

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

Carles Boix[†] and Milan Svolik[‡]

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 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.

*We would like to thank Alícia Adserà, Bruce Bueno de Mesquita, Frances Rosenbluth, Bonnie Weir, the participants at seminars and conferences at Princeton, Berkeley, University of Illinois at Urbana-Champaign, and the APSA, IPES, ISA and MPSA annual conventions for helpful comments and Aya Kachi for research assistance.

[†]Department of Politics and Woodrow Wilson School of Public and International Affairs, Princeton University. Email: cboix@princeton.edu.

[‡]Department of Political Science, University of Illinois at Urbana-Champaign. Email: msvolik@uiuc.edu.

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 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.

¹[Linz \(1975, 2000\)](#) is an exception in that he also examines non-totalitarian 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 and intuitive equilibrium by assuming that allies do not have common knowledge of the regime's strength. [Bueno de Mesquita \(2009\)](#) and [Edmond \(2007\)](#) have recently applied the global games methodology to collective action problems in regime and leadership change, [Chwe \(2001\)](#) and [Medina \(2007\)](#) develop alternative approaches to collective action with a motivation similar to ours, whereas [Bueno de Mesquita et al. \(2003\)](#), [Dal Bo and Powell \(2009\)](#), [Gehlbach and Keefer \(2008\)](#), [Myerson \(2008\)](#), and [Svolik \(2009\)](#) share our focus on institutions, power-sharing, and commitment problems in authoritarian politics.

An important advantage of our theoretical model of institutions and power-sharing, which we develop in Section 2, 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. In subsection 3.1, 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 predicted by our theory. 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. In subsection 3.2, we find empirical support for this claim in our statistical analysis of new data on leader tenures in dictatorships. Finally, in subsection 3.3 we show that institutionalized dictatorships have a much better informational structure than non-institutionalized ones: cross-sectional

evidence shows that the breadth and quality of statistical data varies systematically with the presence of legislatures in dictatorships; a cross-country historical comparison indicates that the level of transparency in the exploitation and management of natural resources also covaries with the types of institutions in authoritarian regimes.

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 set fraction a polity's power 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 renegeing 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 such 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 and 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 renegeing 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 within this polity, while the notables control the rest, $1 - \lambda$. In order to assume office, the ruler needs to form a *ruling coalition* that commands at least a $\kappa = \kappa_0$ fraction of the total power. 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. In our analysis, we focus on that case where at least initially, at time $t = 0$ when the ruler forms his ruling coalition, $\lambda < \kappa_0$ and the ruler recruits a positive number of allies, $\mu = \kappa_0 - \lambda$.

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.

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 succeeds, we start by examining a central feature of authoritarian politics: The only punishment that the allies may use to deter the ruler from reneging on his promise to compensate them for their support is to replace him with a challenger – they may stage a *rebellion*. As we show below, the credibility of the threat of a rebellion depends on the balance of power between the ruler and the allies and thus 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 $b_I \geq 0$. If the ruler keeps his promise and shares β with the allies as

agreed, then $b_I = \beta$. However, the ruler may also renege and we normalize this payoff to $b_I = 0$. 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, b_C . 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 $-r$, where $r > 0$ represents the ruler's punishment of those who participated in a failed rebellion. 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.

A rebellion succeeds when the proportion of allies who join the challenger, which we denote ρ , exceeds a threshold value ρ^* . That is, a rebellion succeeds when $\rho > \rho^*$ and fails otherwise, where $\rho \in [0, 1]$. What determines the threshold ρ^* ? Recall that, initially at time $t = 0$, the ruler recruits the minimum number of allies to form a coalition of size $\kappa = \kappa_0$, $\mu = \kappa_0 - \lambda$. Thus we may consider κ a measure of the *regime's strength* vis-à-vis those excluded from power, whereas λ measures the balance of power *within* the ruling coalition. Suppose that, in any subsequent period $t = 1, 2, \dots$, the strength of the regime changes to $\kappa = \kappa_t$. Then if $\kappa_t < \lambda$, the ruler can survive in office without any allies and $\rho^* > 1$. Alternatively, if $\kappa_t > \kappa_0$, the departure of a single ally will be sufficient to remove the ruler from power and $\rho^* = 0$. And if $\lambda \leq \kappa_t \leq \kappa_0$, then the proportion of allies required for a successful rebellion is

