Time Is Power: The Noninstitutional Sources of Stability in Autocracies

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Is personal power hereditable in autocracies? Given the discretion that autocrats often have to alter the formal rules of the game, personal power is key for understanding political development in nondemocracies. However, recent scholarship has ignored this question. To fill this gap we exploit the random timing of natural deaths for a set of European monarchs to show that leaders with longer tenures tended to be succeeded by their sons and had successors that were less frequently deposed and less likely to face parliamentary constraints. We show that the effect of tenure on successor deposal is at least as large as the one associated with succession orders—an institution that has received recent attention in the literature. Our results are consistent with a theoretical account we develop wherein leaders accumulate political power the longer they are in office, which then determines patterns of succession, stability, and institutional development in autocracies.

The first and fundamental problem which evidently confronts charismatic domination, if it is to be transformed into a permanent institution, is precisely the question of the succession to the prophet, hero, teacher, or party leader. It is precisely at that point that charisma inevitably turns on to the path of statute and tradition.
—Max Weber (1922; in Weber 1978, 238)

Is personal power hereditable in autocracies? That is, are leaders able to consolidate their hold on office and pass their accumulated power on to successors? If so, what are the implications for political stability and institutional development in nondemocratic regimes? Given the discretion autocrats often have to alter formal institutional rules, understanding how personal power affects political development is crucial, yet recent scholarship on nondemocracies has frequently ignored this question. Instead, this literature has been dominated by an institutionalist perspective. A large number of studies have linked institutions like parliaments (Boix and Svolik 2013; Folch 2003; Gandhi and Przeworski 2006, 2007; Svolik 2009; Wright 2008; Wright and Escriba-Folch 2012), parties (Brownlee 2007, 2008; Geddes 2006; Gehlbach and Keefer 2011; Greene 2007; Magaloni 2008; Wright and Escriba-Folch 2012), and elections (Blaydes 2010; Cox 2009; Fearon 2011; Lust-Okar 2006; Miller 2015, 2013) to the fate of autocratic regimes, leaders' survival, and patterns of succession.

We argue that focusing solely on formal institutional features understates the role of noninstitutional sources of power and thus provides an incomplete picture of political development in autocracies. We build upon a literature on political dynasties in democratic settings that has found that long-tenured incumbents are more likely to have relatives who later serve in office (Dal Bo, Dal Bo, and Snyder 2009; Querubin 2013; Rossi 2009). These studies argue that, while in office, politicians accumulate political capital that they then bestow on their relatives, allowing future generations access to power and fostering the establishment of political dynasties. If elected officials in societies where leaders are bound by the rule of law use their time in office to accumulate and transfer political power to their successors, we argue that similar mechanisms must certainly exist in autocratic regimes where de jure politics play a backseat role to the de facto exercise of power.

To fill this gap, we introduce a theoretical framework that illustrates how a longer tenure allows autocrats to accumulate

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and transmit personal power. In the first place, more time in office affords nondemocratic leaders greater opportunity to coerce, eliminate enemies, and redistribute positions of authority and wealth to their allies. In the second place, time in office reveals information about the abilities and payoffs of leaders and elites. Reduced uncertainty strengthens governing pacts and fosters norms of peaceful repeated play we view as akin to legitimacy. We then discuss the implications that both types of accumulated power have for patterns of succession and institutional development in nondemocracies.

To identify the effects of leader tenure we exploit the random timing of natural death for a set of European monarchs. We show that more time in office increases a monarch's probability of having a son as his successor and decreases his successor's probability of facing deposal and parliamentary constraints. To gauge the relative magnitude of this effect, we show that the effect of tenure on successor deposal is at least as large as the one associated with primogeniture, a formal rule governing succession in autocratic regimes that has received recent attention as a cause of autocratic stability (Kokkonen and Sundell 2014; Kurrild-Klitgaard 2000; Tullock 1987). Our results are consistent with an account in which leaders accumulate power the longer they are in office, pass it on across generations, and thereby affect patterns of succession, stability, and institutional development in autocracies. Substantively, these results show that personal power, a mechanism that has been underemphasized, is at least as important as institutional explanations that have recently monopolized the attention of scholars.

THEORETICAL FRAMEWORK

Building on existing work, we argue that autocrats accumulate power through two reinforcing yet distinct mechanisms and, moreover, that when a leader retires or passes away, close relatives find themselves in a unique position to inherit the power accumulated by their forefathers. Under the first path autocrats bestow an enhanced ability to coerce. Under the second, coordinative, path leaders bestow something akin to legitimacy. Our framework suggests that a leader's accumulated power has implications for patterns of succession, stability, and institutional development in autocracies. In particular, we argue that longer leader tenures should be associated with a lower probability of leader deposal, less frequency of institutional checks on leaders, and a higher probability of observing a monarch's son as his successor.

One motivation for our argument is a recent literature which shows that intergenerational transfers of power are crucial to explain the existence of political dynasties in democracies. Dal Bo et al. (2009), Querubin (2013), and Rossi

(2009) have found, for instance, that long-tenured incumbents are more likely to have relatives who later serve in office. These studies argue that, while in office, politicians accumulate political capital (e.g., name recognition, network of political operatives, access to donors) which they then bestow on their relatives. The capital that relatives inherit makes it easier for relatives to access power and in this way fosters the emergence of political dynasties.

A feature of democratic societies, however, is that leaders are constrained by the rule of law. Our claim is that if in liberal-democratic regimes leaders are found to use their time in office to accumulate and transmit political power, similar mechanisms are likely to be at play in autocracies where the rule of law is less likely to bind. Of course, there are going to be differences when comparing the transmission of personal power in autocracies and democracies. The most obvious difference is that rulers in autocracies do not rely on the electoral consent of those they govern. Therefore, some aspects of the accumulation and transmission of power, such as name recognition, are less relevant in nondemocratic settings.

We argue, however, that in autocracies the power of leaders also grows with time and, moreover, that this matters for patterns of succession and institutional development. This can happen because the longer leaders are in power the more chances they have to eliminate their enemies, which makes it easier for their relatives to access and remain in power after they step down. We call this the coercive path to autocratic consolidation. Furthermore, longer tenures lead to increasingly stable pacts within the elite, which may lead members of the governing coalition to demand someone close to the monarch as a successor in their quest to preserve the status quo. We refer to this trajectory as the coordinative path. Below we explain what each of these mechanisms entails and demonstrate how they have consequences for succession patterns and the institutions that emerge in autocracies.

The coercive path

The coercive path involves the immediate construction of power through the redistribution of repressive capacity and economic wealth away from competitors and to leaders themselves. Often, this takes the form of overt violence ranging from mass purges to the select disappearance of opponents to the regime. These strategies have been key for the consolidation of autocracies across centuries. Some examples in the twentieth century include mass purges à la Stalin (Conquest 2008; Tucker 1990), the execution of close members of the ruling elite by the Kim dynasty in Korea (Lim 1982; Lintner 2005), and the disappearances of civilians under Pinochet (Guest 1990; Lewis 2002). These methods are not unique to the

contemporary period. Indeed, "Pride's Purge" of the Long Parliament under Cromwell (Underdown 1971), Louis the XIV's imprisonment of his powerful finance minister, Nicolas Fouquet (Drazin 2008), and Catherine the Great's reprisals against the peasantry following Pugachev's uprising (Alexander 1969) are among innumerable historical examples that parallel the contemporary use of repression.

Still, only in particular, opportune, moments can leaders exploit their positions of power to remove their opponents in the manner described above. That is, leaders in nondemocracies, most of the time, are obliged to follow standards of action that limit their ability to use violence, particularly against members of the dominant coalition. The longer a leader is in office, the greater the number of opportunities he will have to use repressive tactics. Furthermore, time in power increases the relative capabilities of leaders directly via their prerogative to replace vacant positions of authority. Because leaders can often select replacements for unfilled positions in government, as these positions of power become vacated through retirement or death, leaders can place close allies in positions of influence and power, insulating themselves and their successors from threats to their rule. Again, with more time, the number of opportunities to replace opponents with allies is expected to increase.

