0$, so that the ruler must recruit a positive number of allies $\mu = \kappa^0 - \lambda > 0$ in order to form a ruling coalition at time $t = 0$.

When the ruler recruits allies, he promises to share with them a β fraction of total *benefits* from joint rule, $0 < \beta < 1$. Total benefits 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 simple, we assume that total benefits are 1 with probability π (good times) and they are 0 with probability $1 - \pi$ (a crisis). Thus when the ruler keeps a promise, each ally receives the payoff β/μ with probability π and the payoff 0 with probability $1 - \pi$.

As long as $0 < \beta < 1$, power-sharing between the ruler and allies is politically desirable. On the one hand, the ruler keeps a positive share $1 - \beta$ of total benefits while maintaining μ allies. On the other hand, as long as the ruler keeps his promise to share a $\beta > 0$ fraction of total benefits with the allies, each ally receives a non-negative payoff in any period. We normalize the

payoff to the notables excluded from the ruling coalition to 0.

Allies' Rebellion as a Collective Action Problem

In order to understand when power-sharing between the ruler and his allies succeeds, we start by examining a central feature of authoritarian politics: the only punishment that the allies can use to deter the ruler from renegeing on his promise to compensate them for their support is to stage a *rebellion*, replacing the ruler with a challenger. As we show below, the credibility of the threat of a rebellion depends on the balance of power between the ruler and the allies. The balance of power within the ruling coalition thus determines the terms of any power-sharing agreement that the ruler will abide by in the first place.

If a rebellion is staged, each ally either *supports* the ruler or *rebels* against the ruler by joining a *challenger*. As long as the ruler remains in power, each ally who supports the ruler receives the benefit $b_I \geq 0$. If the ruler keeps his promise and shares β with the allies as agreed, then $b_I = \beta/\mu$. However, the ruler may also renege, in which case $b_I = 0$. If a rebellion is staged and succeeds, then the allies who joined the challenger will enjoy the benefit promised by the challenger, b_C . Meanwhile, the allies who supported the ruler will lose any benefits and receive the payoff zero. If a rebellion fails, an ally who joined the challenger will receive the payoff $-r$, where $r > 0$ represents the ruler's punishment of those who participated in a failed rebellion. To keep our analysis simple, we treat the challenger as a nonstrategic actor and his offer b_C as an exogenous parameter.

A rebellion succeeds when the fraction of allies who join the challenger ρ exceeds a threshold value ρ^* and fails otherwise, where $\rho \in [0, 1]$. What determines the threshold ρ^* ? Recall that at time $t = 0$, the ruler recruits the minimum number of allies to form a coalition of size κ^0 , which is $\mu = \kappa^0 - \lambda$. Suppose that the regime's strength changes to κ^t in any subsequent period $t = 1, 2, \dots$, because of exogenous shifts in power between those within and outside of the ruling coalition. If $\kappa^t < \lambda$, then $\rho^* > 1$ and the ruler survives in office without any allies. By contrast, if $\kappa^t > \kappa^0$, then $\rho^* = 0$ and the ruler loses office for sure. And if $\lambda \leq \kappa^t \leq \kappa^0$, then the proportion of allies required for a successful rebellion must be greater than

$$\rho^* = \frac{\kappa^0 - \kappa^t}{\kappa^0 - \lambda}. \quad (1)$$

⁶The assumption that notables are atomless players simplifies the analysis below, but our results also hold in a setting with a finite number of allies.

Equation (1) suggests that we may consider the quantity $1 - \kappa^t$ a measure of the *regime's current strength* vis-à-vis those excluded from power. When κ^t is large, a smaller fraction of allies needs to rebel in order for the rebellion to succeed. A *large* κ^t thus corresponds to a regime that is currently *weak*. Accordingly, the threshold ρ^* in (1) is decreasing in κ^t .

Meanwhile, we may think of λ as a measure of the *balance of power within the ruling coalition*. Equation (1) implies that the threshold ρ^* is increasing in λ . In other words, weak rulers are more vulnerable to a rebellion because a smaller proportion of allies can successfully rebel against them.

We assume that all aspects of this setting except for the regime's current strength κ^t are common knowledge. More precisely, each ally privately observes an imperfect signal k_i of κ^t , and in turn, each ally makes a private inference about the proportion of allies whose support the ruler needs in order to stay in power at time t . The signal k_i is distributed uniformly on the interval $[\kappa^t - \epsilon, \kappa^t + \epsilon]$, and the realizations of k_i are independent across allies. We think of $\epsilon > 0$ as "small" and thus view each ally's signal k_i as containing a small, idiosyncratic noise. This informational imperfection arises because the regime's strength depends not only on the power held by those within the ruling coalition but also on the power held by those excluded from it. Allies may learn about any shifts in power between the two groups via separate, private channels, and each ally may assess the regime's strength differently because of differences in individual's positions or networks. For expositional simplicity, we assume that κ^t has a uniform prior density on the interval $[0,1]$.⁷

Suppose a challenger offers $b_C > b_I$ to any ally that joins him in a rebellion against the ruler. Should an ally join the rebellion? To answer this question, consider first a simpler setting in which the regime's current strength κ^t is public information and thus common knowledge among the allies. If $\kappa^t < \lambda$, the ruler does not need any allies in order to survive in office. Hence a rebellion would fail even if all allies abandoned the ruler. Alternatively, if $\kappa^t > \kappa^0$, then a rebellion succeeds for sure. Thus for any ally, rebelling strictly dominates supporting the ruler when $\kappa^t > \kappa^0$, and supporting the ruler strictly dominates rebelling when $\kappa^t < \lambda$.

⁷These simplifying distribution assumptions are inconsequential as long as the support of κ^t contains the interval $[\lambda, \kappa^0]$ and $\epsilon > 0$ is small. Our results would be qualitatively identical if we instead assumed that κ^t is distributed normally, as is common in the global games literature (see, e.g., Morris and Shin 2003).

However, when the regime's current strength κ^t is in the interval $[\lambda, \kappa^0]$, 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 key political factors in our setting: the benefit from supporting the ruler b_I , the benefit from successfully rebelling and joining the challenger b_C , the cost of a failed rebellion r , or the ruler's power λ . Instead, the rebellion's success depends only on what each ally believes about the intentions of other allies.