$$\rho^* = \frac{\kappa_0 - \kappa_t}{\kappa_0 - \lambda}. \quad (1)$$

Note that ρ^* is increasing in the ruler's power vis-à-vis the allies λ . In other words, weak rulers are more vulnerable to a rebellion, because a smaller proportion of allies can successfully rebel against them. Furthermore, the threshold ρ^* is decreasing in κ_t . That is, a smaller proportion of allies can stage a successful rebellion when the regime is weaker (an *increase* in κ_t corresponds to a *weaker* regime.) We summarize these outcomes and the allies' payoffs in Figure 2.

		Proportion of allies rebelling	
		$\rho \leq \rho^*$	$\rho > \rho^*$
Ally i	<i>Support</i>	b_I	0
	<i>Rebel</i>	$-r$	b_C

Figure 2: Payoffs to ally i , given the proportion of allies that rebel ρ

We assume that all aspects of this setting except for the current strength of the regime 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. The signal k_i is distributed uniformly on the interval $[\kappa_t - \varepsilon, \kappa_t + \varepsilon]$, and the realizations of k_i are independent across allies. We think of $\varepsilon > 0$ as “small.” In turn, we can say that each ally’s signal k_i comes with a small, idiosyncratic noise. This assumption is realistic: In a dictatorship, any communication about the strength of the regime must occur in secret. In turn, allies may learn about it via separate, private channels, and each ally may assess the regime’s strength differently because of small differences in individual’s positions or networks. For expositional simplicity, we assume that κ_t has a uniform prior density on the interval $[0, 1]$.³

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, alternative setting in which the current strength of the regime 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. That is, a rebellion would fail even if all allies abandoned the ruler. Alternatively, if $\kappa_t > \kappa_0$, then the defection of a single ally results in a successful rebellion. Thus for any ally, rebelling strictly dominates supporting the ruler when $\kappa_t > \kappa_0$ and supporting the ruler strictly dominates rebelling when $\kappa_t < \lambda$.

However, when the current strength of the regime κ_t is in the interval $[\lambda, \kappa_0]$, this model

³These simplifying distributional assumptions are inconsequential as long as the support of κ_t contains the interval $[\lambda, \kappa_0]$ and $\varepsilon > 0$ 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 [Morris and Shin \(2003\)](#) for a general statement of the conditions for a unique equilibrium in a global game.

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_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 . This depends exclusively on what each ally believes about the intended actions of others.⁴

This indeterminacy disappears in the present setting where each ally observes only an imperfect signal k_i of the current strength of the regime 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 $[k_i - \varepsilon, k_i + \varepsilon]$, and her expectation of κ_t is k_i . However, she does not know the signals $k_{\sim i}$ 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' perception 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. Recall that a high value of κ_t corresponds to a weak regime – a regime that needs a lot of allies in order to survive. In turn, this threshold strategy asks an ally to rebel when her private information indicates that the regime's strength has dropped below some threshold. Then in equilibrium, each ally must be indifferent between supporting and rebelling against the ruler whenever $k_i = k^*$. When $k_i = k^*$, ally i 's expected payoff from supporting the ruler is

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

⁴In an equilibrium in mixed strategies, the success of a rebellion does depend on b_I , b_C , r , and λ , but it does so in an empirically implausible way. For instance, the likelihood of a successful rebellion is increasing in the ruler's power.