This temporal dynamic is precisely the one North, Wallis, and Weingast (2009) highlight in their discussion of the co-evolution of property rights over land and limited government in England. The Crown's ability to redistribute land and title following the death of nobles was crucial to the construction of centralized power. Limited government (an open access order) could only happen when strong norms of inheritance over land developed, placing a strong check on the capacity of the Crown to reconstruct the dominant coalition in its favor. Yet limited government is a rare exception; most states throughout our period of inquiry failed to develop the rule of law—even among members of ruling coalitions—to sufficiently insulate elites from a capricious and expropriative crown. Indeed, a key feature of nondemocracies both historically and in the contemporary period is the failure to protect property—even that of the elite—from those in government (Ansell and Samuels 2010, 2014; Bates and Lien 1985). That is, for nearly all of the political units in premodern Europe, leaders operated from a position of authority allowing them to accumulate resources in the manner described above.

The coordinative path

The coordinative path to consolidation does not involve the coercive redistribution of power to leaders but, rather, results in the accumulation of power and resources from processes of elite bargaining and iterative interaction. Here, elites engage in a largely peaceful negotiation over rents derived from control of the state. There are two ways we expect leaders' power to grow over time.

First, it is a common result from formal models of bargaining that the initial distribution of wealth or power affects bargaining over future distributions of resources, often leading to the eventual concentration of wealth in the hands of a few. A series of recent game theoretic models of dynamic bargaining capture the flavor of repeatedly renegotiated elite bargains that we view as foundational in nondemocratic regimes (Jeon 2015a, 2005b; Kalandrakis 2004, 2010; Nunnari et al. 2012). Based on these results, we expect the power of leaders who have some initially superior endowment to grow with time. Generally, these models consider a divide-the-dollar type problem where some number of agents renegotiate payoffs for an infinite number of periods.[1] Common to these models is the stark prediction that economic and political power becomes, over time, concentrated in the hands of one or a few of the players. Typically, this is the player (or players) who begins the game with the greatest political power. In sum, the growing concentration of political and economic power can be derived from a bargaining protocol where there is no coercion.

Second, processes of bargaining reveal information about leaders' and coalition members' strengths and weaknesses, allowing for cooperative equilibria to become more sustainable across time. Elite pacts are bargained in the shadow of conflict. Moreover, we know from theories of cooperation and bargaining where the outside option is violence, that a crucial aspect of maintaining a peaceful bargain is the absence of imperfect information about other agents' strengths and payoffs (Powell 2004; Schelling 1980; Slantchev 2003; Smith and Stam 2004). Repeated play sustains cooperation both through folk-theorem solutions and through the revelation of information about agents' types. That is, the longer a leader is in power, the greater the revealed information about players' payoffs and abilities, which in turn promotes stability. For instance, more information about players' abilities and costs reduces uncertainty over the bargaining range of mutually beneficial, peaceful solutions. In addition, information revelation of this sort increases the relative uncertainty over potential new leaders and makes them a less attractive option. That is, with more information about a given leader's type, the elite may prefer the certainty asso-

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1. The recent model of Jeon (2015a) is the closest to our framework, which makes both proposal power and voting rules endogenous.

ciated with the status quo to the uncertainty over the random draw of usurpers.

Succession and institutional development in autocracies

The two paths discussed in the previous subsections affect the patterns of succession and institutional development in autocracies. First, consider the choice of a successor. As discussed in Kokkonen and Sundell (2014), leaders face both an "elite-coordination" and a "crown prince" problem when choosing a successor. If they do not choose a successor, leaders face the risk of being deposed since uncertainty over succession might incentivize a power-grabbing fight to secure the monarch's seat. If, however, a leader designates a successor, he still faces the risk of being deposed by the individual they appoint. The risk is higher when the time horizon of the designated successor is sufficiently short, so that he opts for seizing power to maximize his rents rather than waiting for a peaceful succession. The solution to the dual succession conundrum is the adoption of primogeniture as a succession order.[2]

However, the account in Kokkonen and Sundell (2014) cannot explain why some countries adopt primogeniture and others do not. As the left panel in figure 1 suggests, it is particularly puzzling, for example, that countries with lower deposal rates were the ones that eventually adopted primogeniture. To show this, the figure plots the proportion of deposed leaders in premodern European countries that never adopted primogeniture, in countries that eventually adopted primogeniture before doing so, and the difference in proportions in leader deposal between the two.[3] The figure shows that the deposal rates in countries that never adopted primogeniture are significantly larger than in countries that eventually adopted primogeniture.[4] A functionalist story, one where personal power plays no role, would predict that countries

with more instability would face a higher demand for primogeniture. Instead, we find the opposite pattern.

Our framework allows us to solve this puzzle. As time unfolds, leaders become increasingly powerful through the coercive and/or coordinative paths we have discussed. As a result, elite pacts become increasingly stable and may lead elites to wish to reproduce the existing equilibrium by substituting in someone they know to be most similar to the deceased leader—close allies or relatives. Over time, the choice of particular leaders may become institutionalized with the adoption of a specific succession order. Indeed, the right panel in figure 1 shows that the distribution of leader tenure is heavily skewed toward longer spells in office in countries that eventually adopted primogeniture.[5] This pattern suggests that leaders with longer tenure were able to accumulate more power, which they then institutionalized in the form of a specific succession order.[6]

Furthermore, Tullock's original argument implies that only the offspring of leaders are favored as a result of the succession problem in autocracies. Brothers, for example, if designated as successors, may have a stronger temptation to depose their sibling in order to maximize rents over their lifetime.[7] We also expect that both paths to consolidation will affect the probability that leaders and their successors will face formal political constraints such as parliaments, an institution designed to place limits on the authority of leaders. Under the coercive path these limits should recede as leaders become strong enough to govern without them. That is, as leaders become increasingly powerful in a de facto sense, the need to rely upon formal institutions like parliaments to support their rule will diminish. Under the coordinative path, the longer leaders are in power, the more information they and other elites have about each other's types and payoffs. If, as in Boix and Svolik

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2. A leader could also solve the succession problem by dividing his kingdom among his progeny. Although this is certainly a possibility, and there are a number of historical cases where this happened, we do not expect this solution to be the norm. Indeed, Alesina and Spolaore (2005, chap. 5) show that there are gains to a larger state size in terms of the rents available for extraction. In particular, in larger states rulers are able to produce sufficiently large side payments to keep potential claimants indifferent between being members of the governing coalition and controlling their own state.

3. We report here the leader deposal rates relying on the coding in Morby (2002). The same comparison using the data set of Kokkonen and Sundell (2014) produces qualitatively similar results.

4. One possibility accounting for the observed pattern is that those countries that eventually adopted primogeniture already had some form of noninstitutionalized primogeniture. To address this concern we dropped from the sample countries reporting de facto primogeniture according to the coding in Kokkonen and Sundell (2014), and the results remain similar.

5. A Kolmogorov-Smirnov test rejects the null of equal distributions under the alternative that the distribution of leader tenure in countries that eventually adopted primogeniture is greater than in countries that never adopted this form of succession rule (p-value $= 0$).

6. Another possibility accounting for this pattern would be for leaders to adopt primogeniture in anticipation that they may last longer in office in certain polities. We argue that this is unlikely, since the adoption of primogeniture does not entail any clear trade-off for leaders, and any monarch could benefit from the lower risk of deposal associated with this succession order.