This indeterminacy as well as the lack of connection to political factors disappears in the present setting where each ally observes an imperfect signal k_i of the regime's current strength κ^t . Given our assumptions about the distribution of k_i , each ally has an unbiased estimate of κ^t . More precisely, after ally i observes the signal k_i , she believes that κ^t is distributed uniformly on the interval $[k_i - \epsilon, k_i + \epsilon]$, and her expectation of κ^t is k_i . However, she does not know the signals k_{-i} that other allies observed, and in turn the true value of κ^t is not common knowledge. In other words, each ally is not only uncertain about the regime's strength but also about other allies' perceptions of the regime's strength.

Suppose, therefore, that each ally follows a threshold strategy according to which she rebels when her signal k_i is above some threshold k^* and supports the ruler otherwise. Then an ally who observes the signal $k_i = k^*$ must be indifferent between supporting and rebelling against the ruler. Ally i 's expected payoff from supporting the ruler is

$$\begin{aligned} & \Pr(\rho \leq \rho^* | k_i = k^*)b_I + [1 - \Pr(\rho \leq \rho^* | k_i = k^*)]0 \\ & = \Pr(\rho \leq \rho^* | k_i = k^*)b_I, \end{aligned}$$

whereas her expected payoff from rebelling is

$$\begin{aligned} & \Pr(\rho \leq \rho^* | k_i = k^*)(-r) + [1 - \Pr(\rho \leq \rho^* | k_i = k^*)]b_C \\ & = b_C - \Pr(\rho \leq \rho^* | k_i = k^*)[b_C + r]. \end{aligned}$$

Then an ally who observes the signal $k_i = k^*$ is indifferent between supporting and rebelling against the ruler if

$$\Pr(\rho \leq \rho^* | k_i = k^*) = \frac{b_C}{b_C + b_I + r}. \quad (2)$$

What is the probability that a rebellion will fail, $\Pr(\rho \leq \rho^*)$? Given their threshold strategy around k^* , the proportion of allies ρ who rebel corresponds to the proportion of allies with the signal $k_i > k^*$. Since the signal k_i is distributed uniformly on the interval $[\kappa^t - \epsilon, \kappa^t + \epsilon]$, this proportion is

$$\rho = \frac{\kappa^t + \varepsilon - k^*}{2\varepsilon}.$$

A threshold signal k^* thus implies the existence of a threshold regime strength κ^* such that a rebellion fails if $\kappa^t \leq \kappa^*$ and succeeds if $\kappa^t > \kappa^*$. That is, when the regime's strength is κ^* , the rebellion barely fails,

$$\begin{aligned} \rho^*(\kappa^*) &= \frac{\kappa^* + \varepsilon - k^*}{2\varepsilon}, \text{ or equivalently} \\ \kappa^* &= k^* + 2\rho^*(\kappa^*)\varepsilon - \varepsilon. \end{aligned} \quad (3)$$

In equilibrium therefore,

$$\begin{aligned} \Pr(\rho \leq \rho^*(\kappa^*) | k_i = k^*) &= \Pr(\kappa^t \leq k^* + 2\rho^*(\kappa^*)\varepsilon - \varepsilon | k_i = k^*) \\ &= \frac{k^* + 2\rho^*(\kappa^*)\varepsilon - \varepsilon - (k^* - \varepsilon)}{2\varepsilon} \\ &= \rho^*(\kappa^*). \end{aligned}$$

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

$$\Pr(\rho \leq \rho^*(\kappa^*) | k_i = k^*) = \rho^*(\kappa^*). \quad (4)$$

Letting $\kappa^t = \kappa^*$ in (1) and substituting $\rho^*(\kappa^*)$ along with $\Pr(\rho \leq \rho^*(\kappa^*) | k_i = k^*)$ from (2) into (4), we can solve for the threshold regime strength,

$$\kappa^* = \frac{\lambda b_C + \kappa^0(b_I + r)}{b_C + b_I + r}. \quad (5)$$

After substituting (1) and (5) into (3), we see that the threshold signal is

$$\begin{aligned} k^* &= \kappa^* - 2\rho^*(\kappa^*)\varepsilon + \varepsilon \\ &= \frac{(\lambda - \varepsilon)b_C + (\kappa^0 + \varepsilon)(b_I + r)}{b_C + b_I + r}. \end{aligned} \quad (6)$$

The equilibrium thresholds on regime strength κ^* (5) and allies' signal k^* (6) characterize a unique equilibrium and imply a simple and intuitive relationship between the likelihood of a successful rebellion and the key political factors in our setting. Recall that a high value of κ^t corresponds to a regime that is vulnerable because only a small fraction of allies needs to rebel in order for the rebellion to succeed. In turn, the threshold strategy around k^* asks an ally to rebel when her private information indicates that the regime is weaker than some threshold κ^* . A balance of power λ that favors the dictator vis-à-vis the allies, a large payoff to the allies b_I , a small offer from the challenger b_C , and a high cost of a failed rebellion r all raise the thresholds κ^* and k^* and thus lower the probability that a rebellion will succeed.

Proposition 1. *In a unique Bayesian Nash equilibrium, an allies' rebellion fails if $\kappa^t \leq \kappa^*$ and succeeds if $\kappa^t > \kappa^*$, and each ally supports the ruler if $k_i \leq k^*$ and rebels if $k_i > k^*$, where*

$$\begin{aligned} \kappa^* &= \frac{\lambda b_C + \kappa^0(b_I + r)}{b_C + b_I + r} \quad \text{and} \\ k^* &= \frac{(\lambda - \varepsilon)b_C + (\kappa^0 + \varepsilon)(b_I + r)}{b_C + b_I + r}. \end{aligned}$$

Authoritarian Power-Sharing without Institutions

We have established how the credibility of the threat of a rebellion depends on key factors in our political setting: the balance of power between the ruler and the allies, the allies' payoff from supporting the ruler and defecting to the challenger, and the punishment of those who participate in a failed rebellion. We can now examine how the credibility of this threat affects power-sharing 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 $\mu = \kappa^0 - \lambda$ allies a β share of 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 total benefits (which are 1 with probability π and 0 otherwise). Then the ruler privately observes the size of these benefits, reports it (and possibly lies) to the allies, and compensates each ally with b_I . Next, the allies observe the ruler's report and their compensation, but *not* the size of total benefits. Finally, each ally observes a signal of the regime's strength 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 power-sharing agreement remains in place but the rebellious allies are replaced by new ones from among the notables previously excluded from the ruling coalition.

