

# In the Shadows of Great Men: Leadership Turnovers and Power Dynamics in Autocracies

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## Abstract

Political leaders differ considerably in the degree to which they consolidate power, but what gives rise to these variations still remains under-theorized. This article studies how informal political constraints associated with leadership turnovers shape intra-elite power dynamics. We argue that aging autocrats' efforts to manage the succession problem create an important, yet impermanent check on the power of subsequent leaders, and test this argument using a new quantitative measure of national leaders' personal power and a research design that exploits within-leader variations in predecessors' influence. We find that incumbent leaders' ability to consolidate power becomes more limited when operating in an environment where influential former leaders are present. Further analyses suggest that the presence of former leaders is most effective in reducing incumbents' ability to unilaterally appoint or remove high-level military and civilian personnel. These findings have implications for our understanding of the dynamics of power-sharing and institutional development in autocracies.

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# 1 Introduction

Compared to democracies, a defining feature of autocracies is the lack of institutionalized checks on chief executives' power. Yet, contrary to the popular perception that all authoritarian leaders are almighty despots with unchallenged authority, the modern literature on comparative autocracies has shown that leaders exhibit wide variations in actual power (Geddes, Wright, and Frantz 2019; Svobik 2012). While some leaders managed to achieve an unparalleled level of dominance and rule for decades, others had to regularly share power with other elites and step down “on time” after a few years in office. The varying configurations of power balance within authoritarian regimes can have far-reaching consequences. Studies have shown that the degree of power concentration in autocracies is a key factor in explaining their behavior in domestic and international politics (Bueno de Mesquita et al. 2003; Jones and Olken 2005; Weeks 2012; Wright and Escribà-Folch 2012). Regimes that can impose credible constraints on incumbent autocrats have relatively better governance and more pacifist foreign policy orientations (Albertus and Menaldo 2012; McGillivray and Smith 2005; Wright 2008); by contrast, personalist regimes—those where a single leader commands an extraordinary amount of power—tend to provide fewer public goods (Cao and Ward 2014; Wright 2010), are more repressive toward their citizens (Frantz et al. 2020), and are more reckless in initiating inter-state conflicts (Colgan and Weeks 2014; Weeks 2012).

Despite the wide recognition of the profound consequences of authoritarian power dynamics, however, the question of what gives rise to the different levels of power among autocratic leaders is still less well understood. A growing body of research has examined the importance of institutions in facilitating power-sharing in authoritarian regimes. The general view of this literature is that regimes with strong organizations and procedures are more likely to defeat incumbent leaders' power-grabbing attempts and thereby credibly constrain their behaviors (Boix and Svobik 2013; Brownlee 2007; Gandhi and Przeworski 2007; Geddes 2003; Magaloni 2008; Frantz and Stein 2017; Meng 2019a).

However, considerable variations in personal power also exist among leaders from the same regime and even during the tenure of the same leader. Both Mahathir Mohamad and Xi Jinping,

for example, took office under highly institutionalized party regimes, but managed to build up their personal authority in a way that their immediate predecessors never could (Li 2016; Slater 2003). Other leaders, like Islam Karimov in Uzbekistan and Augusto Pinochet in Chile, were initially seen as only weak, transitional figures, but later went on to become dominant figures in their respective countries for many years (Ilkhamov 2007; Remmer 1989). How do we explain these ebbs and flows of power in individual leaders when the broader institutional variables were held largely constant?

In this article, we provide a new perspective on authoritarian power dynamics by shifting the focus from the formal institutions to the *informal constraints* in high-level elite politics. We conceptualize informal constraints as the deeper, and sometimes covert, configurations of actors, networks, and coalitions among the ruling elites that exist and operate in relative independence from the incumbent ruler's control. We argue that such constraints define important parameters of elite politics, such as the amount of discretion the incumbent enjoys in making key political decisions, the possible sets of alliances that can be formed, the amount and the kind of patronage resources that are available, and the ability of elites to credibly punish the incumbent for violating mutually agreed power-sharing pacts. Unlike institutions, which are relatively stable over time, these informal constraints are often dynamic and can constantly evolve in response to many internal and external factors. The nature and strength of constraints that an autocrat faces at a given moment determines in large part the scope of his/her feasible political strategies, which in turn influences his/her ability to successfully consolidate power.

While informal constraints can take different forms in different contexts, in this article, we focus on a type of constraint that is common in many regimes: the constraint imposed by senior political figures from earlier generations. Elite turnover is a central, yet highly sensitive issue that all autocracies need to deal with in order to survive beyond its founding members (Huntington and Moore 1970; Manion 1993; Tullock 1987). When old leaders step down from office, they relinquish most of their formal power, but often retain substantial informal influence over politics and policies through the contacts and networks they cultivated during their time in office. We argue

that the presence of such senior retired figures in elite politics can function as a powerful deterrent against the incumbent's opportunism by serving as key focal points for elites to coordinate counterbalancing actions.

To provide evidence on the effect of this particular kind of informal (and inter-generational) constraint, we study the power dynamics in a global sample of authoritarian regimes between 1950 and 2008. We examine whether the presence of influential retired leaders affects the personal power of the incumbent autocrat. Empirically, studying power dynamics faces two main challenges. The first is about measurement: It is usually difficult to measure a political leader's power precisely using quantitative metrics, let alone to compare it across different country settings. To overcome this challenge, we develop a novel measure of personal power for top national leaders by making use of two massive online databases: Google Books Ngram (Google Ngram hereafter) and Wikidata. Our approach builds on a burgeoning body of recent literature that uses public discourse to make inferences about political actors' power (e.g., Ban et al. 2018; Jaros and Pan 2017). We first compile a list of over 68,000 living politicians for all the country-year spells covered in our sample using biographical information from Wikidata, and then use Google Ngram to compute a power index based on the ratio between the number of published books that mention the chief executive's name and the number of books that mention other living non-chief-executive (non-CE) politicians from the same country and same year. Through a wide range of validation tests, we demonstrate that our measure not only exhibits strong consistency with popular measures of regime types, institutional constraints, and personalism (e.g., Geddes, Wright, and Frantz 2019; Marshall, Gurr, and Jagers 2018), but also correlates well with other outcomes that are important manifestations of power, such as tenure length, vote share in elections, and experts' perceptions of individual influence. We also show that our measure does a better job at capturing more granular variations of power within a political leader's tenure than existing alternatives.

In addition to measurement, the second empirical challenge is causal identification. The presence or absence of retired leaders may be endogenous to many other factors that are also correlated with an incumbent's personal power, such as the regime's level of institutionalization, the incum-

bent's political skills, and other unobserved features of elite politics. To overcome this problem, our empirical design exploits within-incumbent variations in retired leaders' strength that come exclusively from the deaths (mostly natural) of retired leaders. This design essentially removes all the unobserved heterogeneity across incumbent leaders, and enables us to focus solely on the change in power within the same leader before and after the passing of his/her most influential predecessor.

Our empirical results provide strong evidence that retired leaders play a significant role in limiting the personal power of their successors. According to our preferred within-person specification, the presence of a former leader from the same political regime on average reduces the incumbent autocrats' power by about 13% to 14% of a standard deviation in the short run, and by 26% to 37% of a standard deviation in the long run; stronger predecessors—those who managed to accumulate a greater amount of power for themselves when they were in office—are more effective at checking their successors' influence. These findings hold up to a series of robustness checks using various alternative measures of personal power and different model specifications. We also conduct several placebo tests to show that the estimated effects are not driven by unobserved shocks common to all leadership turnovers, but are specific to only within-regime transitions wherein predecessors exit power in a relatively peaceful fashion. Finally, we provide some suggestive evidence on how predecessors exert their influence by examining various sub-indicators of personalism (Geddes, Wright, and Frantz 2019) and measures of authoritarian institutions (Svolik 2012). We find that instead of affecting the quality of general institutions, such as executive elections, legislatures or parties, the constraining effect of former leaders is often exerted in a highly specific way—through limiting their successors' personal discretion over appointing and removing top military and civilian officials.

This study advances our understanding of power dynamics in authoritarian regimes in two important ways. First, we offer a new way to think about *how* power is shared in authoritarian regimes. Existing literature typically conceptualizes authoritarian power-sharing in a context-free fashion as the interaction between a dictator and a group of lesser elites who want to protect

their power from the encroachment of the dictator (Magaloni 2008; Meng 2019a; Myerson 2008; Svobik 2009). By contrast, we show that there is also a different mode of power-sharing wherein the central cleavage is between current and former autocrats. We provide evidence that the inter-generational model may be more effective in constraining the behaviors of incumbents than an intra-generational one because of the involvement of more senior political actors. However, these inter-generational constraints are also inherently uncertain and impermanent because they depend heavily on the personal conditions of former leaders.

Second, our analysis also provides a new explanation for *why* significant power consolidation can happen under some leaders but not under others, even when they all face the same kinds of institutional constraints. The conventional narratives of power consolidation typically attribute successful power grabs to relatively idiosyncratic factors, such as a leader's luck (Svobik 2012, 62) or his/her use of certain political tactics (Slater 2003). While not denying the importance of these factors, our findings suggest that structural constraints in the political environment also play a role in shaping the likelihood of success for dictators' power-grabbing attempts. Power consolidation is more likely to succeed when there is no influential retired leader in the elite circle to act as a counterweight against the incumbent's strategic maneuvers.

Moreover, by offering a new, Ngram-based measure of world leaders' power, this paper also makes a methodological contribution to the comparative study of power and leadership. Our measure improves upon the existing ones (Gandhi and Sumner, [Forthcoming](#); Geddes, Wright, and Frantz 2019, e.g.,) in terms of both the breadth and depth of coverage. Instead of being a measure unique to authoritarian regimes, our measure can be easily extended to cover leaders in democracies. This can potentially enable the testing of more general theories of power dynamics that transcend regime types. In addition, our measure also offers a unified scale for gauging the influence of a large group of political figures, including not only national leaders but also cabinet members, sub-national leaders, bureaucrats, and even traditional and religious elites. By allowing a systematic comparison of *relative* influence among these actors, our measure can be used by future researchers to address important questions about the allocation of power both within a state

and between the state and society.

## **2 Informal Constraints in Authoritarian Power Politics**

Autocracies are highly heterogeneous in terms of their internal distribution of power. The variations in power concentration across autocratic leaders are often explained by the institutional differences among autocracies. A large body of research argues that regimes with a strong ruling party tend to do a better job at curbing the personalistic tendencies of top leaders (Boix and Svolik 2013; Geddes 2003; Kroeger 2018; Magaloni 2008). Other works examine the constraining role of semi-competitive elections, legislatures, and constitutions, arguing that they can increase the cost for dictators to expropriate property from the elites and limit their ability to make discretionary decisions over policies and allocation of patronage goods (e.g., Albertus and Menaldo 2012; Blaydes 2010; Gandhi 2008; Gandhi and Lust-Okar 2009; Miller 2015; Wright 2008). More recently, some studies suggest that certain concrete organizational rules, such as those that govern leadership successions and elite appointments, can constrain the dictator by shaping the underlying power distribution among the elites (Frantz and Stein 2017; Meng 2019a).

While the institution-centered perspective offers valuable insights into what affects the power balance between the dictator and the ruling elites, it has also raised a number of further questions. First of all, what enables these institutions, which are ultimately human creations, to emerge and function properly in the first place? This question is especially relevant for autocracies because elite actors typically enjoy much greater leeway in creating, modifying, and manipulating existing institutions than their counterparts in established democracies (Pepinsky 2014). Some theoretical works have suggested that authoritarian institutions can only work under certain conditions, such as when there is a balance of power within the ruling coalition (Boix and Svolik 2013; Meng 2019a); yet it still begs the question of what factors contribute or undermine the balance of power among the elites. Second, and more importantly, this perspective cannot explain why only some dictators have been able to accumulate more power but not others, even though the formal institutions under

which they took office are more or less the same. In Malaysia, Romania, and more recently China, there have been episodes of significant power consolidation by ambitious leaders under highly institutionalized regime parties (Fischer and Ulam 1983; Li 2016; Slater 2003). In other cases, top leaders came to office with a low-profile, collegial persona, but went on to achieve a stunning degree of dominance over their colleagues. How do we make sense of these marked within-regime (and even within-leader) variations in top leaders' personal power?

We argue that to better understand these variations, researchers need to look beyond the characteristics of formal institutions and pay greater attention to a broader set of informal constraints in elite politics. These constraints, usually less visible to outsiders than the overt institutions, are based on the deeper configurations of networks, coalitions, and resources among elite actors. Unlike written rules and procedures, which specify the formal boundaries of an incumbent's authority, informal constraints mainly impose *de facto* limits on what a top leader can and cannot do in intra-elite interactions. They may determine, for example, whom the autocrat can seek as an ally, the amount of resources he/she can marshal, and the payoffs associated with his/her various strategic choices. A top leader who has close ties with officials controlling key military and civilian offices, for example, may be more effective at securing his/her position in the ruling coalition than someone who is not yet deeply embedded in the elite network (Besley and Robinson 2010; Lee 2009).<sup>1</sup> Similarly, an autocrat's strategy to divide and conquer his/her elite supporters may be less effective when there are other influential figures who can coordinate elites from different parts of the network and act as focal points for organizing the elites' collective resistance (Dewan and Myatt 2008).

Our conception of informal constraints also differs from the concept of informal institutions, which often refers to the unwritten but largely *stable* norms and expectations governing actors' behaviors (Helmke and Levitsky 2004; Grzymala-Busse 2010). Although informal institutions can sometimes be a crucial constitutive part of informal constraints, constraints are not assumed to be either stable or constant. Instead, they can change dynamically in response to contingent

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<sup>1</sup>According to Dittmer (1978), for example, this is the reason why Deng Xiaoping emerged victorious in the post-Mao power struggles over a number of junior figures, despite Mao's preference for the latter.



events. Small perturbations in the distribution of power among the ruling elites, for example, may result in radical shifts in the alignments of political coalitions (Acemoglu, Egorov, and Sonin 2008); external economic shocks, moreover, may increase the bargaining power of certain elite groups, while decreasing the leverage of others (Pepinsky 2015). These changes are often not directly controlled or willed by the incumbent leader (or any individual), but can nonetheless have important bearings on how the power game plays out among the elites.

### **3 Leadership Turnovers and Inter-Generational Power Constraints**

While the specific forms of informal constraints that incumbent leaders face are likely to depend on each regime's political context, this article focuses on one type of constraint that exists in many authoritarian regimes: the inter-generational constraint imposed by retired leaders. To the extent that all humans are mortal, the transfer of sovereign power from one generation to the next is an inevitable challenge that all political systems have to grapple with. Compared to democracies, wherein leadership turnovers are institutionalized through regular, competitive elections, autocracies typically have a much harder time dealing with the transfer of power (Huntington 1970; Spearman 1939). At the heart of the succession challenge is a credible commitment problem: To prevent destabilizing power struggles after the old leader's death, a successor usually needs to be designated in advance and given sufficient authority to rule on his<sup>2</sup> own upon the predecessor's eventual departure (Kokkonen and Sundell 2014; Kurrild-Klitgaard 2000). However, if a successor becomes too powerful too quickly, he himself may become a threat to the old leader.<sup>3</sup> After the

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<sup>2</sup>For clarity, we will use the female pronoun to refer to the predecessor and male pronoun to refer to the successor in this section.

