Measuring the Consolidation of Power in Non-Democracies

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Abstract
Dictators come to power with the support of elites who are also capable of removing them from power. If autocrats successfully navigate this critical period, they are more likely to survive in power with time. Yet their persistence in office alone does not reveal how they have managed to survive. Survival in power is the result of two distinct arrangements. In one, power remains balanced between the leader and the elite, and in the other, leaders are able to marginalize their supporting elites, enabling them to concentrate power. To determine whether power is shared or consolidated, we must look more directly at the behavior of dictators: their actions towards personnel and institutions that can shift the balance of power between themselves and elites. We use an item response model to produce a time-series cross-sectional measure of the leader’s concentration of power for all non-democracies from 1946 to 2008.

Keywords: dictatorships, consolidation, leader-elite relations

Replication files are available in the JOP Data Archive on Dataverse (http://thedata.harvard.edu/dvn/dv/jop).
Because they control political, economic, and social resources, elites are critical for the emergence of a leader (Bueno de Mesquita et al. 2003; Haber 2006). But the same people who are critical in helping a dictator into power usually have the capacity to remove him as well (Tullock 1987). General Mohammed Naguib led the military government that had deposed the Egyptian monarchy in 1952, only to fall to one of his junior officers, Gamal Abdel Nasser, two years later. Naguib’s demise illustrates a general pattern: most dictators are removed by regime insiders, often within the first few years of taking power (Svolik 2012).

If autocrats successfully navigate this critical period, they are more likely to survive in power with time (Bienen and Van de Walle 1991; Little 2017; Svolik 2012). Yet their persistence in office alone does not reveal how they have managed to survive. Survival in power is the result of two distinct arrangements. In one, power remains balanced between the leader and the elite. The leader possesses important resources and characteristics that enable him to be “first among equals” yet elites also control substantial resources and have access to institutional devices that enable them to check the leader’s power. The program of doi moi in Vietnam ushered in not only economic reforms, but also political ones, including the separation of party and state and the creation of competing centers of power. Heeding Deng Xiaoping’s warning against “the leadership of a single person,” his successors in China engaged in norms of collective leadership. In the other, leaders are able to marginalize their supporting elites, enabling them to concentrate power. Initially relying on the support of his predecessor’s coalition of Kikuyu elites, Daniel Arap Moi eventually managed to replace them and consolidate his own power in Kenya (Hornsby 2013). Ferdinand Marcos elevated many Ilocanos, his ethnic group from northern Luzon, to important positions within the military and security apparatus to
concentrate power (Greitens 2016). In both Vietnam and China, the period of collective rule may be coming to an end.

Each type of dictatorship implies a distinct distribution of power between the leader and elites that cannot be discerned by looking only at leader tenure. In other words, a long tenure is consistent with either the consolidation of power or the sharing of it. It does not imply the concentration of power alone. General Pinochet, for example, headed Chile’s military government for 17 years, but other members of the junta had important resources and institutional power to check him (Barros 2002). A short tenure, in turn, suggests that the leader was not able to reach either of these equilibria. Attempts to consolidate power may have led to a preemptive coup, as in the case of Milton Obote’s removal by Idi Amin in Uganda (Sudduth 2017). Or efforts to arrive at a power-sharing agreement did not come to fruition, as was true for several leaders in Mexico before the formation of the Partido Revolucionario Institucional (Magaloni 2006).

To determine whether power is shared or consolidated, we must look more directly at the behavior of dictators towards the elites within their launching organizations. The key for dictators is how to shift the balance of power between themselves and elites in their favor by taking action on personnel and institutions. The personnel problem will require replacing potentially disloyal or threatening elites with loyal associates. The appointment of loyal agents to staff important positions within important institutions, such as the military and the ruling party, enables the leader to control these institutions and consolidate more power vis-à-vis his original support coalition.

We develop a measure of the consolidation of power that incorporates indicators of key behaviors that are theoretically associated with the phenomenon. With our measure, we are able
to capture the variation in the concentration of power that exists both across leaders and within the tenure of a single leader. Finally, because the inner workings of dictatorships are opaque (Barros 2016), we conceive of the consolidation of power as a continuous latent trait that can be measured by leveraging as much information as possible on its observable manifestations. Consequently, we rely on an item response theory (IRT) model for time-series cross-sectional data to produce estimates of leaders’ concentration of power (Copelovitch et al. 2018; Fariss 2014; Hollyer et al. 2018; Linzer and Staton 2015; Pemstein et al. 2010; Treier and Jackman 2008). The model systematically combines multiple observable indicators of our latent concept. Some of these indicators are produced by the units (i.e., leaders) themselves, while others are observations about the units (e.g., the degree of military involvement). Our estimates show variation across leaders as well as within the tenure spells of leaders and correlate sensibly with existing measures and a behavior that is associated with the consolidation of power (but not included in the model): the designation of successors.

**The Relationship between Leaders and Elites**

Autocratic leaders always come to power with the help of a supporting coalition whether they arrive in power via coup, revolution, or designated succession (Bueno de Mesquita et al. 2003; Haber 2006). Members of the dictator’s launching organization are critical because they are the people who occupy key positions within the state. They run government ministries, state-affiliated organizations (e.g., media outlets), and military units. In these positions, they make policies, allocate resources, and direct personnel. Consequently, the same people who were critical in helping a dictator into power usually have the capacity to remove him as well (Tullock 1987). Elites within the dictator’s supporting coalition command material resources and the
loyalty of personnel that can very easily be turned against him. During the post-World War II period, more than two-thirds of dictators were removed by regime insiders (Svolik 2012: 4). Even when popular action is responsible for the fall of autocrats, the defection of regime elites facilitates such action.

The early years of a dictatorship are especially perilous for the leader. The dictator wields power, but so do elites within his support coalition. A number of them are potential challengers to the leader, and the rest are unsure about the strength of the current leader (vis-à-vis these potential challengers) as well as the intention of others. Do other elites support the dictator? Or would they support a challenger? Until any individual member of the support coalition receives clear signs of how much support the dictator commands among the elite, he is unlikely to dismiss the possibility of joining a coup plot (Little 2017). If autocrats successfully navigate this critical period, with time, they are more likely to survive in power (Bienen and Londregan 1991; Little 2017; Svolik 2012). Yet their persistence in office alone does not reveal how they have managed to survive with its consequences for the structure of the regime.