7. It could also be that fathers simply have a filial preference. That is, as in a wide literature on succession in firms (Bertrand and Schoar 2006; Burkart, Panunzi, and Shleifer 2003; Perez-Gonzalez 2006), it could be that leaders simply prefer to bequeath leadership to their children. But as our evidence shows, it seems more plausible that monarchs are choosing their children as successors for instrumental reasons. This is because if we take the regime as the analog to the firm, our results suggest that autocracies ruled by monarchs perform better (in terms of stability and limiting checks on authority), whereas family firms tend to perform poorly.
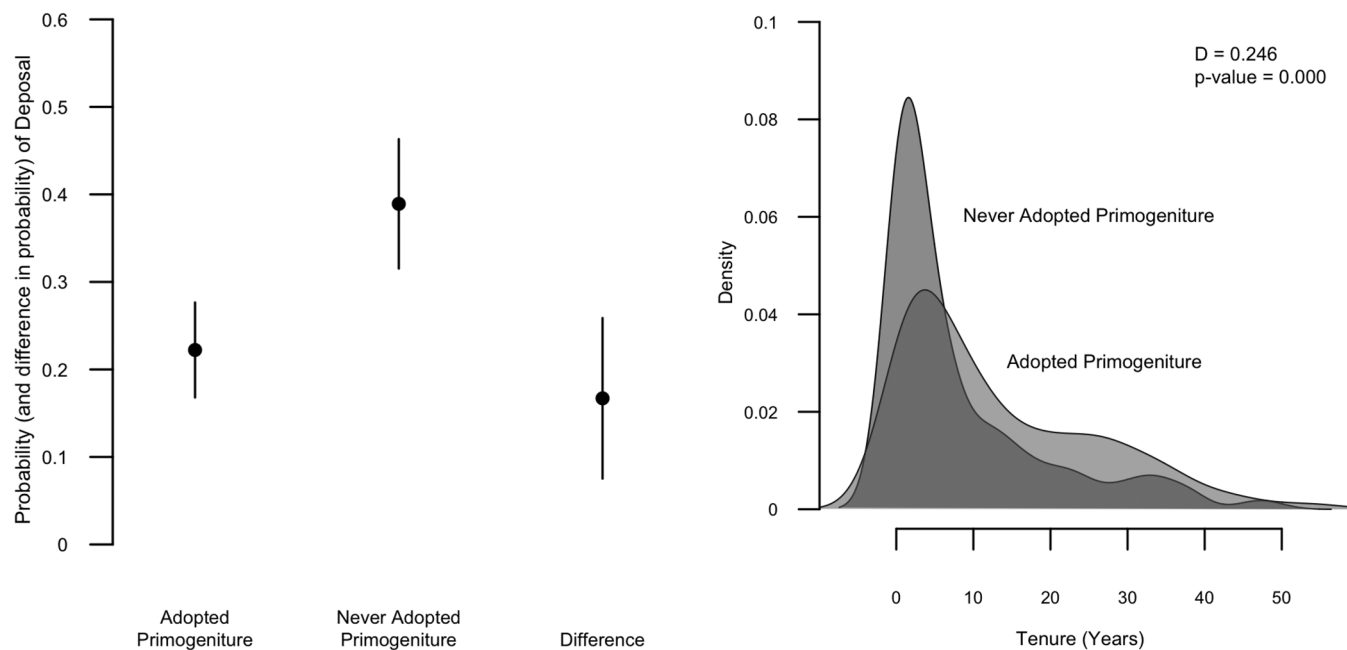
Figure 1. Leader deposal rates and tenure in premodern Europe by eventual succession order. The left panel plots leader deposal rates in premodern European countries that never adopted primogeniture, those that eventually adopted primogeniture, and the difference between the two. The figure shows that the rates of leader deposal were significantly smaller in countries that eventually adopted primogeniture. This pattern is opposite to the one predicted by a functionalist account, where higher political instability would translate to a higher demand for primogeniture in order to solve the succession problem. Instead, we argue that the transfer of personal power across generations explains why countries eventually adopt primogeniture. The right panel shows that leader duration was longer in countries that eventually adopted primogeniture. This evidence suggests that leaders in these countries had more time to accumulate power, which allowed them to institutionalize primogeniture as a succession order.

(2013), the fundamental reason why autocratic legislatures exist is to resolve problems of imperfect information that plague elite pacts, then the more information is revealed across time, the less likely they require formal institutions like parliaments.

In sum, our theoretical framework suggests that a longer tenure allows leaders to accumulate more power. Further, the discussion of the mechanisms we propose suggests that a monarch's close relatives are in a position to control the coercive apparatus of the state and also to inherit something akin to legitimacy from their predecessors. Therefore, longer tenures should lead to a lower probability of successor deposal, less frequency of institutional checks on leaders, and a higher probability of direct descendants of leaders becoming successors. In this way, we build on work in comparative politics which has emphasized the role of noninstitutional sources of power in autocracies (Bachrach and Baratz 1962; Berle 1967; Lukes 1974; Mann 1986; Wedeen 1999). These sources of power and stability deserve greater attention from formal and empirical scholars—not only because they have direct effects on political outcomes of interest, but also because they are a fundamental cause of the institutions (e.g., parliaments, elections, parties) the extant literature views as crucial. More generally, our argument is consistent with the empirical con-

clusion drawn by both Geddes (1999) and Hadenius and Teorell (2007) as well as the game theoretic account of Svolik (2009), all of which show that across formal institutional arrangements, autocracies of all types—personalist, military, single party, and hybrid regimes alike—can, given sufficient time, become consolidated against threats to stability.

DATA AND EMPIRICAL STRATEGY

To test our predictions, we exploit the timing of natural deaths within a set of European monarchs. We argue that conditional on dying naturally in office, the timing of a leader's death is independent of political outcomes such as the overall stability of a political regime and his ability to designate his successor.[8] Focusing on this population allows us to assess the impact of a leader's tenure on his ability to pass on power to close relatives and on the political fortune of his successor. Based on the preceding discussion, we should expect, all else equal, successors of leaders with longer tenures to be their direct descendants, exhibit lower rates of deposal, and be constrained by parliaments less frequently.

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8. Papers exploiting similar identification assumptions include Behn et al. (2006), Etebari, Horrigan, and Landwehr (1987), Faccio and Parsley (2009), and Jones and Olken (2005).

The data we analyze in this paper come from the records of rulers documented in the volume *Dynasties of the World* (Morby 2002). This volume lists the chronology of rulers across monarchies in several countries from antiquity to the present day. For each country the source provides information on a ruler's year of ascent and descent from power, whether the ruler was deposed or abdicated, whether the ruler is a son or brother of a predecessor, and the royal house to which a ruler belonged. This source has been analyzed to study the length of tenure of rulers in the Christian versus the Muslim world (Blaydes and Chaney 2012) and the effect of succession orders on leader deposal in premodern Europe (Kokkonen and Sundell 2014).

Additionally, we use the data set built by Abramson and Boix (2015) to measure the presence of parliamentary constraints on executives. Formally, they define a parliament as a "non-executive body (i.e. a body that fulfills legislative and sometimes judicial functions as opposed to or in addition to strict executive tasks) formed by a plurality of members" and which is "chosen through procedures (elections or lottery) not directly controlled by the executive" (Abramson and Boix 2015, 10–11). For the years between 1200 and 1800, these data measure the annual presence of traditional territorial assemblies such as the British parliament, the French General Estates, or the Catalan Corts, and permanent local councils like Genoa's Maggiore Consiglio or Florence's executive committee.

We focus on the period 505 BC to 1900 AD and classify a leader as having died in office if there is no indication of deposal or abdication for a ruler as listed in Morby (2002). Based on this sample, we then construct *Tenure*—our main independent variable of interest—as the length (in years) of a leader's reign. To measure our outcomes of interest, we rely on the information provided in *Dynasties of the World* to determine for each leader in the sample whether he had a son or a brother as a successor, whether his successor was overthrown, and whether his successor faced parliamentary constraints. Descriptive statistics are shown in table 1 in appendix A (apps. A–D available online).

Still, the proposed empirical strategy and the sources of our data give rise to several concerns. We account for them as follows. First, if there are heritable traits that explain both a ruler's longevity and fitness to lead, our proposed strategy could be capturing the effect of a genetic component. In other words, more physically vigorous leaders might be more capable of transferring authority across time and also of living longer.[9] To account for this we can condition on the family line of each leader, thereby estimating effects of tenure from within-family changes. Thus, if there is a heritable component, we can account for it by comparing units within their own family tree. Similarly, there may be country-specific traits that explain both leader longevity and future political stability.[10] In the same way, we condition on country-specific factors, and our results do not substantively change.

Second, a common time trend in both health outcomes and political stability might confound our estimates. If both leader tenure and political stability coevolve because, for example, limits to medical knowledge, economic constraints, or the disease environment covaried temporally with political stability, our results may be capturing these trends and not a true effect of leader tenure. One way we account for this is to compare leaders who came to power in the same time period. When we include time effects, removing whatever time-specific heterogeneity might confound our results, none of our estimates change.

