Online Appendix (Not for Publication) for
In the Shadows of Great Men: Retired Leaders and Informal Power Constraints in Autocracies

A Summary Statistics

Table A.1: Summary Statistics for Main Dataset

	Mean	SD	Min	Max	N
Incumbent power (Ngram)	0.31	1.39	-5.75	4.47	2009
Incumbent power (# of mentions)	0.33	1.66	-7.02	5.53	2009
Incumbent power (native language)	0.11	1.46	-5.75	4.47	2000
Incumbent power (Ngram relative to 90th percentile)	2.62	1.31	0	7.69	1737
Incumbent power (Ngram relative to 10th highest non-CE)	2.54	1.42	-2.94	7.65	1736
Tenure length (capped at 40 years)	9.29	8.79	1	40	2089
Predecessor power	0.25	0.52	0	2.51	2096
Any living predecessor (1=yes)	0.29	0.46	0	1	2096
Predecessor power with exponential decay ($\tau = 5$)	0.093	0.24	0	2.05	2096
Predecessor power with exponential decay ($\tau = 10$)	0.14	0.32	0	2.27	2096
Predecessor power with exponential decay ($\tau = 20$)	0.18	0.39	0	2.38	2096
Predecessor power (current)	1.37	2.31	0	8.61	2096
Predecessor power (multiple languages)	0.22	0.46	0	2.08	2096
Predecessor power (maximum dead predecessor)	0.83	0.90	0	4.33	2096
Predecessor power (same country, different regimes)	0.098	0.33	0	1.86	2096
Log real GDP	23.9	1.94	18.5	30.1	1849
Log population	16.0	1.72	11.5	21.1	1966
English is official language	0.17	0.37	0	1	2094
Personalism index (GWF)	0.37	0.27	0	1	1588
Power consolidation index (GS)	0.087	1.32	-2.47	2.47	1689
Party-based regime (GWF)	0.52	0.50	0	1	1928
Military regime (GWF)	0.095	0.29	0	1	1924
Personalist regime (GWF)	0.13	0.33	0	1	1926
Incumbent controls appointments to party executive committees (GWF)	0.25	0.43	0	1	1641
Incumbent promotes military loyal to him/her	1.18	0.78	0	2	1641
Incumbent imprisons/kills military officers (GWF)	0.24	0.43	0	1	1641
Incumbent controls security apparatus (GWF)	0.58	0.49	0	1	1641
Competitiveness in executive selection (Svolik)	2.29	1.35	1	5	1659
Competitiveness in legislative selection (Svolik)	3.32	1.43	1	6	1656
Extent of multi-party competition (Svolik)	2.21	0.79	1	3	1683

B Measuring Political Leaders' Power from Google Ngram

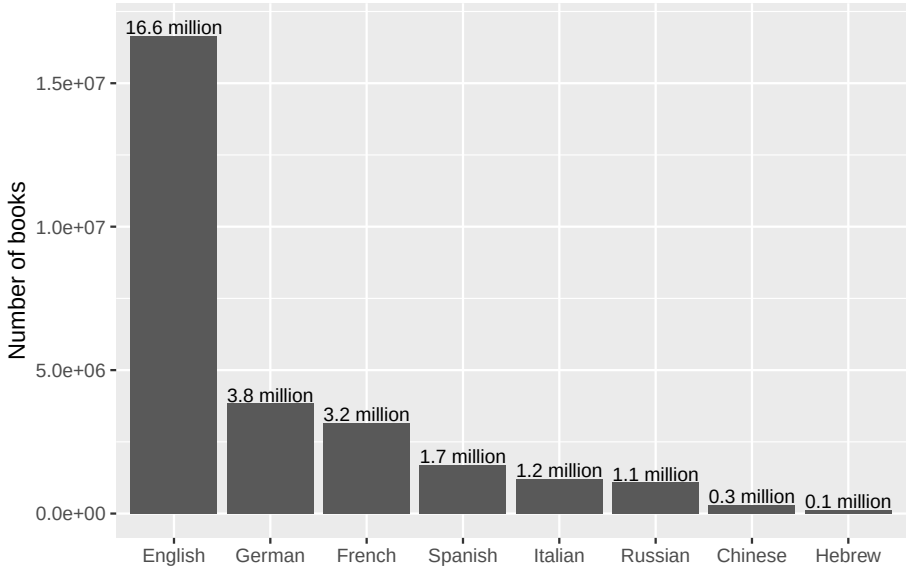
In this section, we present additional details about the processes by which we constructed the Ngram-based power measure. We begin by discussing the types of publications included in the Google Ngram database (and the associated the Google Books catalogue), and the possibility of a temporal lag between publication and real-world events. We then go through the procedures for constructing the power index and the various key processing decisions that we take at every step. The next section (C) presents a series of validation tests.

B.1 Details about Publications Underlying Google Ngram

Overview

Google Ngram is a linguistic database that provides information on the number of times a word (unigram) or short phrase (n-gram) appears in printed publications each year (Michel et al. 2010). The database is built on a text corpus of 28 million publications in Google Books' digital catalogue (40 million in total as of 2019).[38] The text corpus includes publications produced over two centuries (1800 to 2019), and contains a total of over 3 trillion words and phrases from eight different languages (English, Chinese, French, German, Italian, Hebrew, Russian, and Spanish). Figure A.1 visually illustrates the breakdown of the underlying publications by language. We see that English-language publications have an overwhelming presence (59.3%), much greater than publications in all seven other languages combined. This reflects the fact that Google Books' digitization initiative has so far worked primarily with libraries in the U.S.

Figure A.1: Publication Count by Language



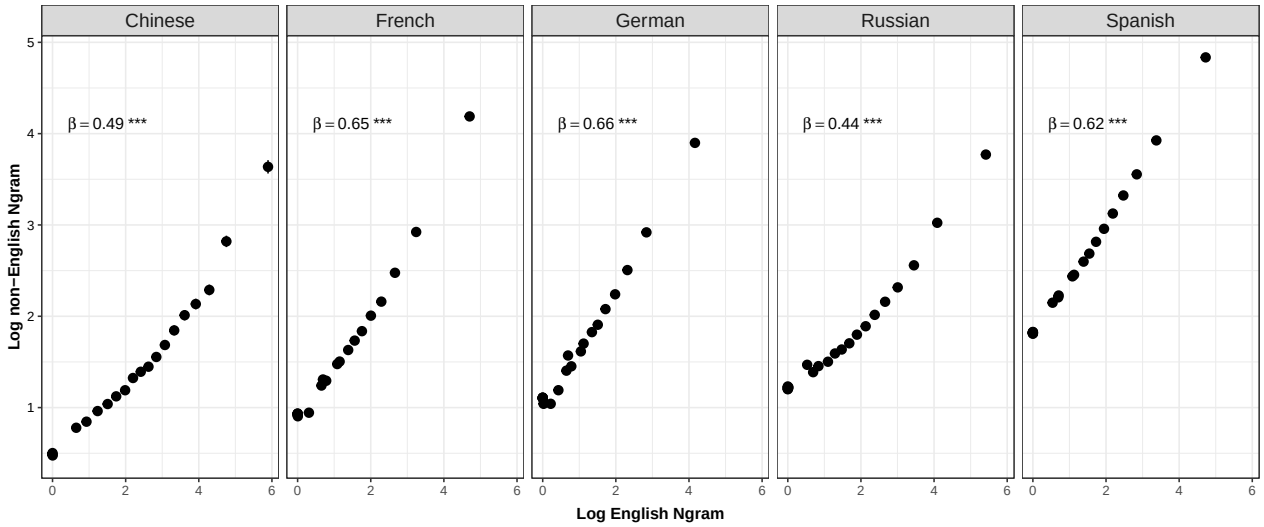
To get a sense of how a leader's annual mentions in English Ngram compare with those in non-English sources, we construct five datasets for countries that speak the following five languages, respectively:[39] Chinese, French, German, Russian, and Spanish. Each dataset has a person–year format and records the annual Ngram counts for all regime leaders and elites in both English and the native language. Figure A.2 presents the binned scatter plot for the log-log relationship between English Ngram values and non-English ones. The coefficients printed on the top-left corner of each figure are regression coefficients. We see that for all five non-English languages, there is a strong

[38] We use Version 3 of the Ngram database, which is over three times larger than the previous release (Version 2) and covers up to 2019. The data can be downloaded at https://storage.googleapis.com/books/ngrams/books/datasetsv3.html.

[39] We exclude two other languages, Italian and Hebrew, because no autocratic regimes in our sample use these two languages as their official language.

and monotonic relationship between a politician's native-language Ngram and his/her Ngram in English. A 1% increase in English Ngram is on average associated with about a 0.44% to 0.66% increase in the native-language one. The correlation is largest for languages that are linguistically closer to English (e.g., French, German, and Spanish), but are somewhat weaker for those that are more distant (e.g., Russian and Chinese). Given the strong association between English and non-English sources, and the fact that the English publications are much more numerous than other languages, we decided to use only the English-language Ngram when constructing the main power index. As a robustness check, however, we also constructed a multi-language version of the power index, using each country's native-language Ngram (if available) as input. The results using the multi-language Ngram are reported in Table A.13; they are very similar to what we obtain using the English-language-only Ngram.

Figure A.2: Publication Count by Language



Note: The figure presents the binned scatter plots on the relationship between the English Ngram for politicians' names and the Ngrams from politicians' native (non-English) languages. Each dataset is in the person–year format, covering all living politicians from countries with the same native language. There are 2 countries/regions in our sample whose native language is Chinese, 19 whose native language is French, 4 German, 4 Russian, and 18 Spanish. The circles indicate the averages for the 20 equal-observation bins. The numbers printed in the top-left of each sub-graph are coefficients from log-log regressions, which can be interpreted in terms of percentage changes.

Publication Types

Our power index essentially relies on counting the number of publications that contain political leaders' names within the Ngram corpus. It is therefore useful to know a bit more about what these publications are. Unfortunately, Google currently does not provide detailed bibliographic information associated with Ngram searches. However, since we know that the Ngram corpus is based on Google Books, one alternative is to query leaders' names in the Google Books catalogue and examine the metadata of publications in the query results. This approach, while indirect, allows us to get at least some clues about the characteristics of the publications that form the basis of Ngram counts.

We used Google Books' API to search publications that contain the names (or associated aliases) of autocratic leaders in our sample. We were able to identify a set of 280,424 unique publications with at least one leader name mention. Of these publications, less than half (44.5%) turn out to be standard "books"—i.e., publications with an International Standard Book Number (ISBN). The rest (55.5%) include a very diverse set of items that are also commonly found in university libraries, such as policy reports, memos, pamphlets, government documents, yearbooks, magazines, and newspapers.[40] The share of English-language publications in this set mirrors the proportion of English-language publications in the entire Ngram corpus (both around 59%).

To look further into the content of these publications, we randomly sampled 2,000 items from this 280,000+ set and manually coded their types. Table A.2 presents the distribution of publication types (in descending order). We see that "academic monographs" and "popular books" are the two leading categories in this sample. Items in these categories are conventional books, which can sometimes take years to write and publish.[41] However, these two categories account for less than half of the publications in the sample. Moving down the list, the next six categories (Categories 3 to 8) represent publications that are either published regularly (e.g., magazines, newspapers, yearbooks) or can be published (reprinted) within a relatively short period of time (e.g., official documents, leaders' essays/speeches, policy reports). These relatively more "timely" publication categories make up about 46% of the sample, about the same size as the academic and popular books combined.