Survival in power is the result of two distinct arrangements. In one, power remains balanced between the leader and the elite. The leader possesses important resources and characteristics that enable him to be “first among equals” yet elites also control substantial enough resources and have access to institutional devices that enable them to check the leader’s power. When power is more balanced, the dictator will need to insure a wider distribution of rents and compromise more on policy. Under Chile’s military government, for example, General Pinochet was forced to accept institutional rules that enabled other members of the junta who represented the other service branches to weigh in on policy-making (e.g., limited presidential power over military promotions, legislative committee system within each service branch,
unanimity decision rule within the junta). Consequently, his legislative proposals – reflecting his first preferences – were vetoed within the junta on a number of occasions (Barros 2002).

In the other, leaders are able to marginalize individual elites who helped them come to power and develop strategies for reducing the influence of the elite as a whole. The result is a skewed balance of power such that elites are clearly subordinate to the autocrat. General Park Chung Hee came to power via a military coup in 1961 and then went on to win presidential elections in 1963 and 1967 as the candidate of the newly-formed Democratic Republican Party (DRP). Park’s power relied, in part, on his relationship with the Gang of Four – Kim Sŏng-gon, Paek Nam-ŏk, Kil Chae-ho, and Kim Chin-man – who were critical in pushing through the 1969 constitutional change so that he could run for a third term, on the understanding that Park would retire afterwards (Im 2011). Yet Park was determined to stay on afterwards “whereas the Gang of Four preferred to share power through the strengthening of legislative powers” (Im 2011: 241). Consequently, Park’s next step was to purge the Gang, consolidate his power within the DRP, and rely even more heavily on his fragmented security apparatus (Greitens 2016: 155-164).

Each type of dictatorship implies a distinct distribution of power between the leader and elites. In the first, there is a relative balance of power between the leader and elites while in the second, power is skewed towards the leader. Our conceptual distinction is similar to Svolik’s (2012) contrast between “contested” and “established” dictatorships or Myerson’s (2008) autocrats with “strong” versus “weak” courts. But here, we focus on the empirical implication: that both arrangements should result in leader persistence. It is only when leaders are unable to work out either type of arrangement that their tenures in office are cut short. Conspicuous
attempts to concentrate power often trigger preemptive coups (Sudduth 2017). Atoms to share power, in turn, can end badly. Efforts to regulate power-sharing within the military government in Argentina failed, only to result in two internal coups (Fontana 1987). The critical point is that we can make limited inferences about the power dynamics within the regime based on the length of leaders’ tenures. The distribution of power between leaders and elites may well be mostly orthogonal to tenure.

To determine whether power is, in fact, shared or consolidated, we must look more directly at the behavior of dictators towards the elites within their launching organizations. The key for dictators is how to shift the balance of power between themselves and elites in their favor by taking action on personnel and institutions. When the dictator tries to consolidate power, the personnel problem will require moving potentially disloyal or threatening elites out of key state offices by either shuffling them to less important positions (Woldense 2018) or purging them altogether (Shen-Bayh 2018). The dictator may take over these positions for himself. Alternatively, he may find loyal associates within his own ethnic or religious group or from his geographic region. Hafez al-Assad in Syria, for example, staffed the most important positions within the army and security apparatus with members of his Alawite clan who came predominantly from the Latakia region. The most loyal associates often are found among close family members. For example, a critical figure in the regime’s early years “to help establish effectively the political jefatura of Franco” in Spain was his brother-in-law, Serrano Súñer (Payne 2000: 177). More recently, Azerbaijani President Ilham Aliyev appointed his wife as

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1 For this reason, dictators may try to conceal their attempts at concentrating power. But many are unsuccessful. See discussion in Svolik (2012: 59).
Vice President while Ugandan President Yoweri Museveni promoted his eldest son to become a special presidential advisor. Elites with no blood ties to the leader usually want to minimize such familial involvement because it often comes at their expense in terms of political spoils and influence. Súñer’s influence, for example, was resented by Franco’s military colleagues and leaders of the Falangist Party who frequently referred to him as the “cuñadísimo” (brother-in-law-in-chief) behind his back (Payne 2000: 176). That leaders are able to install their family members in positions of power signifies their ability to override such objections and hence, their consolidation of power. In other words, the familiarization of political life is intimately tied to the concentration of power by leaders.

Among formal institutions, the military and the regime party have the most impact on power-sharing between the leader and his surrounding elites. The military often predates leaders and regimes, making it a potentially independent institution to begin with. For dictators, the military is important for suppressing internal and external threats, yet it also can force leaders to make policy compromises and share power (Svolik 2012). Regime parties, similarly, are useful, but also threatening to dictators. Parties are useful in providing pathways for promotion and mechanisms for peacefully resolving conflicts that give incentives to elites to invest their efforts

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with the regime (Brownlee 2007a; Reuter 2017). Yet parties sometimes are strong enough so that elite members can insist on influencing policy-making, veto the leader’s decisions, or even replace the leader himself. In Tanzania, for example, party leaders of the Chama Cha Mapinduzi (CCM) have overridden the succession decisions of the president on several occasions (Hughes and May 1998; Southall 2006). It is no wonder, then, that leaders sometimes hesitate in creating a regime party even when it confers several benefits (Reuter 2017).

Control over appointments enables the dictator to exercise control over these institutions. The appointment of loyal agents to staff important positions within the military and the regime party enables the leader to control these institutions and indicates their subservience to him. Leaders who have consolidated power always have militaries, but insure that close loyalists command critical units and counterbalance them with presidential guards, paramilitaries, and secret police. Regime parties also exist, but they are controlled, if not outright created, by the ruler. Consequently, a leader whose decision-making power is institutionally unconstrained is one of the key features of consolidated rule. Even if other institutions, such as the military or a ruling party, exist, the leader dominates them.