A further complication may arise from systematic variation in the age at which leaders come to power. Leaders who come to power at a young age have a greater opportunity to sire offspring, consolidate power, and pass that power on to future generations within a regime. In order to account for this possibility, we condition on a leader's age at ascension, thus comparing leaders who come to power at the same age but who die at different ages. No results change substantively when we do this.

One might also be concerned that we systematically miscode natural deaths. For example, leaders may exit power by a successful coup but the historical accounts upon which we rely could record this event as an accidental or natural death. To guard against this concern we replicate all of our results using the data set constructed by Kokkonen and Sundell (2014). The advantage of these data is that the authors checked across several sources the manner in which leaders exited power. The consequence is a slightly different coding to that of Morby (2002). Besides a few small discrepancies in the coding of deposals, the main difference between theirs and our data set is the former's shorter time period covered in the sample (1000 AD to 1800 AD vs. 505 BC to 1900 AD) and considerably fewer countries in their analysis (42 vs. 106). Nevertheless, our

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9. For example, a substantial literature on height, a highly heritable trait, finds that taller men are more likely to obtain leadership positions (Judge and Cable 2004l Stogdill 1948) and be viewed as better leaders (Hensley 1993; Kurtz 1969; Young and French 1996; Zebrowitz 1994). Lindqvist (2012) finds that 50% of the correlation between height and leadership positions is explained by the correlation between height and cognitive and noncognitive abilities.

10. For example, poor and unequal societies exhibit high levels of mortality (Beckfield 2004; Marmot 2005; Preston 1975) and political instability (Boix 2008; Cramer 2003; Fearon and Laitin 2003).

results remain unchanged when analyzing this alternative data set.[11]

Finally, we may also face a problem of selection. Although we exploit the random death of European monarchs, one may still be concerned that leaders enjoy longer tenure simply because they govern in polities with lower risk of deposal. We address this concern in two ways. First, our results are robust when controlling for proxies of risk deposal such as foreign threat and state capacity using the Kokkonen and Sundell (2014) sample. Second, we apply the sensitivity test suggested in Oster (2015) to ask how much of the variation in the outcome the unobserved variable (e.g., risk deposal) would have to explain in order for the tenure effect to go away. In general, these tests suggest that the unobserved variable would have to explain between one to four times the variation that the observed predictors (including proxies for risk deposal) already explain. This evidence suggests that an unobserved confounder is unlikely to explain our findings.

CHOOSING A SUCCESSOR

In this section, we focus on the set of leaders who died in office during the period 505 BC to 1900 AD and estimate the impact of tenure on their ability to pass on power to close relatives. We focus on two outcomes. First, we examine the effect of a ruler's tenure on the probability that a son inherits leadership from his father. Then, to show that only certain relatives benefit from the power accumulated by predecessors, we treat as the outcome the probability that a brother replaces a departing leader. We find that leaders who were in power longer were more likely to have their son as successors. We also find that brothers of leaders who enjoyed long tenures were less likely to serve as successors. These results indicate that outcomes observationally akin to succession rules can be generated by wholly noninstitutional causes, and that, given the problem monarchs face when designating successors, only certain relatives benefit from the accumulated power of leaders.

To assess our claim that leaders who survive longer in power will be more capable of ensuring successors who are close to them, we estimate the following model:

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\begin{aligned}
Y_i &\sim \text{Bernoulli}(p_i) \\
p_i &= \text{logit}^{-1}(\beta_0 + \text{Tenure}_i\beta_1 + X_i^{\text{T}}\beta_2 + \phi_t + \alpha_c + \gamma_r) \\
\phi_t &\sim \mathcal{N}(0, \tau_t^2) \\
\alpha_c &\sim \mathcal{N}(0, \tau_c^2) \\
\gamma_r &\sim \mathcal{N}(0, \tau_r^2),
\end{aligned}
\tag{1}
$$

where Y_i is the main outcome of interest and is operationalized as a binary indicator for whether a leader's successor is his son, or alternatively, whether it is his brother. We model each of these outcomes as a Bernoulli process governed by a leader-specific probability p_i. We model p_i as a function of a leader's log of tenure in office (Tenure$_i$), a set possible confounders (X_i), and century (ϕ_t), country (α_c), and house (γ_r) random effects under an inverse logit specification. The random effects are normally distributed with mean zero and variance τ_t, τ_c, and τ_r respectively. The random effects essentially control for heterogeneity one may expect to find across time, countries, and specific royal houses.

Columns 1–5 in table 1 report the results from this analysis, treating the outcome as the existence of a son as successor. Across all specifications we find that a leader's tenure has a positive impact on his ability to pass on power to his son. Importantly, this effect is robust first to the inclusion of century, country, and house random effects (cols. 2–4). A concern one may have is that the relationship between leader tenure and the probability of passing power to a son is simply mechanical. In other words, the story may not be about politics but biology; leaders who are longer in power had more time to sire their offspring. To address this concern, we collected data on rulers' date of birth and then created a variable for the age when they first took office.[12] When we include the log of age at a leader's ascent, we find that older leaders are more likely to have a son succeed into power, but importantly for our argument, we still find a positive and significant effect of leader's tenure on his ability to pass on power to his offspring (col. 5). Moreover, if our argument is correct, we should expect the effect of the tenure to be larger than the one for age of ascent. This follows from the fact that tenure captures the time a leader has to sire an offspring as well as the power he accumulated, while age at time of ascent just captures the former.[13] The point estimates suggest that this is indeed the case (although under an F-test we fail to reject the null hypothesis of equality of coefficients [p-value $\approx$ .95]).

One may be concerned about identifying the set of rulers who died in office. As discussed in Kokkonen and Sundell (2014), there may be inaccuracies in Morby's (2002) coding of deposals. To address this issue we rely on the much smaller sample and coding analyzed in Kokkonen and Sundell (2014).

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11. Results using the Kokkonen and Sundell (2014) sample are reported in the appendix.

12. We were unable to find the date of birth for a about 22% of rulers in the sample. To avoid list-wise deletion, we imputed the age of leaders in five data sets using the Amelia R library. The results reported in table 1 are pooled estimates as discussed in King et al. (2001, 53).

13. We thank an anonymous reviewer for helping us clarify this point.

Table 1. Leader Tenure and Probability of Son as Successor

	Outcome: Son as Successor$_i$				
	(1)	(2)	(3)	(4)	(5)
log(Tenure$_i$ + 1)	.968***	.881***	.881***	.912***	1.010***
	(.062)	(.065)	(.065)	(.068)	(.074)
log(Ascent Age$_i$ + 1)					.410***
					(.010)
Intercept	−2.838***	−2.549***	−2.566***	−2.652***	−4.272***
	(.180)	(.203)	(.209)	(.214)	(.459)
Country RE	No	Yes	Yes	Yes	Yes
Century RE	No	No	Yes	Yes	Yes
House RE	No	No	No	Yes	Yes
Observations	1,935	1,935	1,935	1,935	1,935

Note. The table reports the estimates of the effect of log of tenure on the leader's probability of having a son as successor. The estimate for the effect of tenure is positive and statistically significant (col. 1). This result is robust to the inclusion of century, country, and house random effects (cols. 2–4), and the inclusion of age of ruler at time of ascent (col. 5). RE = random effects; FE = fixed effects.
* $p < .10$.
** $p < .05$.
*** $p < .01$.

The results are virtually identical and are reported in table 2 in appendix B.

Another concern is that we are not accounting for other factors, such as the risk of deposal that leaders from different polities face. To check whether this possibility affects our results we also control for the number of leaders per century deposed by a foreigner for each country and the log of state duration. All else equal, polities with high risk of deposal may signal the presence of weak leaders, thereby encouraging foreign interventions. If this is the case, countries with a higher risk of leader deposal should report a higher frequency of leaders removed by foreigners and should report lower duration. Including these covariates, as shown in column 5 of table 2 in appendix B, does not change our results.[14] Finally, to guard against the possibility that foreign deposed per century and log of state duration do not fully capture the differences in the risk of deposal across observations, we conduct the sensitivity analysis suggested in Oster (2015). The results of this test, reported in appendix C, show that the unobserved variable would have to explain what we believe to be implausible levels

of variation in the outcome (in particular, the unobserved confounder would have to explain a variation in the outcome between two and four times larger than what the observed covariates in our models already explain). Since in the appendix we are already controlling in the analysis for proxies of risk of leader deposal, the amount of unexplained risk would have to be extremely large in order to make our findings null.