On the other hand, her expected payoff from rebelling is

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

Recall that an ally who observes the signal $k_i = k^*$ is indifferent between supporting and rebelling against the ruler; thus we have

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

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

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

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

$$\frac{\kappa_t + \varepsilon - k^*}{2\varepsilon} \leq \rho^*,$$

or equivalently, when

$$\kappa_t \leq k^* + 2\rho^*\varepsilon - \varepsilon. \quad (3)$$

Thus we have

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

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

$$\Pr(\rho \leq \rho^*) = \rho^*. \quad (4)$$

Substituting (1) for the right-hand side in (4) and (2) for the left-hand side in (4), we see that in equilibrium, the allies follow a threshold strategy with the threshold signal

$$k^* = \frac{\lambda b_C + \kappa_0(b_I + r)}{b_C + b_I + r}. \quad (5)$$

The equilibrium threshold (5) implies a simple and intuitive relationship between the likelihood of an ally's participation in a rebellion and the key elements in our political setting. In order for an ally to rebel, the imperfect signal k_i of the regime's strength κ must be higher when (i) the dictator is strong vis-à-vis the allies (high λ), (ii) the payoff from supporting the ruler is high (high b_I), (iii) the payoff from defecting to the challenger is low (low b_C), and (iv) the cost of a failed rebellion is high (high repression r).⁵ Importantly, the equilibrium in which the signal k_i coordinates allies' decisions to rebel is unique and thus requires no additional assumptions about the formation of their beliefs.⁶

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 k_i . The threshold signal k^* implies that there is a threshold strength of the regime κ^* , such that a rebellion succeeds for any $\kappa > \kappa^*$. Using the fact that the ruler's expectation of κ_t is 1/2 and substituting (1) and (5) into (3), we obtain

$$\kappa^* = \frac{\lambda b_C + \kappa_0(b_I + r)}{b_C + b_I + r} + \frac{(2\kappa_0 - 1)\varepsilon}{\kappa_0 - \lambda} - \varepsilon \quad \text{for } \kappa^* \in [0, 1].$$

Thus the ruler expects that the allies' rebellion succeeds when the regime is weaker than the

⁵The corresponding partial derivatives are $\frac{\partial k^*}{\partial \lambda} = \frac{b_C}{(b_C + b_I + r)^2} > 0$, $\frac{\partial k^*}{\partial b_I} = \frac{\partial k^*}{\partial r} = \frac{b_C(\kappa_0 - \lambda)}{(b_C + b_I + r)^2} > 0$, and $\frac{\partial k^*}{\partial b_C} = -\frac{(b_I + r)(\kappa_0 - \lambda)}{(b_C + b_I + r)^2} < 0$.

⁶The equilibrium threshold (5) also implies that the punishment of those who participated in a failed rebellion r and their benefits from the membership in the ruling coalition b_I 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.

threshold κ^* , $\kappa > \kappa^*$, and fails otherwise. The probability of a successful rebellion is then

$$\Pr(\kappa > \kappa^*) = \begin{cases} 0 & \text{if } \kappa^* < 0, \\ 1 - \kappa^* & \text{if } \kappa^* \in [0, 1], \\ 1 & \text{if } \kappa^* > 1. \end{cases} \quad (6)$$

Like the threshold signal k^* , the threshold strength of the regime κ^* depends on the key elements in our political setting in an intuitive way: 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 κ^* and thus lower the probability of a rebellion's success.⁷ Simply put, the ruler knows that a rebellion is more likely to succeed when he is weak, when he pays his allies poorly, when a challenger offers them a lot, or when the punishment for those who participate in a failed rebellion is lenient.

Proposition 1. *In a unique Bayesian Nash equilibrium, each ally supports the ruler if $k_i \leq k^*$ and rebels if $k_i > k^*$. An allies' rebellion succeeds if $\kappa > \kappa^*$.*

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 balance of power between the ruler and the allies, the allies' payoff from supporting the ruler and defecting to the challenger, 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

⁷The corresponding partial derivatives are identical to those for k^* , except for $\frac{\partial \kappa^*}{\partial \lambda} = \frac{b_C}{(b_C + b_I + r)^2} + \frac{\varepsilon(2\kappa_0 - 1)}{(\kappa_0 - \lambda)^2}$, which is positive as long as ε is small.