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 total benefits in that period, the compensation that the allies receive, and if a rebellion is staged, the regime's strength.⁸ Recall that

⁸In contrast to strategies that would 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 regime's strength 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.

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 accomplish two objectives: first, it must discourage the ruler from paying the allies less than the promised fraction β of benefits; second, the same threat must also deter the ruler from lying about the size of benefits.

In order to deter the ruler from both types of defection—not sharing benefits and lying about their size—the allies may threaten to rebel in any period in which they receive any payoff other than $b_I = \beta/\mu$. Importantly, when we say that “allies rebel,” we only require that once the allies receive a payoff other than $b_I = \beta/\mu$, each ally considers the regime’s strength (based on her signal k_i) and decides whether to rebel. Given this threat, if the ruler defects, he optimally does so by paying allies 0.⁹ In turn, the allies cannot distinguish between the two types of defection, since both hurt them equally ($b_I = 0$).

Consider therefore when the threat of a rebellion in any period when $b_I \neq \beta/\mu$ deters the ruler from lying about the size of benefits. The ruler can only benefit from lying during normal times and, according to Proposition 1, the probability that a rebellion succeeds when each ally receives the payoff $b_I = 0$ is $\phi = 1 - (\lambda b_C + \kappa^0 r)/(b_C + r)$. Then the threat of a rebellion will deter the ruler from lying if

$$1 - \beta + \delta V^{-I} \geq (1 - \phi)(1 + \delta V^{-I}), \quad (7)$$

where $\delta \in (0,1)$ is a discount factor and V^{-I} is the ruler’s expected discounted payoff when the incentive constraint in (7) is satisfied,

$$\begin{aligned} V^{-I} &= \pi(1 - \beta + \delta V^{-I}) + (1 - \pi)(1 - \phi)\delta V^{-I} \\ &= \frac{(1 - \beta)\pi}{1 - \delta[1 - \phi(1 - \pi)]}. \end{aligned} \quad (8)$$

As long as incentive constraint (7) is satisfied, the threat of a rebellion will also discourage the ruler from not sharing benefits as agreed since the ruler obtains the same benefit β from both types of defection. Solving (7) for $\delta > 0$, we see that the ruler will comply with the power-sharing agreement as long as

$$\begin{aligned} \delta &\geq \frac{\beta - \phi}{(1 - \phi)[\beta - \phi(1 - \pi)]} \quad \text{if} \\ \phi &< \frac{\beta}{1 - \pi}, \end{aligned} \quad (9)$$

and for any $\delta > 0$ otherwise.

⁹Alternatively, no ally has an incentive to consider the regime’s strength when a rebellion is not in place, as long as others do not. Thus, the ruler’s and allies’ actions are best responses in each period, both during a rebellion and when a rebellion is not in place.

Political Institutions and Authoritarian Power-Sharing

The above analysis 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 compel the ruler to share benefits as agreed, it is a very crude and inefficient deterrent; a rebellion must be staged in any period with a crisis. Both the ruler and the allies would therefore prefer to eliminate such unnecessary rebellions by establishing institutional mechanisms that would let allies verify the actual size of benefits from joint rule. To simplify the analysis, we assume that institutions completely reveal the size of benefits to the allies in any period.

Once power-sharing is institutionalized, both the ruler’s potential misrepresentation of the size of benefits to be shared and the downright refusal to share them as agreed are now observable to the allies. In turn, a rebellion no longer needs to be staged every time the ruler claims there is a crisis and the threat of a rebellion deters the ruler from lying as long as (7) is satisfied after accounting for the resulting increase in the expected discounted payoff

$$V^I = \pi(1 - \beta) + \delta V^I = \frac{(1 - \beta)\pi}{1 - \delta}. \quad (10)$$

Substituting V^I for V^{-I} in (7) and solving for $\delta > 1$, we see that the ruler complies with an institutionalized power-sharing agreement as long as

$$\begin{aligned} \delta &\geq \frac{\beta - \phi}{\beta - \phi + \phi\pi(1 - \beta)} \quad \text{if} \\ \phi &< \frac{\beta}{1 - \pi(1 - \beta)} \end{aligned} \quad (11)$$

and for any $\delta > 0$ otherwise.

Denote threshold discount factors under power-sharing with and without institutions in (11) and (9) by δ^I and δ^{-I} , and threshold probabilities of a successful rebellion by ϕ^I and ϕ^{-I} , respectively. Since $V^I > V^{-I}$, $\delta^I < \delta^{-I}$ and $\phi^I < \phi^{-I}$. This result is intuitive: when power-sharing is institutionalized, the allies can verify the ruler’s claims about the size of benefits to be shared and no longer need to stage a rebellion every time the ruler claims there is a crisis. The resulting increase in the expected payoff from power-sharing in turn reduces the ruler’s temptation to renege, resulting in less stringent requirements on the ruler’s patience and the probability of a successful rebellion.

Proposition 2. *In a Markov Perfect equilibrium, power-sharing is feasible under a greater range of discount*

factors, $\delta^I < \delta^{-I}$, and a lower probability of a successful rebellion, $\phi^I < \phi^{-I}$.

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 λ —affects the feasibility and desirability of institutionalized power-sharing. When $\lambda < \kappa^0$, three scenarios arise as the likelihood of a successful rebellion declines with an increase in the ruler's power vis-à-vis the allies: (1) when the ruler is weak, the threat of a rebellion is sufficiently credible to allow for power-sharing both with *and* without institutions—these are the cases when $\delta^I < \delta^{-I} \leq \delta$; (2) as the ruler's power grows past a threshold λ^{-I} at which $\delta = \delta^{-I}$, power-sharing becomes feasible only when it is institutionalized, $\delta^I \leq \delta < \delta^I$; (3) once the ruler's power grows past a threshold λ^I at which $\delta = \delta^I$, power-sharing is no longer feasible—with or without institutions. Finally, when $\lambda \geq \kappa^0$, the ruler controls enough power to rule alone and therefore does not need institutions to facilitate power-sharing.