Next, table 2 reports the results from our analysis when we take the binary indicator for whether a leader is succeeded by his brother as the outcome. The effect of log of tenure is negative and statistically significant. This suggests that because of the crown prince problem, as time goes by brothers are less likely to serve as successors. Again, the story is not about biology. The coefficient of log tenure captures the dynamics of the crown prince problem and the fact that monarchs who are longer in power may not have a brother alive or fit enough to take the reins of a kingdom. When we control for the log of a leader's age of ascent we find that the estimate is larger than before and also slightly larger than the one for the added covariate, suggesting that the biological component is not responsible for the variation in our outcome.[15] As a robustness check, we repeated the analysis using

14. In table 5 in appendix B we also show that the effect of log of tenure on the probability of a leader having a son as a successor is robust to controlling for primogeniture as a successor order. We also consider interactions between these two variables. We find that the effect of leader tenure is smaller in countries that have primogeniture as a succession order. However, we are cautious in interpreting this result since, as our theoretical framework suggests, tenure is endogenous to the time a leader is in power.

15. The reason why the estimate is larger is because there is a negative correlation between leader tenure and age at ascent. This fact, combined with the negative effect of age at ascent, suggests that omitting age at ascent from a regression model will underestimate the effect of log of tenure on the probability that a brother becomes a leader's successor. Further, we examined whether there is a significant difference between the

Table 2. Leader Tenure and Probability of Brother as Successor

	Outcome: Brother as Successor$_i$
	(1)	(2)	(3)	(4)	(5)
log(Tenure$_i$ + 1)	−.274***	−.382***	−.383***	−.376***	−.444***
	(.064)	(.069)	(.070)	(.071)	(.073)
log(Ascent Age$_i$ + 1)					−.401***
					(.123)
Intercept	−1.170***	−.947***	−.970***	−1.058***	.405
	(.168)	(.195)	(.201)	(.204)	(.487)
Country RE	No	Yes	Yes	Yes	Yes
Century RE	No	No	Yes	Yes	Yes
House RE	No	No	No	Yes	Yes
Observations	1,935	1,935	1,935	1,935	1,935

Note. The table reports the estimates of the effect of log of tenure on the leader's probability of having a brother as successor. The estimate for the effect of tenure is negative and statistically significant (col. 1). This result is robust to the inclusion of century, country, and house random effects (cols. 2–4), and the inclusion of the log of age of ruler at time of ascent (col. 5). RE = random effects; FE = fixed effects.

* $p < .10$.
** $p < .05$.
*** $p < .01$.

the Kokkonen and Sundell (2014) sample and the results remain unchanged (see table 3 in app. B). The results are also similar when we control for number of leaders deposed by foreigner per century and the log of state duration, both proxies of deposal risk (see col. 5 in table 3 in app. B). Finally, our sensitivity tests for the unobserved confounder reported in figure 1 of appendix C, are not as stark as the ones found for the son as successor as outcome, but the implications are the same: it is unlikely that variation in the risk of deposal is driving the effects of leader tenure on the probability that a brother becomes his successor.

Finally, to give a sense of the magnitude of the effects, in figure 2 we plot predicted probabilities of successor type (along with 95% confidence intervals) as a function of the log of leader tenure (for perspective, the x-axis labels values in the original scale in years). We computed the predicted probabilities for each of the unique observed values of leader tenure in the data.[16] We find that leader tenure has a sub-

stantive effect on the leader's probability of passing on power to a close relative. For instance, in the left panel of figure 2 we find that at a mean tenure of 18.7 years, staying in power for an additional five years represents a leader moving from a 50% to a 56% probability of having a son as successor. In contrast, the right panel of figure 2 shows that for a mean tenure of 18.7 years, a five-year increase in tenure is associated with a 1-percentage-point decrease in the probability of having a brother as a successor, from 10% to 9%.

STABILITY ACROSS GENERATIONS

Having demonstrated that longer-living leaders are more likely to have successors who are their sons, in this section we show that, similarly, longer-tenured rulers cede power to successors who are less likely to be deposed in office. In doing so, we show that power accumulated across time is used to select a preferred successor and to make their regime more stable as well.

To demonstrate this, we take a similar approach as in the last section but now we treat the outcome as the probability that a leader's successor is deposed. Again, we estimate the relationship between the log of leader tenure and successor deposal for the set of leaders who died naturally in office

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magnitude of the estimate for the coefficient of log tenure and the one for a leader's age at ascent. An F-test fails to reject the null hypothesis of equality of coefficients (p-value ≈ 1).

16. All simulations were generated with the regression specification reported in column 4 of tables 1 and 2.
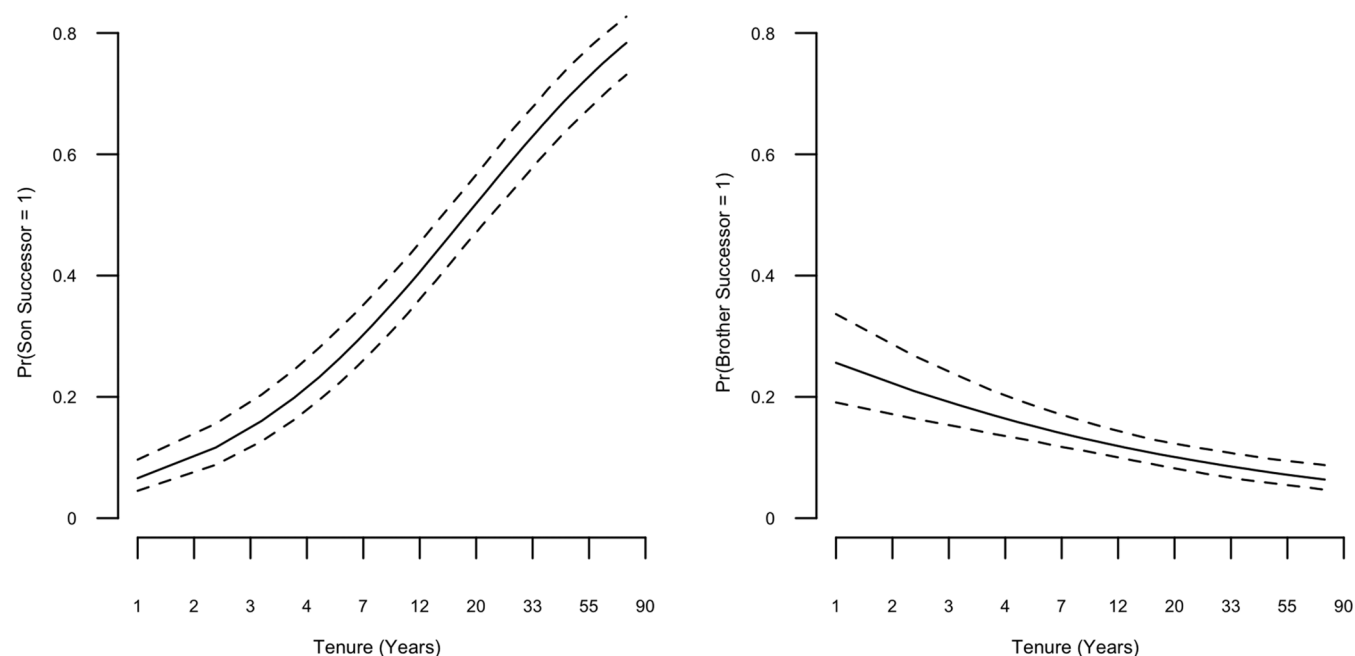
Figure 2. Leader tenure and probability of son and brother as successor. This figure plots predicted probabilities (and 95% confidence intervals) of a leader having a son (*left panel*) and a brother (*right panel*) as a successor as a function of log tenure (based on the estimates reported in col. 4 of tables 1, 2). Both panels show a large and positive effect of tenure on the probabilities of interest. For instance, the left panel shows that at a mean tenure of 18.7 years, staying in power for five additional years represents moving from a 50% to a 56% probability of having a son a successor. In contrast, the right panel shows that at a mean tenure of 18.7 years, a five-year increase in tenure is associated with a 1-percentage-point decrease in the probability of having a brother as a successor. This indicates that staying in power for five additional years decreases the probability of having a brother as successor from 10% to 9%.

using the mixed effects logistic regression discussed in the previous section. The results are presented in table 3. Across all specifications our estimates show that leaders who last longer in office produce successors who are considerably less likely to be deposed. In column 1, we give the main, unconditional, result. Then, in columns 2–4 we re-

Table 3. Leader Tenure and Probability of Successor Deposal.