**Indicators that Identify the Consolidation of Power**

Dictatorships are notoriously opaque regimes with the areas of most interest – for example, leader-elite relations – characterized by the lowest amounts of information (Barros 2016; Kershaw 2015). Because the degree of consolidation is not well observed, our strategy is to conceive of consolidation as a latent trait that can be revealed by numerous empirical manifestations of consolidation that map well to the concepts we just outlined: freedom from military and party constraints and control over political offices. With our indicators, our general approach is to rely
on pieces of objective information – rather than subjective judgments – as much as possible. The notable exception to this rule comes in relying on a pre-existing coding of military involvement.

Yet there is a trade-off implicit in using observable manifestations of consolidated power within a measure of consolidation: as more items are included in the measure, the fewer hypotheses can be tested using it. As a result, ironically, more precise measures – derived using more indicators – may actually be of less use to researchers. We try to strike this balance by including items we expect to be theoretical observable manifestations of consolidated power that are also unlikely to be topics of future study. Among the measure’s strengths is its parsimony, which enables scholars to use it to address a range of novel questions without falling into tautologies.

Freedom from military and party constraints
Dictatorships exhibit wide variation in their institutional arrangements, but we focus on the role of the military and ruling parties for their ability to potentially constrain leaders. A junta may form the basis of collective military leadership if the distribution of brute force among its members translates into bargaining power (Barros 2002). A ruling party can secure the loyalty of elites as well as their aid in governance, but only if the leader allows himself to be constrained in turn. By committing himself to norms and rules that govern the distribution of patronage, career advancement, and policy-making, the autocrat agrees to be constrained by the institution (Brownlee 2007a; Reuter 2017; Svolik 2012). Collective leadership within a ruling party often resides within a politburo or party central committee. Yet not all ruling parties are institutionalized (Meng forthcoming), and not all militaries are strong enough to constrain leaders. Because we cannot determine the degree of consolidated power by simply the absence or presence of a ruling
party or the military, we rely on a set of indicators that speak to the *de facto* role of the leader vis-à-vis institutions such as the regime party and the military.

To capture the degree to which a regime party rivals the leader’s power in decision-making, we include a series of variables based on direct observables. First and most obviously, a ruler who does not govern with a regime party does not need to contend with this rival organization. *No regime party* is coded 1 if the leader rules without the support of an official governing party and 0 otherwise. Yet since most dictators have parties, we distinguish between real and puppet parties by tracking their origins and frequency. Autocrats that found parties are much less likely to be constrained by them than those who inherit such institutions. The Communist Party constrained the likes of Nikita Khrushchev and Leonid Brezhnev, but United Russia does little to constrain Vladimir Putin since he was instrumental in its foundation (Reuter 2017). *Founded while in power* is coded 1 beginning in the year the ruler founds the regime party and every year afterwards, 0 otherwise. In addition, the installation of various regime parties during a leader’s tenure is a sign of any one party’s institutional weakness. Nursultan Nazarbayev in Kazakhstan, for example, has cycled through four political parties associated with his regime. *Multiple parties* is a dichotomous variable that takes on a value of 1 if a leader has been associated with more than one party, and zero otherwise. Only ten percent of observations are leaders who were associated with multiple parties.

To capture the nature of the relationship between the leader and the armed forces, we rely on Svolik’s (2012) coding of military involvement in authoritarian rule. He distinguishes among four types of rule: 1) civilian executive with no evidence of military intervention in matters unrelated to national security (civilian); 2) civilian executive with military involvement in domestic affairs (indirect); 3) a professional soldier as executive heading a government that
formally incorporates the armed forces in decision-making (direct, corporate); and 4) a professional soldier as executive with little corporate involvement by the military (direct, personal). Leaders who fit into categories (2) and (3) are clearly constrained: civilian executives constrained by the military and military executives constrained by their colleagues. Categories (1) and (4) include leaders who are less likely to be constrained by the military as an institution and therefore, more likely to be personalist. Consequently, we create a dichotomous indicator, Military involvement, which takes the value of 1 if the military as an institution indirectly or directly constrains the executive and 0 otherwise.

Control over political office
We include measures that indicate some of the ways that leaders attempt to manipulate political offices. They attempt to remove or shuffle potential challengers, taking those positions for themselves or allocating them to loyalists. The removal of internal threats often occurs through purges. Leaders who successfully purge regime elites should experience a change in the degree of constraints they face over the course of time. In other words, we should observe a before-and-after effect of purges on the level of power consolidation under a given leader, conditional on a purge occurring in the first place. The difference in the degree of consolidation before and after a purge should emerge irrespective of the leader’s initial level of power during his tenure. We use two indicators to capture purges. The first is based on Sudduth’s (2017) dichotomous indicator of whether a dictator “replaces, dismisses, or demotes rival elites who have legitimate access to coercive forces in a specific year” (p.1782). Military purges takes on a value of 1 in the year a military purge occurs and for every year afterwards within a leader’s tenure. To capture purges among civilian officials, we also include Domestic purges, Banks’ (2011) indicator of “any
systematic elimination by jailing or execution of political opposition within the ranks of the regime or the opposition,” which is coded in the same manner.

Shuffling appointees is a less extreme method of neutralizing potential opponents. Shuffling state officials makes it difficult for them to amass experience, networks, and resources that could be used to challenge the leader. Haile Selassie, for example, controlled political appointments, insuring that mid- and high-level officials served an average of only three years in any given position (Woldense 2018). We systematically capture major attempts at shuffling with Banks’ (2011) measure of Cabinet change, which we have coded to take the value of 1 in the year “a new premier is named and/or 50 percent of the cabinet posts are assumed by new ministers.”