Table A.2: Publication Types From a Random Sample of 2,000 Google Book Publications with Leader Name Mentions

	Frequency	Percentage (%)	Cumulative %
1. Academic monographs	524	26.20	26.20
2. Popular books	453	22.65	48.85
3. Magazines and newspapers	260	13.00	61.85
4. Almanacs and yearbooks	178	8.90	70.75
5. Official publications by governments or supranational organizations	162	8.10	78.85
6. Political leaders' writings and speeches	143	7.15	86.00
7. Reports or memos by think tank/research institute/NGO	116	5.80	91.80
8. Reprints of other published works	63	3.15	94.95
9. Textbooks or teaching manuals	43	2.15	97.10
10. Other (unclassified)	37	1.85	98.95
11. Graduate theses/doctoral dissertations	21	1.05	100.00
Total	2000	100.00	

[40] When constructing the Ngram, Michel et al. (2010) claim to be using a subset of Google Books items *excluding periodicals*. We follow the same restriction in conducting our Google Books queries. However, we still end up finding a non-negligible set of periodicals in search results. This may be due to the inherent difficulties in classifying publications.

[41] It is worth noting, however, that a book that mentions a leader's name does not necessarily have to be a monograph about that leader. Often, mentions can be added at a relatively later stage of book production (in the preamble or conclusion, for example) in response to changes in current events.

Assessing the Extent of Temporal Lag

A critical issue that we needed to address before using Ngram as a measure of leaders' power is how long it takes for changes in leaders' real power to translate into changes in Ngram values. Given that standard books can sometimes take years to write and publish, one might expect a substantial lag between the two if the underlying corpus predominantly consists of books. However, as shown in the publication breakdown in Table A.2, half of the items that mention leaders' names are non-book publications that can be produced in a relatively short period of time. If the breakdown is accurate, it is possible that changes in Ngram will adjust quickly in response to changes in real-world circumstances.

We assessed the issue of temporal lag in several ways. First, we examined the relationship between Ngram counts and newspaper articles, which are arguably the most timely form of publication. We made use of two major online news databases: the Google News Archive and New York Times (NYT) Archive. We conducted queries of leader names in these databases to obtain the number of articles that mention incumbent leaders' names (and aliases) in each year.[42] We then ran regressions correlating the lagged and current numbers of leader-mentioning news articles with Ngram counts for the same leader. The results are displayed in Tables A.3 and A.4. In both tables, a leader's (logged) Ngram count appears to be strongly and positively associated with the (logged) number of times his/her name appears in both the NYT and Google News Archive newspaper collections. A 1% increase in a leader's name mentions in either Google News items or NYT articles is associated with an approximately 0.046% to 0.079% increase in that leader's Ngram name count in the same year. More notably, we see that, among various lag structures, the contemporaneous relationship is the strongest of all (i.e., Ngram at t is most strongly correlated with news at t). In fact, as Column 7 of both tables makes it clear, most of the other lagged news variables cease to have a significant relationship with Ngram once the current news variable is included in regressions.

In addition to our own tests, we also consulted a number of published articles that used Ngram in their empirical analyses. In the very first publication that introduced Ngram, for example, Michel et al. (2010) show that Ngram values for words such as "influenza", "cholera", and "infantile paralysis" underwent sharp spikes during years when major flu, cholera, and polio epidemics occurred.[43] In another study, Grant and Walsh (2015) find that the Ngram counts for the word "earthquake" surged in the years immediately following major earthquakes; they also find that words describing special weather events, such as "heat wave", "drought", and "tsunami/tidal wave", exhibit a close and contemporaneous association with annual variations in global average temperature. Both our own analyses and the findings of the existing studies therefore seem to indicate that Ngram counts can change relatively quickly in response to real-world events. This suggests that it is reasonable to proxy a leader's power in a year with the Ngram value from the same year.

[42] When a leader has multiple names, the one that appears in most articles is used.

[43] See Figure 5A and Figure S14 of Michel et al. (2010) for details. The Ngram for "influenza", for example, surges in 1889–1890 (Russian Flu), 1918–1919 (Spanish Flu), and 1957–1958 (Asian Flu).

Table A.3: Correlation Between Ngram Publication Counts and Google News Items

	DV: Log Ngram publication count at t						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Log # of Google News Items (t)	0.079**						0.048**
	(0.007)						(0.009)
Log # of Google News Items ($t-1$)		0.076**					0.033**
		(0.008)					(0.007)
Log # of Google News Items ($t-2$)			0.065**				0.008
			(0.007)				(0.006)
Log # of Google News Items ($t-3$)				0.058**			-0.000
				(0.008)			(0.006)
Log # of Google News Items ($t-4$)					0.056**		0.005
					(0.008)		(0.007)
Log # of Google News Items ($t-5$)						0.053**	0.007
						(0.008)	(0.006)
Lagged DV ($t-1, t-2, t-3$)	✓	✓	✓	✓	✓	✓	✓
Observations	4116	4116	4116	4116	4116	4116	4116

Note: This table presents the standardized regression coefficients for the relationship between the annual Ngram publication count for each incumbent leader in the full autocratic regime sample and the (logged) number of newspaper articles that mention his/her name in the current or previous years. The data on newspaper articles are scraped from the Google News Archive. Each column reports a different lag structure. The results suggest a synchronous relationship: The number of news items at t is most strongly correlated with Ngram publication counts also at t. Standard errors are clustered at the individual level.

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

Table A.4: Correlation Between Ngram Publication Counts and New York Times (NYT) Articles (t)

	DV: Log Ngram publication count at t						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Log # of NYT articles (t)	0.050**						0.100**
	(0.004)						(0.007)
Log # of NYT articles ($t-1$)		0.034**					-0.002
		(0.003)					(0.005)
Log # of NYT articles ($t-2$)			0.027**				-0.032**
			(0.003)				(0.005)
Log # of NYT articles ($t-3$)				0.025**			-0.024*
				(0.002)			(0.005)
Log # of NYT articles ($t-4$)					0.027**		-0.003
					(0.002)		(0.004)
Log # of NYT articles ($t-5$)						0.026**	0.000
						(0.002)	(0.003)
Lagged DV ($t-1, t-2, t-3$)	✓	✓	✓	✓	✓	✓	✓
Observations	3100	3097	3094	3091	3088	3085	3085

Note: This table presents the standardized regression coefficients for the relationship between the annual Ngram publication count for each incumbent leader in the full autocratic regime sample and the (logged) number of NYT articles that mention his/her name in the current or previous years. The data on NYT articles are accessed through the NYT Article Search API. Each column reports a different lag structure. The results suggest a synchronous relationship: The number of NYT articles at t is most strongly correlated with Ngram publication counts also at t. Standard errors are clustered at the individual level.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ (two-tailed test)

B.2 Construction Procedures

Constructing the Politician List

We constructed the global politician database using information from Wikidata, an open knowledge base hosted by Wikimedia Foundation. Wikidata is a structured database that enables 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 created the list of politicians by identifying individuals whose Occupation Property (P106) included Politician (Q82955).[44] For each of the politicians we identified, we also collected information on their birth and death years (P569 and P570) and country affiliation (P27).

Once we had a list of politicians, we could further refine it. The basic biographical information provided by Wikidata enabled 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. Since the Ngram corpus may have different coverages for different countries in different years, a naive approach

[44]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 (P31) is 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

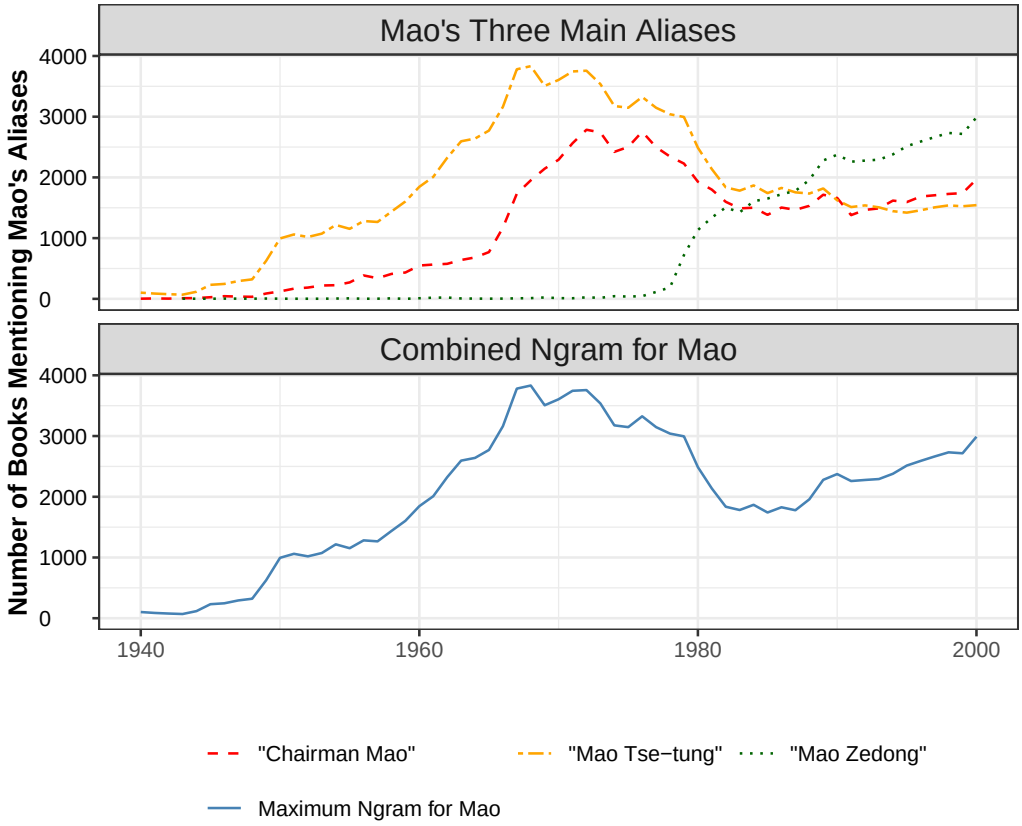
that focuses only on Ngram counts for the chief executive may mistakenly attribute changes in the publication process or in the general interest in a country to changes in the chief executive's influence. This problem can be partially addressed by including the Ngram counts for other active contemporary politicians as a benchmark.[45]

Conducting Queries with Google Ngram

After compiling and refining the politician list, we used the list to conduct queries in the Google Books Ngram corpus. We encountered two main problems during the query stage. The first was 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 common and distinct Ngrams that refer to the same person (see Figure A.3). To address this issue, we took 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 conducted the Ngram queries, we went over all the possible aliases for an individual and recorded 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 two aliases: "Mao Tse-Tung" (most popular until 1987) and "Mao Zedong" (1988 and afterwards). By combining results from these aliases, we could avoid underestimating a person's influence by limiting ourselves to their "official name" only.

[45] 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 setting consistent criteria for different 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 politicians as the denominator partially addresses the comparability problem because those with high Ngrams are usually senior national-level political figures.