	Outcome: Successor Deposed$_i$				
	(1)	(2)	(3)	(4)	(5)
$\log(\text{Tenure}_i + 1)$	−.261***	−.229***	−.222***	−.224***	−.216***
	(.067)	(.074)	(.075)	(.076)	(.079)
$\log(\text{Ascent Age}_i + 1)$					.058
					(.150)
Intercept	−1.329***	−1.550***	−1.640***	−1.675***	−1.887***
	(.176)	(.221)	(.250)	(.252)	(.604)
Country RE	No	Yes	Yes	Yes	Yes
Century RE	No	No	Yes	Yes	Yes
House RE	No	No	No	Yes	Yes
Observations	1,935	1,935	1,935	1,935	1,935

Note. The table presents the estimates of the effect of log of tenure on the probability that a leader's successor is deposed. The estimate for the effect of log of tenure is negative and statistically significant (col. 1). That is, successors of leaders with longer tenures face a lower probability of being overthrown. This result is robust to the inclusion of century, country, and house random effects (cols. 2–4), and the inclusion of age of ruler at time of ascent (col. 5). RE = random effects; FE = fixed effects.
* $p < .10$.
** $p < .05$.
*** $p < .01$.

port estimates where we successively add in random effects to account for country-, century-, and family-specific heterogeneity. Finally, in column 5 we report the estimate of log tenure when controlling for a leader's age at time of ascension. As before, our results are robust when we use the restricted Kokkonen and Sundell (2014) sample and control for proxies of deposal risk across observations (see table 4 in app. B). The findings for the sensitivity test proposed in Oster (2015) also suggest that it is unlikely that the presence of an unobserved confounder is driving our results (see fig. 1 in app. C).

To give a sense of the magnitude of the effects, figure 3 plots predicted probabilities (and 95% confidence intervals) of successor deposal for all unique values of leader tenure observed in the data. Across these values the probability of having a successor deposed decreases from about 15% to just under 10%. This decline of 5 percentage points is substantial considering that the unconditional probability of having a successor who was deposed for the set of leaders who died naturally in office is 12.1%. The estimate for the log of leader tenure, derived from column 4 in table 3, indicates that five additional years of tenure (from a mean tenure of close to 19 years) are associated with a half percentage point decline in the probability of a successor's deposal.
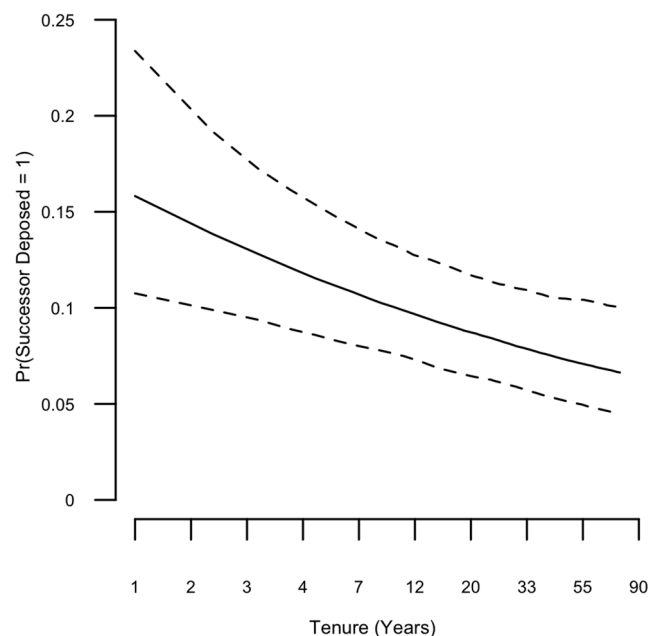

Figure 3. Leader tenure and probability of successor deposal. This figure shows the predicted probabilities (and 95% confidence intervals) of a leader's successor being deposed. The estimates are taken from column 1 of table 3. The figure shows that increasing tenure from 5 to 20 years (a magnitude that corresponds to one standard deviation of the observed values in the data) leads to a 2.5-percentage-point decrease of a leader's successor being deposed (from about 14% to 11.5% respectively).

In sum, these results indicate that the length of time leaders spend in office affects not only who their successors are, but also the probability that those who follow them in office will be removed via deposal. This suggests that the ability of leaders to consolidate power causes both observed patterns of succession and regime stability. Moreover, this finding indicates that time in office yields a noninstitutional source of power that is capable of being transmitted across generations within political regimes.

THE PRESENCE OF PARLIAMENTARY CONSTRAINTS

If a leader's time in office is a proxy for their ability to construct and transmit power, we expect that as a leader's time in office increases they should become less likely to face institutional constraints to their authority. Moreover, if they are able to pass this accumulated power to their successors, we should expect those who follow leaders with longer tenures to similarly face fewer institutional constraints. In this section, we test both of these claims by focusing on the presence of parliaments after the year 1200, about the time such institutions first came into existence.

First, we provide evidence supporting the notion that time in power allows leaders to operate unconstrained by institutions like parliaments. To test this argument, we first examine the relationship between a leader's time in power and the likelihood that he calls a parliament. We treat the probability that leader i calls a parliament in year t of his reign, $\Pr(\text{Parliament}_{it} = 1 \mid \text{Tenure} = t)$, as a smooth function of log tenure, estimated via loess regression. As in the previous sections, figure 4 gives the predicted probabilities across observed years of a leader's tenure. We see that, as expected, there is a sharp decline across time in the probability that a leader calls a parliament, from about 46% in the first year of rule to a 30% probability in year 25.

If leaders can use time in office to accumulate and pass on power, we might expect the ability to resist the imposition of parliamentary constraints to persist across generations within a regime. To assess this claim, we next examine, again for the set of leaders who died naturally in office, the effect of a leader's length of tenure in office on the probability their successor is constrained by a parliament.

The data on parliaments from Abramson and Boix (2015) record the presence or absence of a parliamentary body in each year of a leader's reign, taking on a value of one if a body met in a given year and a value of zero if it did not. However, because of natural attrition and deposal, not all successors face the same number of years in which they might face a parliament. To account for this fact we use a binomial regression framework to weight each observation by the number of trials (years) in which a successor might
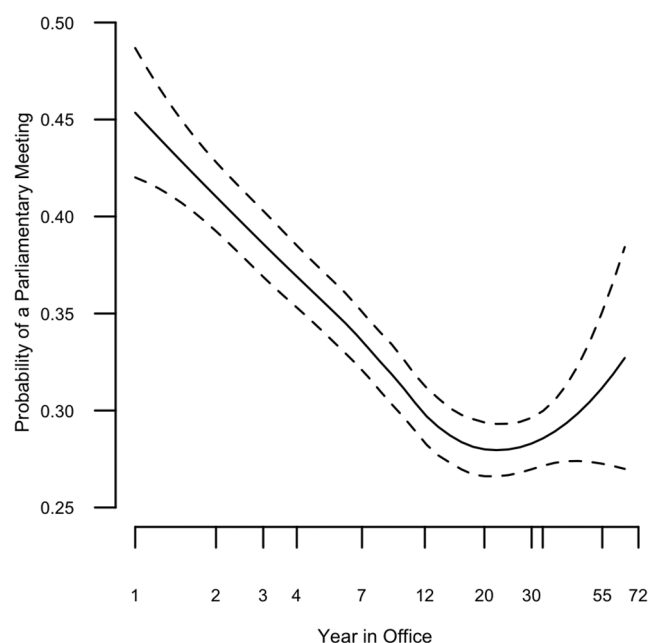
Figure 4. Loess fit of the probability that a leader calls a parliament in a given year of of his reign. The x-axis gives the year in office for a given leader. The y-axis gives the predicted probability (and 95% confidence intervals) that a leader calls a parliament in a given year. The figure shows a significant decline in this outcome as the reign of a leader increases, from about 46% in the first year of rule to a 30.0% probability in year 25.

face a parliament. These estimates are presented in table 4. In each specification, successively accounting for country, house, and century unobservables, we find a strong, negative, relationship between a leader's tenure and the probability their successor is forced to call a parliament in a given year of his rule. These results are robust when relying on the Kokkonen and Sundell (2014) sample (see table 6 in app. D). Further, the findings in this section are not simply the result of path dependence. In table 7 in appendix D we control for the frequency of parliaments under a successor's predecessor and still find that leader tenure predicts his probability of calling a parliament.