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 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 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 regime's strength.⁸

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 renegeing 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. In fact, both types of defection 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 renegeing 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

⁸In 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.

threat of a rebellion will outweigh the immediate benefit to the ruler from lying when

$$1 - \mu\beta + \delta V \geq 1 + (1 - \phi_{\rho^*})\delta V, \quad (7)$$

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 about their size – are indistinguishable, and the same punishment – an allies' rebellion – is used to discourage both, the incentive constraint (7) also describes the incentives that will discourage the ruler from not sharing benefits as agreed.⁹ 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 regime's strength (based on her signal k_i) and decides whether to rebel.¹⁰ Solving (7) for δ , we see that the ruler will comply with the power-sharing agreement as long as

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

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.¹¹ But the likelihood of crises also affects the feasibility of

⁹Both constraints bind only during good times, when total benefits are 1.

¹⁰We can check that once a rebellion is in place, the ruler pays allies 0 and that each ally considers the regime's strength. Alternatively, no ally has an incentive to consider the regime's strength 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.

¹¹The effect of ruler's initial power λ is ambiguous: A higher λ implies a lower μ and thus lower total

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 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.¹²

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 (8) is satisfied. Now,

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 for the ruler.

¹²The intuition in the more realistic case, when institutions reveal the size of benefits via an imperfect but correlated signal, is a straightforward extension of the argument here.

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

$$\delta \geq \frac{\mu\beta}{\mu\beta + \pi\phi_{\rho^*}(1 - \mu\beta)}. \quad (9)$$

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 (9), and without institutions, $\delta^{\sim I}$ from (8), 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 proportion of allies who must rebel in order to remove him ρ^* increases, which, according to (6), 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^*} .¹³ 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 and the allies abandon the ruler as soon as the regime's strength sufficiently declines. 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, 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 power of the ruler vis-à-vis the allies is small, 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

¹³Both $\delta^{\sim I}$ 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.

would not be possible. Yet even institutionalized power-sharing agreements may collapse under unfavorable circumstances. In particular, power-sharing breaks down if the ruler's power grows too large or if the expected benefits from joint rule decline.

3 Empirical Analysis: The Distribution of Power and Institutions in Dictatorships

Using large-N data on institutions in dictatorships and dictators' tenures, we now evaluate our three main theoretical propositions about the internal structure of dictatorships. We first investigate the hypothesis that the introduction and maintenance of political institutions as a power-sharing mechanism are 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. Finally, we show that power-sharing institutions underpin informational structures and practices that increase the transparency of the political regime and therefore give the dictator's allies a much better sense of the resources of the country and its ruler.

In our statistical analysis, we approximate the type of institutional framework by looking at the presence of legislatures in dictatorships. Hence, our results, which strongly support our theoretical claims, come with two caveats. First, a legislature is only one of several institutions that 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 the data on legislatures, both 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 and because the data on legislatures is the most systematic measure of the internal structure of authoritarian regimes across time and countries currently available. Given these limitations, we complement our statistical inquiry with historical material both on Mexico’s political development and on power-sharing practices in resource-rich dictatorships.

3.1 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.¹⁴

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 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

¹⁴The definition and the coding is taken from Boix and Rosato (2001).

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.¹⁵

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 dictator's entry into office. These covariates come from [Alesina et al. \(2003\)](#), [Cheibub and Gandhi \(2005\)](#), [Svolik and Akcinaroglu \(2006\)](#), [UNCTAD \(2005\)](#), and [World Bank \(2008\)](#). 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, $Pr(Y_t = 1|Y_{t-1} = 1)$.¹⁶

¹⁵Our 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.

¹⁶We depart slightly from the notation used in previous estimations of the dynamic probit model in political

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 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.

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 \(2003\)](#).

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.

3.2 Institutions 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.

As we emphasized above, legislatures are a particularly strong form of institutionalizing a power-sharing agreement. But they are by no means the only type of institution available to dictators and their allies. And they are often part of a much broader, interlocked system of institutions. The Mexican case, with a long authoritarian spell from independence in 1821 until the late twentieth century, serves as a good example of the political role of institutions.