The purging and shuffling of officials is usually part of a larger strategy to insure that those who control the state are under the control of the leader. We include two measures that more directly capture this behavior. The concentration of power often is indicated by the leader’s ability to accumulate a variety of key political positions. Most dictators occupy one political office, ruling as “President,” “Chairman of the Junta,” or “King.” But other leaders take multiple positions, indicating their personal importance in various substantive areas of decision-making. Moussa Traore, for example, at one point was not only President of Mali, but also General Secretary of the Democratic Union of the Malian People as well as Minister of Defense and Security. He was the head of state, but also had tight control over the ruling party and the military. Similarly, late in his tenure Saddam Hussein was President, Prime Minister, General Secretary of the National Command of the Arab Socialist Ba’ath Party, Regional Secretary of the Ba’ath Party, and Chairman of the Revolutionary Command Council. Such a buildup of positions suggests that rulers have been able to marginalize others and consolidate power. Two positions is a dichotomous
indicator that takes the value of 1 for every year that a leader occupies two official political positions and 0 otherwise. *Three or more positions* is a dichotomous indicator that takes the value of 1 for every year that a leader occupies at least three official positions, 0 otherwise. Rulers who take more than two positions are rare, but serve as strong instances of consolidated power. Equally rare are those *de facto* rulers who govern without any official position at all. Deng Xiaoping, for example, ruled China for many years without any official title in either government or the Communist Party. Ruling without an official position also is a strong indicator of consolidated power. *No position* takes the value of 1 if the ruler was the *de facto* chief executive without an official title, 0 otherwise.

Finally, the most accessible way to determine the identity of loyalists is to look to familial relations. Because the leader’s family is often an extension of himself, we track the involvement of the autocrat’s immediate family in political life. We have information on whether the leader’s spouse, children, or siblings occupied a noteworthy position within government, such as mayor of a major city, governor, legislator, or cabinet minister, or within the regime party, such as secretary-general or president. Museveni’s wife, Janet, for example, won election to a parliamentary seat in Uganda in 2006. Three years later, Museveni appointed her as State Minister for Karamoja Affairs. In 2011, she won legislative reelection and was appointed Minister for Karamoja Affairs. Because in 79 percent of our observations, the number of family members in office is zero, we collapse our

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3 We include each of these as dichotomous rather than as continuous, ordered variables for additional flexibility: each category is allowed to have an independent effect, rather than an assumed constant linear effect.
information into a dichotomous indicator, *Family in office*, which takes the value of 1 if any of the leader’s immediate family occupies political office and 0 otherwise.

**Additional indicators**

We include two additional indicators of the constraints on rulers. First, there are a few leaders in the sample who governed as both dictators and democrats. Jerry Rawlings, for example, seized power in a coup in Ghana in 1979, but eventually presided over a democratic transition in 1992 by holding elections that he won freely and fairly. We use these few instances of same ruler-different regime to help anchor our measure. *Dictator before transition* takes the value of 1 for all country-years in which a leader rules as a dictator before becoming a democrat. These leaders are more likely to govern as personalists when they are dictators than democrats. Second, there are a few cases of formal collective leadership, often as a result of civil conflict (e.g., Bosnia, Somalia). *No formal collective* takes the value of 1 when the executive is not formally collective, 0 otherwise. The absence of formal collective authority should make it easier for any one individual to become a personalist leader.

**Model Specification**

To estimate the underlying level of consolidation, we use an item-response theory (IRT) model, which estimates a latent quality based on observable dichotomous manifestations of the quality. IRT models were originally developed in educational testing with the idea that a student’s ability could be estimated using patterns of right and wrong answers to questions on a test, but increasingly have been used to develop innovative measures in political science (Copelovitch et al. 2018; Fariss 2014; Hollyer et al. 2018; Linzer and Staton 2015; Pemstein et al. 2010; Treier
and Jackman 2008). Similarly, we conceive of our model as a test for autocratic leaders, where the items on the test capture behaviors that, if “correct”, indicate a higher degree of consolidation.\(^4\) In other words, these are behaviors that only unconstrained leaders should be able to exhibit, and, as a result, we can infer consolidation from these observable indicators.

More specifically, our dependent variable is a set of behaviors, \(y_{ijt}\), which takes on a value of 1 if behavior \(j\) is observed from leader \(i\) in year \(t\) and 0 otherwise.\(^5\) We model the probability that a leader \(i\) exhibits behavior \(j\) in year \(t\) as a function of some underlying measure of the level of power consolidation, \(\theta_{it}\), that characterizes all leaders \((i)\) in all years \((t)\), as well as item-specific parameters \(\alpha_j\) (difficulty) and \(\beta_j\) (discrimination):\(^6\)

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Pr(y_{ijt} = 1) = \logit^{-1}(\beta_j^* (\theta_{it} - \alpha_j))
\]

Even a leader with a high degree of consolidated power may not engage in attempts to concentrate power in every year. For this reason, our priors about a leader’s consolidation of power are not

\(^4\) We use Cheibub et al.’s (2010) classification of political regimes to identify dictatorships. Our unit of analysis is the leader rather than the type of authoritarian regime. Regimes are the rules and practices that determine who has political rights and how they can be exercised. Since leader–elite relations are part of the central concept that we are measuring, we do not want our measurement to be influenced by an \(\textit{ex ante}\) demarcation of regimes.

\(^5\) Missing data are dropped from the data set rather than estimated as separate parameters.

\(^6\) There are a number of roughly equivalent functions for IRT models. We follow the specification from Bafumi et al. (2005) and Gelman and Hill (2007).
constant across the lifetime of the regime. In the first year of a leader’s tenure, we place a diffuse prior centered at zero on $\theta_{ijt=1}$ ($\theta_{i[t=0]} \sim N(0,1)$) as we have no beliefs about how concentrated his power is at the beginning of his tenure.\(^7\) After the first year, however, each successive year’s consolidation of power, $\theta_{iT}$, is normally distributed and centered around the previous year’s estimate, $\theta_{i(t-1)}$, such that $\theta_{it} \sim N(\theta_{i(t-1)}, 0.1)$. We do this because while the degree of consolidated power does change throughout the course of a leader’s tenure, we believe wild swings are unlikely and the best predictor of any given year’s level of consolidation is the previous year’s level.\(^8\) Moreover, many of these behaviors are rare and do not need to be undertaken in every year in order for a leader to tighten his grip on power (e.g., purges, cabinet changes). This specification accommodates that insight and allows leaders to “ride the wave” of consolidation behaviors, which makes for smoother estimates.