Figure A.3: The Mao Example

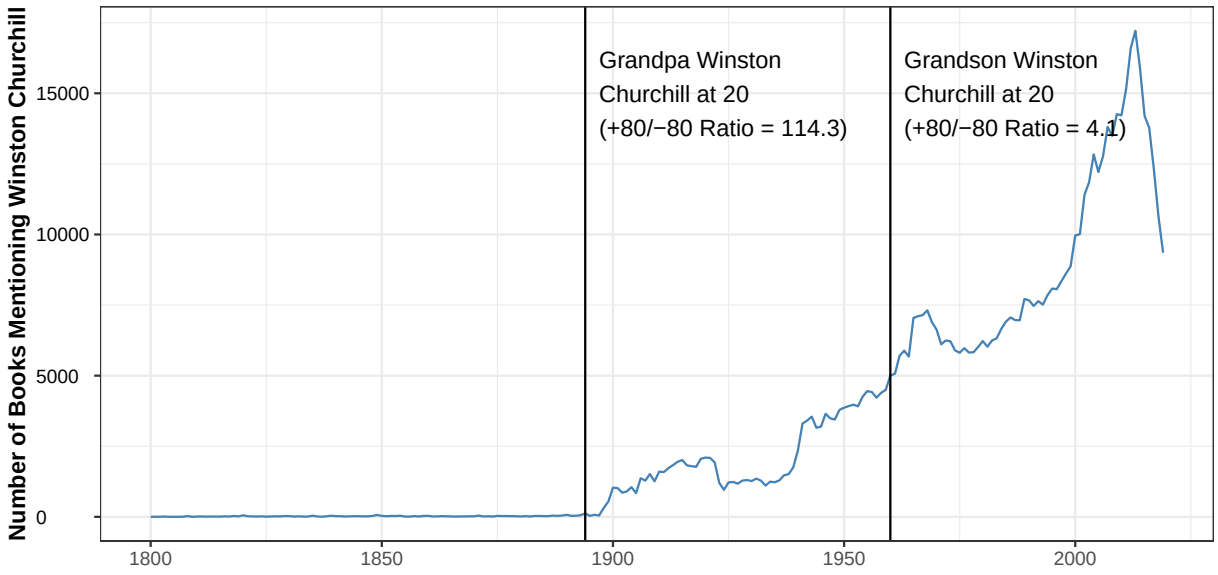


A second and related problem was that sometimes two different politicians had the same or very similar names. To address this problem, we assigned names and aliases to politicians based on their time of active service. This worked for the vast majority of cases. However, there were still some exceptions where two or more figures with similar or identical names were 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 allocated the observed Ngram value in a pro-rated way. For each of the active politicians with similar names, we first calculated the ratio of the average Ngram for his/her name 80 years after s/he was 20 to the average Ngram 80 years before s/he was 20. This ratio tells us approximately how much a particular politician contributed to the frequency of his/her name Ngram after starting his/her career in politics. We then compared the ratios among politicians with the same name and used 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 minster who was born in 1874. Churchill's grandson was born in 1940 and was named after his grandfather. Figure A.4 shows the proportion of the Ngram *Winston Churchill* over time. The first 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 (114 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 the 1960–2008 average to the 1880–1960 average (the case of Sir Winston Churchill's grandson)

is only 4.1. 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.4: The Churchill Example



Computing the Power Index

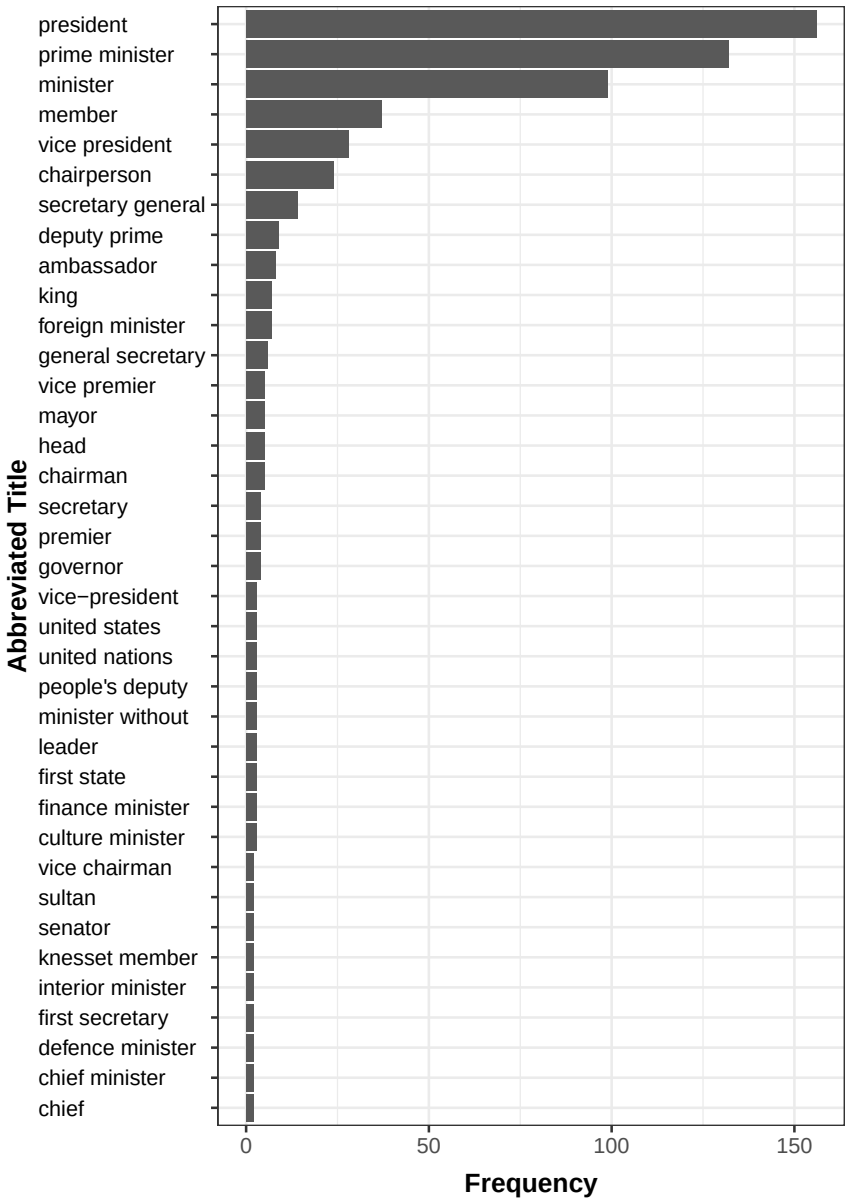
After completing the Ngram queries for all the names and aliases, we aggregated the Ngram values by individual, recording the highest value of all aliases (if multiple aliases exist for a person) for each year. The main quantity of interest is the annual Ngram count for the name of the national chief executive. We focus on the number of publications that mention the chief executive's name rather than the number of mentions per se because being mentioned in a large number of publications is usually more indicative of one's influence than simply being mentioned a lot (could be just in a small number of publications). Since the Ngram corpus may have 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 the leader's prominence relative to his/her colleagues that speaks most to his/her power. As a robustness check, we also experimented with using different denominators, such as the 90th percentile or the 10th highest among the non-CE elites. The results remain largely the same (Table A.15).

To give readers a sense of who the non-CE figures (i.e., denominators) are, we plot in Figures A.5 and A.6 the distributions of their (abbreviated) titles.[46] We can see clearly that all the titles indicate relatively senior political offices. The most common titles in our autocracy include words such as "president", "prime minister", "minister", and "member" (usually of a legislative body).

[46]We collect their titles from the periods in which they are used as the denominators, and pick the first two words of their title. We remove the second word if it is a preposition.

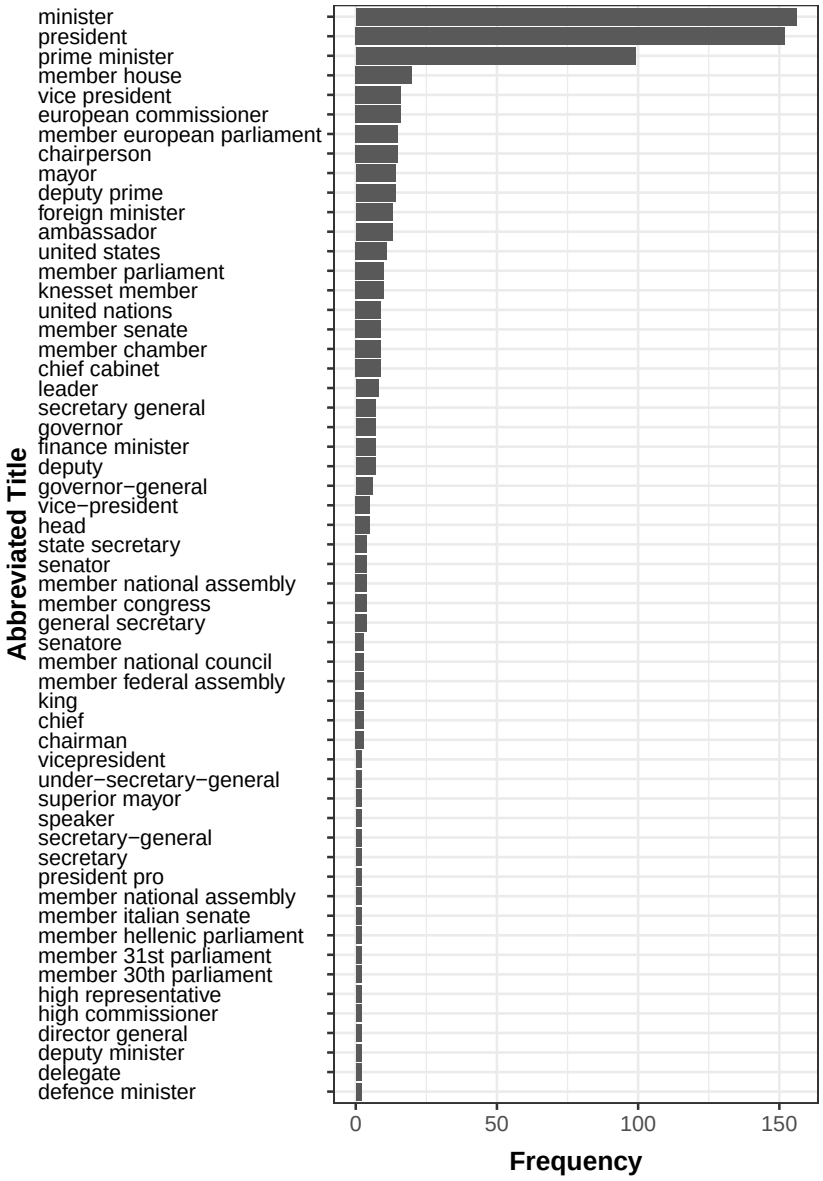
Deputy leadership positions, such as vice presidents, vice prime ministers, and vice chairmen, are also quite common. The pattern is similar for the sample of democratic countries: The politicians whose Ngrams were used as denominators often have words such as "minister", "president", "prime minister", or "member (of the) house" in their official title. This suggests that we are indeed capturing senior political figures who are a meaningful comparison group for the chief executives in terms of their relative influence. The median number of politicians in a country–year spell of our autocratic sample is 70 and the inter-quartile range is between 28 and 148.

Figure A.5: 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 or three words of their titles are shown and counted. Prepositions are omitted.

Figure A.6: 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 or three words of their titles are shown and counted. Prepositions are omitted.