<sup>3</sup>In one classic form of the problem known as the crown-prince dilemma, a capable but impatient heir may try to stage a coup against the dictator and take over early. Both Saddam Hussein and Leonid Brezhnev, for example, took office by deposing their autocratic patron while serving as the heir apparent (Karsh and Rautsi 1991; Taubman 2004). In Mexico, the period of maximato for president Plutarco Calles ended when he was ousted by Lazaro Cardenas, who was elevated to the presidency by Calles himself (Krauze 1998). For general discussion, see Herz (1952) and Tullock (1987).

successor formally assumes power, he may have incentives to change his predecessor's preferred policies in order to make his own mark on history (Bunce 2014). Sometimes, the need to establish one's own reputation and authority may even motivate the new leader to stage direct attacks against the predecessor and her associates.

The presence of this thorny commitment problem is an important reason why many dictators refuse to give up their office until their death. However, it also means that when successions do happen, the departing leader will try to put in place a range of measures to limit her successor's power so as to protect her own interests and personal safety. These measures can sometimes involve adding institutional checks on the chief executives' power (Meng 2019a) or imposing explicit term/age limits on top leaders' tenure (Ma 2016). Lee Kuan Yew, the former Prime Minister of Singapore, for example, created a new advisory office for himself before stepping down in 1990 to make sure that he would remain relevant in the regime's major decisions (Mauzy 1993). More recently, both Nursultan Nazarbayev in Kazakhstan and Vladimir Putin in Russia, two long-serving autocrats who have been serious about planning their own successions, initiated significant institutional reforms to strengthen the institutional oversight on the chief executive offices that they intended to hand down to their successors.<sup>4</sup> In addition to these formal institutional changes, informal maneuvers will also be undertaken to help retired leaders retain some influence over key state and military organs. In both Lee Kuan Yew's and Nazarbayev's cases, for example, the departing leaders elevated trusted family members (son in Singapore and daughter in Kazakhstan) to key political offices. Similarly, when Chinese leaders like Deng Xiaoping and Jiang Zemin planned for their departure, both tried to preserve their influence by packing the next Politburo Standing Committee with loyal followers (Vogel 2013; Zhang 2011).

While the inter-generational constraints may involve a diverse set of formal and informal arrangements, their effectiveness ultimately depends on how much de facto political capital the predecessor possesses. A healthy, active former leader with extensive networks in key state and mil-

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<sup>4</sup>See Maia Machavariani, "Power Succession in Kazakhstan, Who is Next?", *Around the Caspian*, January 16, 2019, <https://bit.ly/2tTalaa>, and Daniel Treisman, "Why Vladimir Putin is Shaking Up Russia", January 16, 2020, <https://cnn.it/2RCdZhq>.

itary sectors can play a central role in organizing elites' collective resistance against the successor's personalistic tendencies. By contrast, the death or incapacitation of an influential predecessor weakens the constraints on the successor. Without a common leader to resolve disputes and coordinate actions, it is much more difficult for elites to stay united.<sup>5</sup> Internal rivalries and disagreements may be exploited by a tactically savvy successor to his own advantage. Although there is no guarantee that the attempted power grab will succeed, an environment in which the old guard is weak or absent is likely to give the successor more room for strategic maneuvering than one in which it remains healthy and active.<sup>6</sup>

Taken together, the preceding discussion suggests that the presence or absence of retired leaders is one of the key constraints that can influence the power of the incumbent leader. This leads to the following hypothesis:

**Hypothesis 1.** *All else equal, incumbent leaders face greater constraints over their power when operating in an environment in which their predecessors are alive and active. Moreover, a predecessor with greater political clout is often more effective at tying the hands of her successors.*

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<sup>5</sup>In many cases, the former leader might even deliberately keep her associates at a distance from one another as a way to secure her own central position in the coalition, further reducing the likelihood that those associates will stick together as a cohesive block once the former leader is gone. Padgett and Ansell (1993), for example, find that this practice was adopted by the Medici family to secure their central brokerage position among the Florentine elites. Formal models on coalition-building also suggest that a trade-off often exists between a coalition's strength and its self-enforceability. Powerful coalitions are usually difficult to maintain and vulnerable to exogenous shocks (Acemoglu, Egorov, and Sonin 2008).

<sup>6</sup>The dynamics we discuss here are most applicable to a situation in which a successor is faced with one major predecessor. The presence of multiple major predecessors in a non-democratic setting is rarer and creates potentially more complex power dynamics. On the one hand, the personal power of the incumbent may be further diluted by an even more fragmented power structure. On the other hand, however, competing former leaders and their followers may limit each other's influence, giving the incumbent the opportunity to consolidate power through a divide-and-rule strategy. In Table A.9 of the Online Appendix, we present some evidence on how the number of predecessors affects successors' power.

## 4 Empirical Design

### 4.1 Sample Construction

To evaluate this hypothesis, we build and analyze a panel dataset of authoritarian regimes in the Post-World War 2 era.<sup>7</sup> We define authoritarian regimes as those regimes that are (1) not occupied by a foreign power and (2) do not conform to the minimalist definition of democracy.<sup>8</sup> Between 1950 and 2008, a total of 271 regimes from 122 countries satisfy this criterion. We then follow the convention to identify the head of the executive branch as the leader of an authoritarian regime (e.g., Goemans, Gleditsch, and Chiozza 2009; Przeworski 2013). This includes presidents in presidential or semi-presidential systems, prime ministers in parliamentary systems, and general secretaries or chairmen of the party military commissions (if the chairman is considerably more senior than the general secretary) in communist regimes.

Our approach to identifying the national chief executive is strictly formalistic, focusing solely on the official positions that leaders hold and not considering any hidden or “effective” leaders. This is our preferred approach for two reasons. First, given the inherently obscure nature of authoritarian politics, *de facto* leaders are difficult to identify clearly *ex ante*. Second, and more importantly, to the extent that *post hoc* identification of *de facto* leaders is often based on the perceived power of different leaders, this could introduce spurious correlation into our empirical design because power is also the outcome of interest. In a later analysis, we use Svoblik’s (2012) classification to further narrow the sample to those leaders who came to power in a peaceful fashion and exclude those who took power by force or through foreign imposition.<sup>9</sup> We expect retired leaders’ constraining effects to be most salient in settings where power is passed on in a peaceful,

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<sup>7</sup>Our dataset incorporates information from several existing datasets, including the Political Institutions and Political Events (PIPE) dataset (Przeworski 2013), the Archigos dataset on national leaders (Goemans, Gleditsch, and Chiozza 2009), the political regimes spell dataset by Svoblik (2012), and the autocratic regime dataset by Geddes, Wright, and Frantz (2014).

<sup>8</sup>The minimalist definition for democracy requires the presence of regular, uninterrupted elections with meaningful political opposition and alternation of power (Schumpeter 1942). Our main results are also robust to using other definitions of authoritarian regimes, such as those in Geddes, Wright, and Frantz (2019) and Svoblik (2012). Results are available upon request.

<sup>9</sup>More specifically, consensual entry includes the following categories according to Svoblik’s (2012) coding of the entry variable: consensus, elections, interim, and succession.

consensual manner.

## 4.2 Measuring Political Leaders' Personal Power

A key challenge to our empirical analysis is to accurately measure top leaders' personal power. Currently, the most popular measure for this purpose is the personalism index developed by Geddes, Wright, and Frantz (2019). The index measures the degree to which power is concentrated in the hands of an individual leader; it is generated by running an Item Response Theory (IRT) model on several sub-indicators that measure, among other things, whether a leader personally controls appointments to key party, military, and security bodies and his/her ability to purge military officers (for details, see Geddes, Wright, and Frantz (2019) and Wright (2017)).<sup>10</sup>

While the personalism index offers a useful way to gauge autocrats' personal influence, it is not without limitations. First, its reliance on the subjective assessment of human coders raises questions about its reliability in certain areas. This problem is further complicated by the fact that most of the indicators are evaluated on a yearly basis. Even for a country expert, it could be difficult to tell with precision whether a leader is more or less powerful in a given year compared to the previous year. In some cases, this index may remain constant for years or even decades across several rounds of leadership turnovers, making it difficult to capture more fine-grained power fluctuations both within and across individual leaders.<sup>11</sup>

To address these limitations, in this study we construct a new measure for political leaders' personal power. Our approach, simply put, is to count the number of mentions of leaders' names in printed publications relative to other senior political elites. This approach is motivated by the

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<sup>10</sup>For each country-year spell, the GWF dataset records the national leader who was in power on January 1st, whereas the PIPE dataset records the one on December 31. To address this discrepancy, we match each country-year spell in PIPE with the level of personalism in the next year.

<sup>11</sup>Another related recent contribution is Gandhi and Sumner (Forthcoming), who adopt a dynamic Bayesian IRT model to estimate the latent degree of power consolidation by the incumbent using observed events such as political purges. This method alleviates some potential measurement problems associated with subjective coding, but runs the risk of over-fitting by making inference solely based on events that are both rare and likely to occur only in off-equilibrium paths. A powerful incumbent who feels secure about his or her position, for example, may not need to resort to political purges as frequently as someone whose authority is still being contested. In other words, this measure may capture the *actions* of power consolidation more accurately than the actual *degree* of it.

recent literature using media publications to infer political actors' power (e.g., Ban et al. 2018; Jaros and Pan 2017). We argue that name appearance can reveal important information about leaders' power for at least two reasons. First, national leaders' de facto power partially stems from their charismatic appeal, which is often correlated with their fame and publicity. Second, the frequency of media appearances could also reflect the number of executive activities that a leader undertakes. A national leader who is frequently involved in major domestic and international affairs is usually more powerful than one who is not.

Specifically, we construct a power index using information from two major online databases: Google Ngram and Wikidata. Google Ngram provides yearly counts of phrases and names found in printed publications between 1500 and 2008 in Google Books' text corpus (Lin et al. 2012), and Wikidata is a central storage of structured data from Wikipedia, containing extensive information on the identity and biographical information of senior politicians from a wide range of countries (Vrandečić and Kröttsch 2014). For each country–year spell, we use Wikidata to compile a list of prominent *living* politicians (including incumbent chief executives) for that spell. We are able to find a total of over 68,000 politicians for our autocratic regime sample.<sup>12</sup> We then search each politician's name (official names as well as various aliases) in the Ngram database and record the number of newly published books that mentioned his most commonly used alias in that year.<sup>13</sup> The Ngram-based power index is computed using the following formula:

$$\text{Personal power}_{ict} = \log \left( \frac{\text{Leader's own Ngram}_{ict}}{\max(\text{Living non-CE Politicians' Ngram}_{j \neq L, c, t})} \right), \quad (1)$$

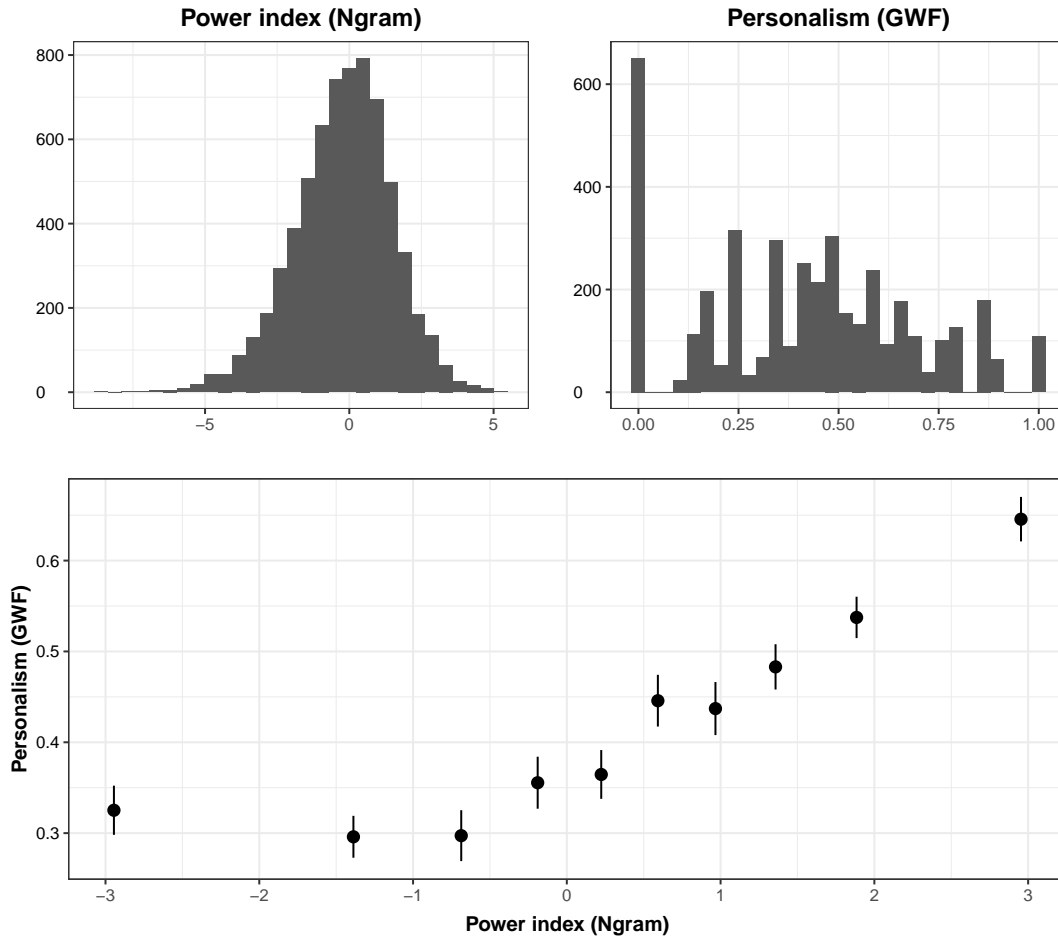
<sup>12</sup>We identify politicians by searching for those who were having an active career in that country–year (based on their biography and job entries in Wikidata) and have the label “politician” in their occupation entry. A similar method can also be used to construct the politician list for democratic countries, which contains close to 352,000 individuals. The list is longer mainly because Wikidata has disproportionately greater coverage of politicians in the U.S and several other English-speaking countries. For more details about the procedures to construct the list and the Power Index, see Appendix B.

<sup>13</sup>Although the Google Ngram corpus is available in several different languages, we make all queries in English for consistency. Focusing on a non-native, international language (as English is for most of the countries in our sample) also helps to partially address the concerns of both domestic censorship and entertainment-driven coverage (e.g., writing about personal affairs unrelated to power). We do, however, compare the results using English Ngram with those using a country's official language if that official language is also available in Google Ngram (e.g., Chinese, Russian, Spanish, etc). The within-country patterns are generally quite similar.

where  $i$ ,  $c$ , and  $t$  index the incumbent leader, country, and year, respectively, and  $L$  denotes the set of politicians who have served as the chief executive of country  $c$  for at least one year. Essentially, this index is the (logged) ratio between the Ngram book counts for the incumbent leader and the book counts for the highest living, non-CE politician in the same country–year spell. Normalizing a leader’s Ngram by that of his/her most influential non-CE colleague is important for two reasons. First, it helps to address the potential bias due to differential coverage, as some countries and periods may have more publications stored by Google Books than others. Second, to the extent that power is a largely zero-sum quantity, using a relative count is conceptually attractive because it captures how much *more* attention the top leader receives in publications *relative* to his/her colleagues. The identities of the non-CE politicians whose Ngrams are used as the denominator are quite diverse, but typically belong to one of the following groups: (1) the president in a parliamentary system or the prime minister in a semi-presidential system, (2) vice presidents or prime ministers, (3) cabinet ministers, (4) members of the legislature, (5) governors of major states or provinces, or (6) other authoritative figures such as kings, sultans, or religious leaders (see Figures A.3 and A.4 of the Online Appendix for details ). The average ratio between the chief executive’s Ngram and the highest non-CE figure’s Ngram is 4.16 (logged ratio = 0.23) in our autocracy sample, with a standard deviation of 9.94.