Dictators therefore have an incentive to establish and maintain institutions when the distribution of power within the ruling coalition is balanced. These are cases (1) and (2) above. In the former case, the dictator does not need institutions in order to share power. But because the expected discounted payoff is greater when power-sharing is institutionalized—the payoff in (10) versus (8)—the dictator prefers to maintain them. Meanwhile in case (2), power-sharing survives only when it is institutionalized. Yet, as case (3) illustrates, even institutionalized power-sharing will not be feasible when the distribution of power within the ruling coalition favors the dictator too much. Thus our model predicts that polities in which the balance of power shifts away from the allies in favor of the ruler will be less stable and experience more frequent leadership changes, as long as $\lambda < \kappa^0$.¹⁰

Could the dictator avoid the instability associated with case (3) by including more notables in the ruling coalition? We have precluded such considerations by assuming that the ruler maintains a minimum ruling coalition of size κ^0 . An extension of the ruling coalition beyond κ^0 has two consequences in our model

of a rebellion.¹¹ First, as the number of allies increases, a larger fraction of allies needs to rebel in order to depose the incumbent dictator. But, second, each ally now obtains a smaller benefit because he shares total benefits β with a larger number of allies. Our model of a rebellion implies that the former effect dominates the latter. That is, forming a larger than minimum ruling coalition lowers the credibility of the rebellion and therefore cannot help the ruler to share power. The dictator cannot resolve the commitment problem in power-sharing by including more allies in the ruling coalition.

To summarize, our theoretical analysis shows how the success of authoritarian power-sharing depends on the credibility of the allies' threat of a rebellion and the presence of institutions. By eliminating asymmetries of information between the ruler and the allies, institutions lead to more stable ruling coalitions and expand the conditions under which power-sharing is feasible. Yet even institutionalized power-sharing may collapse when the distribution of power within the ruling coalition shifts in the dictator's favor and thus lowers the credibility of the allies' threat of a rebellion.

Empirical Analysis: The Distribution of Power and Institutions in Dictatorships

Using large-N data on institutions in dictatorships and dictators' tenures, we now empirically evaluate our main theoretical propositions about the role of institutions in dictatorships. In our statistical analysis, we take the presence of legislatures and political parties as a measure of institutionalized power-sharing in dictatorships. Our results support our theoretical claims but come with two caveats. First, legislatures and parties are only two of several institutions that may serve to reduce asymmetries of information between the ruler and his allies and thus result in more stable authoritarian power-sharing. Other, less formal, idiosyncratic, or traditional institutions may perform this function as well. Second, large-N data provide only a crude measure of the extent to which formal rules concerning membership, procedures, and decision making are followed and therefore of the extent to which regular interaction within any institution actually reduces asymmetries of information between the ruler and his allies.

¹⁰The condition $\lambda \geq \kappa^0$ may plausibly apply to personalist dictators—such as Joseph Stalin or Rafael Trujillo—who have over time acquired enough personal power to no longer need allies in order to govern. However, such cases are empirically rare and even these leaders were compelled to share power with allies early in their tenures, before they consolidated enough power. Because it is hard to identify such leaders in large-N data without making ad hoc judgments, we do not consider them in the data analysis in the next section, assuming that they are too rare empirically to affect our estimation results.

¹¹The supplementary appendix contains proofs of these comparative statics.

We nonetheless employ data on legislatures and parties for two reasons. First, legislatures and parties represent a high degree of institutionalization. They are therefore harder to circumvent or manipulate for the dictator than other, weaker or less formal institutions. Second, data on legislatures and parties constitute the most comprehensive available measure of the institutional makeup of dictatorships. Recognizing the limitations of large-N data, we complement our statistical analysis with historical material on Mexico's political development and on power-sharing practices in resource-rich dictatorships.

Covariates of Legislatures in Dictatorships

For the purposes of our large-N analysis, we define as a *dictatorship* any regime that fails to satisfy one or both of the following two requirements for democracy: (1) free and competitive legislative elections and (2) an executive that is accountable to its citizens, either directly via presidential elections or indirectly through legislative elections in parliamentary systems.¹²

To establish the presence of legislatures and political parties throughout the period 1950–99, we rely on data from Banks (2001), Przeworski et al. (2000), and Keefer (2002). We classify a dictatorship as having a legislature when it has an independently elected legislative body.¹³ With the exception of the 1970s, over 70% of dictatorships between 1950 and 1999 have had either a legislature or at least one political party.

Since it is difficult to observe the distribution of power within the ruling coalition of any dictatorship, we employ two proxy measures: *production structure* and *foreign support*. We adopt the former because we expect that dictators will need fewer allies in countries whose economy can be easily controlled and exploited by the government. At the extreme, a dictator in a country with a single natural resource that is easily extractable and uniquely located may use it to pay off subordinates who would substitute for allies. We work with two indicators of production structure: (1) the oil share of exports, measured by a dummy from Fearon and Laitin (2003) that equals 1 if oil accounts for a third or more of total exports and 0 otherwise, and (2) the Hirsch-Herfindhal index of export concentration, which is collected by UNCTAD and varies from 0.045 (a highly diversified economy) to 1 (an economy that exports only one product.)

¹²The definition and the coding is taken from Boix and Rosato (2001).

¹³Our empirical results do not depend on whether authoritarian legislatures were elected or not.

Foreign support proxies for the distribution of power within a dictatorship because it may substitute for domestic sources of power and thus reduce a dictator's need to share power with allies. We employ two indicators of foreign support: a dummy for the Cold War period (1950–90) and a military alliance with the United States. Our rationale for the two indicators is related. Whereas a considerable number of dictators received support from one of the two superpowers during the Cold War, the strategic value of these dictatorships sharply declined after 1990 and the United States and the Soviet Union withdrew economic and military support from many of their Cold War beneficiaries.¹⁴

We employ the following controls: the lagged level and annual change of per capita income (from Fearon and Laitin 2003); dummies that measure whether a dictatorship is governed by a civilian or a military ruler (from Cheibub and Gandhi 2005), or the communist party (our data); the log of population size (from Fearon and Laitin 2003); and ethnic and religious fractionalization (from Alesina et al. 2003).¹⁵ We lag all time-varying covariates by one year.

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* that yields 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 will be maintained when it already exists, $Pr(Y_t = 1|Y_{t-1} = 1)$.¹⁶

¹⁴See, e.g., Fearon and Laitin (2008) and Kalyvas and Balcells (2010), 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. Our data on alliances is from the ATOP data set (Leeds 2005). We additionally examined the effect of rugged terrain (from Fearon and Laitin 2003) and foreign support on the institutional structure of dictatorships (by employing data on U.S. economic and military assistance to noncommunist dictatorships). These results are presented in the supplementary appendix.