C Validation Exercises

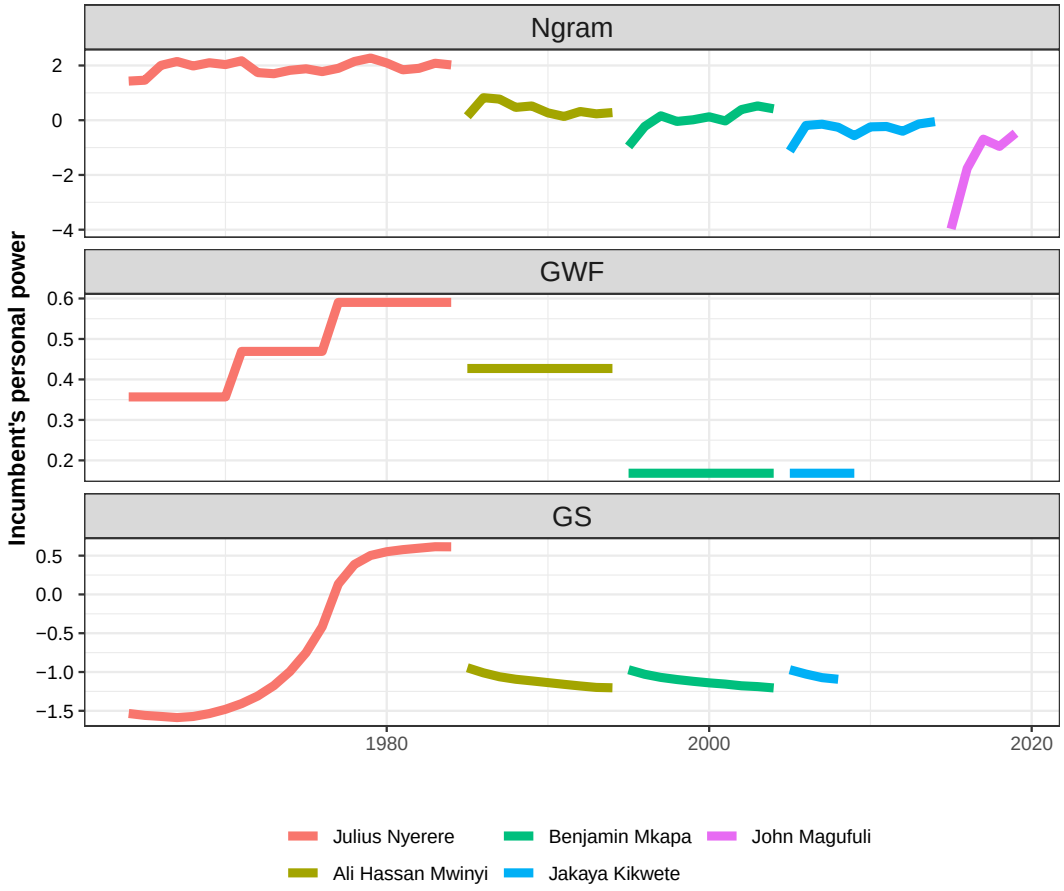
This section provides a series of validation tests on this measure.

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 and the GS power consolidation measure.

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 it has held semi-competitive multi-party elections since 1992. Five individuals have served as the chief political executive (President of Tanzania) during this period: Julius Nyerere, Ali Hassan Mwinyi, Benjamin Mkapa, Jakaya Kikwete, and John Magufuli (only available in Ngram). In a way, Tanzania represents a relatively easy case because there is quite a clear difference between the leaders in terms of their 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.7, all three measures broadly agree on the gradations of power: Nyerere clearly overshadows all his successors by a sizable margin, and the power of the subsequent leaders becomes progressively smaller as Tanzania moves from one-party rule to a multi-party system.

Figure A.7: Validating Example: Tanzania

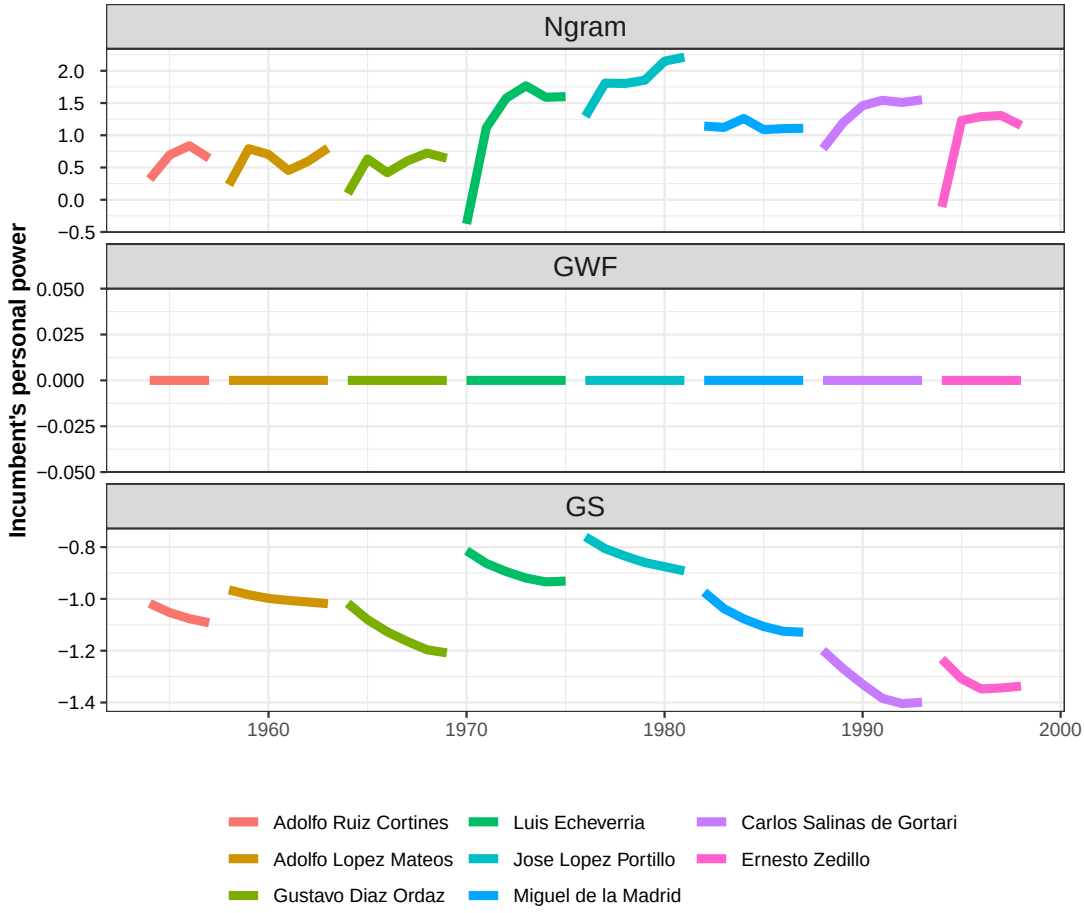


The second case we look at is Mexico, which was ruled by the Institutional Revolutionary Party (PRI) until 2000 (Magaloni 2006). The Mexican case is particularly interesting because historically it is one of the most institutionalized autocracies that ever existed. Presidential successions in Mexico 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 successor. Figure A.8 illustrates how the power of Mexican presidents varied between 1950 and 2000 according to GWF, GS, and our Ngram-based measure. Here, we can see that all three measures broadly agree on the stability of political power across the various Mexican presidents, yet some differences are also evident: According to the GWF, Mexico was rated as having zero personalism throughout this entire period. By contrast, both the GS and our Ngram-based measure suggest that, while the overall level of presidential power is stable, some presidents were nonetheless more powerful than others. Luis Echeverría, for example, appears to have had 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 and Smithies 2001).

Our Ngram measure, however, disagrees with the GS measure on the variations in power trajectories within each president. According to our measure, each president starts with relatively limited power but gradually builds up his influence as his tenure extends. The GS measure, however, seems to suggest an opposite trajectory: Presidents are more powerful at the beginning of their office but become weaker over time. Intuitively, we believe that an upward trend makes more sense because power is likely to grow over time as a president learns more about his job and develops a larger power base in the cabinet and other key sectors through appointments. Seasoned observers of Mexican politics also seem to agree that presidents reach the peak of their power only toward the end of their time in office (Castaneda and Smithies 2001; Smith 1991).[47]

[47] A closer look at the data used in GS further reveals that the cause of their downward-trending estimates may be a mechanical one: Their Bayesian estimation sets a flat prior centered at 0 for each leader's first year in office and then incrementally updates it as a leader's tenure unfolds. For most of the Mexican presidents, there is actually little variation in the underlying component indicators over their entire tenures. However, because the prior becomes more informative over time (due to updating), it mechanically moves the final estimates closer to the "true" (and very low) value of power consolidation. In other words, the downward trend that we observe is likely a result of the algorithm automatically adjusting the priors to the true estimate, rather than updating based on new information/events that occurred in the middle of a president's tenure. In fact, when we examine in detail the component indicators that GS use, it turns out that the changes in the indicators actually agree with our Ngram measure, in that presidential power is increasing over time: For several presidents (e.g., Luis Echeverría, Carlos Salis de Gortari, and Ernesto Zedillo), they only started to engage in more assertive political actions, such as purges and significant cabinet reshuffles, toward the end of their respective administrations. Visually, this is captured by the small uptick in estimates at the tails. However, because such actions are still rare in Mexico and considered to be relatively "mild" forms of power grabbing, they do not significantly alter the downward trend in the overall estimates.

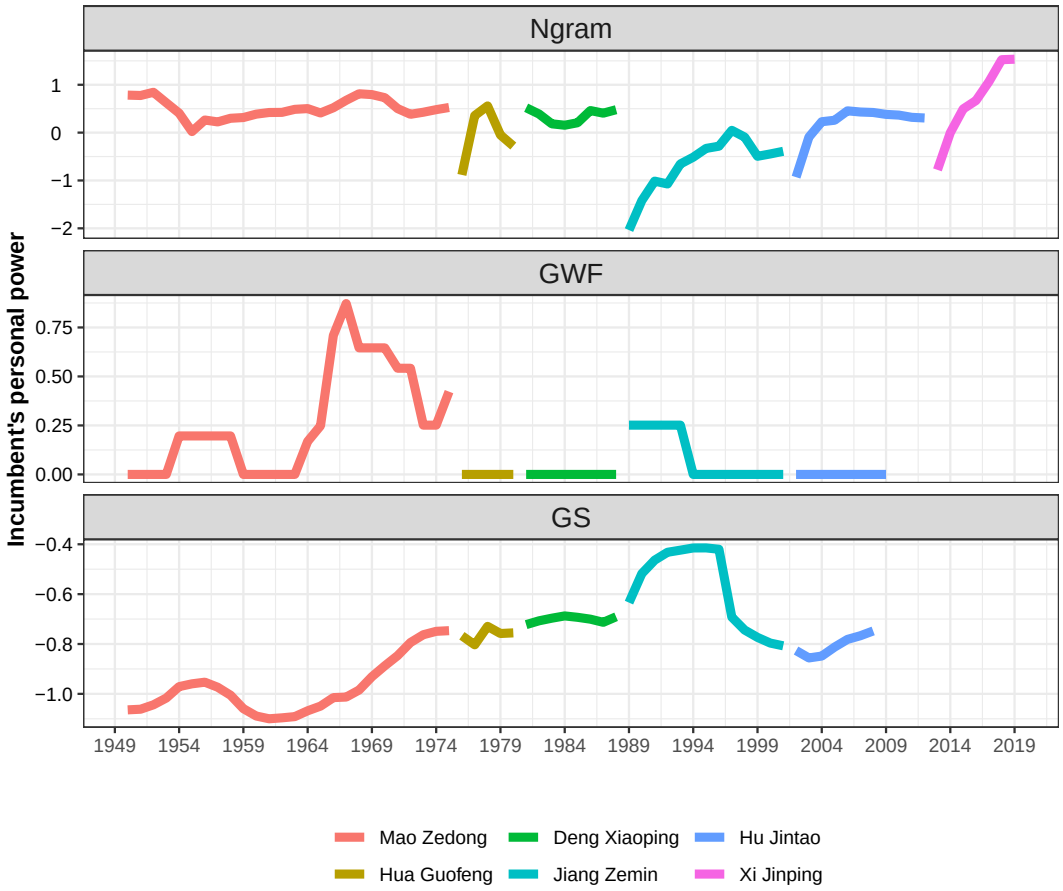
Figure A.8: Validating Example: Mexico



Finally, Figure A.9 presents the 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, while all three measures agree that the Maoist era was the most personalistic period in the regime's history, their depictions of this period vary in many important respects. According to our measure, Mao was consistently the most powerful figure in China throughout his reign, with an Ngram higher than not only his contemporaries but also most of his successors (with the possible exception of Xi Jinping). Our measure also documents a noticeable increase in Mao's power beginning around 1966, which overlaps with the launch of the Cultural Revolution. There is also an equally noticeable decrease in 1971–1972, which coincides with the defection and death of Lin Biao (Mao's key ally in the Cultural Revolution and designated successor at that time) and the de facto bankruptcy of the Cultural Revolution's political legitimacy. By contrast, while both the GWF and GS measures manage to pick up the increase in Mao's power in the Cultural Revolution (albeit with different degrees of precision), neither seems to provide an accurate depiction of Mao's power in the pre-Cultural Revolution period. According to the GWF measure, Mao before the Cultural Revolution was only slightly more personalistic than his successors (i.e., many years of zero personalism); the GS measure even considers Mao's early years to be *less* consolidated than subsequent leaders like

Jiang Zemin and Hu Jintao.[48] These patterns are clearly not very consistent with the conventional understanding of the gradations of power among paramount leaders in China.