Does this Ngram-based measure indeed capture variations in autocratic leaders’ personal power? We present several validity checks. To begin with, we compare our measure with the GWF personalism index. The top panels of Figure 1 presents the respective distributions of the two measures and the bottom displays the relationship between them. We can see that while the GWF personalism index tends to have a lot of country–year observations clustered at the value of 0 (minimal personalism), our measure follows a more natural, bell-shaped distribution. The two measures, however, are strongly and positively correlated: A one standard deviation increase in GWF personalism is associated with about a 1/3 of a standard deviation increase in our Ngram-based measure ( $p < 0.001$ ). This relationship remains strong even after controlling for year and country fixed effects and a number of additional covariates (see Table A.4 for regression results).

Figure 1: Comparison between Power Index (Ngram) and Personalism (GWF)



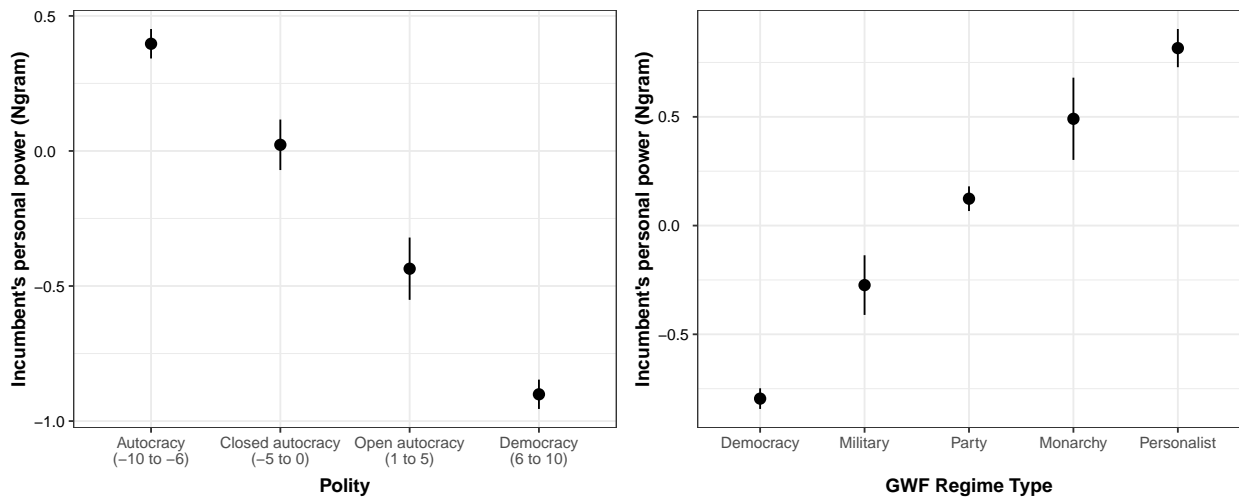
Note: The top two panels of this figure present the distribution of our Ngram-based power index and the GWF personalism index. The bottom panel visualizes the relationship between the two variables in a binned scatter plot. The circles indicate the averages for the ten equal-observation bins, and the vertical bars indicate the 95% confidence intervals.

Another way to assess the validity is to examine how our Ngram measure varies across different regime types. Generally speaking, we expect democracies to have stronger constraints on incumbent leaders than non-democracies. Within non-democracies, Geddes (2003) suggests that military and party-based regimes may have a more collectivist style in exercising power (i.e., less personalistic) than personalist regimes. In Figure 2, we plot the average power index by Polity score, a popular measure of the level of democracy in a country, and the autocratic regime classification from Geddes (2003). The left panel suggests that as a country becomes more democratic, the power index of the incumbent chief executive becomes progressively smaller. The panel on



the right further shows the average power index by regime type. Here, again, we see that the average index is lowest for top leaders in democracies, followed by those in military and party-based regimes. The chief executives in monarchies and personalist regimes, by contrast, have the highest average Ngram power index. These patterns are consistent with our priors about how the personal power of the top leader should be associated with regime characteristics. In Online Appendix C, we further provide several examples and an extensive set of additional tests to validate our measure.

Figure 2: Variation in Ngram by Regime Type



### 4.3 Identification Strategy and Model Specification

The key quantity of interest that we want to estimate is the effect of retired leaders on the personal power of the current chief executive. The issue of endogeneity is obviously a major concern. To the extent that whether a regime has any retired leaders or not is likely to be correlated with many other factors that can also affect the incumbent's power, a naïve regression of incumbent power on retired leader's presence may yield spurious correlations. One way to address this issue is through the inclusion of fixed effects. We can include fixed effects for each unique political regime within a country, assuming that leaders coming to power under the same regime face a more or less similar political environment.<sup>14</sup> A even more restrictive specification, however, is to

<sup>14</sup>Information on regime duration is based on an updated version of the political regime spells dataset from Svobik (2012).

include incumbent leader fixed effects. This later approach essentially removes the influence of any unobserved confounders that vary across individual leaders, and only uses within-incumbent variations in predecessors' strength for estimation. The key assumption for identification here is that these within-incumbent variations occur in a way largely orthogonal to other confounding factors that may influence the incumbent leader's power. We discuss the validity this assumption in more detail when introducing the measurement of the key independent variable (see below).

Our baseline specification is as follows:

$$\text{Incumbent power}_{ict} = \alpha_k \sum_{t-k}^K \text{Incumbent power}_{i,c,t-k} + \delta \text{Predecessor power}_{ict} + \mathbf{X}\boldsymbol{\beta} + \eta_i + \tau_t + \epsilon_{ict}, \quad (2)$$

where  $i$ ,  $c$ , and  $t$  index individual leaders, country, and year, respectively.  $\eta_i$  is the leader fixed effects that capture heterogeneity in average power across incumbent leaders, and  $\tau_t$  is the year fixed effects that capture common, world-wide shocks to our power measures. The dependent variable, *Incumbent power* is measured with both our Ngram-based power index and the GWF personalism index. Since power is path-dependent in nature, we also include in the regression lagged dependent variables to capture persistence over time.

One potential concern with including lagged dependent variables in a panel data setting is the so-called Nickell bias (Nickell 1981), which is especially worrisome if the panel has a large number of units but a relatively short time period. However, since our dataset spans several decades, this issue is less problematic. As a robustness check, we also present regressions using General Methods of Moments (GMM) estimators (Arellano and Bond 1991) and obtain largely similar results. The standard errors in all models are clustered at the country level to account for unobserved factors that may affect the power of leaders from the same country.

For the independent variable, what we want to measure is the degree of informal constraints imposed by predecessors. To construct such a measure, we build on the Ngram-based power index discussed earlier and adapt it to retired leaders. Specifically, we create a variable, *Predecessor*

power, with the following specification:

$$\text{Predecessor power}_{i,r,t} = \log \left[ \max \left( \overline{\text{Power as CE}}_{j|j<i,r} \right) \mathbb{I}(\text{death year}_j \geq t) + 1 \right]. \quad (3)$$

Here,  $\overline{\text{Power as CE}}_{j,r}$  is the average power index of former leader  $j$  (one of  $i$ 's predecessors) during her own tenure as chief executive.<sup>15</sup> We choose to focus on predecessors' *past* influence because it is less likely to be affected by the incumbent's current power. We also restrict the set of predecessors to those who belong to the same political regime  $r$  as the incumbent for the obvious reason that incumbents are unlikely to be constrained by predecessors from a rival regime.  $\mathbb{I}(\text{death year}_j \geq t)$  is an indicator function for whether  $j$  is still alive at  $t$ .<sup>16</sup> This variable takes the value of 0 if there is no living predecessor at  $t$ , and the logged average power of the most powerful predecessor if there is one or more retired leaders alive. About 31% of the country-year spells in our sample have at least one living predecessor present, and the average value of a predecessor's power is about 0.3.

Since the average power index is computed based on each predecessor's time in top executive office, its value does not change for the same predecessor throughout her successors' entire tenure.<sup>17</sup> The only variation in *Predecessor power*, therefore, comes from change in the identity of the "most powerful" predecessor, which happens when the predecessor who previously had the highest average power index passes away.<sup>18</sup> As long as we are willing to assume that the deaths of retired leaders are largely exogenous events, this design allows us to identify the causal effect of losing a predecessor on the incumbent's personal power. A close look at the data suggests that

<sup>15</sup>Here, we use an unlogged version of the power index and only take log later on the average value.

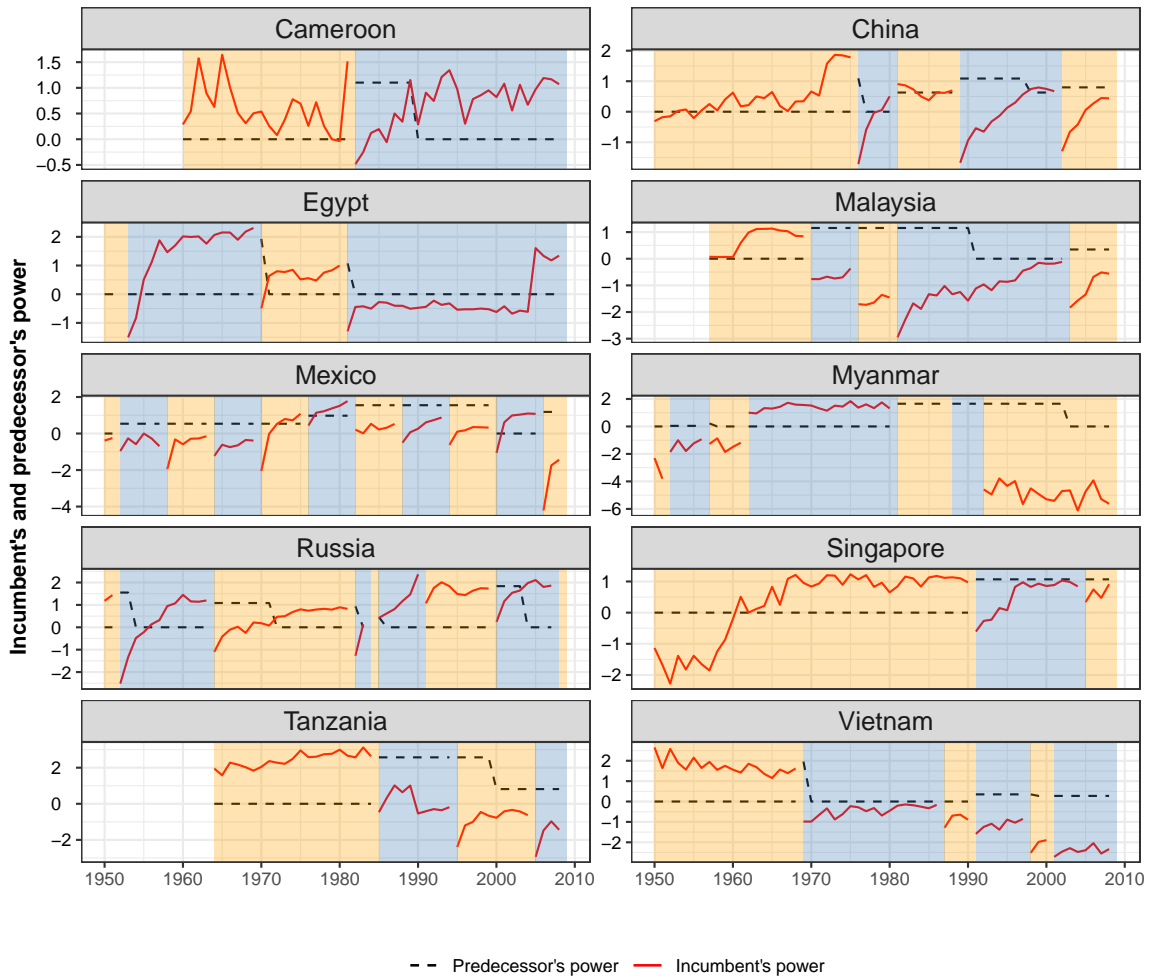
<sup>16</sup>To illustrate this with an example: In 2005, Singapore's chief executive, Lee Hsien Loong (prime minister) faced two living predecessors: Lee Kuan Yew and Goh Chok Tong. The average of Lee Kuan Yew's power index over his tenure (1950–1990) is 1.914, whereas the same figure for Goh is 1.895 (tenure length: 1991–2004). Since Lee Kuan Yew has the highest average power index of the two, the predecessor power for Lee Hsien Long in 2005 is  $\log(1.914 + 1) = 1.07$ .

<sup>17</sup>One (rare) exception is when a leader first resigns from the chief executive position, then comes back, and then steps down again. In this case, we update his/her power index for his/her second retirement by incorporating the Ngram value during the second term.

<sup>18</sup>It is important to note that a change in the predecessor's power **does not mechanically lead to an increase in the power of the incumbent** because the predecessor is not included in the pool of politicians (i.e., non-CEs) that will be used as the denominator.

this assumption is reasonable: The vast majority of predecessors' deaths in our sample (~70%) were due to natural illness, and only 4% were due to assassinations or other premeditated plots. As a robustness check, we later replicate our analysis on a sample in which all the variations in predecessors' power are caused by natural death only, and all our results still hold (see Appendix D for details).

Figure 3: Variations in Incumbent and Predecessor Power for Selected Countries



Note: This figure presents the co-variations between *Incumbent power* and *Predecessor power* for selected countries. The red, solid lines denote incumbent leaders' power and the black, dashed lines denote predecessors' power. Shades of different colors represent the periods ruled by different incumbent leaders.

To provide an intuitive illustration of the variations that we use for identification, Figure 3 plots the co-variation between the incumbent's power (red, solid lines) and the power of the most in-

influential predecessors (black, dashed lines) for a selected group of non-democracies. Each shaded interval represents an uninterrupted period of administration under one incumbent leader. Our fixed-effects design essentially only focuses on the changes in predecessors' power that happen within each shaded interval, but pays no attention to variations outside of it. A quick inspection of the trends suggests that, overall, incumbents' current power does seem to be negatively correlated with their predecessors' past influence, both across and within administrations: When an influential predecessor is present (i.e., the black, dashed line shows a positive value), the power of the incumbent tends to stay below 0. Moreover, the passing of the influential predecessor in the middle of an incumbent's tenure is usually associated with a notable subsequent increase in the incumbent's power index. These patterns appear to be consistent with our hypothesis about the role of predecessors as informal constraints. In the next section, we provide a more systematic test of this relationship using regression analysis.