Of course, not all behaviors confer the same amount of information about the consolidation of power. The discrimination parameter, $\beta_j$, indicates the direction of the logit curve for a behavior $j$ as well as its steepness. While high-consolidation leaders and low-consolidation leaders may be easy to identify, high discrimination parameters indicate items that are better able to sort out the leaders in the middle. For identification purposes, we limit all discrimination parameters to take on positive, non-zero numbers, and orient our behaviors accordingly such that a “1” always indicates the more consolidated response. We place a normal prior ($\beta_j \sim N(0,1)$) on the

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\(^7\) Future work could incorporate more informative priors on the leader’s first year, perhaps using information about method of ascension to office.

\(^8\) The prior is centered on the previous year’s estimate and less diffuse, but the specific precision parameter value is not consequential.
discrimination parameters. By contrast, the difficulty parameter, $\alpha_j$, shifts the logit curve left or right. In the educational testing framework, questions with high difficulty parameters are difficult to answer correctly, and therefore are generally only answered correctly by the most high-ability students. In our framework, high difficulty parameters indicate relatively rare events, while low difficulty parameters indicate events that happen more often. Difficulty parameters all have standard normal priors ($\alpha_j \sim N(0,1)$).

We estimate the model using JAGS. We run five chains, discarding the first 95 percent of iterations (47,500) as burn-in, leaving us to make inferences from the last 5 percent. Initial values are randomly assigned. We assess convergence using the R-hat statistic and determine that the model has converged if all R-hat parameters are close to 1.0. 90.8 percent of the R-hat parameters were 1.01 or 1.00 while 99.9 percent were less than or equal to 1.04.

Results

*Estimates*

We have estimated levels of the leader’s consolidation of power for all dictatorships from 1946 to 2008 which includes 597 unique leaders in 134 countries. The model produces posterior distributions for three parameters of interest: a parameter, $\theta_{it}$, characterizing the latent degree of consolidation for every leader $i$ in year $t$, as well as two parameters, a discrimination parameter and a difficulty parameter, that characterize each behavior in the model.

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9 There are 600 unique leader spells since 19 leaders were in power for two non-consecutive periods while one leader was in office for three.
Figure 1 provides the difficulty and discrimination parameters for each of the 13 indicators in the model. The left panel shows that it is relatively rare for leaders to be able to install their family members in positions of power. It is also uncommon for leaders to be able to either amass three or more state offices or govern behind the scenes while occupying no formal post. The difficulty parameters for *Family in office*, *Three or more positions*, and *No positions* are all relatively high. Having accomplished these feats indicates a high level of consolidated power. In contrast, non-military rule (i.e., neither direct nor indirect military rule) is more common as indicated by the low value for *Military involvement*.
Behaviors that are either “very hard” or “very easy” to accomplish, however, are not likely to help in discriminating levels of consolidation across observations. The right panel of Figure 1 confirms this is the case: the discrimination coefficients for *Family in office, Three or more positions*, and *Military involvement* are relatively modest. What helps the most in discriminating among leader-year observations are the fleet of variables related to the relationship between leaders and ruling parties. Consistent with Meng’s (forthcoming) insight into measuring party institutionalization, leaders who either found a party when they are in power or cycle through multiple parties while they are in office, are likely to be highly unconstrained (in her language) or very consolidated (in ours). On the flip side, the absence of a regime party also indicates high concentrations of power. The high discrimination coefficients on *Founded while in power, Multiple parties, and No regime party* indicate that leaders who either manipulate ruling parties or govern without any at all, in general, display other behaviors consistent with power consolidation. In the language of testing, they score well on these questions (i.e., behavior theoretically consistent with consolidation) and in general, on all other questions.

Figure 2 provides illustrations of our estimates for two countries in East Africa. The comparison between Ethiopia and Tanzania is useful for making a few observations about the estimates in general. First, Emperor Haile Selassie in Ethiopia displays high levels of power consolidation. This is true for most monarchs in the sample. In contrast, leaders of other types of regimes in Ethiopia – Mengistu Haile Mariam as the head of a military regime, Meles Zenawi as the head of a civilian regime – display markedly lower levels of consolidation. Leaders from Tanzania also show this to be the case: every civilian leaders from the country’s founder, Julius Nyerere to the last leader in our sample, Jakaya Kikwete, exhibit lower levels of consolidation.
than Selassie of Ethiopia. The series from Tanzania also illustrates the differences we can capture within party-backed regimes. Nyerere, as the founder of the Tanganyika African National Union (TANU, later to become the CCM), was less constrained than his successors. The upshot of these comparisons is that the estimates conform to pre-existing notions of types of dictatorships (an issue to which we return later).

Second, the series for Nyerere in Tanzania show that our estimate varies within a leader’s tenure in power. As expected, there is a correlation between length of the spell in power and variance in the estimate across that spell (p = 0.35). At the same time, the variance within leader spells is relatively modest. Nyerere, who was in power for 21 years, displays the highest variance.
(0.85), and is joined by only a handful of leaders within that category. Consequently, much of the estimate’s variation is to be found across leaders, again illustrated by the series from Ethiopia.

Figure 3: Cross-sectional variance in power consolidation estimates during the 1946-2008 period.

Figure 3 provides a more systematic look at the cross-sectional variation, displaying variance across leaders for each year in our sample. The amount of variation waxes and wanes due to both changes in consolidation within leader spells and the entrance and exit of leaders into the sample. Of note is the upward spike in variation in the mid-1990s. We suspect this to be a product of the end of the Cold War and the resulting spread of partisan elections (Levitsky and Way 2010). Those who were able to win elections and stay in power did so in one of two ways. Some leaders
won with the help of institutionalized parties that selected quality candidates, developed effective campaigns, and mobilized popular support while other leaders relied on more ad hoc strategies related to manipulation, fraud, and intimidation (Morse 2018). The result was that among the dictators who successfully managed the transition to multi-party elections, there was more variation in the degree to which the ruling party became a factor in determining leader-elite relations.

Finally, the IRT estimation process allows us to easily quantify the amount of uncertainty in our estimates. In the plots of Tanzania and Ethiopia, the point estimate is indicated by a closed circle, while the bands around the estimate indicate a 95 percent credible interval, or the range of the data in which 95 percent of the simulations fell. The series on Ethiopia shows that the level of consolidation is estimated with more uncertainty for some individuals (e.g., Selassie) than others (e.g., Mengistu). This variation in uncertainty also occurs within the tenure of a single leader, as in Nyerere’s case in Tanzania.