Figure A.9: Validating Example: China



Turning to the post-Mao period, we see more disagreements among the three measures. According to both the GWF and GS measures, 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 main top leaders during this period were very different. As the "core" of the second generation of CCP leadership and a long-time protégé of Mao, Deng Xiaoping was probably one of the most powerful post-Mao leaders. Deng's successors, Hu Jintao and Jiang Zemin, served during a more "institutionalized" period of politics and were thus relatively more constrained. For Jiang Zemin, 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 came to office with a low profile but built up his power gradually after assuming office. More recently, Xi Jinping has managed to break away from the institutionalizing trend and

[48]This particular discrepancy may suggest a potential limitation of the GS measure: A powerful Mao who felt secure about his position (as was the case before 1960) did not have to frequently resort to overt power consolidation measures.

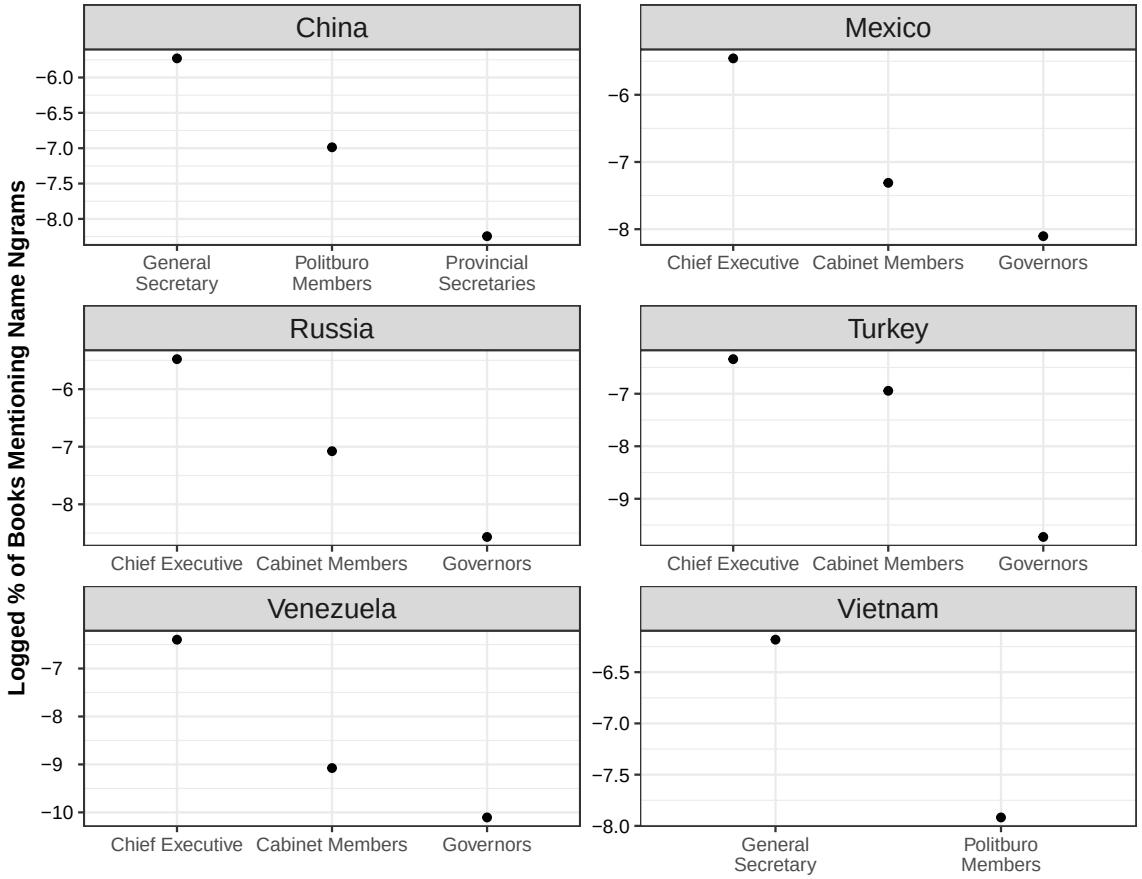
achieve a stunning degree of power consolidation. Many of these subtle cross- and within-leader variations in personal power have been picked up by our Ngram-based measure, but less so by the other two measures.

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 subsequent 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.

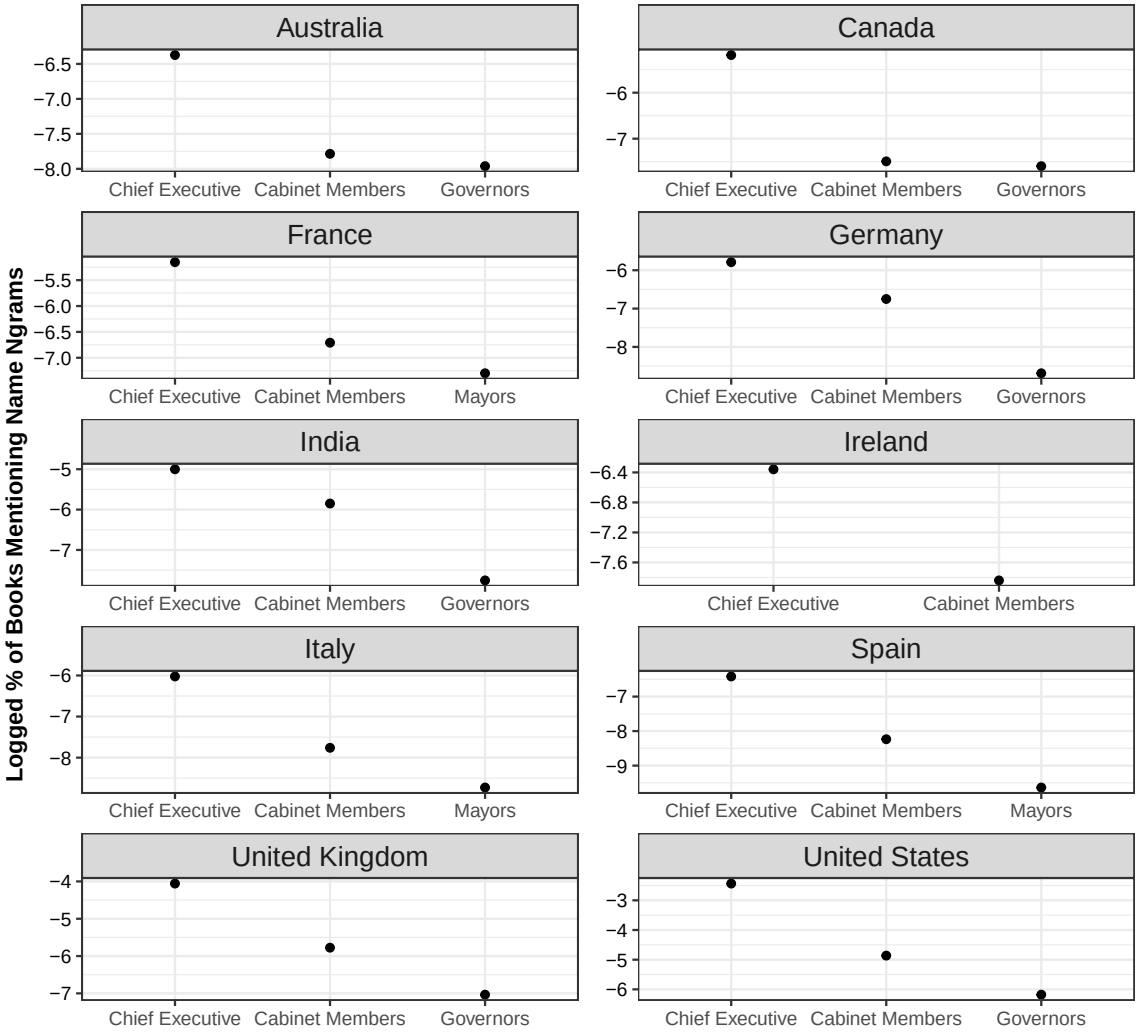
As a starting point, we examine how our measure varies across individuals holding offices with different levels of formal authority. To the extent that formal positions convey political power, our basic expectation is that those who are higher up in the political hierarchy should have higher Ngram values 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.10 displays the average Ngram of individuals holding positions at these three levels in autocracies, and Figure A.11 is for democracies. Consistent with the expectation, we see that, in both figures, there are clear differences in Ngram values between individuals holding positions with 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 presidents and prime ministers, but higher values than governors. In the majority of the countries, it also appears that 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.10: 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.11: Variation in Ngram across Formal Positions: Democracies



Note: This figure presents the Ngram-based power for individuals holding specific formal positions in 10 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).

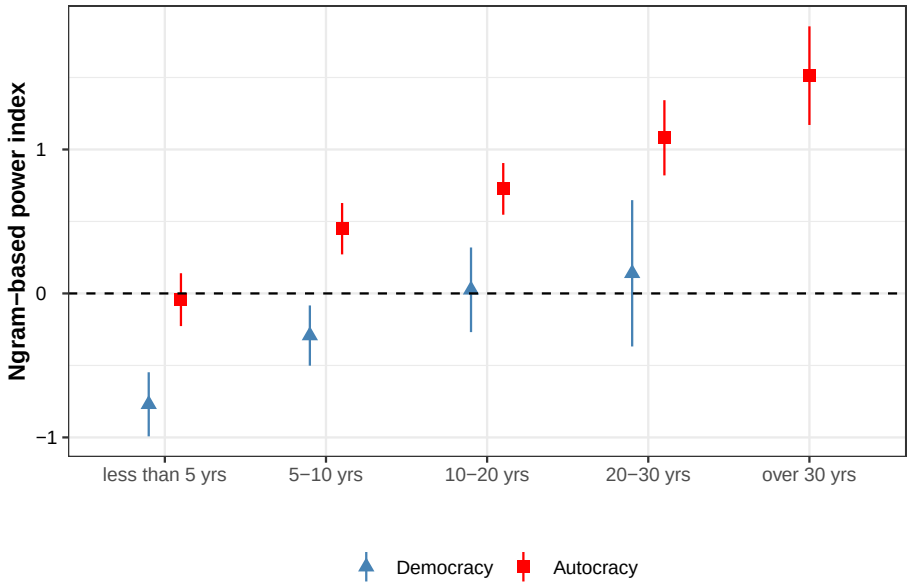
C.3 Correlation with Leaders' Tenure

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 s/he stays in office longer.[49] In Figure A.12, 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. Consistent with the prevailing understanding of regime differences, we see that autocratic leaders on average start their office with a higher Ngram than democratic ones. In both types of regimes, leaders become more influential as their tenure extends, but the rate of increase is again more rapid

[49]For related theoretical discussion, see Chapter 2 of Svolik (2012).

in autocracies than in democracies.