## 5 Results

Table 1 presents the baseline results. Columns 1 to 4 use our Ngram-based power index as the dependent variable and Columns 5 to 8 use the GWF personalism index. For each dependent variable, we first run a parsimonious model that only controls for the lagged dependent variable. The second model adds year and regime fixed effects and additional controls for the incumbent's tenure length and the country's economic and population sizes. The third model replaces the regime fixed effects with more restrictive leader fixed effects. We also estimate a fourth model using the GMM method to address the Nickell bias in dynamic panel estimation. Consistent with our hypothesis, we see that the presence of an influential retired leader is strongly and negatively associated with the incumbent's ability to consolidate power. The pattern holds for both our Ngram-based measure and the GWF personalism index. The difference between the fixed-effects and GMM estimators is rather small, suggesting that the scale of the Nickell bias is not too large given the relatively long time coverage in our data.

Table 1: Baseline Results

	Incumbent personal power (Ngram)				Incumbent personalism (GWF)			
	(1) OLS	(2) OLS	(3) OLS	(4) GMM	(5) OLS	(6) OLS	(7) OLS	(8) GMM
Predecessor power	-0.171** (0.032)	-0.299** (0.070)	-0.225** (0.083)	-0.213** (0.080)	-0.018** (0.004)	-0.022** (0.007)	-0.034** (0.010)	-0.030** (0.009)
Incumbent's time in office		0.014** (0.004)	-0.022+ (0.012)	0.005 (0.022)		0.001+ (0.000)	0.006 (0.004)	0.008 (0.005)
Log GDP		-0.123 (0.083)	-0.161 (0.131)	-0.065 (0.132)		-0.012 (0.009)	-0.007 (0.014)	0.002 (0.016)
Log population		0.469+ (0.238)	0.240 (0.418)	0.301 (0.445)		0.030 (0.021)	0.028 (0.034)	0.047 (0.044)
Lagged DV ( $t-1, t-2, t-3$ )	✓	✓	✓	✓	✓	✓	✓	✓
Year fixed effects		✓	✓	✓		✓	✓	✓
Regime fixed effects		✓				✓		
Leader fixed effects			✓	✓			✓	✓
# of countries	109	103	103	103	111	106	106	106
Observations	3185	2929	2852	2882	3378	3157	3095	3051

*Note:* This table presents the baseline regression results using two measures of incumbent leaders' power as dependent variables. The first is the Ngram-based power index and the second is the GWF personalism index. The independent variable is the power of the living predecessor measured by the average power index during his/her own tenure as the chief executive. When multiple living predecessors are present, the maximum value is used. Standard errors are clustered at country level.

+  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$  (two-tailed test)

To provide a more substantive interpretation of the magnitudes of the estimated coefficients, we compute the short-term and long-term effects of changes in the predecessor's influence on the incumbent's power.<sup>19</sup> Table 2 presents these effects in standard deviation terms. We can see that while the presence of an average former leader reduces the power of the incumbent by about 13% to 14% of a standard deviation, the cumulative effect is much larger: Compared to a scenario wherein the former leader dies before the incumbent assumes office, the power of the incumbent

<sup>19</sup>Given the regression model's coefficients, the cumulative constraining effect in the  $t$ th year can be computed in an iterated fashion:

$$\begin{aligned} \Delta_t &= \delta + \Delta_{t-1}\alpha_1 + \Delta_{t-2}\alpha_2 + \Delta_{t-3}\alpha_3 \text{ if } t \geq 4, \text{ with} \\ \Delta_1 &= \delta, \\ \Delta_2 &= \delta + \Delta_1\alpha_1, \\ \Delta_3 &= \delta + \Delta_2\alpha_1 + \Delta_1\alpha_2, \end{aligned}$$

and the long-term multiplier can be further expressed as  $\frac{1-\delta}{(1-\alpha_1-\alpha_2-\alpha_3)}$ . See Boef and Keele (2008) for more information on how to compute the long-term effects.

will be about 24% to 32% of a standard deviation lower if the predecessor lives for another five years after retirement. The long-term effect is quite close to the five-year cumulative, suggesting that much of the predecessor's constraining effect materializes in the first five years after his/her retirement.

Table 2: Cumulative Effects of Living Predecessor's Strength on Incumbent's Power

	Incumbent power index (Ngram)	Incumbent personalism (GWF)
	(1)	(2)
Immediate predecessor effect	-0.1473** (0.054)	-0.1353** (0.040)
Cumulative effect: 5 years	-0.2471* (0.104)	-0.3264** (0.097)
Cumulative effect: 10 years	-0.2614* (0.115)	-0.3627** (0.110)
Cumulative effect: maximum	-0.2626* (0.116)	-0.3674** (0.112)

*Note:* This table presents the simulated constraining effects of predecessors on incumbents' power. The results illustrate the difference in the incumbent's power between the scenario of no predecessor and the one in which the incumbent faces a predecessor with average strength (i.e., average power index over tenure = 1.066) for a certain number of years. The magnitudes of the coefficients are normalized by the standard deviations of the respective dependent variables to facilitate interpretation. The results are based on Models 3 and 7 of Table 1.

+  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$  (two-tailed test)

Next, we also investigate the heterogeneity of predecessors' effect across several different sub-samples. First, we examine a sub-sample in which all incumbents came to power in a relatively consensual way. We expect our estimates to be stronger in this sub-sample, as the successors are likely to have been picked and groomed by their predecessors. The results presented in Table 3 confirm this expectation. In particular, we note that the estimated coefficient from the Ngram power index is almost twice as large as what we get from the baseline regressions. Second, we take a closer look at how the effect varies by regime type. In Table 4, we separately estimate the effect of predecessor power for parliamentary- vs. presidential-style regimes, as well as the three main authoritarian regime types in Geddes (2003). We can see that the effect is more salient in presidential-style autocracies, wherein individual leaders typically play a more prominent role in politics. Turning to Geddes's (2003) regime types, our results suggest that a strong predecessor can impose greater constraints on successors in more collectively organized military and party-based

regimes, but much less so in personalist regimes. This pattern seems to suggest an interesting complementarity between personal and institutional strength when it comes to creating binding executive constraints: While strong institutions certainly matter for how well incumbents can be constrained, the institutions often need to be empowered by influential individuals in order to work effectively.

Table 3: Restricting the Sample to Incumbents with Peaceful Entry

	Incumbent personal power (Ngram)		Incumbent personalism (GWF)	
	(1) OLS	(2) GMM	(3) OLS	(4) GMM
Predecessor power	-0.424** (0.111)	-0.424** (0.103)	-0.030** (0.010)	-0.031** (0.010)
Lagged DV ( $t - 1, t - 2, t - 3$ )	✓	✓	✓	✓
Year and leader fixed effects	✓	✓	✓	✓
# of countries	82	85	82	85
Observations	1590	1600	1714	1690

**Note:** This table reports the regression results from using a sample in which all incumbents entered power in a consensual manner. Consensual entry includes the following categories in Svobik's 2012 dataset: consensus, elections, interim, and succession. Standard errors are clustered at country level.

+  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$  (two-tailed test)

Table 4: Predecessor Effect by Regime Type

	Incumbent personal power (Ngram)				
	(1) Parliamentary	(2) Presidential	(3) Military	(4) Party	(5) Personalist
Predecessor power	-0.242 (0.153)	-0.293** (0.079)	-0.250** (0.056)	-0.408** (0.119)	-0.074 (0.142)
Lagged DV ( $t - 1, t - 2, t - 3$ )	✓	✓	✓	✓	✓
Year and leader fixed effects	✓	✓	✓	✓	✓
# of countries	34	78	30	58	37
Observations	642	1911	344	1513	645

**Note:** This table presents the regression results on the effect of predecessors on the incumbent leader's power by authoritarian regime type. The first two columns show results for parliamentary- and presidential-style non-democracies, respectively, and the next three columns show results for military, party-based, and personalist regimes. Information on regime types is obtained from Przeworski (2013) and Geddes, Wright, and Frantz (2014). Standard errors are clustered at country level.

+  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$  (two-tailed test)



## 6 Robustness

We conduct a number of additional tests to ensure the robustness of our results. In the interest of space, we leave most of the details to the appendix and only briefly summarize the key findings here. To begin with, one may be concerned as to whether either the Ngram-based power index or the GWF personalism index can accurately capture the extent to which the incumbent leader consolidates power. To address this, we use another more concrete proxy of a leader's power: the number of years he/she stays in office. Consistent with the baseline results, we find that the length of the incumbent leader's tenure is significantly shorter when a powerful living predecessor is present (Table A.5).

Second, one may be concerned that the results are driven by our specific measure of predecessors' power. In Tables A.6 through A.9, we estimate regressions using four alternative independent variables: (1) predecessors' power index based on the median Ngram (as opposed to the mean) of their chief executive tenure, (2) the average Ngram power index for the *immediate*, within-regime predecessor, (3) a binary indicator for whether there is *any* living predecessor from the same regime, and (4) a count variable for the *number* of living predecessors. The results are substantively the same as what we find from the baseline regressions.

A third important concern is about the exogeneity in the variation of our independent variable. Clearly, not all predecessors' deaths happen at random and some of them may be endogenous to factors that influence the incumbent's power. To mitigate this concern, we rerun our analysis on a subset of observations in which all the deaths of predecessors were due to natural illness. As shown in Table 5, all our results continue to hold within this plausibly more exogenous sub-sample.

Table 5: Robustness: Natural Death Sub-sample

	Personal power (Ngram)	Personalism (GWF)
	(1)	(2)
Predecessor power	-0.370** (0.080)	-0.034** (0.012)
Lagged DV ( $t - 1, t - 2, t - 3$ )	✓	✓
Year and leader fixed effects	✓	✓
# of countries	101	101
Observations	2476	2593

*Note:* This table presents the regression results on the effect of predecessors' strength on the incumbent leader's power. The sample includes observations in which all the current leader's within-regime predecessors are either alive or died from natural illness only. Standard errors are clustered at country level.

<sup>+</sup>  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$  (two-tailed test)

To the extent that our Ngram-based power index is calculated based on a ratio, there is also the question of which component is most affected by the predecessor's power. Our narrative will be problematic if the predecessor's power affects lesser elites' Ngram (i.e., the denominator) more than it affects the Ngram of the incumbent (i.e., the numerator). To evaluate this, we estimate two regressions using the numerator and the denominator of the power index as the respective dependent variables. In Table 6, we can see that the effect of predecessor power is more salient on the Ngram of the incumbent (the numerator) than on the Ngram of the highest non-CE politician (the denominator). This gives us greater confidence that what we are capturing is indeed a constraining effect over the incumbent's personal power.

Table 6: Differential Effects of Predecessors' Power on Numerator and Denominator of Incumbent's Power Index

	Number of books mentioning incumbents (numerator)	Number of books mentioning highest non-incumbent elites (denominator)
	(1)	(2)
Predecessor power	-0.222** (0.052)	-0.011 (0.026)
Lagged DV ( $t - 1, t - 2, t - 3$ )	✓	✓
Year and leader fixed effects	✓	✓
# of countries	89	84
Observations	1759	1724

*Note:* This table presents the regression results on the effect of predecessors' strength on both the numerator and the denominator of the incumbent leader's Power Index. Standard errors are clustered at country level.

+  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$  (two-tailed test)

Finally, we conduct several placebo tests to see if our results are also present when using variables that are similar to our main measure in construction but different in substantive relevance. We look at two variables. The first is the average power index of *dead* predecessors, and the second is the power index for predecessors who are in the same country but from a *different regime*. If the observed results are indeed due to influential former leaders acting as an informal constraint on their successors, we should expect little effect from either dead predecessors or those that belong to a different political regime. The results from these placebo tests are shown in Table 7. Consistent with our expectations, we can see that the coefficient estimates for the placebo variables are much smaller in size (and sometimes even of the opposite signs) compared to the estimates for the actual variables. This suggests that the effects that we observe are highly specific to those living and within-regime predecessors.

Table 7: Placebo Tests

	Personal power (Ngram)		Personalism (GWF)	
	(1)	(2)	(3)	(4)
Predecessor power	-0.287** (0.104)	-0.219* (0.101)	-0.054* (0.022)	-0.034** (0.012)
Predecessor power (dead predecessors only)	-0.069 (0.144)		-0.022 (0.020)	
Predecessor power (same country, different regime)		-0.023 (0.104)		0.000 (0.014)
Lagged DV ( $t - 1, t - 2, t - 3$ )	✓	✓	✓	✓
Year and leader fixed effects	✓	✓	✓	✓
# of countries	103	103	106	106
Observations	2852	2852	3095	3095

*Note:* This table presents the results from placebo tests using (1) the maximum power index for out-of-regime predecessors and (2) the maximum power index for dead within-regime predecessors. Standard errors are clustered at country level.

+  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$  (two-tailed test)

## 7 Mechanism

The preceding analysis has shown that in authoritarian regimes with pre-mortem leadership transitions, retired leaders serve as a key informal constraint on the power of incumbents. The question that remains, however, is how the constraint is implemented. To probe this question, we examine how predecessor strength affects different domains of authoritarian politics. We use six sub-indicators from GWF's personalism index: (1) control over military appointment, (2) purge of military officers, (3) control over the security apparatus, (4) control over paramilitary forces, (5) importance of personal loyalty in high-level promotion, and (6) control over appointment in the ruling party's executive committee. These indicators capture incumbent leaders' personal power over a diverse range of areas. In addition, we also use Svulik's (2012) data on authoritarian institutions to measure the presence/competitiveness of certain key political institutions (e.g., executive elections, legislatures, and political parties).

The results are presented in Table 8. Columns 1 to 6 show that the presence of an influential predecessor significantly reduces the incumbent leader's personal control over military appoint-

ment, makes him/her less likely to purge military officers at will, and limits the extent to which promotions are based on personal loyalty to the incumbent leader. These patterns are in line with the findings from several earlier country case studies that de-personalization of personnel matters is the key to limit the power of incumbent leaders in non-democracies (e.g., Magaloni 2008; Slater 2003). In the meantime, Columns 7 to 9 suggest that there is weaker evidence of predecessor presence increasing either the general competitiveness of executive and legislative selection or the extent of multi-party competition. This seems to be consistent with our preceding discussion about the informal nature of these constraints: Predecessors tie the hands of their successors mainly by shaping the regime's internal political alignments, rather than by opening the system up for outside competition.

Table 8: Mechanism: Effect of Predecessor Power on Domain-Specific Personalism and Institutional Development

	Sub-dimensions of Personalism						Competitiveness in		
	(1) Control over military appointment	(2) Military purge (1=yes)	(3) Control over security apparatus	(4) Control over paramilitary	(5) Promotion based on personal loyalty	(6) Control over party executive committee appointment	(7) Executive selection	(8) Legislative selection	(9) Multi-party competition
Predecessor power	-0.037* (0.019)	-0.056** (0.015)	-0.031+ (0.017)	-0.012 (0.011)	-0.051* (0.024)	-0.050* (0.020)	0.060 (0.054)	-0.031 (0.038)	0.024 (0.024)
Year and leader fixed effects	✓	✓	✓	✓	✓	✓	✓	✓	✓
# of countries	106	106	106	106	106	106	112	112	112
Observations	3128	3128	3128	3128	3128	3128	3304	3218	3329

*Note:* This table presents the regression results on the effect of predecessors' strength on sub-indicators of personalism (Geddes, Wright, and Frantz 2019) and the presence/competitiveness of semi-democratic institutions (Svolik 2012). Standard errors are clustered at country level.