Aside from the variation in the degree of uncertainty, the country plots also show that it is usually sufficiently large so that we often cannot say that any two years are necessarily distinct from one other. This is driven a bit by our priors, which lead to relatively smooth transitions from year-to-year. If being able to distinguish clear breaks where they exist is important, researchers can re-run our estimates using our replication code, and widen the prior on the random walk prior to allow for clearer jumps. Otherwise, we think this represents the reality that, in most cases, there are not huge jumps from year to year, but, rather, the trait grows or fades gradually over time.

Researchers looking to use our measure can approach the quantified uncertainty in a few ways. If researchers do not want to incorporate the uncertainty in the measurement, they can just
use the point estimates. There is precedent for this, in that measurement error is seldom incorporated into regressions despite always being present. Alternatively, researchers who do want to incorporate the measurement error into their regressions have a few options. The canonical way to incorporate the uncertainty is to simultaneously estimate the latent trait and the regression equation weights. In practice, this means including the regression equation in the same model file as the IRT model, and then re-running the model, rather than just using our canned estimates. A faster method to incorporate the uncertainty is to use a simulation technique that requires re-drawing the point estimate for each country-year from a distribution bound by its credible interval, estimating the regression weights, storing the regression weights, and repeating many times. (We also make our simulations available, should anyone prefer to simulate by redrawing from the actual simulated draws.) The stored regression weights can be used to derive point estimates and confidence intervals for the estimates. In our replication file, we provide code to implement this procedure.

**Comparisons to existing measures**

One way to examine validity of our measure is to compare it to existing indicators that share our conceptual focus (Seawright and Collier 2014). In cross-national research, there are two commonly used indicators of constraints on the executive. *polconv* is a measure of political constraints from Henisz (2000) that ranges from 0 to 1 where 1 indicates the highest levels of

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10 While this is the best way, it is also time-consuming. Depending on how many chains and iterations are used for the model, it can take a day or more to run. This also may be impractical for researchers who are not familiar with Bayesian estimation software or interpretation.
constraint. Similarly, $x_{const}$ is one of the additive components of Polity’s regime index which focuses specifically on constraints on the chief executive. The measure ranges from 1 to 7 with higher values indicating more constraint. Geddes et al.’s (2018) regime classification has been seminal in the study of dictatorships. Their concept of personalism is close to our notion of power consolidation. In Table 1, $GWF_{trichotomous}$ collapses their nominal categories into an ordinal indicator in which personalist dictatorships and monarchies constitute the highest level of personalism (2), any hybrids with personalism (e.g., party-personalist) constitute an intermediate level (1), and any other types (military, party, oligarchy) make up the lowest level.\footnote{Because Geddes et al.’s measure captures the regime type of a country as of January 1, we carefully matched their indicator to our data which captures the leader of a country as of December 31. We matched conservatively, leaving as missing observations for which there was any doubt we were matching correctly.} We also determine the association between our measures and a series of dichotomous indicators of regime type that are constructed from Geddes et al.’s categories (where the omitted category includes hybrid and oligarchical regimes). In columns 1 through 4, we use all country-year observations. To check that the association between our measure and Geddes et al.’s indicator is not just the result of repeated values within a leader’s tenure (due to the latter’s time invariance), we also examine leaders as our units of analysis in columns 5 and 6. For these leader spells, we look at the maximum value of power consolidation during the leader’s tenure as our dependent variable.
Table 1: Association between our measure of power consolidation and existing indicators. Coefficient and (in parentheses) standard errors are reported. * p < .1. ** p < .05. *** p < .01.

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
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<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
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<td>(0.095)</td>
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<td><code>Xconst</code></td>
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<td></td>
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<td>(0.011)</td>
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<tr>
<td><code>GWF_trichotomous</code></td>
<td></td>
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<td>0.661***</td>
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<td></td>
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<td></td>
<td>(0.017)</td>
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<td><code>GWF_monarchy</code></td>
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<td></td>
<td></td>
<td>(0.041)</td>
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<td>(0.144)</td>
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<tr>
<td><code>GWF_personalist</code></td>
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<td></td>
<td></td>
<td>0.309***</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.035)</td>
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<td>(0.115)</td>
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<tr>
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<td></td>
<td>-0.722***</td>
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<td></td>
<td></td>
<td>(0.032)</td>
<td></td>
<td>(0.104)</td>
</tr>
<tr>
<td><code>GWF_military</code></td>
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<td></td>
<td></td>
<td>1.028***</td>
<td></td>
<td>0.846***</td>
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<td></td>
<td></td>
<td>(0.053)</td>
<td></td>
<td>(0.119)</td>
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<td><code>constant</code></td>
<td>0.231***</td>
<td>0.625***</td>
<td>-0.649***</td>
<td>-0.167***</td>
<td>-0.212***</td>
<td>0.079</td>
</tr>
<tr>
<td></td>
<td>(0.021)</td>
<td>(0.032)</td>
<td>(0.022)</td>
<td>(0.025)</td>
<td>(0.063)</td>
<td>(0.081)</td>
</tr>
<tr>
<td><code>N</code></td>
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<td>4442</td>
<td>4283</td>
<td>4283</td>
<td>446</td>
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<td><code>r-squared</code></td>
<td>0.025</td>
<td>0.085</td>
<td>0.271</td>
<td>0.548</td>
<td>0.169</td>
<td>0.520</td>
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<td><code>adjusted r-squared</code></td>
<td>0.025</td>
<td>0.085</td>
<td>0.270</td>
<td>0.547</td>
<td>0.167</td>
<td>0.516</td>
</tr>
</tbody>
</table>

Table 1 shows that as expected, our measure is negatively correlated with both Polity’s and Henisz’s measures of constraints on the executive.\textsuperscript{12} Little of the variance is accounted for, however, because both `polconv` and `xconst` exhibit much greater variation for democracies than for autocracies. Whether we examine country-years or leaders, the trichotomy we constructed from the Geddes et al. regime classification shows a positive association between degrees of personalism (according to their measure) and degrees of power consolidation (according to ours). Yet the coefficients on the discrete indicators of regimes in columns 4 and 6 reveal a more nuanced picture. Monarchies are associated with higher levels of power consolidation, as noted