Figure A.12: Variation in Ngram Over Leaders' Tenure



Note: This figure shows the change in Ngram-based power over leaders' tenure. We plot the relationship separately for democracies and autocracies. The vertical bars represent the 95% confidence intervals.

C.4 Correlation with Electoral Outcomes

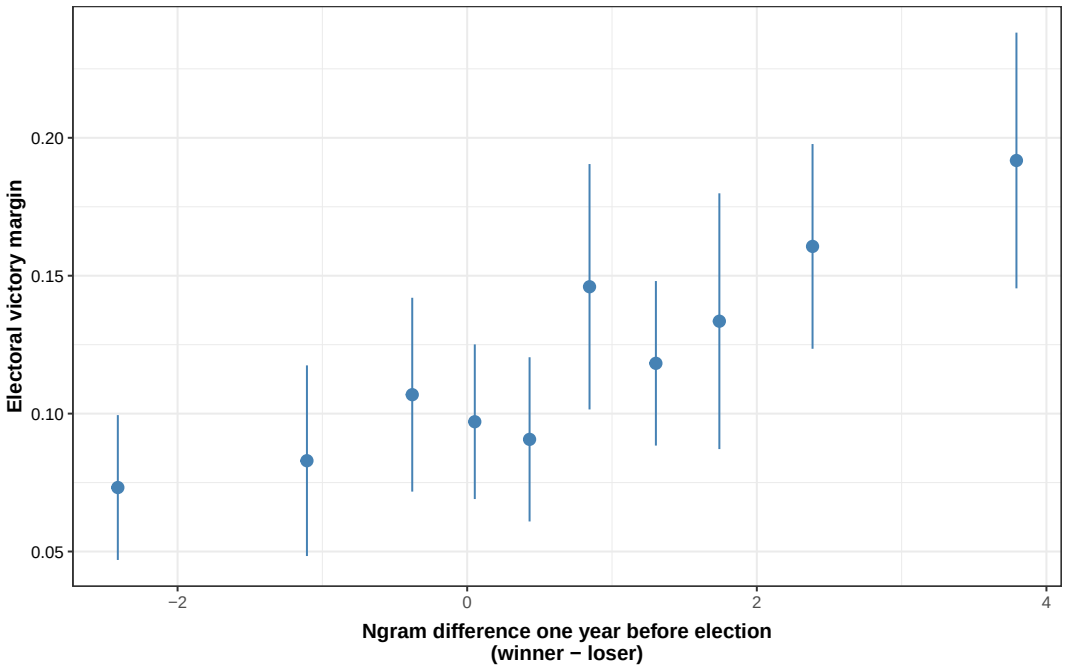
Third, we can also verify our measure by studying how it correlates with electoral outcomes. To the extent that elections are essentially a civilized form of power contest (Przeworski 2018), the outcome of elections should reflect the power parity between contending candidates. Those who have the ability 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[50] 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.13 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.5, 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

[50]For simplicity, we only focus on the two candidates who won the first and second highest vote share.

closest loser separately. Here, we see that a candidate's vote share is more closely associated with his/her own Ngram than with that of his/her opponent.

Figure A.13: 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.5: Ngram-Based Power and Electoral Outcomes (Democracies Only)

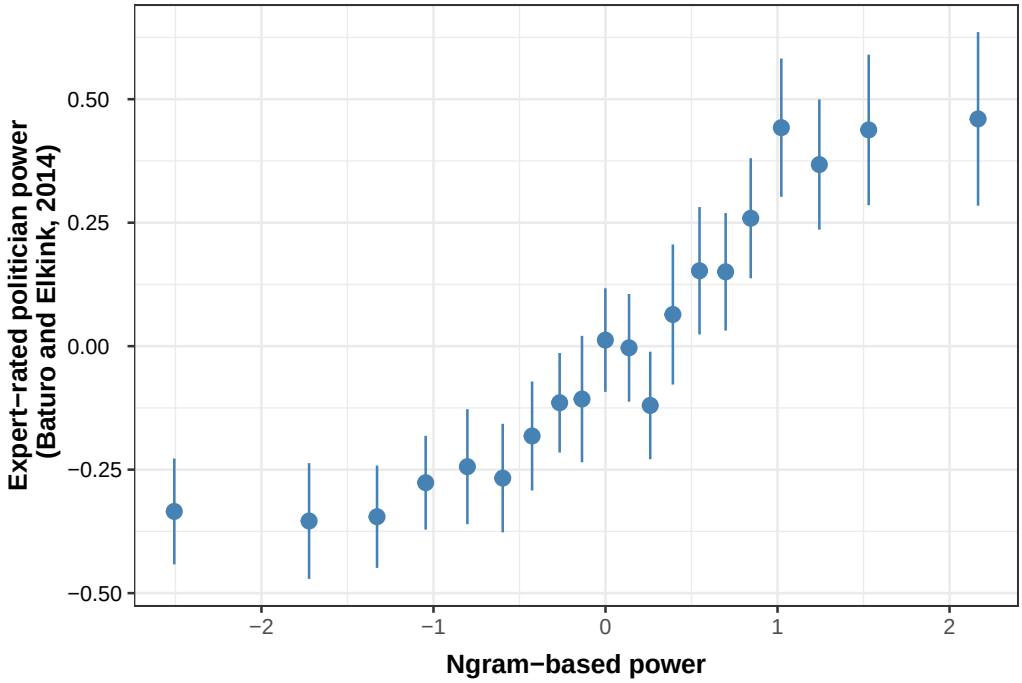
	Winner's vote margin		Winner's vote share	Highest loser's vote share
	(1) Full sample	(2) Open seat	(3) Full sample	(4) Full sample
Winner's Ngram (logged, 1 yr before election)	0.023**	0.020**	0.017**	-0.006
	(0.006)	(0.007)	(0.005)	(0.005)
Loser's Ngram (logged, 1 yr before election)	-0.019**	-0.022**	0.002	0.022**
	(0.005)	(0.006)	(0.005)	(0.004)
Year fixed effects	✓	✓	✓	✓
Adjusted R squared	0.06	0.09	0.06	0.09
Observations	533	244	533	533

Note: This paper presents the regression results on the association between the antecedent Ngrams of candidates and their performance in elections of national chief executives. The sample focuses only on elections in democracies. The results suggest that candidates with greater power are more likely to win elections and have larger winning margins. Standard errors are clustered at the country level.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ (two-tailed test)

C.5 Correlation with Expert Rating of Politicians' Power

A fourth 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.14 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 in that year. Table A.6 further presents the results from a regression analysis where we control for other possible confounders, such as fixed effects for the survey year and the formal office title. In a way, including these controls enables us to separate the power specific to an individual from the power associated with the position s/he 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.14: 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.6: Ngram-Based Power and Expert-Rated Power of Russian Politicians

	DV: Expert-rated power	
	(1)	(2)
Ngram-based power	0.354***	0.224***
	(0.050)	(0.026)
Survey date and position fixed effects		✓
Adjusted R squared	0.25	0.70
Observations	1745	1745

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 Elkink (2014). The second column includes fixed effects for survey date and politicians' formal positions. Standard errors are clustered at the individual level.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ (two-tailed test)

C.6 Correlation with Existing Power Measures

Table A.7: Correlation Between Ngram-based Power Index and GWF Personalism at t

	DV: Personalism index (GWF)					
	(1)	(2)	(3)	(4)	(5)	(6)
Incumbent's Ngram at $t+2$	0.206***					0.033
	(0.007)					(0.006)
Incumbent's Ngram at $t+1$		0.244***				0.047**
		(0.008)				(0.004)
Incumbent power (Ngram)			0.277***			0.179***
			(0.009)			(0.007)
Incumbent's Ngram at $t-1$				0.240***		0.046*
				(0.009)		(0.004)
Incumbent's Ngram at $t-2$					0.199***	0.002
					(0.009)	(0.007)
Country and year fixed effects	✓	✓	✓	✓	✓	
Adjusted R^2	0.62	0.62	0.63	0.62	0.62	0.63
Observations	3857	3857	3857	3857	3857	3857

Note: This table presents the standardized regression coefficients for the relationship between our Ngram-based power index and the personalism index developed by Geddes, Wright, and Frantz (2019). Standard errors are clustered at the country level.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ (two-tailed test)

Table A.8: Correlation Between Ngram-based Power Index and Power Consolidation Index

	DV: Power consolidation index (GS)					
	(1)	(2)	(3)	(4)	(5)	(6)
Incumbent's Ngram at $t+2$	0.065					0.052**
	(0.044)					(0.026)
Incumbent's Ngram at $t+1$		0.058				0.023
		(0.046)				(0.015)
Incumbent power (Ngram)			0.043			-0.040
			(0.048)			(0.021)
Incumbent's Ngram at $t-1$				0.049		0.007
				(0.046)		(0.014)
Incumbent's Ngram at $t-2$					0.054	0.038
					(0.045)	(0.027)
Country and year fixed effects	✓	✓	✓	✓	✓	
Adjusted R^2	0.71	0.71	0.71	0.71	0.71	0.71
Observations	4167	4167	4167	4167	4167	4167

Note: This table presents the standardized regression coefficients for the relationship between our Ngram-based power index and the power consolidation measure developed by Gandhi and Sumner (2020). Standard errors are clustered at the country level.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ (two-tailed test)

D Predecessors with the Highest and Lowest Power Index

Table A.9: Ten Active Predecessors with the Highest Power Index

Leader	Country	Power Index (CE tenure average)
Fidel Castro	Cuba	2.51
Nursultan Nazarbayev	Kazakhstan	2.16
Julius Nyerere	Tanzania	2.08
Mahmoud Ahmadinejad	Iran	2.07
Jose Lopez Portillo	Mexico	2.03
Jean-Bertrand Aristide	Haiti	1.91
Jigme Singye Wangchuck	Bhutan	1.90
Lee Kuan Yew	Singapore	1.86
Mohammad Khatami	Iran	1.79
Luis Echeverria	Mexico	1.66

Note: This table presents the 10 active predecessors with the highest power index in our analysis sample.

Table A.10: Ten Active Predecessors with the Lowest Power Index

Leader	Country	Power Index (CE tenure average)
Pieter Willem Botha	South Africa	0.127
Sir Khawaja Nazimuddin	Pakistan	0.126
Abu Sadat Mohammad Sayem	Bangladesh	0.115
Lon Nol	Cambodia	0.098
Ali Khamenei	Iran	0.094
Binali Yildirim	Turkey	0.092
Balthazar Johannes Vorster	South Africa	0.087
Mohamed Hussein Tantawi	Egypt	0.078
Norodom Kantol	Cambodia	0.042
Sanya Dharmasakti	Thailand	0.005

Note: This table presents the 10 active predecessors with the lowest power index in our analysis sample.

Table A.11: Correlating Power Index with Tenure Length and Coup Risk

	Tenure Length	Coup
	(1)	(2)
Incumbent power (Ngram)	2.101***	-0.024***
	(0.516)	(0.007)
Country fixed effects	✓	✓
Year fixed effects		✓
# of countries	215	1993

Note: This table presents the estimated relationship between the Ngram-based power index and two significant political outcomes: a leader's overall tenure length and the instance of coups. Information on coup attempts are drawn from Powell and Thyne (2011). Standard errors are clustered at the country level.