+  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$  (two-tailed test)

## 8 Conclusion

The allocation and contestation of power lie at the heart of authoritarian elite politics. While much of the existing literature has been about institutions, we study how informal, personalized constraints affect incumbent autocrats' ability to consolidate power. Focusing on the constraints imposed by retired leaders, we demonstrate that the presence of such constraints has a discernible negative effect on the incumbent leader's power, and that the relaxation of such constraints due to predecessors' deaths gives the incumbent the opportunity to expand his/her personal influence. We also provide suggestive evidence that predecessors constrain their successors' power primarily by reducing the successor's discretion over key personnel issues in both the military and the civilian bureaucracy.

Our findings serve as a cautionary note against the rapidly growing literature on authoritarian institutions. Although we do not deny that institutions do matter in autocracies in important ways, our analysis suggests that they are not the only thing that matters in those regimes. More importantly, since formal institutions are often deeply intertwined with and endogenous to political maneuvering undertaken by powerful political actors, one has to be extremely careful when making inferences about the independent effect of institutions.<sup>20</sup> In the case of our study, institutions often emerge in tandem with the need to cope with succession challenges, and the effectiveness of institutions as a form of executive constraint depends crucially on the informal political clout of retired leaders. Ignoring this hidden dimension can lead us to overstate the effectiveness of the overt institutions in constraining the power of incumbents.

More broadly, this study has two implications for understanding the relationship between individual leaders' power and regime institutionalization. First, we qualify the received view that personalism is necessarily antithetical to political institutions (e.g., Geddes, Wright, and Frantz 2019). The finding that strong predecessors can curb their successors' personal power instead suggests a more nuanced and dynamic interpretation: In some cases, powerful leaders may in fact be a

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<sup>20</sup>For related critiques of treating institutions as a causal variable, see Cheibub, Przeworski, and Saiegh (2004) and Pepinsky (2014). A recent study by Meng (2019b) also suggests that regimes with similar forms of institutions may differ vastly in terms of actual strength.

blessing for building binding institutions, as long as the political exigencies give them the right incentives. As illustrated by the case of leadership succession, departing leaders who are concerned with protecting their interests and legacies in retirement may want to put in place institutions that tie the hands of their successors, and those with greater personal power may be more likely to succeed in doing so because they have greater capacity to defend nascent institutions and to enforce a norm of institutional compliance among the elites. Systematic explanations of how and why strong institutions have taken root in a regime, therefore, have to take into account the role played by prominent individuals, such as George Washington in the United States, Chiang Ching-Kuo in Taiwan, or Deng Xiaoping in China.

Moreover, recognizing the importance of the personalistic input to executive constraint also suggests a different prediction of long-term institutional dynamics. Contrary to the commonly held view that institution-building is a path-dependent process whereby institutions, once put in place, become incrementally stronger as time goes on (Pierson 2000), the fact that effective executive constraints also need support from strong individuals suggests that strengthening institutional constraints in the short run may paradoxically sow the seeds for de-institutionalization in the long run: When the constraints over prior leaders are too strong, those leaders may no longer be able to accumulate enough power to effectively check their own successors. Instead of being on a monotonic path of progression, therefore, the rise and fall of institutions may be a cyclical phenomenon over the long historical *durée*.



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# Online Appendix (Not for Publication)

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## A Summary Statistics

Table A.1: Summary Statistics

	Mean	SD	Min	Max	N
Incumbent power	0.23	1.68	-7.27	5.15	3545
log # of books mentioning incumbent (numerator)	3.63	1.51	0	8.20	3856
log # of books mentioning highest non-CE figure (denominator)	3.57	1.43	0.69	9.25	3823
Predecessor power	0.29	0.60	0	4.36	4238
Predecessor power (dead predecessors only)	0.41	0.84	0	4.36	4238
Predecessor power (same country, different regime)	0.17	0.51	0	3.59	4238
Predecessor power (using median as CE instead of mean)	0.28	0.58	0	4.33	4238
Any living predecessor (1=yes)	0.32	0.47	0	1	4238
# of living predecessors	0.56	0.93	0	10	4021
Personalism index (GWF)	0.42	0.27	0	1	3771
Incumbent's time in office	10.6	9.93	0	82	4112
Incumbent's years of education	14.2	4.53	0	27	3973
Incumbent's years of military experience	9.00	12.3	0	50	4066
Incumbent's age	56.3	12.4	3	91	3816
Log GDP	9.61	1.66	4.99	16.0	4019
Log population	8.92	1.57	4.58	14.1	4179
Natural death sample	0.85	0.36	0	1	4238
Party-based regime (GWF)	0.51	0.50	0	1	3928
Military regime (GWF)	0.12	0.33	0	1	3928
Personalistic regime (GWF)	0.22	0.42	0	1	3928
Electoral autocracy	0.44	0.50	0	1	4127
Parliamentary system	0.28	0.45	0	1	3666
Military promotions (GWF personalism sub-indicator)	0.43	0.49	0	1	3801
Security apparatus (GWF personalism sub-indicator)	0.61	0.49	0	1	3801
Paramilitary (GWF personalism sub-indicator)	0.35	0.48	0	1	3801
Appointments to high office (GWF personalism sub-indicator)	0.64	0.48	0	1	3801
Party exec committee (GWF personalism sub-indicator)	0.32	0.47	0	1	3801
Rubber stamp party (GWF personalism sub-indicator)	0.31	0.46	0	1	3801
Institutions: competitiveness in executive selection (Svolik)	2.32	1.39	1	5	4189
Institutions: competitiveness in legislative selection (Svolik)	3.10	1.39	1	6	4104
Institutions: restrictions on political parties (Svolik)	2.25	0.75	1	3	4226

## B Measuring Personal Power from Google Ngram

In this technical appendix, we introduce in detail the processes of constructing the Ngram-based power measure. To briefly summarize, our procedure is as follows: First, we create a large, global database of politicians and identify those who were working concurrently with the national chief executive for each country-year. We then retrieve the number of times/number of books a chief executive's name (and any aliases) is mentioned in the Google Books corpus and scale the values by the same value for the highest non-CE figure in the same country-year.

## Constructing the Politician List

We construct the the global politician database using information from Wikidata, an open knowledge base hosted by Wikimedia Foundation. Wikidata is a structured database that allows researchers to retrieve the basic information about individuals recorded in Wikipedia entries, including their birth year, death year, key occupations, country affiliations, and so on. We create the list of politicians by identifying individuals whose Occupation Property (P106) includes Politician (Q82955).<sup>21</sup> For each of the politicians we identify, we also collect information of their birth and death years (P569 and P570) and country affiliation (P27).

Once we have a list of politicians, we can further refine it. The basic biographical information provided by Wikidata allows us to identify those who were working concurrently with the national chief executive in each country–year. Here, a “concurrent” politician is a living figure who is over the age of 20 and working in the same country as the chief executive in that year. Focusing only on active politicians gives us a reasonable comparison group against which the national chief executive’s power can be benchmarked.<sup>22</sup>

## Conducting Queries with Google Ngram

After compiling and refining the politician list, we use the list to conduct queries in the Google Books Ngram corpus.<sup>23</sup> While Google Books Ngram corpus is available in several different languages, we make all queries in English for consistency. We do, however, compare the English Ngram results with other languages when those languages are available in Google Ngram, and the general within-country patterns are often very similar.

We encountered two main problems during the query stage. The first problem is that a political figure may be called by many names or have the same name presented in different spelling systems. For example, “Mao Zedong”, “Mao Tse-Tung”, and “Chairman Mao” are three distinct Ngrams that refer to the same person (see Figure A.1). To address this issue, we take advantage of one nice feature of Wikidata, which is that it stores many different spellings and appellations of the same person in the Also Known As entry. When we conduct the Ngram queries, we go over all the possible aliases for an individual and record the highest value of all aliases as the Ngram value for each year. In this particular case, Mao Zedong’s combined Ngram is based on the Ngram for “Mao Tse-Tung” until 1966, “Chairman Mao” between 1966 and 1985, and “Mao Zedong” afterwards. This approach allows us to avoid underestimating a person’s influence by limiting ourselves only to their “official names” only.

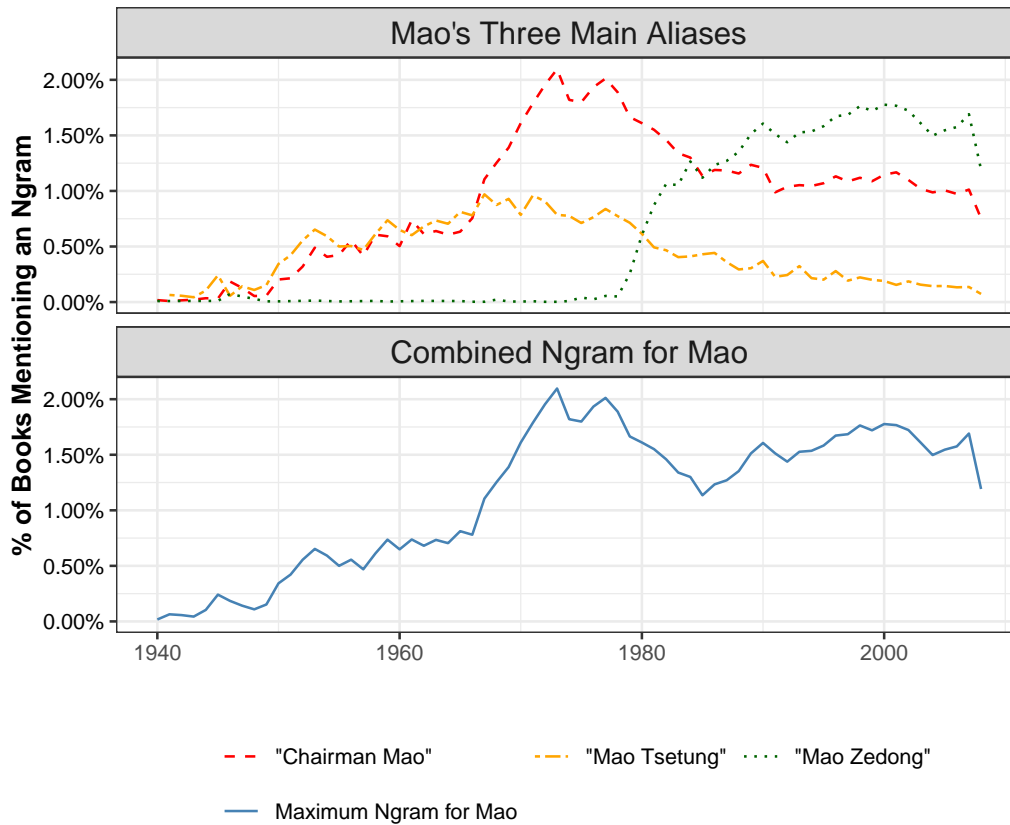
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<sup>21</sup>Wikidata provides a structured form to organize information based on two basic concepts: Item and Property. Item represents topics, concepts, or objects, while property represents the connection type between two items. In our case, we first find all items whose property instance of (P31) are Human (Q5). We then take the items whose Occupation property (P106) includes Politician (Q82955). For more details, see the concept section at <https://en.wikipedia.org/wiki/Wikidata>

<sup>22</sup>It is worth noting, though, that Wikidata does have some information about the positions that a politician held, which could be used to create a more refined group of concurrent politicians for some countries (e.g., only the most senior figures at the top of the system). However, such information is not widely available and defining consistent criteria across countries can be challenging. Therefore, we choose an approach that involves the least amount of human discretion. Our use of the highest Ngram among the non-CE as the denominator partially addresses the comparability problem because those with high Ngrams are usually senior national-level political figures.

<sup>23</sup>The Google Books Ngram corpus can be downloaded at <http://storage.googleapis.com/books/ngrams/books/datasetsv2.html>.

Figure A.1: The Mao Example

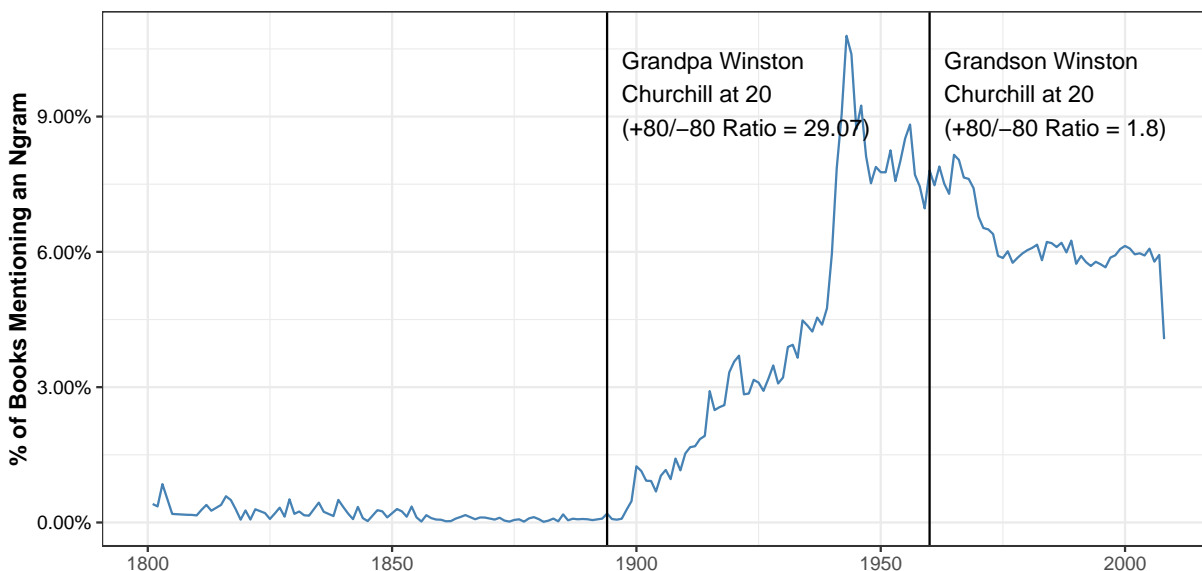


A second and related problem is that sometimes two different politicians may have the same or very similar names. To address this problem, we assign names and aliases to politician based on their time of active service. This works for the vast majority of cases. However, there are still some exceptions where two or more figures with similar or identical names are active during the same period of time (e.g., George Bush is an alias for both George H. W. Bush and George W. Bush). For such cases, we allocate the observed Ngram value in a pro-rated way. For each of the active politicians that share similar names, we first calculate the ratio of the average Ngram for his/her name 80 years after he/she is 20 to the average Ngram 80 years before he/she was 20. This ratio tells us approximately how much a particular politician contributes to the frequency of his/her name Ngram after starting his/her career in politics. We then compare the ratios among politicians with the same name and use them as weights (individual ratio divided by sum of ratios) to allocate the observed Ngram values.

To illustrate how this approach works, we use the example of Sir Winston Churchill, the famous former British prime minister who was born in 1874. Churchill's grandson was born in 1940 and was named after his grandfather. Figure A.2 shows the proportion of the Ngram *Winston Churchill* over time. The old Winston Churchill's 20th birthday was 1894. It is clear from the figure that the average frequency of *Winston Churchill* during the period 1894–1974 is much higher than the average frequency for the same Ngram in 1814–1893 (29 times higher). This suggests that there is a big difference before and after Sir Winston Churchill was 20 years old. By contrast, the ratio of 1960–2008 average to 1880–1960 average (the case of Sir Winston Churchill's grandson) is only

1.8. Therefore, when we assign the Ngram to these two individuals during the period when they were both active (alive and over the age of 20), the lion's share of the Ngram value is given to the grandfather Churchill and only a small proportion to the grandson.