The magnitude of this effect is plotted in figure 5, which gives the predicted probabilities across all observed years of a leader's rule. We see that, again, there is a sharp decline across time in the probability that a leader calls a parliament in a given year, from about 57% for a leader whose predecessor lasted just one year in office to 31% probability for a leader whose predecessor lasted 25 years. This estimate is remarkably similar in magnitude to those we estimated when looking at the probability a leader himself faces a parliament across time within his regime. According to our loess estimates, a leader in his twenty-fifth year has a probability of facing a parliament of about 30%. If he died in this same year, we estimate that his successor would face

a parliament with about a 31% probability. Similarly, a leader in the first year of office has a predicted probability of facing a parliament of about 44%. If he were to die in his first year, we estimate his successor would be about 57% likely to call a parliament. In all, these results indicate that leaders are themselves less likely to face parliamentary constraints across their rule and, moreover, capable of transmitting the power they accumulate across generations within their political regime.

POWER VERSUS INSTITUTIONS

Up to this point, we have shown that leader tenure (a proxy for the power rulers accumulate while in office) is an important determinant of the identity of successors, the stability of regimes, and the presence of institutional constraints on executives. We have also argued that this theoretical account has been largely ignored in the empirical literature. In this section, we show, relying on a causal mediation framework (Imai et al. 2011), that the direct impact of accumulated political capital on the likelihood that a leader's successor will maintain a hold on power is at least as important as the impact it has when it operates through the construction of formal institutions.

To illustrate this point we revisit Kokkonen and Sundell (2014). The main finding in their study is that primogeniture, an institution under which the first child of a monarch is the designated successor to the throne, leads to a decrease in the incidence of leader deposal. Kokkonen and Sundell (2014) offer two mechanisms by which primogeniture works to bring about this effect. First, according to their argument, the existence of an anointed successor makes members of the elite less likely to engage in a power-grabbing fight (the coordination problem). Second, the long-time horizon of a young anointed successor, the argument goes, makes him less likely to rise against the current leader relative to older designated successors (the crown prince problem).

The theoretical discussion and empirical results presented in this paper suggest that their analysis is incomplete. As we have shown in the previous sections, a leader's tenure (a proxy for accumulated power) is correlated with the adoption of primogeniture and is an important determinant of the presence of parliaments in premodern Europe. We argue that this is because leaders who stay in office for longer periods accumulate power and thereby are able to prevent the emergence of checks on their authority and institute a succession order to their liking—primogeniture being one clear example.

To incorporate this possibility from an empirical perspective, we revisit Kokkonen and Sundell (2014) and analyze their data under a causal mediation framework (Imai, Keele, and Tingley 2010; Imai et al. 2011; Imai, Tingley, and

Table 4. Leader Tenure and Probability a Successor Calls a Parliament

	Outcome: Probability Successor Calls a Parliament				
	(1)	(2)	(3)	(4)	(5)
log(Tenure + 1)	−.3846***	−.2416***	−.3185***	−.3110***	−.2355***
	(.0230)	(.0318)	(.0348)	(.0476)	(.0493)
log(Ascent Age+ 1)					−.01647
					(.05931)
					−.01647
Intercept	.3103***	−.4110	−1.5172	−1.3900**	−1.5480**
	(.0670)	(.4743)	(1.0315)	(.6729)	(.7034)
Country RE	No	Yes	Yes	Yes	Yes
Century RE	No	No	Yes	Yes	Yes
House RE	No	No	No	Yes	Yes
Observations	538	538	538	538	538

Note. The table presents the estimates of the effect of tenure on the probability that, in a given year of their rule, a leader's successor faces a parliament. The estimate for the effect of tenure is negative and statistically significant (col. 1). That is, successors of leaders with longer tenures face a lower probability of having to call a parliament. This result is robust to the inclusion of century, country, and house random effects (cols. 2–4), and the inclusion of age of ruler at time of ascent (col. 5). RE = random effects; FE = fixed effects.

* $p < .10$.

** $p < .05$.

*** $p < .01$.

Yamamoto 2013). The advantage of causal mediation is that it allows researchers to identify the average effect a treatment has on its own and through a mediator on a given outcome of interest. In our particular context, we are interested in disentangling the direct effect a leader's tenure has on his successor's probability of deposal from the one it has through primogeniture. Following the strategy we adopted in the previous sections, we limit our analysis to the leaders who died naturally in office.

For the analysis to yield properly identified estimates two assumptions must be satisfied: ignorability of the treatment and sequential ignorability of the mediator. In substantive terms this means that both the treatment and the mediator (conditional on a treatment) have to be as good as random. These assumptions allow us to identify the average direct effect (ADE) and average causal mediation effect (ACME) of political power on leader deposal. By focusing on the set of leaders who died in office of natural causes, we satisfy the first assumption. We do not have evidence strongly supporting the second assumption. However, the causal mediation framework allows us to estimate the effect of primogeniture under the best of circumstances, that is, when it can be considered as exogenous conditional on a given length of leader tenure.

Although this setup allows us to identify effects for continuous treatments, the mediation effects are only defined across discretized values of this continuous measure (Imai et al. 2010). Therefore, in our analysis we classified leader tenure into quartiles. We then compute the ADE and ACME by comparing different tenure quartiles. The left and right panels in figure 6 present the results of this exercise when relying on the Morby (2002) and Kokkonen and Sundell (2014) samples, respectively. Across both samples, we find that the direct effect of power is at least as large as (or larger than) the one it has through primogeniture on successor deposal. For instance, as indicated by the dashed line segments, increasing leader tenure from the first to the fourth quartile in the sample leads to a direct 10-percentage-point reduction in the probability of successor deposal. This is double the magnitude of the point estimate for the effect that power has through primogeniture (though of course the confidence intervals of the ADE and ACME overlap).

These results have important implications for the existing literature on the relationship between institutions and leader survival in nondemocracies. Besides Kokkonen and Sundell (2014), Brownlee (2007) has also given primacy to institutions (in his case parties) in explaining patterns of leader deposal and succession in autocracies. But the discussion and the results in this paper show that such a framework is incomplete. The intergenerational transfers of political power that politicians make in autocracies affect the fate of successors directly and through institutions. Importantly, we have
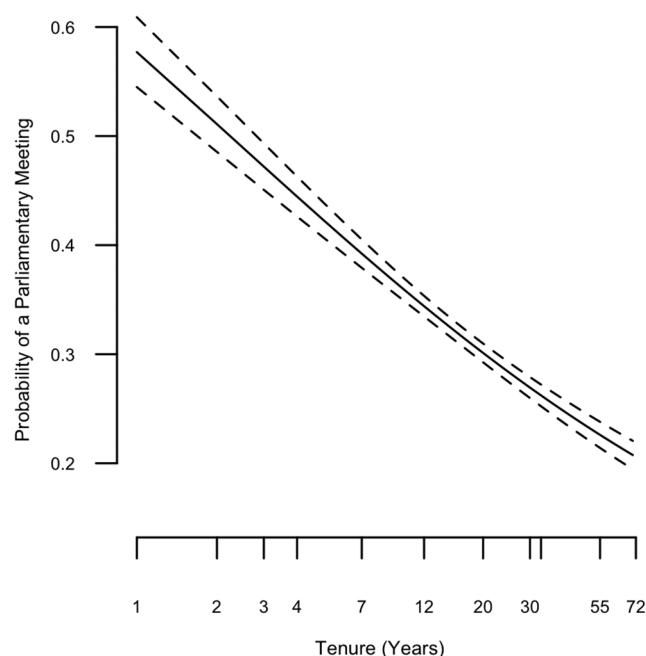
Figure 5. Binomial regression fit of the probability that a leader calls a parliament in a given year as a function of the duration of his predecessor's reign for the set of monarchs who exit office via a natural death. The x-axis gives the number of years in which a leader was in office. The y-axis gives the predicted probability (and 95% confidence intervals) that his successor calls a parliament in a given year. The figure shows a significant decline in this outcome as the reign of a leader increases, from about 57% in the first year of rule to a 30.0% probability in year 25.

shown in this section that the direct effect of political power is as at least as large as (or larger than) the one that works through primogeniture.