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

E Numerical Results by Regime Type

Table A.12: Results by Regime Type

	DV: Incumbent power (Ngram)		
	(1) Party	(2) Military	(3) Personalist
Predecessor power	-0.393**	-0.194	0.096
	(0.180)	(0.695)	(0.278)
Lagged DV ($t-1, t-2, t-3$)	✓	✓	✓
Leader and year fixed effects	✓	✓	✓
# of countries	39	16	14
Observations	779	180	220

Note: This table presents the regression results for three distinct regime types. The specifications are identical to Column 4 of Table 1. Standard errors are clustered at the country level.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ (two-tailed test)

F Detailed Results of Robustness Checks

F.1 Addressing the Issue of Multiple Languages

Table A.13: Using Power Index Constructed from Multi-Language Ngram

	Incumbent power (multi-language Ngram)				
	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) GMM
Predecessor power	-0.099***	-0.221***	-0.221***	-0.405***	-0.413***
	(0.026)	(0.062)	(0.062)	(0.127)	(0.134)
Lagged DV ($t-1, t-2, t-3$)	✓	✓	✓	✓	✓
Regime and year fixed effects		✓			
Leader and year fixed effects			✓	✓	✓
Control variables				✓	✓
# of countries	99	99	99	93	92
Observations	1915	1915	1915	1710	1679

Note: This table presents the regression results using variables constructed from Ngram's non-English corpus. For those countries whose official languages are one of the following, we replace the English-language Ngram with the Ngram in their own language: Chinese, French, German, Hebrew, Italian, Russian, and Spanish. The specifications are otherwise the same as in Table 1. Control variables include the incumbent's tenure length, log real GDP (in US dollars), and log population. Standard errors are clustered at the country level.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ (two-tailed test)

Table A.14: Results for Countries with Different Official Languages on Alternative Samples

	Official language = English	Official language ≠ English
	(1)	(2)
Predecessor power	-0.487**	-0.208*
	(0.188)	(0.106)
Lagged DV ($t-1, t-2, t-3$)	✓	✓
Leader and year fixed effects	✓	✓
# of countries	14	66
Observations	318	1347

Note: This table presents the regression results using several alternative samples. The first column uses a sample that excludes incumbent leaders who are the founders of their regimes. The second and third columns report results for countries whose official languages include and do not include English, respectively. The specifications are otherwise the same as in Column 4 of Table 1. Standard errors are clustered at the country level.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ (two-tailed test)

F.2 Alternative Dependent Variables

Table A.15: Using Alternative Ngram-based Power Indices as Dependent Variables

	Incumbent's power based on # of mentions	Incumbent's Ngram relative to the most powerful living predecessor	Incumbent's Ngram relative to the 90th percentile	Incumbent's Ngram relative to the 10th highest
	(1)	(2)	(3)	(4)
Predecessor power	-0.761***	-1.415***	-0.172**	-0.230**
	(0.269)	(0.361)	(0.069)	(0.098)
Lagged DV ($t-1, t-2, t-3$)	✓	✓	✓	✓
Year and leader fixed effects	✓	✓	✓	✓
# of countries	81	41	75	75
Observations	1681	612	1409	1409

Note: This table presents the estimated effects of predecessors on four alternative dependent variables constructed from the Ngram data. The first column uses a similar power index based on the number of name mentions instead of the number of books. The second column uses a power index using the most powerful living predecessor's *current* Ngram as the denominator. The third column uses the ratio between an incumbent's Ngram publication count and the 90th percentile value of all living non-incumbent elites in the same country–year. The fourth column uses the ratio between an incumbent's Ngram publication count and the 10th highest non-incumbent elite. The model specifications are otherwise the same as in Column 4 of Table 1. Standard errors are clustered at the country level.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ (two-tailed test)

Table A.16: Effect of Predecessor Power on Incumbent's Total Tenure Length

	DV: Incumbent's total tenure length				
	(1)	(2)	(3)	(4)	(5)
Predecessor power	-4.160***	-5.514***	-4.469**		
	(1.306)	(1.985)	(1.809)		
Any living predecessor (1=yes)				-4.667**	
				(2.104)	
# of living predecessors					-0.294**
					(0.113)
Age			-0.289***	-0.307***	-0.280***
			(0.098)	(0.099)	(0.098)
Year of education			-0.015	-0.036	0.004
			(0.251)	(0.237)	(0.248)
Country fixed effects	✓				
Regime fixed effects		✓	✓	✓	✓
R^2	0.38	0.60	0.67	0.67	0.67
Observations	521	521	486	486	486

Note: This table presents the regression results using incumbent leaders' total tenure length as the alternative outcome. The analysis is at the individual leader level. The key independent variable for the first two columns is the predecessor power index used in Table 1, evaluated at the first year of the incumbent's tenure. 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 the number of within-regime living predecessors. Both variables are also evaluated at the incumbent's first year in office. Standard errors are clustered at the country level.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ (two-tailed test)

Table A.17: Baseline Results Using the Personalism Index (Geddes, Wright, and Frantz 2019) as the Dependent Variable

	DV: Personalism index (GWF)				
	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) GMM
Predecessor power	-0.150**	-0.008	-0.042	-0.037	-0.036
	(0.038)	(0.015)	(0.028)	(0.030)	(0.029)
Lagged DV ($t-1, t-2, t-3$)	✓	✓	✓	✓	✓
Regime and year fixed effects		✓			
Leader and year fixed effects			✓	✓	✓
Control variables				✓	✓
# of countries	82	82	82	76	76
Observations	1588	1559	1559	1339	1317

Note: This table presents the baseline regression results using the personalism index developed by Geddes, Wright, and Frantz (2019) as the dependent variable. The specifications are otherwise identical to those reported in Table 1. Control variables include the incumbent's tenure length, log real GDP (in US dollars), and log population. Standard errors are clustered at the country level.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ (two-tailed test)

Table A.18: Baseline Results Using the Power Consolidation Index (Gandhi and Sumner 2020) as the Dependent Variable

	DV: Power consolidation index (GS)				
	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) GMM
Predecessor power	-0.024	-0.006	-0.006	-0.002	-0.009
	(0.020)	(0.046)	(0.046)	(0.112)	(0.119)
Lagged DV ($t-1, t-2, t-3$)	✓	✓	✓	✓	✓
Regime and year fixed effects		✓			
Leader and year fixed effects			✓	✓	✓
Control variables				✓	✓
# of countries	90	90	90	84	83
Observations	1661	1661	1661	1436	1414

Note: This table presents the baseline regression results using the power consolidation index developed by Gandhi and Sumner (2020) as the dependent variable. The specifications are otherwise identical to those reported in Table 1. Control variables include the incumbent's tenure length, log real GDP (in US dollars), and log population. Standard errors are clustered at the country level.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ (two-tailed test)

F.3 Alternative Independent Variables

Table A.19: Results from Using Alternative Measures for Predecessors' Power

	DV: Incumbent power (Ngram)	
	(1)	(2)
Predecessor power (median Ngram when as CE)	-0.273***	
	(0.091)	
Any living predecessor (1=yes)		-0.270**
		(0.134)
Lagged DV ($t-1, t-2, t-3$)	✓	✓
Leader and year fixed effects	✓	✓
# of countries	81	81
Observations	1681	1681

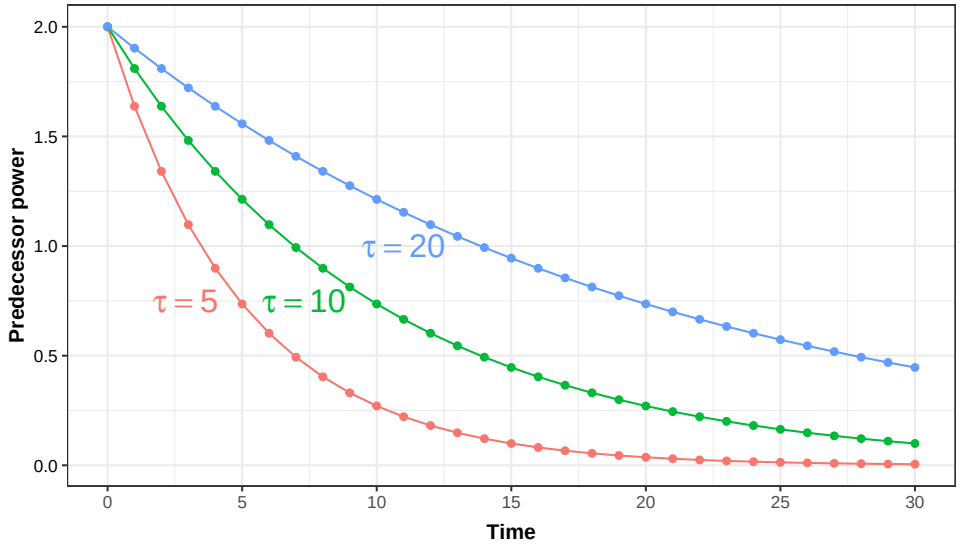
Note: This table presents the results using several alternative measures for predecessors' power. The first column uses a variable based on the median (as opposed to mean) of predecessors' in-office Ngram-based power index. The second column uses a binary indicator for whether any living predecessor is present (regardless of his/her power). Standard errors are clustered at the country level.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ (two-tailed test)

Table A.20: Allowing Predecessors' Power to Change Over Time

	DV: Incumbent power (Ngram)			
	(1)	(2)	(3)	(4)
Predecessor power with exponential decay ($\tau = 5$)	-0.439***			
	(0.132)			
Predecessor power with exponential decay ($\tau = 10$)		-0.414***		
		(0.128)		
Predecessor power with exponential decay ($\tau = 20$)			-0.389***	
			(0.121)	
Predecessor power (current)				-0.051**
				(0.024)
Lagged DV ($t-1, t-2, t-3$)	✓	✓	✓	✓
Leader and year fixed effects	✓	✓	✓	✓
# of countries	81	81	81	81
Observations	1681	1681	1681	1681

Note: This table presents the results from using several time-variant versions of predecessors' power. The first three columns use variables that allow predecessors' power to decline (starting from the last year of each predecessor's tenure) following an exponential decay function $y(t) = y(0)e^{-t/\tau}$. $y(0)$ is a predecessor's average power as chief executive, t is the number of years passed since the predecessor stepped down from office, and $y(t)$ represents the predecessor's remaining power at t. τ is the exponential time constant, which is inversely related to the speed of decay. The τs for the first three columns are set at 5, 10, and 20, respectively (see Figure A.15 for an illustration of the speed of decay). The fourth column uses the *current* power index of the most influential living predecessor. Standard errors are clustered at the country level.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ (two-tailed test)

Figure A.15: Illustration of Exponential Decay



Note: This figure provides an illustration of the speed of decay in predecessor power when the exponential time constant (τ) is set at 5, 10, and 20, respectively. $t = 0$ is when a predecessor steps down from office.