Figure A.2: The Churchill Example



### Computing the Power Index

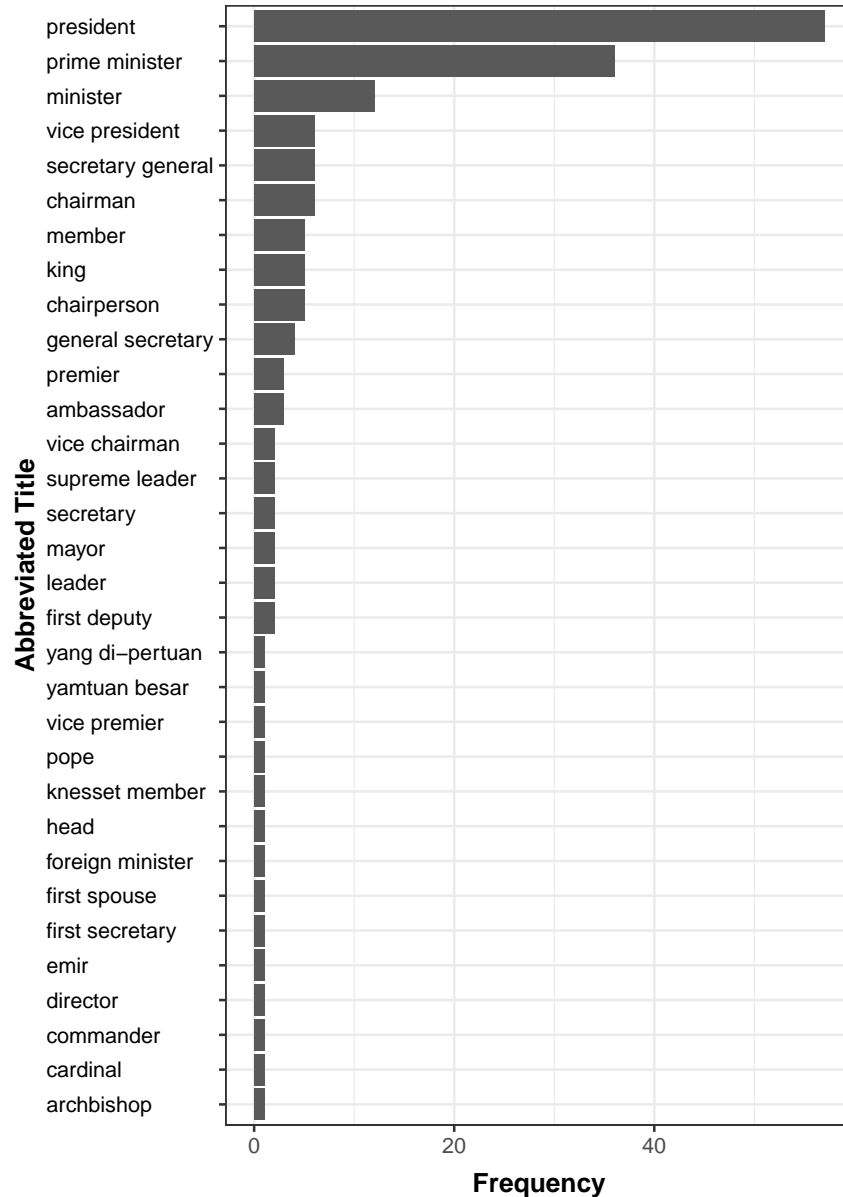
After completing the Ngram queries for all the names and aliases, we aggregate the Ngram values by individuals, recording the highest value of all aliases (if multiple aliases exist for a person) for each year. Our quantity of interest is the Ngram counts for the name of the national chief executive. We focus on the count of books that mention the chief executive's name rather than name count because a large number of publications is usually more indicative of one's influence than a large number of mentions per se. To the extent that Google Books Ngram has differential coverage of publications from different countries and time periods, we normalize the chief executive's annual Ngram with the highest annual Ngram from the living, non-CE politicians from the same country. The basic idea here is that while a national leader's Ngram may change due to many country and historical factors, it is their prominence relative to their colleagues that speaks most about their personal power.

To give readers a sense of who the non-CE figures are, we plot in Figures A.3 and A.4 the distributions of their (abbreviated) titles.<sup>24</sup> We can see that clearly all the titles indicate relatively senior political offices. The most common titles in our autocracy include words such as "president", "prime minister", "member (of a legislative body)", and "minister". Deputy leadership positions, such as vice presidents, vice prime ministers, and vice chairmen, are also quite common. The pattern is similar for the sample of democratic countries: the politicians whose Ngrams were used as denominators often have words such as "member (of a legislature)", "minister", and "president"

<sup>24</sup>We collect their titles from the periods in which they are used as the denominators, and pick the first two words of their titles. We remove the second word if it is a preposition.

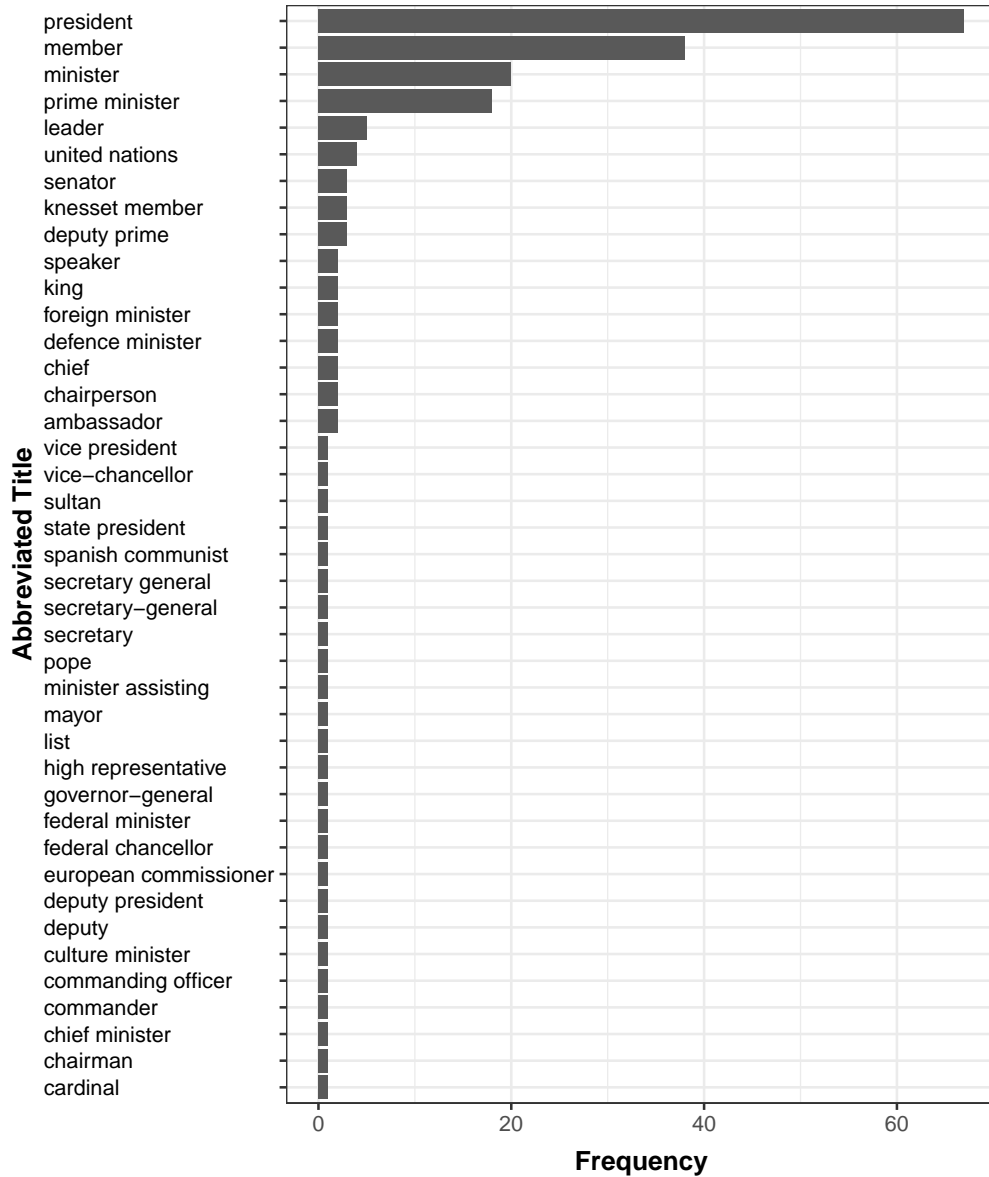
in their official titles. This gives us confidence that we are indeed capturing the relative Ngram difference between the chief executive and other senior political figures.

Figure A.3: Distribution of Titles for the Non-CE Politician with the Highest Ngram (Autocracy)



Note: This figure shows the distribution of titles for those who have the highest Ngrams among non-CE politicians (i.e., the denominators in the incumbent power index). The sample contains only non-democracies. Only the first two words of their titles are shown and counted. The second word is omitted if it is a preposition.

Figure A.4: Distribution of Titles for the Non-CE Politician with the Highest Ngram (Democracy)



Note: This figure shows the distribution of titles for those who have the highest Ngrams among non-CE politicians (i.e., the denominators in the incumbent power index). Only the first two words of their titles are shown and counted. The second word is omitted if it is a preposition.

## C Validation Exercises

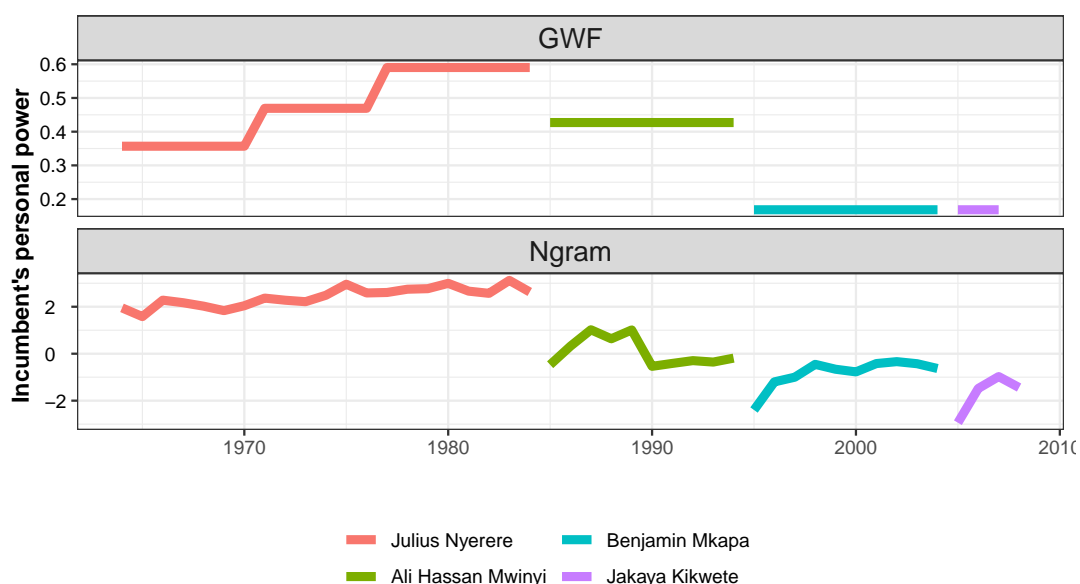
This section provides a series of validation tests on this measure.

## C.1 Examples

To get a more substantive sense of how our Ngram measure tracks the rise and fall of autocratic leaders' power, we provide three validating examples. In each example, our measure is examined alongside the GWF personalism index.

The first case we examine is Tanzania, a country ruled by the Tanganyika African National Union (TANU) party (later Chama Cha Mapinduzi party) since 1964. Tanzania was originally labeled a single-party regime, but began to hold semi-competitive multiparty elections since 1992. Four individuals have served as the chief political executive (President of Tanzania) during this period: Julius Nyerere, Ali Hassan Mwinyi, Benjamin Mkapa, and Jakaya Kikwete. In a way, Tanzania represents a relatively easy case because there is quite a clear difference between the leaders in terms of personal power. As the founding father of both the country and the ruling party, Nyerere was clearly the most influential figure of all. He was the longest serving president in the history of Tanzania and remained highly active after he left office in 1985. He was an open critic of the economic policies of his successor, Ali Hassan Mwinyi, and was also instrumental in ensuring that Benjamin Mkapa was chosen to succeed Mwinyi in 1995. As can be seen in Figure A.5, both the GWF personalism index and our Ngram-based power index capture the gradation of power well: Nyerere clearly overshadows all his successors by a sizable margin, and the personal power of the subsequent leaders becomes progressively smaller as Tanzania moves from one-party rule to a multiparty system.

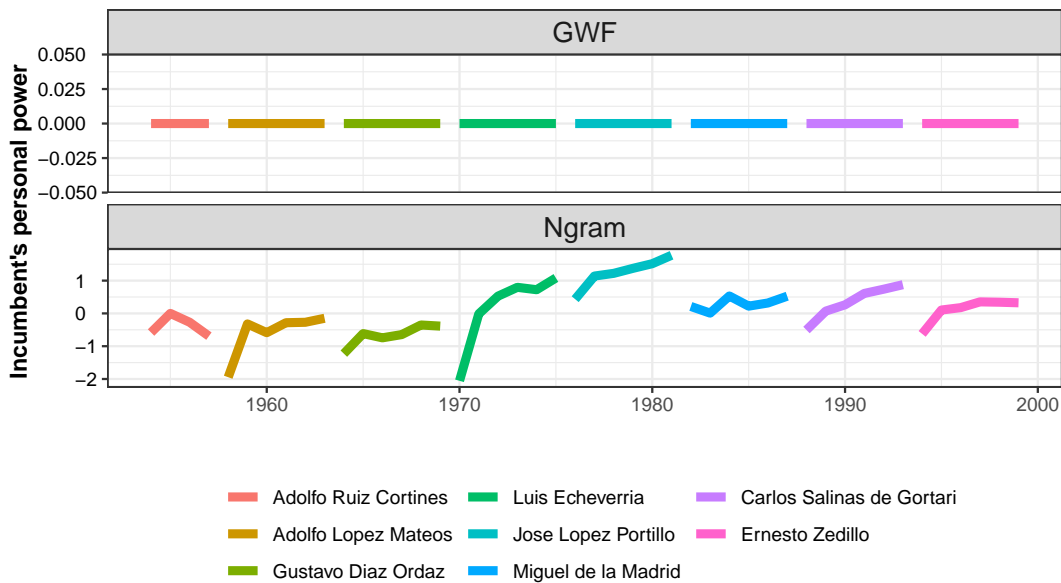
Figure A.5: Validating Example: Tanzania



The second case we look at is Mexico, which was a hegemonic party regime ruled by the Institutional Revolutionary Party (PRI) until the election of 2000 (Magaloni 2006). The Mexican case is particularly interesting because historically it is one of the most institutionalized autocracies that ever existed. Presidential successions in Mexico followed what is known as the *sexenio* rule, whereby each president only served a single, six-year term without re-election. In the meantime, presidents were also given the power to select their own successors. Figure A.6 illustrates how

the power of Mexican presidents varied between 1950 and 2000 according to the GWF personalism index and our Ngram-based measure. Here, we can see that while both measures broadly agree on the stability of personal power across the various Mexican presidents, some differences are also evident: According to the GWF, Mexico was rated as having zero personalism throughout this entire period. By contrast, our Ngram-based measure suggests that while the overall pattern of presidential power is stable, there are nonetheless discernible variations within each president's tenure. Typically, each Mexican president seems to start with relatively low personal influence but gradually builds up his profile as he spends more time in office, reaching the peak at the end of his tenure. Moreover, our measure also indicates that some presidents may be somewhat more powerful than others. Luis Echeverría, for example, appears to have notably greater influence than his several predecessors. This seems to be consistent with the general impression that his administration was the one that initiated several major shifts in domestic and foreign policies. Echeverría was also one of the presidents who remained politically active after retirement. After stepping down from office, he even allegedly attempted to overstep the practice of *sexenio* by imposing appointees on his successor and continuing to use the presidential telephone networks (Castaneda 2001). Our Ngram-based measure seems to capture the distinct influence of Echeverría in a way that the GWF personalism index does not.