¹⁵In the supplementary appendix, we report additional estimation results that control for the nature of a dictator's entry into office. We distinguish between the following forms of entry: coup, election, foreign intervention, popular revolt, civil war, and consensus.

¹⁶We depart 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).

Table 1 displays the estimates from eight alternative models. Models 1 and 2 use the presence (or absence) of a legislature as the dependent variable. Models 3 and 4 employ parties as the dependent variable. Models 1 and 3 include the covariates described above for which the largest number of observations is available, including the Cold War and oil-export dummies. Models 2 and 4 add the index of export concentration. Models 5 through 8 reestimate the previous four models after substituting the presence of alliances with the United States for the Cold War dummy. For each model, we report the α coefficients in the first column and the β coefficients in the second column along with their standard errors.

The effect of export concentration on the emergence of legislatures and parties is both statistically significant and in the predicted direction. For example, with all other covariates at their median values, the annual probability that a dictator governing a highly diversified economy (with a concentration index of 0.2) will set up a legislature is about 1 in 7. Meanwhile, the probability that a dictator does so in a single-product economy (with a concentration index of 1) drops to 1 in 25. We do not, however, find a statistically significant association between oil exports and the existence of legislatures in dictatorships, except in Model 3 (and then in Models 5 to 8).¹⁷

The impact of foreign support is also substantial and statistically significant. The decline in foreign support after the end of the Cold War raised the probability that a legislature would be both created and maintained. Meanwhile, being an ally of the United States during the Cold War reduced the probability that an existing legislature or party would remain in place (β coefficients) but did not effect their creation (α coefficients; see models 5 through 8.)

Table 2 simulates the probability of creating and maintaining a legislature before and after the end of the Cold War for different levels of export concentration while holding all other covariates at their median values. A decrease in foreign support and lesser control over the economy compel dictators to share power within legislatures and parties, as our theoretical arguments suggest. In single-export economies, for example, the end of the Cold War doubles the annual probability of establishing a legislature from 4.2% to

8.8%. In highly diversified economies, this probability increases from 19.5% to 31.6%.

Institutions and the Survival of Dictators

Our proposition that authoritarian power-sharing will be more stable when supported by political institutions has two observable implications: (1) political institutions should be associated with longer dictator tenures; (2) leadership transitions will occur within these institutions rather than outside them.

Employing available data on legislatures and parties in the period 1950–99, Table 3 lists the absolute and relative frequencies of the different ways in which leaders leave office in dictatorships with and without legislatures and parties.¹⁸ Coups d'état are the most frequent type of leader exit. Importantly however, the relative frequency of coups and revolts differs greatly between dictatorships with and without institutions. 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. A similar pattern holds across dictatorships with and without parties.

Dictatorships with different levels of institutionalization also differ in the mean duration of their leaders' tenures. For instance, leaders in dictatorships with legislatures survive in office for an average of 8.47 years (9.67 years with at least one party), whereas the corresponding figure is 6.06 years in dictatorships without legislatures (6.63 years without parties).

Table 4 presents a competing-risks survival model, which examines the effect of our covariates on the three major ways by which dictators leave office: coups, revolts, and natural deaths.¹⁹ As previously, we present two specifications per type of leader exit, one examining the effect of legislatures and the second one estimating the effect of parties. A positive coefficient implies that a covariate lowers a dictator's risk of leaving office by the associated type of exit.²⁰

Dictator exits due to natural causes may be used as a nonpolitical benchmark against which the other, politically caused types of leader exit may be compared. As expected, the key factor associated with exits due to natural causes is the age of the leader. However, the

¹⁷However, oil has a statistically significant negative effect on the presence of legislatures and parties when it is measured in terms of per capita production. We report these results in the supplementary appendix; we use the data on oil production from Humphreys (2005).

¹⁸This data covers all authoritarian leaders during the period under study and comes from Svobik (2009).

¹⁹On competing risk models, see chap. 10 in Box-Steffensmeier and Jones (2004) and Crowder (2001).

²⁰In the supplementary appendix, we report additional results that control for a larger set of covariates.