\textsuperscript{12} Our results are similar if we use `polconiii` instead of `polconv`.
earlier in our discussion of Haile Selassie in Ethiopia. Personalist dictators also are positively associated with the consolidation of power, but the magnitude of the coefficient on $GWF_{personalist}$ is noticeably smaller than for $GWF_{monarch}$ or $GWF_{military}$. We view these findings as entirely reasonable because the personalization of power is related, but distinct from the consolidation of it.\(^\text{13}\) Leaders can tip the balance of power towards them without personalizing their rule. Charismatic leadership – a feature of personalization (e.g., cults of personality) – refers to the leader’s ability to establish a direct relation with the masses as a way to marginalize elite challenges or constraints (e.g., Weber [1922] 1978). Consequently, while all leaders in personalist regimes have consolidated power (vis-à-vis elites), not all leaders who have concentrated power exercise a personal form of rule. For this reason, a positive, but not overwhelming, association between $GWF_{personalist}$ and our measure is sensible. Direct rule by the armed forces does not always enable the military to act as a constraint on the leader, but elites organized within a political party within a party dictatorship seem able to prevent the consolidation of power.\(^\text{14}\)

**Validation**

We also compare our measure to a behavior that is frequently associated with unconstrained rule: the choosing of successors. High levels of consolidated power should enable leaders to do certain things, such as unilaterally name their successors. Yet there is considerable variation in the degree

\(^\text{13}\) We thank an anonymous reviewer for making this point.

\(^\text{14}\) The results in columns 5 and 6 are substantively similar if we use average level of power consolidation during a leader’s tenure as our dependent variable.
to which dictators are able to exercise choice and insure that their choice is respected (Brownlee 2007b). While some of them monopolize this decision, many other leaders are forced to negotiate with other elites and institutions over their choice. At times, their choices may even be overridden, or they, in turn, may not even bother naming a successor, knowing full well that any selection would be blocked.

We collected information on succession for a selection of 226 leaders (almost 40 percent of our sample). From our historical sources, we were able to groups these leaders into five categories: 1) leaders who unilaterally named their successors who successfully ascended to power (unilateral choice); 2) leaders who unilaterally named their successors but were overthrown before their preferences could be realized (censored); 3) leaders who named successors with the consent of other actors, often within the regime party or the military, and these successors successfully came to power (constrained choice); 4) leaders who named a preference for successor, but whose choice was explicitly blocked by other actors (vetoed choice); and 5) leaders who never named a successor because either the decision was not in their hands or they simply did not plan for the future (no choice).

This categorization is built using historical sources that are not always clear about the details of the succession process. Consequently, the categories have varying levels of uncertainty associated with them. The clearest evidence comes for cases in category 4 (vetoed choice) when the historical sources reveal that a leader’s choice was actually vetoed by other elites and the role of successor was given to someone else. But these cases are somewhat rare. For categories 1 (unilateral choice), 2 (censored), and 3 (constrained choice), the historical sources give details
about the succession process since a successor was actually named. We proceeded to make judgments about the extent to which other actors – besides the leader – were involved in that process. The last category (no choice) entailed the most subjective judgement and contains the greatest heterogeneity. In these cases, we could find no evidence that a successor was named. It could have been because leaders did not bother, anticipating that their choices would be blocked or because they did not plan for the future, expecting to be in power forever.

Consider differences in the consolidation of power of leaders who clearly chose their successors unilaterally, leaders who chose their successors with the consent of party elites, and leaders whose choices were blocked. Table 3 provides a set of Sub-Saharan African leaders for whom we have succession information: Cameroon, Namibia, Mozambique, and Togo. In all of these cases, the leaders governed with ruling parties, but there was significant variation in just how much the party constrained them, reflected prominently in decisions over succession.

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15 We treat category (2) as censored since we cannot know whether their unilateral choices would have been honored since they were overthrown. Because their overthrow could have been related to the issue of succession, we have weak expectations about the relationship between levels of power consolidation and this category.

16 There were 76 additional leaders for whom we could not find a named successor. We also could not infer with any certainty the reasons for this absence so they are not included.
Of the four leaders, Etienne (Gnassingbé) Eyadéma of Togo was the most successful in consolidating power. Three years after taking power through a military coup, he created his own ruling party, Rally of the Togolese People, which he used to govern a single-party state. He won his first multiparty election in 1993 with over 96 percent of the vote, after opposition parties staged a boycott. In 2002, Togo’s constitution was changed in two significant ways: presidential term limits were removed (so that Eyadéma would be eligible to run for office again the following year) and the minimum age for the presidency was lowered from 45 to 35 years (his son, Faure Gnassingbé, was 35 at the time). Eyadéma then appointed his son to serve as Minister of Equipment, Mines, Posts, and Telecommunications in 2003, grooming him for eventual succession. When Eyadéma died suddenly two years later, Faure Gnassingbé took power, fulfilling his father’s wishes (Brownlee 2007b).

As a leader within the Cameroonian independence movement, Ahmadou Ahidjo was a natural choice to become the country’s first president. But in contrast to Eyadéma, his political origins within the nationalist movement also meant that he came to power with capable rivals who initially constrained his decisions. He eventually was able to establish a single-party state under
the Cameroon National Union in 1966. Furthermore, in 1975, he created the position of prime minister, installing Paul Biya, an official who had risen to prominence during Ahidjo’s administration (Hughes and May 1988). Four years later, Ahidjo pushed through a change in Cameroon’s constitution, designating the prime minister as the president’s successor so that when he resigned in 1982, his designate, Biya, became president.\(^{17}\)

While Eyadéma and Ahidjo were hardly constrained by their ruling parties, this was not the case for Sam Nujoma of Namibia and Joaquim Chissano of Mozambique. Like Ahidjo, Nujoma was a leader within a nationalist movement and helped to found Namibia’s ruling party, the South West Africa People’s Organization (SWAPO). Like other socialist and communist parties, SWAPO is institutionalized with a governing Politburo and Central Committee and auxiliary bodies such as a Youth League and Women’s Council. Serving three terms as Namibia’s first president, Nujoma frequently resisted calls to name a successor. But eventually, he selected Hifikepunye Pohamba as his “crown prince” (Melber 2006). Nevertheless, Pohamba still faced an internal SWAPO primary against two other candidates. Only after winning the party’s approval did Pohamba go on to compete and win the 2004 election. So while Nujoma certainly had a hand in choosing his successor, it is clear that he needed the approval of party elites to realize his desired outcome.