Until the early 1930s, Mexico was governed by powerful strongmen and military commanders, unaided by institutions. Transitions in power occurred through irregular and violent means. Presidential tenure was short: Mexico had over 50 presidents – roughly one every nine months – during the first four decades of its independence. After a brief period under a foreign-supported monarchy, Mexico was governed by Benito Juárez (until 1872) and Porfirio Díaz (from 1876 to 1911). The revolutionary insurrection that ended the Porfiriato ushered another period of acute instability: after a civil war that lasted until 1917, a successful military revolt occurred in 1920 and was soon followed by two failed coups.

After president Obregón was assassinated in 1927, however, 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 all top generals from running for president, agreed with representatives of the main political parties to establish a unified, country-wide party, the 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 (Meyer 1977, 1978; Meyer et al. 1978). By 1934, when Lázaro Cárdenas became president of Mexico, leadership selection and government appointments were made according to institutionalized rules, embedded in a stable and interlocking network of interests. 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 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. Coups ceased to be a common tool employed to punish and replace the executive and the PRI elite governed Mexico without resorting to violence for over seventy years.

3.3 Institutions and Information

We argue that institutions make power-sharing agreements more feasible and dictatorships more stable because they reduce informational asymmetries and thus curb allies’ need to rebel in order to discipline the dictator. Hence, the flow of information should be much better in institutionalized dictatorships than in non-institutionalized ones: the collection and publication of data should be of higher quality, and the management of key economic resources of the regime should be structured in way that allows both the dictator and his allies monitor their volume and value.

In order to examine how the quality of information that state institutions generate covaries with political institutions in dictatorships, we employ two cross-country measures. The first is based on the Penn Word Tables: [Summers and Heston \(1991\)](#) grade the overall quality of each country's estimates (in a range from A to D+, which we have 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). Our second measure of the quality of information generated by state institutions comes from the World Bank [2004](#): since 2004, the World Bank has developed 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.)¹⁷

Table [5](#) about here.

Table [5](#) displays the covariates of the Summers-Heston quality estimates (Models 1 and 2) and the World Bank indicator of statistical capacity (Models 3 and 4). Models 1 and 3 only include a measure of whether the dictatorship has a legislature or not. Models 2 and 4 add per capita income, as development may be a pre-condition for effective state institutions. The covariates for the Summer-Heston quality estimates are the mean of their values for the period 1980-87 since the benchmark studies employed in the World Penn Tables correspond to 1980 and 1985 (the benchmark studies of 1970 and 1975 were only done in developed, democratic countries). The covariates for the World Bank indicator are the mean of their values for the period of 1995-99.

We see that the presence of a legislature has a strong impact on the quality of information in a dictatorship: it raises the Summer-Heston grade by around 0.7 points. This effect is substantial: although the Summers-Heston grade goes from 1 to 10, it only ranges from 1 to 7 among dictatorships (and, in fact, 95 percent of dictatorships have a grade ranging only between 1 and 4). The effect of a legislature on the World Bank measure of statistical

¹⁷The statistical capacity index is based on three main measures: adherence to internationally recommended standards and methods, data collection and availability and frequency of key socioeconomic indicators.

capacity is also positive although smaller in size: it corresponds to an increase of 17 points when not controlling for per capita income and to an increase of almost 10 once we control for per capita income.

We find further support for our claim that authoritarian institutions improve the ability of dictators and their allies to share information when we examine how different authoritarian regimes institutionalize the management of their natural resources. We look at petroleum and gas, in particular, for two reasons: their market value and exploitation techniques are similar across countries; and their abundance allows us to have a larger set of observations than other natural resources.

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 in order to prevent the formation of horizontal cliques. The president often bypasses official decision-making channels. Legislatures have been 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 come from the oil and gas sectors (Angola, Cameroon, Chad, Congo, Equatorial Guinea, Gabon and Nigeria) concludes that institutional oversight in those countries is poor, stating that "contractual arrangements are often not transparent ... as contracts are only available to a small circle of officials [...] Parliaments are generally not involved in licensing for exploration and development. In some cases, license allocation - and, in all cases, negotiations of contracts - are confidential" ([Katz et al. 2004](#)). Oil sector operations lack transparency across the board due to undefined arrangements between different branches of governments and between the state and the national oil company, very inadequate data provision, and a lack of auditing practices of national oil companies ([Katz](#)

[et al. 2004](#), 52-58).