TABLE 1 Covariates of Legislatures in Dictatorships

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7		Model 8	
	α	β	α	β	α	β	α	β	α	β	α	β	α	β	α	β
<i>GDP per capita</i>	-0.062 (0.083)	0.192*** (0.072)	-0.149 (0.107)	0.030 (0.110)	0.130 (0.134)	0.230 (0.155)	0.005 (0.169)	0.158 (0.230)	-0.147 (0.091)	0.201** (0.081)	-0.246** (0.122)	0.007 (0.119)	0.228 (0.142)	0.170 (0.160)	0.094 (0.171)	0.093 (0.228)
<i>Growth</i>	0.359 (0.618)	1.293*** (0.491)	0.347 (0.841)	1.164 (0.978)	0.172 (0.982)	2.126*** (0.694)	-0.301 (1.232)	1.761* (0.935)	-0.089 (0.658)	1.225** (0.543)	0.121 (0.855)	1.217 (1.029)	0.002 (1.017)	2.192*** (0.727)	-0.384 (1.216)	1.942** (0.998)
<i>Fuel/Oil exports</i>	-0.061 (0.174)	-0.137 (0.158)	0.088 (0.226)	0.310 (0.273)	-0.285 (0.272)	-0.283 (0.313)	-0.053 (0.342)	-0.061 (0.461)	-0.061 (0.184)	-0.118 (0.177)	0.061 (0.257)	0.372 (0.302)	-0.587* (0.316)	0.053 (0.339)	-0.384 (0.389)	0.324 (0.493)
<i>Post-Cold War</i>	0.377** (0.172)	0.386** (0.154)	0.379** (0.184)	0.450** (0.196)	0.654*** (0.184)	0.674*** (0.195)	0.706*** (0.227)	0.633** (0.246)								
<i>Cold War*US Ally</i>									0.318* (0.178)	-0.287* (0.149)	0.216 (0.222)	-0.460** (0.218)	-0.008 (0.248)	-0.616** (0.251)	-0.026 (0.292)	-1.004*** (0.359)
<i>Export conc.</i>			-0.875** (0.420)	-0.649 (0.469)			-1.256** (0.607)	-0.626 (0.700)			-0.755* (0.442)	-0.969* (0.496)			-1.038 (0.632)	-1.166* (0.708)
<i>Population</i>	0.037 (0.051)	0.006 (0.038)	-0.019 (0.062)	-0.015 (0.062)	0.058 (0.077)	-0.004 (0.088)	-0.013 (0.093)	-0.120 (0.128)	0.042 (0.054)	-0.002 (0.043)	0.020 (0.067)	-0.019 (0.068)	0.175** (0.088)	0.049 (0.088)	0.113 (0.104)	-0.060 (0.129)
<i>Ethnic fract.</i>	-0.185 (0.248)	0.122 (0.198)	-0.040 (0.308)	0.218 (0.298)	0.663 (0.417)	0.589 (0.496)	1.000* (0.514)	0.736 (0.682)	-0.187 (0.237)	0.272 (0.218)	-0.079 (0.306)	0.298 (0.320)	0.611 (0.428)	0.595 (0.492)	0.830* (0.504)	0.580 (0.659)
<i>Religious fract.</i>	0.208 (0.306)	0.034 (0.251)	0.066 (0.372)	0.238 (0.391)	-0.516 (0.520)	-0.285 (0.653)	-0.418 (0.624)	0.298 (0.906)	0.414 (0.315)	-0.150 (0.279)	0.300 (0.400)	0.210 (0.418)	-0.108 (0.551)	-0.494 (0.654)	-0.078 (0.619)	0.375 (0.569)
<i>Civilian</i>	0.240 (0.238)	0.223 (0.146)	0.514* (0.311)	0.303 (0.229)	0.110 (0.341)	0.392 (0.273)	0.314 (0.404)	-0.144 (0.377)	0.021 (0.250)	0.158 (0.151)	0.160 (0.351)	0.111 (0.239)	-0.052 (0.343)	0.118 (0.248)	0.178 (0.396)	-0.576 (0.386)
<i>Military</i>	0.047 (0.192)	-0.000 (0.150)	-0.026 (0.243)	0.025 (0.224)	0.123 (0.297)	0.249 (0.283)	0.065 (0.341)	-0.258 (0.401)	-0.170 (0.198)	0.073 (0.165)	-0.337 (0.279)	0.040 (0.245)	-0.114 (0.305)	0.097 (0.267)	-0.115 (0.344)	-0.631 (0.415)
<i>Communist</i>	0.190 (0.217)	0.545*** (0.174)	0.341 (0.310)	-0.002 (0.269)	0.148 (0.323)	0.844** (0.375)	-0.011 (0.436)	0.702 (0.512)								
<i>Intercept</i>	-1.205 (0.900)	0.048 (0.668)	0.356 (1.256)	1.521 (1.241)	-3.078** (1.348)	-0.528 (1.417)	-1.178 (1.872)	1.653 (2.307)	-0.656 (0.950)	0.174 (0.744)	0.862 (1.349)	2.130 (1.315)	-4.554*** (1.459)	-0.053 (1.440)	-2.713 (1.926)	2.575 (2.272)
Observations	3158		2017		2837		1873		2875		1889		2498		1750	
Log-likelihood	-315.93		-204.53		-264.74		-184.50		-286.12		-191.40		-245.32		-173.99	

Note: Country-level random effects probit. Standard errors in parentheses. Significance levels *10%, **5%, ***1%.

TABLE 2 Export Concentration, the End of the Cold War, and the Introduction and Maintenance of Legislatures in Dictatorships

Export Concentration:	<i>No Legislature Yet</i>					
	0	0.2	0.4	0.6	0.8	1
1950-1990	0.195	0.151	0.113	0.083	0.060	0.042
1991-1999	0.316	0.256	0.203	0.158	0.119	0.088
Export Concentration:	<i>Legislature Already Exists</i>					
	0	0.2	0.4	0.6	0.8	1
1950-1990	0.830	0.742	0.635	0.516	0.396	0.285
1991-1999	0.963	0.930	0.880	0.808	0.714	0.603

Note: Predicted probabilities are based on Model 2 in Table 1. All other covariates are held at median values.

coefficient for the party dummy is statistically significant, although smaller in size than in models for other types of exit. This suggests that there may be some spurious association between this covariate and leader exits due to natural causes; we should therefore be careful in its interpretation.

Now consider the effect of the existence of legislatures and parties on the likelihood of coups, the primary empirical counterpart to allies' rebellions in our theoretical model. The existence of either a legislature or a party has a large, positive, and statistically significant negative effect on the risk of coups. At the median level of the remaining covariates, the existence of a legislature reduces the hazard of coups 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). Additionally, the positive coefficient on the interaction effect between economic growth and either a legislature or a party implies that the presence of these institutions makes dictators more resilient to economic downturns.

While the existence of a legislature or a party reduces the risk of revolts, the size of this effect is smaller than the corresponding effect for coups. Consistently with our theoretical model, this result suggests that institutions primarily contribute to the stability of authoritarian power-sharing among existing allies rather than pacifying threats from the regime's opposition.²¹

As we emphasized earlier, legislatures and parties are a particularly strong form of institutionalized power-sharing. But they are by no means the only

type of institution available to dictators and their allies. To illustrate how legislatures and parties often underpin a broader, interlocked system of power-sharing institutions, we now briefly examine the case of Mexico. We focus on Mexico because it was a dictatorship from its independence in 1821 until the late twentieth century yet went through very different political arrangements, ranging from short-term, personalistic tyrannies to electoral authoritarianism.

Until the early 1930s, Mexico was governed by strongmen and military commanders, unaided by institutions. Transitions in power occurred by irregular and violent means. Presidential tenure was short: Mexico had over 50 presidents—roughly one every nine months—during the first four decades after its independence. After a brief period under a foreign-supported monarchy, stability came with the personal dictatorship of Porfirio Díaz (1876–1911). The revolutionary insurrection that ended the Porfiriato ushered in another period of acute instability that included a civil war lasting until 1917, a military revolt in 1920, and two failed coups.

After president Obregón was assassinated in 1927, acting president Plutarco E. Calles took advantage of the relative balance of power among notables and regional "caudillos" to call for a transition from the traditional system of a "one-man country" to a "nation of institutions and laws." He barred top generals from running for president, agreed with key political parties to establish a unified, country-wide National Revolutionary Party (later the Institutional Revolutionary Party or PRI), and bound to it labor and agrarian unions as well as local and state authorities (J. Meyer 1977, L. Meyer 1978; Meyer, Segovia, and Lajous 1978). By 1934, when Lázaro Cárdenas became president of Mexico, leadership selection and

²¹We should be cautious in our interpretation of the results for revolts as we observe only 26 and 22 revolts when using the legislature and party dummy, respectively.