Finally, Joaquim Chissano was one of the founding members of the Mozambique Liberation Front (FRELIMO) which gained the country’s independence from Portugal. When

\(^{17}\) While Ahidjo initially intended Biya to succeed him, their relationship soon unraveled. A few years after Biya came to power, Ahidjo was put on trial \textit{in absentia} for his alleged involvement in a coup plot.
Mozambique’s first president, Samora Machel, died suddenly in a plane crash in 1986, a ten-member collective briefly governed, designating Chissano as the next president and secretary-general of FRELIMO. Mozambique, too, eventually allowed for multiparty elections with Chissano winning in 1994 and 1999. For the 2004 election, Chissano initially attempted to seek a legal, third term, but later tried to push a younger and more moderate successor. But he was thwarted by FRELIMO members backing Armando Guebuza, a former cabinet member who Chissano had sidelined ten years ago. After a tough internal party contest, Guebuza became FRELIMO’s presidential candidate in the 2004 election and won office. In both Mozambique and Namibia, factionalism within the ruling party clearly enabled elites to share in decision-making over succession. Leaders were forced to defend and fight for their choices, sometimes winning (e.g., Nujoma) and sometimes losing (e.g., Chissano). The contrast is quite stark with events in Togo and Cameroon where leaders faced little resistance from within their parties. Our estimates of the degree of consolidation reflect these differences.

Highly consolidated power enables leaders to unilaterally name their successors. Consequently, our expectation is that levels of consolidation should be higher for leaders who picked and successfully installed their leaders unilaterally (unilateral choice) than for leaders whose decisions were constrained on this matter (constrained choice, vetoed choice). In Table 4, we average the level of power consolidation among the leaders within each succession outcome group and compare averages across groups. Because our measure of the consolidation of power is time varying over the course of a leader’s tenure, we show three types of comparisons: average level of consolidation over the course of leader’s tenure, the maximum level of consolidation

during his tenure, and the level of consolidation during this last year in office. We expect the differences in means to be positive.

<table>
<thead>
<tr>
<th>Succession Outcomes</th>
<th>Mean consolidation level during tenure</th>
<th>Max consolidation level during tenure</th>
<th>Consolidation level last year of tenure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unilateral choice vs. Constrained or Vetoed choice</strong></td>
<td>0.561** (0.265)</td>
<td>0.590** (0.267)</td>
<td>0.630** (0.274)</td>
</tr>
<tr>
<td>Unilateral choice vs. Constrained choice</td>
<td>0.277 (0.293)</td>
<td>0.339 (0.295)</td>
<td>0.388 (0.307)</td>
</tr>
<tr>
<td>Unilateral choice vs. Vetoed choice</td>
<td>1.319*** (0.241)</td>
<td>1.260*** (0.281)</td>
<td>1.275*** (0.272)</td>
</tr>
<tr>
<td>Unilateral choice vs. No choice</td>
<td>-0.141 (0.215)</td>
<td>0.050 (0.217)</td>
<td>0.0002 (0.222)</td>
</tr>
</tbody>
</table>

Table 3: Difference in power consolidation levels by succession outcomes. Each cell contains mean difference and (in parentheses) standard errors. p-values based on one-way t-test of unpaired groups, unequal variances. * p < .1. ** p < .05. *** p < .01.

The illustrative cases from Sub-Saharan Africa comport with a more general pattern found in the data. Average levels of power consolidation were significantly higher for those leaders who unilaterally chose their successors in comparison to leaders whose choices were constrained or vetoed. The differences in the balance of power are particularly stark between those who successfully imposed their choice versus those whose selected heir to the throne was blocked. The comparison between leaders who made unilateral choices and those who made no choice at all is inconclusive, reflecting the heterogeneity of the latter category, as discussed earlier.

**Conclusion**

No leader ever comes to power without the help of others. Very often, they fall to the very people who aided their ascent. But for those who manage to survive, their longevity is the result
of settling into one of two equilibria: one in which power is shared and the other in which it is consolidated. Empirical differentiation between these regimes requires observable manifestations of behaviors and outcomes that are theoretically associated with this distinction. Our measure brings together a variety of these observables to capture the latent variation in the concentration of power both across leaders and within leaders’ tenures. In addition, because our measure provides a snapshot of the power balance between leaders and elites at a given moment, it also serves as a novel empirical referent for thinking about the process by which dictatorships evolve from “contested” to “established” regimes (Svolik 2012). Moving forward, the most fascinating direction for future research will entail improvements on capturing within-leader variation in the concentration of power.

The consolidation of power has been studied most prominently within autocracies, but one obvious extension would be to measure the phenomenon in democracies as well. Democratically-elected leaders sometimes privilege loyalty above competency and attempt to avoid institutional checks on power. The result can be an executive takeover, an increasingly common way in which autocracies emerge. By extending our measure to democracies, we might better understand the process of democratic backsliding (when it does and does not happen). In addition, our measure could be extended to both democratic and authoritarian rulers before World War II. Data-scraping to create indicators that measure theoretically relevant behavior can be combined with existing large-scale, historical data sets (e.g., Varieties of Democracy) to generate a measure of leaders’ concentration of power that could go back to the 19th century.

Besides its value as a descriptive tool, the measure can be useful for examining behavior that is theoretically linked to leader-elitist relations, but has been subject to limited empirical investigation. Greater balance between the ruler and elites has been linked to greater security of
property rights (Gehlbach and Keefer 2012) as well as less belligerent behavior on the international stage (Mattes and Rodríguez 2014; Weeks 2012). Changes in the balance of power between the leader and elites also may affect the regime’s institutions, whether it is the role of the ruling party (Meng forthcoming; Reuter 2017) or the nature of the coercive apparatus (Greitens 2016).
Acknowledgements

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References


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