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 somewhat 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 already created in 1927 – and then 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 fifteen to twenty years. A regular specialized council chaired by the king and filled with about ten ministers of the Cabinet supervises oil production and revenues since the early nineties. Since 1994, there is a broader Council of Saudi Citizens, appointed by the monarch, with the right to review annual economic plans and question ministers ([Quandt 1981](#); [Chaudhry 1997](#); [Cordesman 2003](#)). As our theory indicates, both the level of institutional oversight and the extent of information about oil production, volume and resources are reasonably precise, although transparency is still 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 in an institutionalized authoritarian regime. After expropriating foreign oil companies in 1938, the Mexican state created PEMEX, a national oil company, to extract, refine and sell oil. During its first twenty years PEMEX was governed by a board of directors controlled both by the unions and the Mexican government. Since 1958, the Mexican presidency (and its ministerial cabinet) got a stronger hold on 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 process (and sometimes heavy infighting) of the Mexican cabinet, which, as we showed in subsection 3.2, was a key institution to sustain the power-sharing agreement that underpinned the rule of the PRI for over seventy years.

4 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 key 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 assess them by exploiting data on legislatures in all dictatorships since 1950. We also show that institutions in dictatorships lead to more stable ruling coalitions. Dictators in institutionalized settings stay in office longer and are less likely to be removed by a coup or revolt, even after controlling for a large set of other factors that may affect dictator tenure.

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):155–194.
- 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.
- 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.
- Chaudhry, Kiren A. 1997. *The Price of Wealth: Economies and Institutions in the Middle East*. Ithaca: Cornell University Press.

- Cheibub, José Antonio and Jennifer Gandhi. 2005. "Classifying Political Regimes: A Six-Fold Measure of Democracies and Dictatorships." Dataset.
- Chwe, Michael. 2001. *Rational ritual: Culture, coordination, and common knowledge*. Princeton, NJ: Princeton University Press.
- Cordesman, Anthony H. 2003. *Saudi Arabia Enters the Twenty-First Century*. Westport, Conn.: Praeger.
- Cosío Villegas, Daniel. 1975. *La sucesión presidencial*. México: Editorial Joaquín Mortiz.
- Dal Bo, Ernesto and Robert Powell. 2009. "A model of spoils politics." *American Journal of Political Science* 53(1):207–222.
- Edmond, Chris. 2007. "Information manipulation, coordination, and regime change." Unpublished manuscript, NYU.
- 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.
- Grayson, George W. 1980. *The Politics of Mexican Oil*. Pittsburgh, Pa.: University of Pittsburgh Press.
- Greene, Kenneth F. 2007. *Why Dominant Parties Lose: Mexico's Democratization in Compar-*

- ative 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," New York: Oxford University Press, pp. 693–707.
- Jackson, Robert H. and Carl G. Rosberg. 1982. *Personal rule in Black Africa: prince, autocrat, prophet, tyrant*. Berkeley: University of California Press.
- Katz, Menachem, Ulrich Bartsch, Harinder Malothra, and Milan Cuc. 2004. "Lifting the Oil Curse: Improving Petroleum Revenue Management in Sub-Saharan Africa." Washington, D.C.: IMF.
- Keefer, Philip. 2002. *DPI2000: Database of Political Institutions*. Washington, DC: Development Research Group, The World Bank.
- 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.
- 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.
- Bueno de Mesquita, Ethan. 2009. "Regime change and revolutionary entrepreneurs." Unpublished Manuscript, The University of Chicago.
- Meyer, Jean. 1977. *Historia de la Revolución mexicana, período 1924-1928: Estado y sociedad 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.
- Morris, Stephen and Hyun Song Shin. 2003. "Global Games: Theory and Applications." In Dewatripont, Mathias, Lars Peter Hansen, and Stephen J. Turnovsky (Eds.), "Advances in Economics and Econometrics," New York: 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.
- Quandt, William B. 1981. *Saudi Arabia in the 1980s: foreign policy, security, and oil*. Washington, DC: Brookings Institution 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.
- Summers, Robert and Alan Heston. 1991. "Penn World Table." Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania.
- 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."
- Teichman, Judith A. 1988. *Policy-making in Mexico: From Boom to Crisis*. Boston, MA: Allen & Unwin.
- Tullock, Gordon. 1987. *Autocracy*. Boston: Kluwer Academic Publishers.
- UNCTAD. 2005. *Handbook of Statistics 2005*. Geneva: UNCTAD.
- Van de Walle, Nicolas. 2001. *African economies and the politics of permanent crisis, 1979-1999*. New York: Cambridge University Press.
- Wintrobe, Ronald. 1998. *The political economy of dictatorship*. Cambridge: Cambridge University Press.
- World Bank. 2004. "Country Statistical Information Database."
- World Bank. 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.