TABLE 3 Leader Exit in Dictatorships With and Without Institutions, 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)	345 (100.00)
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)
Party	40 (20.20)	8 (4.04)	7 (3.54)	8 (4.04)	7 (3.54)	29 (14.65)	99 (50.00)	198 (100.00)
No party	126 (49.03)	14 (5.45)	6 (2.33)	5 (1.95)	2 (0.78)	30 (11.67)	74 (28.79)	257 (100.00)

^aRelative frequencies (percentages) in parentheses.

^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

	Natural Causes		Coups		Revolts	
<i>Legislature</i>	0.286 (0.268)		2.057*** (0.197)		1.463*** (0.319)	
<i>Legislature*Growth</i>	-3.773 (2.767)		3.037* (1.812)		2.284 (2.274)	
<i>Party</i>		0.764*** (0.217)		1.920*** (0.222)		1.237*** (0.366)
<i>Party*Growth</i>		-2.009 (2.337)		3.433 (2.260)		4.884** (2.480)
<i>GDP per capita</i>	-0.032 (0.028)	-0.040 (0.037)	0.015 (0.038)	-0.017 (0.043)	0.012 (0.064)	-0.026 (0.072)
<i>Growth</i>	3.889 (2.472)	1.441 (1.285)	0.805 (1.115)	1.659 (1.050)	4.720** (2.056)	4.755*** (1.749)
<i>Fuel exports</i>	0.116 (0.277)	0.265 (0.277)	0.126 (0.250)	0.378 (0.264)	0.133 (0.381)	0.344 (0.414)
<i>Export concentration</i>		0.286 (0.595)		0.819 (1.019)		-1.040 (0.715)
<i>Population</i>	-0.099 (0.070)	-0.112* (0.067)	0.086 (0.066)	-0.022 (0.066)	-0.286*** (0.101)	-0.266** (0.112)
<i>Ethnic fractionalization</i>	-0.319 (0.398)	-0.390 (0.388)	0.419 (0.298)	0.262 (0.305)	0.680 (0.472)	0.215 (0.552)
<i>Religious fractionalization</i>	0.319 (0.521)	0.470 (0.528)	0.491 (0.387)	0.660 (0.427)	0.725 (0.697)	1.489* (0.820)
<i>Civilian</i>	0.555* (0.325)	0.217 (0.318)	-1.283*** (0.325)	-1.459*** (0.326)	-1.197** (0.541)	-1.116** (0.569)
<i>Military</i>	0.621** (0.305)	0.488 (0.299)	-0.882*** (0.306)	-0.919*** (0.305)	-0.861* (0.515)	-0.836 (0.521)
<i>Communist</i>	0.250 (0.324)	0.264 (0.321)	0.480* (0.282)	0.519* (0.298)	0.950* (0.509)	0.549 (0.530)
<i>Post-Cold War</i>	0.300 (0.289)	0.241 (0.280)	0.516 (0.329)	0.486 (0.335)	0.276 (0.412)	0.384 (0.499)
<i>Age</i>	-0.037*** (0.011)	-0.032*** (0.010)	-0.016** (0.008)	0.000 (0.008)	-0.010 (0.013)	0.005 (0.014)
<i>Intercept</i>	6.237*** (0.899)	6.007*** (0.822)	2.569*** (0.659)	3.174*** (0.656)	6.696*** (0.067)	6.129*** (1.254)
<i>Shape parameter α^a</i>	0.365*** (0.108)	0.414*** (0.109)	0.087 (0.064)	0.069 (1.225)	0.490*** (0.132)	0.443*** (0.146)
Leaders	522	495	522	495	522	495
Exits	56	54	152	142	26	22

Note: The dependent variable is the duration of dictators' tenures sorted by the three types of exit. All other types of exit are treated as right-censored. Standard errors in parentheses. Significance levels *10%, **5%, ***1%.

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

government appointments were made according to institutionalized rules. 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 accommodate the interests of the party bureaucracy, its societal allies (such as the labor movement and agrarian unions), and the governing class in the legislature and across state governments (Castañeda 1999; Cosío Villegas 1975; Smith 1979). Since all these social and political allies were incorporated into the policymaking and appointment processes through the PRI, Mexican presidents could not succeed in concentrating power in their hands to the point of upsetting the system of elite power-sharing put in place during the 1930s and 1940s. Coups ceased to be a common tool for replacing the executive, and the PRI elite governed Mexico without resorting to violence for over 70 years.

Institutions and Information

We have argued that institutions contribute to authoritarian stability by reducing informational asymmetries among the governing elite. The flow of information about the management of key economic resources should therefore be better in institutionalized than in non-institutionalized dictatorships. To test this claim, we examine the variation across dictatorships in (1) the management of their petroleum and gas resources (a productive sector with common exploitation techniques across countries and with a larger set of observations than other natural resources) and (2) the quality of information generated by state institutions.

The exploitation of natural resources is opaque in countries where power-sharing institutions are either weak or absent, e.g., in Sub-Saharan economies with sizable oil sectors. In these countries, the president has substantial executive discretion both in the decision-making process and in the allocation of resources. The small elite assisting him enjoys very little autonomy: its members are frequently rotated between positions by the dictator to prevent the formation of horizontal cliques, the president often bypasses official decision-making channels, and legislatures are either absent or irrelevant (Jackson and Rosberg 1982; Van de Walle 2001). A recent report issued by IMF's African Department on petroleum revenue management in those Sub-Saharan countries, where on average two-thirds of all public revenue comes from the oil and gas sectors (Angola, Cameroon, Chad, Congo, Equatorial Guinea, Gabon, and Nigeria), concludes that institutional oversight in those countries is poor, that "contractual arrangements are often not trans-

parent . . . as contracts are only available to a small circle of officials . . . In some cases, license allocation—and, in all cases, negotiations of contracts—are confidential" (Katz et al. 2004, 50). Oil sector operations lack transparency across the board due to inadequate data provision, a lack of auditing standards for national oil companies, and poorly defined relations between the national oil company and various branches of the government (Katz et al. 2004, 52–58).²²