Figure A.6: Validating Example: Mexico

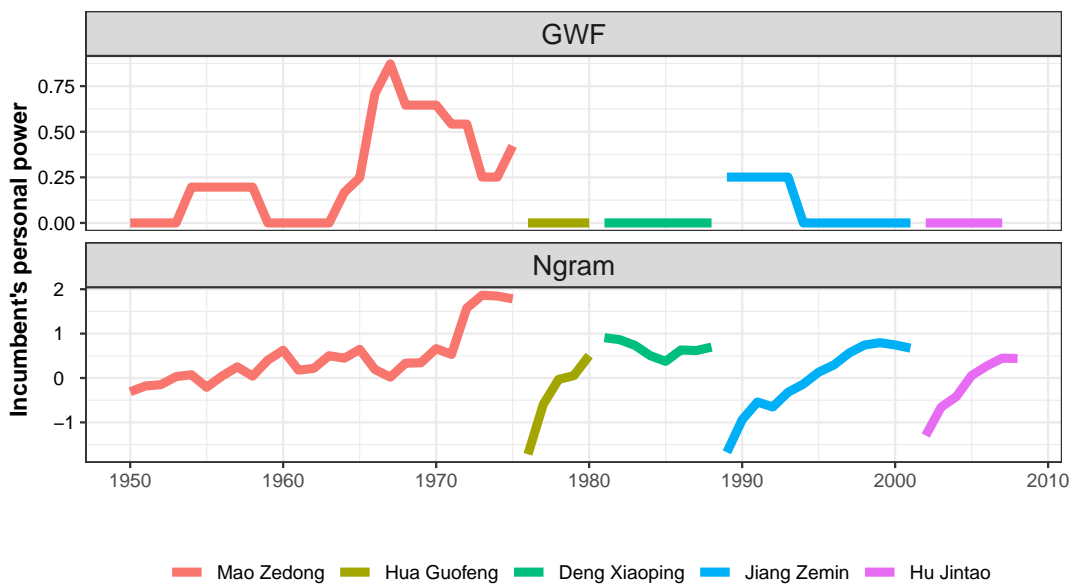


Finally, Figure A.7 presents our third case study: China under the Chinese Communist Party (CCP). The Chinese case is a rather challenging one because there have been many top leaders in the past with substantial variations in their relative power. As we can see, both the GWF and our Ngram-based measure suggest that the Maoist era was a highly personalistic period. In particular, there was a significant spike in Mao's personal power around 1967, which marked the onset of the Cultural Revolution. There is greater disagreement between the two measures for the post-Mao period. According to the GWF personalism index, for most of the post-Mao era, the CCP maintained a minimal level of personalism, except for a brief period between 1989 and 1993.



However, most China observers would recognize that the levels of power enjoyed by the four top leaders who served during this period were very different. Hua Guofeng, who was briefly in power after Mao's death but quickly ousted by a group of revolutionary veterans, was probably the least powerful of the four. By contrast, as the "core" of the second generation of CCP leadership and a long-time protégé of Mao, Deng Xiaoping was probably the most powerful. The other two leaders, Hu Jintao and Jiang Zemin, were somewhere in between: both of them held power longer than Hua but they came from a more technocratic background and lacked strong personal charisma. For Jiang Zemin, in particular, the general consensus is that he began his tenure as a relatively weak, transitional figure, but became substantially more powerful after his predecessor, Deng Xiaoping, passed away in 1997 (Kuhn 2004). For Hu Jintao, he similarly attempted to build up his power gradually after he came to office, but he was only able to do so to a more limited degree because Jiang was still alive and active at the time. These subtle variations in personal power both across and within leaders are picked up by our Ngram-based measure, but are not evident in the GWF personalism index.

Figure A.7: Validating Example: China



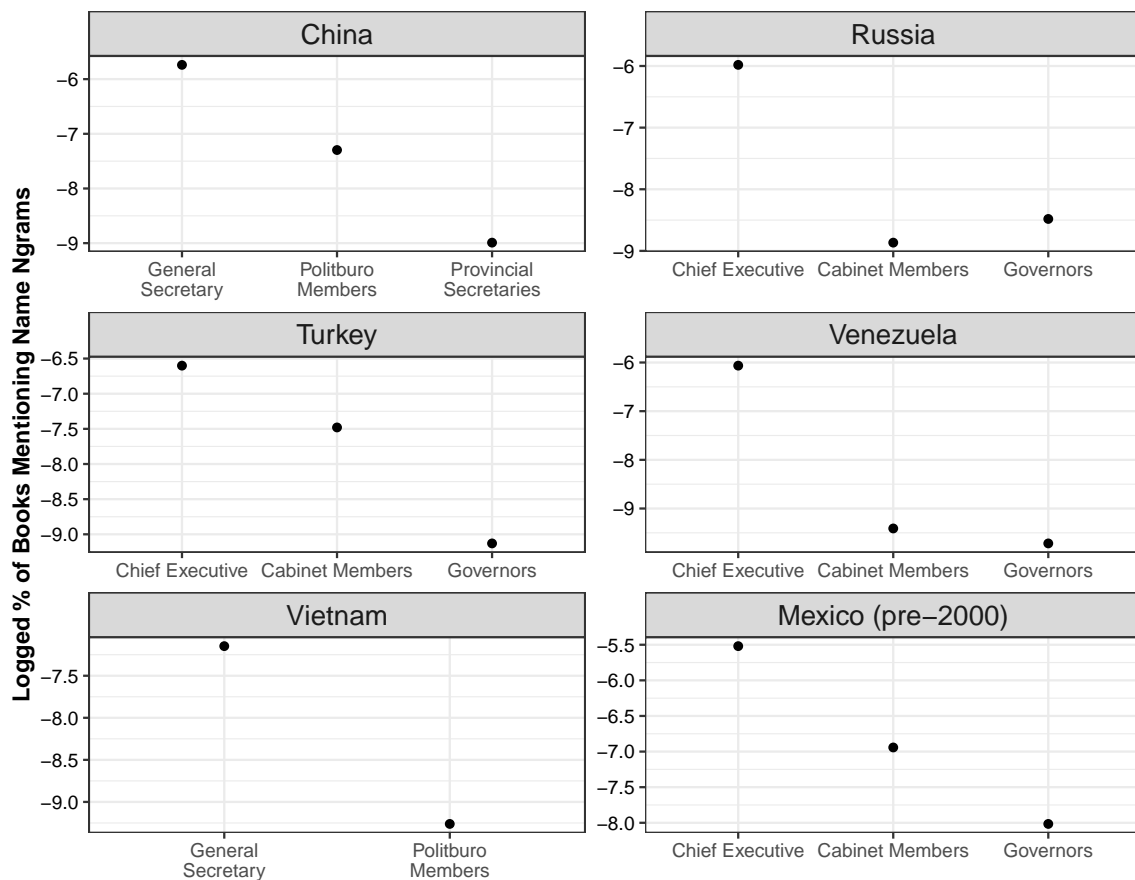
## C.2 Correlation with the Formal Political Hierarchy

The preceding case studies suggest that our Ngram-based measure provides a sensible way to capture the variations in leaders' power in major non-democracies. In this and the following sections, we provide evidence on the validity of our measure by examining its empirical associations with other important indicators of power in a more systematic fashion.

As a starting point, we examine how our measure varies across individuals holding offices with different levels of formal authority. To the extent that formal positions convey political power, our basic expectation is that those who are higher up in the political hierarchy should have higher Ngram values than more junior figures. To verify whether this is the case, we return to the politician list that we constructed. We compile a list of politicians who have held key positions in

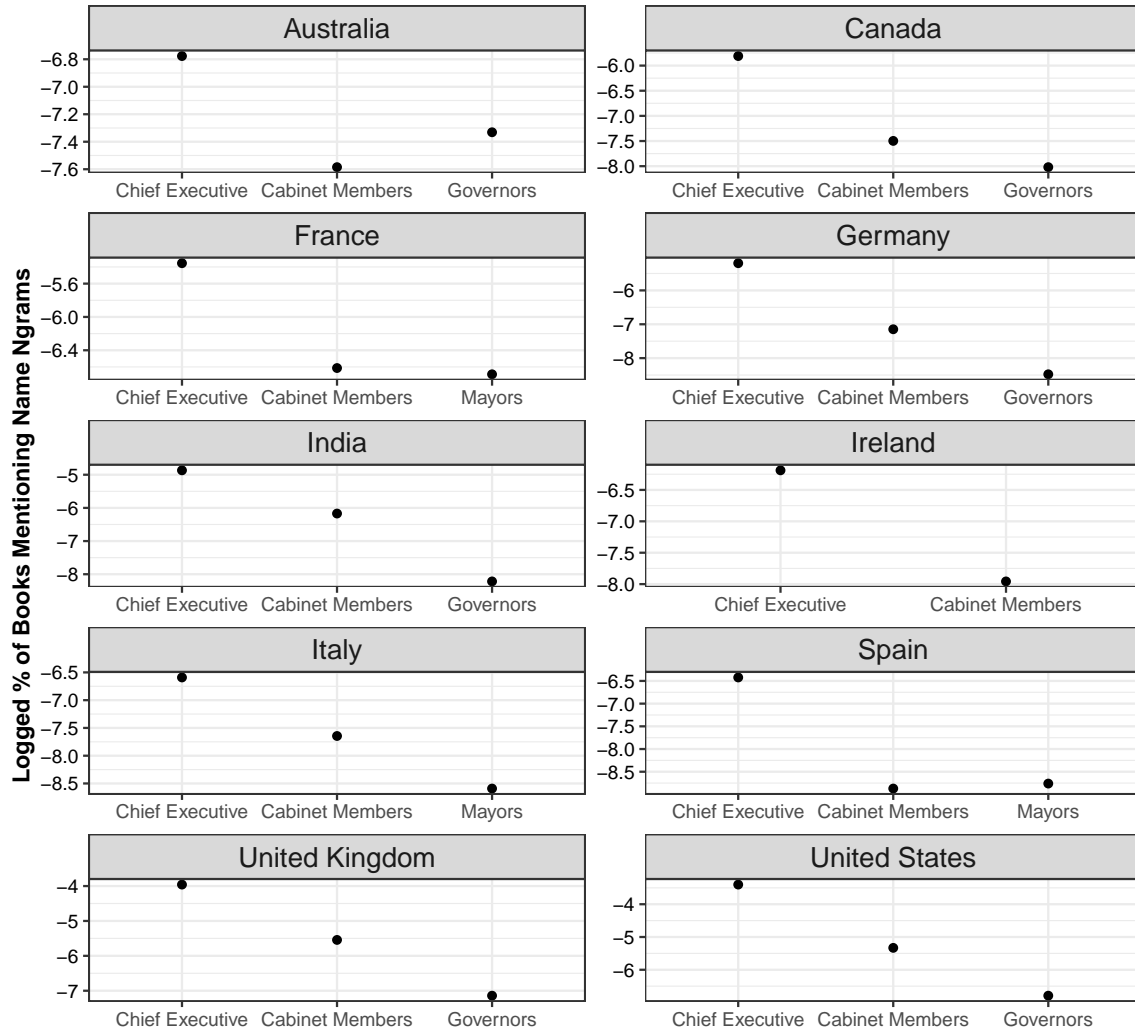
major countries and calculate the average (book-based) Ngram value for their names during the period when they held those key positions. We focus on positions at three different levels: national chief executives (e.g., presidents, prime ministers), cabinet members, and governors. For some regimes that adopt a communist-style political system, these levels correspond to general secretary, politburo members, and provincial party secretaries, respectively. Figure A.8 displays the average Ngram of individuals holding positions in these three levels in autocracies, and Figure A.9 is for democracies. Consistent with our expectation, we can see that in both figures, there are clear differences in Ngram values between individuals holding positions of different levels of seniority: Those occupying national chief executive positions have the highest Ngram values in all countries. Cabinet members as a group usually have lower Ngram values than the president or the prime minister but higher Ngram values than governors. It is also worth noting that in most of the countries, the difference between cabinet members and governors is much smaller than the difference between the chief executive and cabinet members, suggesting that the rate of change in power as one goes down the hierarchy may sometimes be log-linear instead of linear.

Figure A.8: Variation in Ngram across Formal Positions: Autocracies



Note: This figure presents the Ngram-based power for individuals holding specific formal positions in six non-democratic countries. The y-axis is the (logged) average percentage of books in which politicians' name Ngrams are mentioned (during the period when they held offices at a given level).

Figure A.9: Variation in Ngram across Formal Positions: Democracies



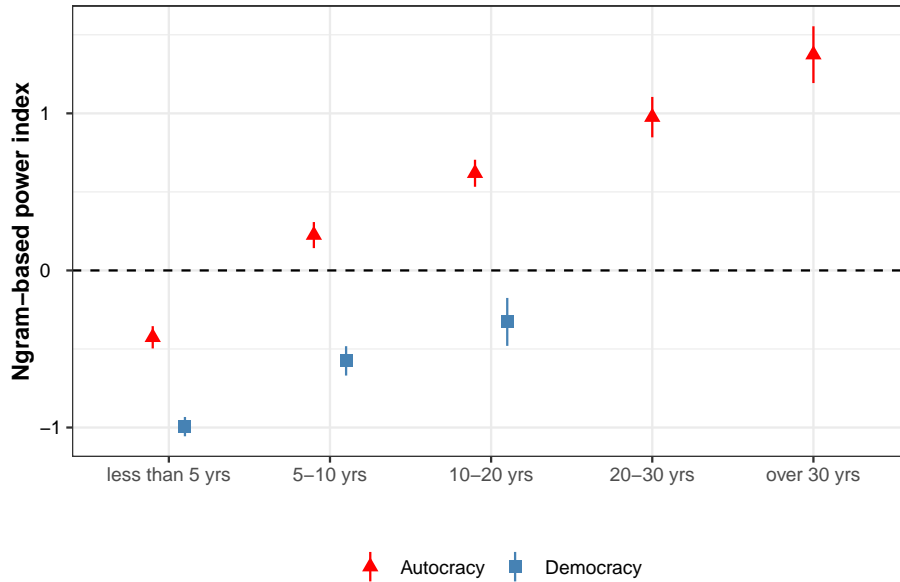
Note: This figure presents the Ngram-based power for individuals holding specific formal positions in ten democratic countries. The y-axis is the (logged) average percentage of books in which politicians' name Ngrams are mentioned (during the period when they were holding offices at a given level).