CONCLUDING REMARKS

According to extant accounts, institutions play a key role in explaining stability and patterns of succession in autocracies. We have argued that these accounts are incomplete. The institutionalist perspective that has dominated the field has largely ignored the role that political power plays in the political development of nondemocracies. To fill this gap we exploited the timing of a monarch's death in Europe and showed that leaders who experience a longer tenure were more likely to have direct descendants as successors. We also show that those leaders whose predecessors had a longer tenure were less likely to experience deposals, and called on parliaments less frequently. Finally, we find that the direct effect of tenure on leader deposal is at least as large as (if not larger) than the one it has through institutions like primogeniture. Together, these results suggest that institutions, regime stability, and patterns of succession in autocratic regimes are a reflection of the underlying distribution of power in a polity. In other words, leaders

who enjoy longer spells as monarchs are able to consolidate their hold in office. This in turn has an impact on who comes into power in subsequent periods and the types of institutions that emerge long after monarchs leave office.

The mechanisms driving our results are related to patterns of intergenerational transfers of power observed in democracies. A recent literature has found that incumbents with a longer tenure are more likely to have a relative serve in office in the future (Dal Bo et al. 2009; Querubin 2013; Rossi 2009). This literature argues that holding office allows politicians to accumulate political capital (in the form of networks, access to donors, and name recognition among voters) which they can then pass on to members of their family and which the latter use to gain access to office. Rulers in autocracies may also be able to accumulate political capital. For example, a longer tenure may afford monarchs the opportunity to exterminate enemies and place allies in key positions. Similarly, a longer tenure may contribute to making bargains with the elite more stable. These mechanisms in turn influence the ability of leaders to consolidate their hold in power and affect institutional development in autocracies.

Although these results are derived from data on European states before the industrial revolution, they speak to problems inherent to autocratic states across time. Hereditary dictatorships like the Assads of Syria or the Kims of North Korea have proved remarkably stable and capable of passing power across time within the same ruling family. The sources of their power, moreover, are largely noninstitutional. Take the political lives of Kim Il-Sung and Hafez al-Assad as examples. Kim, who ruled the Democratic People's Republic of Korea (DPRK) for 45 years, from 1948 until his death in 1994, built a ruthlessly efficient personalist state apparatus and proved capable of sustaining hereditary rule across three generations. Similarly, Assad's 30 years in power allowed him to construct a highly personalist regime and to place his son in power upon his death; the regime has persisted despite over five years of open insurgency.

In this way our work has broad implications for politics in contemporary autocracies. Brownlee (2007), for example, shows that hereditary successions have been common in the post–World War II period. However, as we emphasize, current scholarship does not provide a clear answer regarding the causes of hereditary succession in autocracies and its consequences for the institutional development of nondemocratic regimes. Our findings suggest that democratic transitions will be more difficult in countries that have experienced a history of hereditary successions. This happens because the survival of these regimes relies heavily on the personal characteristics of their leaders, which prevents the emerge of proto-democratic institutions such as parties and parliaments. Fi-
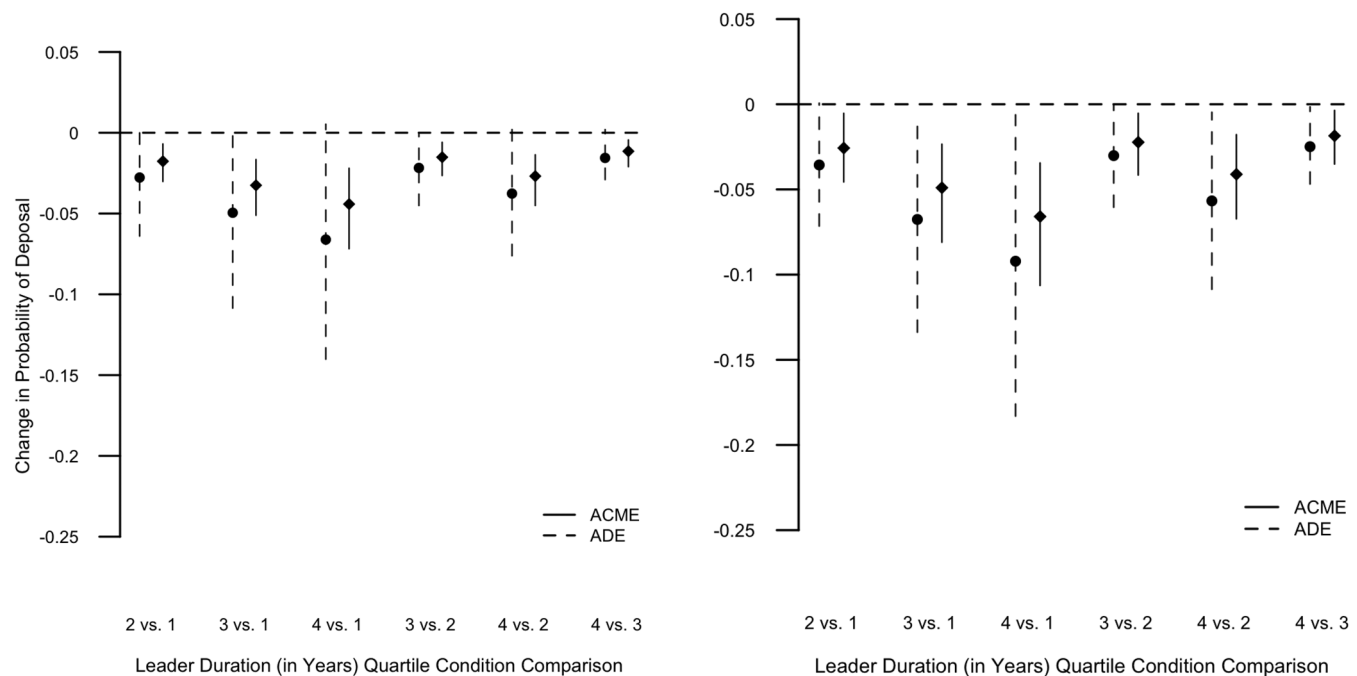
Figure 6. Average direct effect (ADE) and average causal mediation effect (ACME) of leader tenure on successor's deposal. The left and right panels show the ADE and ACME of leader tenure on the probability of successor deposal using the coding in Morby (2002) and Kokkonen and Sundell (2014), respectively. The solid and dashed lines correspond to the ADE and ACME estimates, respectively. In both samples we find that increasing leader tenure has a negative impact on the deposal of immediate successors. In the left panel, for instance, increasing leader tenure from the first to the fourth quartile leads to a 10-percentage-point decrease in the probability of a successor's deposal. This estimate is twice the magnitude of the effect that tenure has through the institution of primogeniture.

nally, our paper speaks to recent findings that show that personalistic leaders are more likely to engage in international conflict in the period 1946–2000, with the probability increasing in the number of years they have been in office (Colgan and Weeks 2015). Direct descendants of autocrats are an example of personalistic leaders. Our theory and findings provide evidence for the conditions under which this type of leader is more likely to emerge and examine the implications of personalistic leadership for institutional development in autocracies.

Future research should investigate the dynamics of accumulation of power in contemporary autocracies. For instance, in the current historical period actors in a regime may experience different financial returns from news about the health of an autocrat (Faccio and Parsley 2009; Fisman 2001), or from shocks to the prices of natural resources. Depending on the preexisting preferences of actors, these shocks may strengthen the position of a ruler or bolster the political prospects of opposition groups. We leave these questions for future research.

ACKNOWLEDGMENTS

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