This lack of institutional oversight and transparency is somewhat tempered in Gulf monarchies. Although the vast majority of them have appointed councils, the decisions of monarchs are constrained by an extended royal family and a tradition of consultation with tribal and religious leaders. In Saudi Arabia, for example, an appointed Shura Council was created already in 1927 and replaced by a large Cabinet or Council of Ministers in 1953. The key ministries of this Cabinet are in the hands of senior members of the royal family and turnover is extremely low—most appointments last from 15 to 20 years. A regular specialized council chaired by the king, and filled with about 10 ministers of the Cabinet, has supervised oil production and revenues since the early 90s. Since 1994, the monarch appoints a broader Council of Saudi Citizens with the right to review annual economic plans and question ministers (Chaudhry 1997; Cordesman 2003; Quandt 1981). In turn, there is considerable institutional oversight of oil production. Still, transparency is lacking in budgetary practices since state finances give no detail on "the impact of state industries on the budget, the full range of subsidies [and] payments to the Saudi royal family" (Cordesman 2003, 406).

Finally, the Mexican oil industry under the PRI provides an example of the management of a natural resource fully embedded within an institutionalized authoritarian regime. After expropriating foreign oil companies in 1938, the Mexican state created the national oil company PEMEX to extract, refine, and sell oil. During its first 20 years, PEMEX was governed by a board of directors controlled both by the Mexican government and the unions. Since 1958, the Mexican presidency (and its ministerial cabinet) established greater control over the company (Grayson 1980). Teichman (1988) describes in detail how the control and use of oil revenues was always at the core of the decision making (and sometimes heavy infighting)

²²As with any observational study, we cannot exclude the possibility that both the absence of a strong legislature and the lack of information are not casually related but rather the common result of a third, omitted factor such as a weak state or a particular set of social norms (low social trust, etc.)

TABLE 5 Covariates of Information Quality in Dictatorships

	Penn Tables Quality Grade		World Bank Statistical Indicator	
	Model 1	Model 2	Model 3	Model 4
<i>Legislature</i>	0.495*** (0.223)		11.740*** (3.983)	
<i>Political party</i>		1.065*** (0.355)		18.830*** (6.178)
<i>Log GDP per capita</i>	0.274*** (0.096)	0.259*** (0.095)	2.461** (1.172)	2.136* (1.191)
<i>Oil share of exports</i>	-0.888* (0.507)	-0.660 (0.503)	-8.750** (4.290)	-8.195* (4.299)
<i>Ethnic fractionalization</i>	-0.800 (0.096)	-0.916 (0.683)	-3.216 (7.096)	-6.571 (6.977)
<i>Log of population</i>	0.325*** (0.112)	0.313*** (0.111)	2.348* (1.207)	3.144** (1.259)
<i>Intercept</i>	-1.408 (1.246)	-1.216 (1.228)	16.090 (14.780)	16.310 (14.510)
Observations	68	65	56	56
R ²	0.33	0.38	0.35	0.36

Note: OLS; standard errors in parentheses. Significance levels *10%, **5%, ***1%.

within the Mexican cabinet. As we argued earlier such institutionalized power-sharing underpinned the rule of the PRI for over 70 years.

The type of political institutions in dictatorships also covaries with the quality of information generated by state institutions. While building the Penn World Tables, Summers and Heston (1991) graded the overall quality of each country's estimates (in a range from A to D+, which we recoded from 1 to 10) after comparing national account data to a set of benchmark studies done by the United Nations International Comparison Program (in five-year intervals from 1970 to 1985). In addition, the World Bank developed in 2004 an indicator of the statistical capacity of developing countries that ranges from 0 to 100 (with the latter indicating that the country fulfills the best statistical requirements.)²³

Table 5 displays the covariates of the Summers-Heston quality estimates for the period 1980-87 (Models 1 and 2) and the World Bank indicator of statistical capacity for the period 1995-99 (Models 3 and 4). Models 1 and 3 examine the impact of having a legislature. Models 2 and 4 explore the effect of having at least one political party.

Both legislatures and parties have a strong impact on the quality of information produced by dictator-

ships. The presence of a legislature raises the Summers-Heston grade by about 0.5 points; the presence of a political party raises it by 1 point. The size of this effect is substantial: although the Summers-Heston grade ranges from 1 to 10, 95% of dictatorships have a grade between 1 and 4. The effect of institutions on the statistical capacity (measured by the World Bank) is positive although smaller in size: it accounts for an increase of about 11 points for a legislature and 18 points for a party.

Conclusion

Dictatorships establish political institutions that may constrain their leaders because they alleviate commitment and monitoring problems caused by the secrecy that permeates authoritarian governance. Regular interaction in high-level, deliberative, and decision-making bodies within authoritarian parties and legislatures reduces asymmetries of information between the dictator and his allies and thus precludes destabilizing elite conflicts. Institutionalized authoritarian regimes are therefore more durable and survive under less favorable circumstances.

However, the potential of institutions to perform these functions ultimately depends on the allies' capacity to credibly threaten to replace the dictator. When shifts in the balance of power between the dictator and his allies undermine the credibility of this threat, institutions will be ineffective or break down. Our arguments thus

²³The statistical capacity index is based on three measures: adherence to internationally recommended standards and methods, data collection and availability, and the frequency of key socioeconomic indicators.

delineate the circumstances under which institutions contribute to the survival of dictatorships and clarify the complex interaction between collective action, commitment, and monitoring problems in authoritarian governance.

After formalizing these insights, we assess them by examining data on legislatures and parties in all dictatorships since 1950. We show that these institutions lead to more stable ruling coalitions in dictatorships. Dictators with legislatures or parties stay in office longer and are less likely to lose office violently, even after controlling for a large set of other factors that may affect dictator tenure. Our empirical findings also support our claim that, while dictatorships benefit from having political institutions, this positive effect is conditional upon the existence of a permissive balance of power within 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 and U.S. alliances as a measure of foreign support, which affects a dictator's need for domestic allies. We complement these large-N analyses with historical case studies of Mexico's political development and the management of natural resources in dictatorships.

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Carles Boix is the Robert Garrett Professor of Politics and Public Affairs at Princeton University, Princeton, NJ 08544.

Milan W. Svolic is an Associate Professor of Political Science at the University of Illinois at Urbana-Champaign, Urbana IL 61801.