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)	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)

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

^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

	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.

Table 5: Covariates of Informational Quality in Dictatorships

	Penn Tables Quality Grade		World Bank Statistical Indicator	
	Model 1	Model 2	Model 3	Model 4
<i>Legislature</i>	0.638*** (0.227)	0.715*** (0.244)	17.305*** (3.087)	9.915*** (3.517)
<i>log GDP per capita</i>		0.043*** (0.050)		2.398** (1.151)
<i>Intercept</i>	1.199*** (0.378)	1.049** (0.441)	26.996*** (5.616)	38.404*** (6.446)
Observations	83	77	69	57
Adjusted R^2	0.08	0.08	0.31	0.19

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

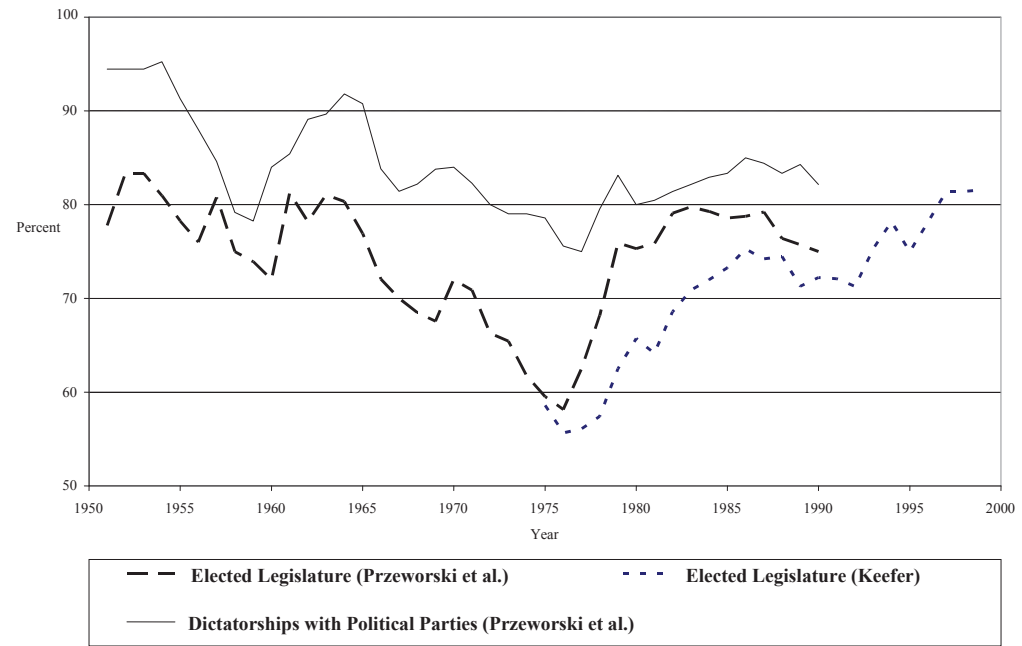


Figure 1: Proportion of dictatorships with a legislature or parties, 1951-1999.