### C.3 Correlation with Leaders' Tenure

Another way to evaluate our measure is to examine how it changes within a given leader's tenure. Typically, we expect a political leader's power to become greater as he/she stays in office longer.<sup>25</sup> In Figure A.10, we plot the relationship between the Ngram-based power index and national chief executive's tenure. We do so separately for leaders in democracies and non-democracies. We can see that in both types of regimes, leaders become more influential as their tenure extends. Notably, we can see that the Ngram values for leaders in autocracies not only start at a higher level than their counterparts in democracies, but also increase more rapidly over time.

<sup>25</sup>For related theoretical discussion, see Chapter 2 of Svobik (2012).

Figure A.10: Variation in Ngram Over Leaders' Tenure



Note: This figure shows how Ngram-based power changes over a leader's tenure. We plot the relationship separately for democracies and autocracies. The definition of democracy is based on Boix, Miller, and Rosato (2013) and the vertical bars represent the 95% confidence intervals.

## C.4 Correlation with Electoral Outcomes

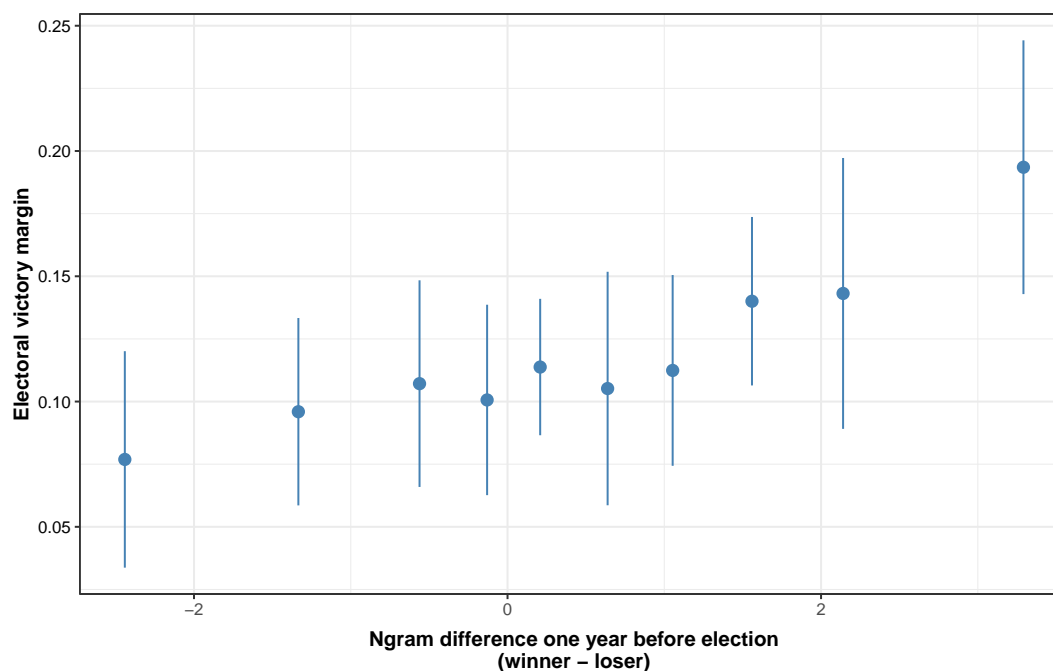
Third, we can also verify our measure by studying how it correlates with electoral outcomes. To the extent that elections are essentially a civilized form of power contest (Przeworski 2018), the outcome of elections should reflect the power parity between contending candidates. Those who have the ability to marshal a great amount of resources or the loyalty of a large group of individuals are more likely to emerge victorious in the electoral arena. We thus expect that such strength will also be reflected in candidates' Ngram values.

To verify whether this is indeed the case, we collect information about the leading candidates<sup>26</sup> and outcomes of national-level general elections for all democratic countries between 1950 and 2008. We obtain each candidate's Ngram value one year before the election and examine how these values correlate with candidates' performance in elections. Figure A.11 shows how the difference between the winner's and (closest) loser's Ngram values corresponds to the electoral margin of the winner. We can see that there is a clear, positive relationship. The winner's margin over the closest loser becomes progressively greater as his/her Ngram value gets larger relative to that of the opponent. In Table A.2, we estimate the association between candidates' Ngram and their electoral performance. The first two columns show that the winner's margin is positively associated with the winner's own Ngram value one year before the election and negatively associated with that of the closest loser. This pattern holds even when we limit the sample to open-seat elections in which no incumbent is running. Columns 3 and 4 further examine the vote shares for the winner and the closest loser separately. Here, we see that a candidate's vote share is more closely associated with

<sup>26</sup>For simplicity, we only focus on the two candidates who won the first and second highest vote share.

his/her own Ngram than with that of his/her opponent's.

Figure A.11: Ngram and Vote Margin



Note: This figure presents the relationship between Ngram-based power and electoral vote margin in national chief executive elections in a binned scatter plot. The x-axis is the difference in Ngram counts between future winners and losers one year before the election, and the y-axis is the winner's vote margin.

Table A.2: Ngram-Based Power and Electoral Outcomes

	Win margin		Winner's vote share	Loser's vote share
	(1) Full sample	(2) Open seat	(3) Full sample	(4) Full sample
Winner's Ngram (1 yr before election)	0.021** (0.007)	0.023* (0.009)	0.016* (0.007)	-0.005 (0.006)
Loser's Ngram (1 yr before election)	-0.019** (0.006)	-0.020** (0.008)	-0.001 (0.005)	0.018** (0.006)
Year FE	✓	✓	✓	✓
Observations	390	174	390	390

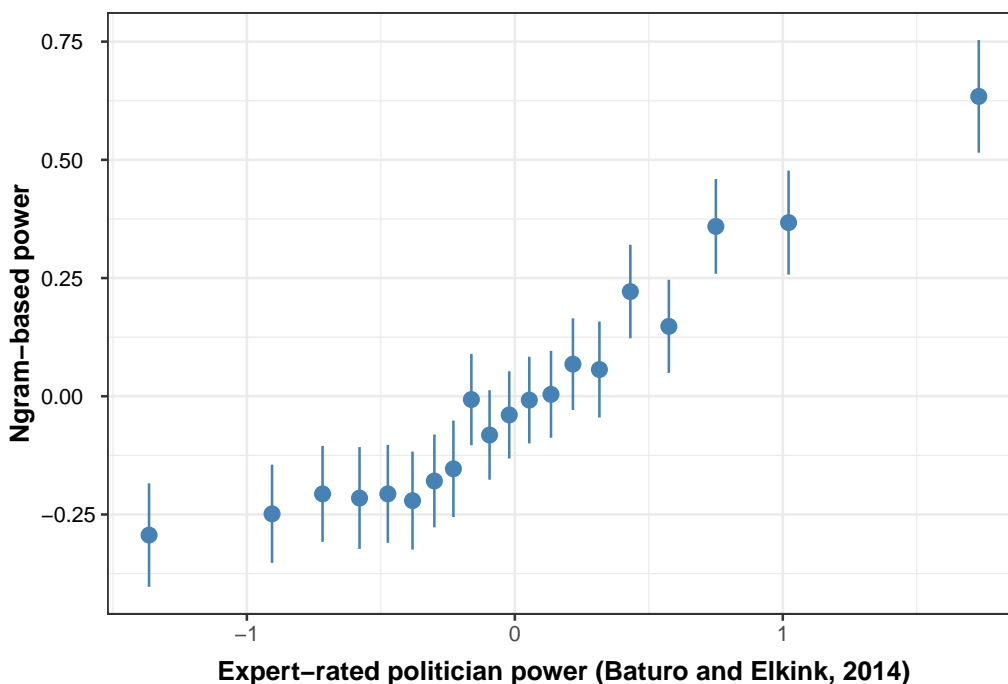
**Note:** This paper presents the regression results on the association between the antecedent Ngrams of candidates and their performance in the elections of national chief executives. The results suggest that candidates with greater power are more likely to win elections and have larger winning margins. Standard errors are clustered at country level.

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$  (two-tailed test)

## C.5 Correlation with Expert Rating of Politicians' Power

A third way to validate the Ngram-based power index is to compare it with country experts' assessments of political leaders' power. While expert-rated data are not available in all countries, one such dataset can be found in the context of Russia. This dataset, *100 Most Influential (Leading) Politicians of Russia*, provides monthly data on the perceived influence of individuals on politics and policies between 1994 and 2011 based on input from a panel of experts. The detailed format and methodology of the survey are discussed in Baturo and Elkink (2014). We aggregate this dataset to individual-year level and match each politician (a total of 484 unique individuals) with his/her Ngram value of that year. Figure A.12 presents the binned scatter plot of the relationship between expert rating and our Ngram-based power measure. We can see that there is a strong, positive, and almost linear relationship between the two. Politicians who are rated as more powerful by experts in a year also tend to have higher Ngram values from that year. Table A.3 further presents the results from a regression analysis where we control for other possible confounders, such as age and fixed effects for the survey year and the formal office title. In a way, including these controls allows us to separate the power specific to an individual from the power associated with the position he/she holds. Again, we see that the two measures are strongly and positively correlated, and the relationship continues to hold even after the influence of their formal posts is accounted for.

Figure A.12: Comparison with Expert Rating of Russian Politicians



Note: This figure presents the relationship between our Ngram-based power measure and expert-rated scores of Russian politicians' power, controlling for survey and position fixed effects. The expert-rated data are from Baturo and Elkink (2014).

Table A.3: Ngram-Based Power and Expert-Rated Power of Russian Politicians

	Expert-rated power	
	(1)	(2)
Ngram-based power	0.208** (0.078)	0.134** (0.030)
Age		-0.016** (0.005)
Year and position FE		✓
Adjusted R square	0.07	0.72
Observations	929	929

*Note:* This table presents the regression results on the association between the Ngram-based power measure and expert rating for Russian politicians. The rating data are from Baturo and Elkind (2014). The second column includes fixed effects for survey date and politicians' formal positions. Standard errors are clustered at individual level.

<sup>+</sup>  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$  (two-tailed test)

## C.6 Correlation with GWF's Personalism Index

Table A.4: Correlation between GWF and Ngram Power Measures

	Personalism (GWF)			
	(1)	(2)	(3)	(4)
Incumbent power (Ngram)	0.047*** (0.011)	0.033*** (0.008)	0.014** (0.005)	0.015*** (0.005)
Log population				0.230** (0.105)
Log GDP				-0.009 (0.033)
Tenure length				0.005 (0.007)
Country and year fixed effects		✓		
Leader and year fixed effects			✓	✓
Adjusted R <sup>2</sup>	0.09	0.63	0.87	0.87
Observations	3477	3476	3393	3236

**Note:** This table presents the regression estimates for the relationship between GWF personalism index and our Ngram-based power measure. Standard errors are clustered at country level.

+  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$  (two-tailed test)



## D Detailed Results on Robustness Checks

Table A.5: Effect of Predecessor Power on Incumbent's Total Tenure Length

	Incumbent's tenure length			
	(1)	(2)	(3)	(4)
Predecessor power when incumbent starting office	-1.515** (0.598)	-1.586** (0.686)		
Any predecessor when starting office (1=yes)			-2.649** (1.212)	
Share of tenure with one or more predecessor				-3.605*** (1.143)
Party-based (GWF)		0.568 (1.788)	0.920 (1.929)	1.086 (1.842)
Military (GWF)		-1.062 (1.791)	-0.249 (2.030)	0.059 (2.072)
Personalistic (GWF)		1.853 (1.878)	2.683 (1.997)	3.133 (1.980)
Electoral autocracy		-1.948 (1.553)	-1.970 (1.607)	-1.987 (1.596)
Age at entry year		-0.103* (0.054)	-0.109* (0.056)	-0.111* (0.056)
Year of education		-0.173 (0.159)	-0.209 (0.165)	-0.200 (0.161)
Year of military experience		-0.016 (0.042)	-0.020 (0.044)	-0.018 (0.045)
Country fixed effects	✓	✓	✓	✓
R <sup>2</sup>	0.33	0.48	0.47	0.48
Observations	575	396	381	381

**Note:** This table presents the regression results using incumbent leaders' total tenure length as the alternative outcome. The analysis is at leader–regime level. The key independent variable is the average predecessor power throughout an incumbent's entire tenure under a given political regime. The third column uses a binary indicator for whether a living predecessor was present when the incumbent leader started office, and the fourth column uses share of an incumbent leader's tenure where there is at least one living predecessor. Standard errors are clustered at country level.

+  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$  (two-tailed test)

Table A.6: Robustness: Using Median Ngram to Measure Predecessors' Power

	Incumbent personal power (Ngram)		Incumbent personalism (GWF)	
	(1) OLS	(2) GMM	(3) OLS	(4) GMM
Predecessor power (median value when as CE)	-0.216* (0.089)	-0.201* (0.086)	-0.033** (0.011)	-0.028** (0.010)
Year and leader fixed effects	✓	✓	✓	✓
Lagged DV ( $t - 1, t - 2, t - 3$ )	✓	✓	✓	✓
# of countries	103	103	106	106
Observations	2852	2882	3095	3051

*Note:* This table presents the results using a predecessor power measure based on the tenure median of the highest living predecessors. Standard errors are clustered at country level.

+  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$  (two-tailed test)

Table A.7: Robustness: Using the Immediate Predecessor's Power as the Independent Variable

	Incumbent personal power (Ngram)		Incumbent personalism (GWF)	
	(1) OLS	(2) GMM	(3) OLS	(4) GMM
Immediate predecessor's power	-0.922** (0.202)	-0.632* (0.270)	-0.173* (0.082)	-0.178+ (0.101)
Year and leader fixed effects	✓	✓	✓	✓
Lagged DV ( $t - 1, t - 2, t - 3$ )	✓	✓	✓	✓
# of countries	103	103	106	106
Observations	2852	2882	3095	3051

*Note:* This table presents the results on the effect of *immediate* predecessor's strength on the incumbent leader's power. Standard errors are clustered at country level.

+  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$  (two-tailed test)

Table A.8: Robustness: Using A Binary Indicator for Predecessor Presence

	Incumbent personal power (Ngram)		Incumbent personalism (GWF)	
	(1) OLS	(2) GMM	(3) OLS	(4) GMM
Any living predecessor (1=yes)	-0.268** (0.091)	-0.250** (0.084)	-0.037* (0.014)	-0.032* (0.014)
Year and leader fixed effects	✓	✓	✓	✓
Lagged DV ( $t - 1, t - 2, t - 3$ )	✓	✓	✓	✓
# of countries	103	103	106	106
Observations	2852	2882	3095	3051

*Note:* This table presents the results using a binary indicator for any living predecessor presence as the independent variable. Standard errors are clustered at country level.

+  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$  (two-tailed test)

Table A.9: Robustness: Using the Number of Living Predecessors as the Measure for Predecessor Presence Variable

	Incumbent personal power (Ngram)		Incumbent personalism (GWF)	
	(1) OLS	(2) GMM	(3) OLS	(4) GMM
# of living predecessors	-0.225** (0.064)	-0.228** (0.061)	-0.020** (0.007)	-0.019** (0.006)
Year and leader fixed effects	✓	✓	✓	✓
Lagged DV ( $t - 1, t - 2, t - 3$ )	✓	✓	✓	✓
# of countries	103	103	103	103
Observations	2852	2882	2977	2926

*Note:* This table presents the results using a count measure for the number of living predecessors as the independent variable. Standard errors are clustered at country level.

+  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$  (two-tailed test)

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