Table A.21: Results Using GWF Autocratic Regime Sample

	Incumbent power (Ngram)				
	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) GMM
Predecessor power	-0.064**	-0.157**	-0.157**	-0.289***	-0.295***
	(0.028)	(0.075)	(0.075)	(0.083)	(0.081)
Lagged DV ($t-1, t-2, t-3$)	✓	✓	✓	✓	✓
Regime and year fixed effects		✓			
Leader and year fixed effects			✓	✓	✓
Control variables				✓	✓
# of countries	96	96	96	90	90
Observations	1900	1900	1900	1679	1650

Note: This table presents the regression results using an alternative sample of autocratic regimes as defined by Geddes, Wright, and Frantz (2019). The specifications are otherwise the same as in Table 1. Control variables include the incumbent's tenure length, log real GDP (in US dollars), and log population. Standard errors are clustered at the country level.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ (two-tailed test)

Table A.22: Transition to No Predecessor vs. Transition to Weaker Predecessor

	Incumbent power (Ngram)		
	(1) Natural death	(2) To no predecessor only	(3) To a weaker predecessor
Predecessor power	-0.264***	-0.260**	-0.145
	(0.092)	(0.110)	(0.128)
Lagged DV ($t-1, t-2, t-3$)	✓	✓	✓
Leader and year fixed effects	✓	✓	✓
# of countries	80	81	78
Observations	1598	1636	1521

Note: This table presents regression results that distinguish between different modes of predecessor change. The first column reports estimation results that only use predecessor change caused by natural death. The second column uses only changes from an active predecessor to no predecessor, and the third column uses only those changes from an active predecessor to a weaker predecessor. The specifications are otherwise the same as in Column 4 of Table 1. Standard errors are clustered at the country level.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ (two-tailed test)

Table A.23: Removing Influential Observations

	Incumbent power (Ngram)		
	(1) Remove Cook's Distance ⩾ 95 percentile	(2) Remove Cook's Distance ⩾ 90 percentile	(3) Remove Cook's Distance ⩾ 75 percentile
Predecessor power	-0.202***	-0.192***	-0.216***
	(0.070)	(0.064)	(0.059)
Lagged DV ($t-1, t-2, t-3$)	✓	✓	✓
Leader and year fixed effects	✓	✓	✓
Control variables	✓	✓	✓
# of countries	80	77	75
Observations	1632	1547	1289

Note: This table presents the regression results using subsamples that exclude influential observations based on Cook's distance. The specifications are otherwise the same as in Column 4 of Table 1. Standard errors are clustered at the country level.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ (two-tailed test)

Table A.24: Results from Placebo Tests

	DV: Incumbent power (Ngram)	
	(1)	(2)
Predecessor power (dead predecessor)	0.330***	
	(0.066)	
Predecessor power (same country, different regimes)		-0.075
		(0.088)
Lagged DV ($t-1, t-2, t-3$)	✓	✓
Leader and year fixed effects	✓	✓
# of countries	81	81
Observations	1681	1681

Note: This table presents results from regressions using placebo variables for predecessor power. The first placebo variable measures the maximum in-office power index for predecessors who are deceased, and the second column uses a variable that measures the maximum power index of the living predecessor who is from a *different regime* than the incumbent leader. The specifications are otherwise the same as in Column 4 of Table 1. Standard errors are clustered at the country level.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ (two-tailed test)

Table A.25: Incumbent Leader's Power and Mode of Exit

	DV: pre-mortem consensual exit	
	(1)	(2)
Incumbent power (Ngram)	-0.012***	-0.009**
	(0.004)	(0.005)
Regime and year fixed effects	✓	✓
Tenure cubic spline	✓	✓
Control variables		✓
# of countries	4614	4009

Note: This table presents the regression results on the relationship between incumbents' power and the likelihood of a pre-mortem consensual exit. A consensual exit is defined as one in which the incumbent leaves office in the absence of external pressure or coercion. The baseline outcome includes death in office and exits by coup, popular uprising, or civil war. The control variables include log real GDP, log population, incumbent's age, and whether the incumbent is the founding leader of the regime. Standard errors are clustered at the country level.

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

Table A.26: Addressing Selection Issue with Heckman Model

	Incumbent power (Ngram)
	(1)
Main	
Living predecessor's power	-0.274*
	(0.142)
Log real GDP	0.571***
	(0.214)
Log population	0.500
	(0.428)
Selection: immediate predecessor voluntarily retired (1=yes)	
Immediate predecessor's power as CE	-0.529***
	(0.184)
Regime duration	-0.002
	(0.005)
Log real GDP	1.030***
	(0.204)
Log population	0.013
	(0.389)
Inverse Mills Ratio (λ)	1.008***
	(0.315)
Observations	1839

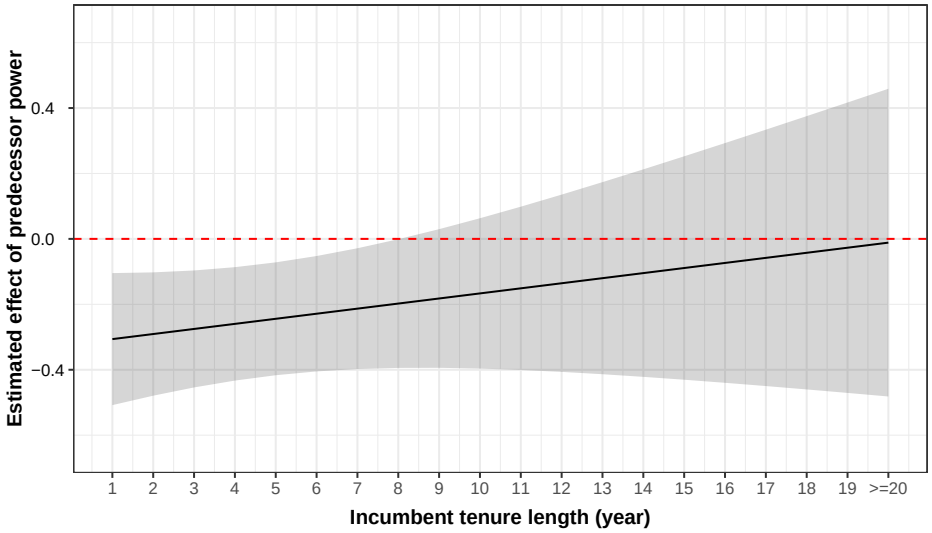
Note: This table presents results from a two-stage Heckman selection regression. The first-stage regression model predicts whether the immediate predecessor of the incumbent voluntarily retired from office with several leader- and regime-level covariates. CE = chief executive.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ (two-tailed test)

Table A.27: Addressing the Issue of Predecessors Deliberately Selecting Weak Successors

	Power index of incumbent ***X*** year(s) before entering office		
	(1) $X = 1$	(2) $X = 2$	(3) $X = 3$
Predecessor power	0.190	0.075	-0.129
	(0.364)	(0.484)	(0.402)
Control variables	✓	✓	✓
Regime and year fixed effects	✓	✓	✓
# of countries	94	94	94
Observations	216	209	207

Note: This table presents the estimated relationship between predecessors' power and the Ngram-based power index of their successors X year(s) ($x \in \{1, 2, 3\}$) before assuming office. Founding leaders with no predecessors are excluded from the sample. The specifications are otherwise the same as in Column 4 of Table 1. Control variables include log GDP per capita and log population. Standard errors are clustered at the country level.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ (two-tailed test)

Figure A.16: Effect of Predecessor Strength by Successor's Tenure Length



Note: This figure illustrates the estimated effect of the predecessor's strength on the power of the incumbent leader. The line indicates the point estimate for the predicted effect and the shaded area indicates the 95% confidence intervals. The model includes a linear interactive term (*Incumbent tenure* × *Predecessor power*) but is otherwise the same as in Column 4 of Table 1.

Table A.28: Correlation between Leader Power and Country Mentions

	DV: Incumbent power
	(1)
# of country mentions	-0.031
	(0.190)
Country and year fixed effects	✓
# of countries	101
Observations	2009

Note: This table presents the estimated association between incumbent's power index and the (logged) number of mentions of his/her country in Ngram. Standard errors are clustered at the country level.
$^{+}$ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$ (two-tailed test)

G Visualization of Power Dynamics for All Autocratic Regimes, 1950–2019

Figure A.17: Variations in Incumbent and Predecessor Power: All Authoritarian Countries

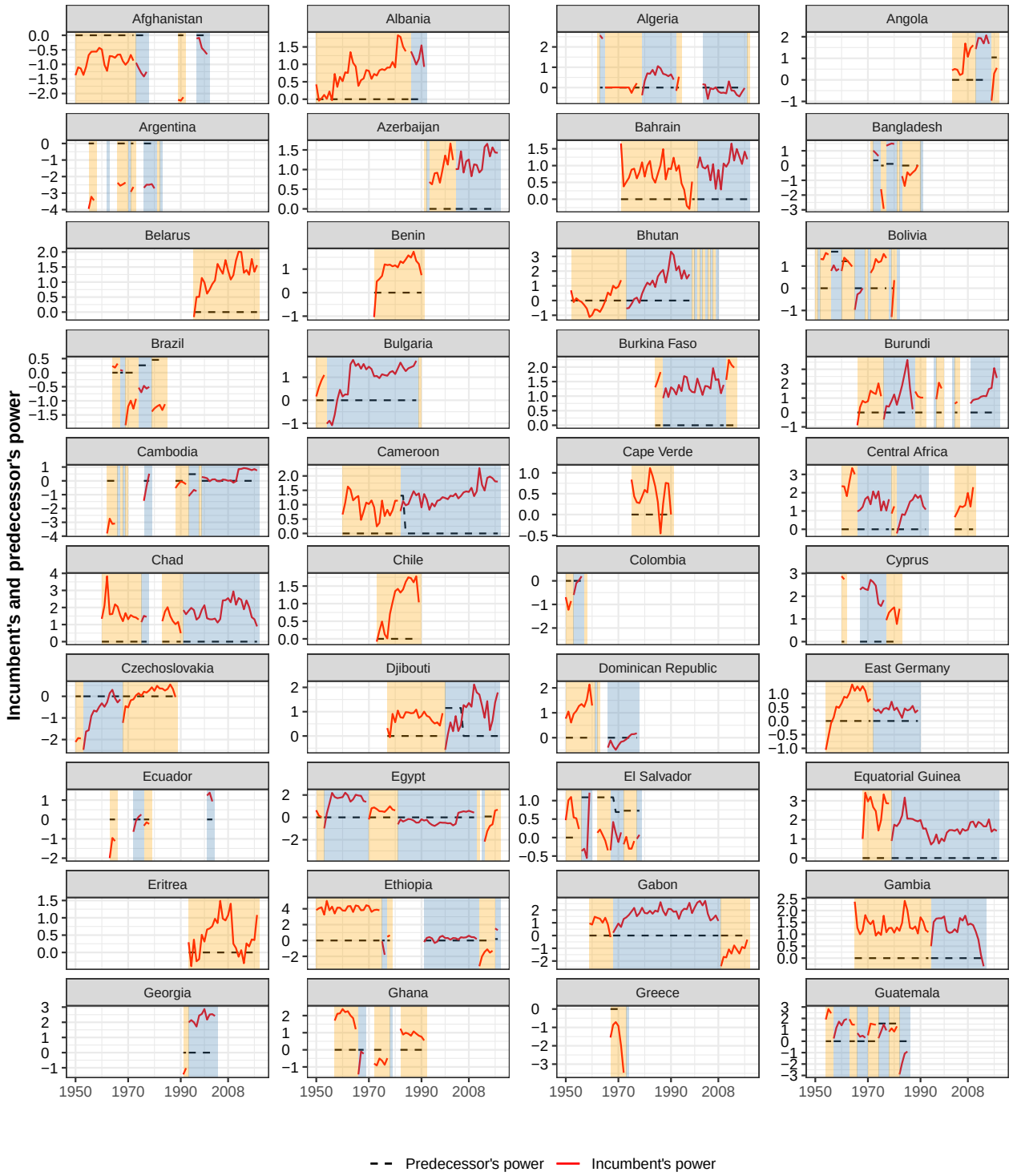


Figure A.18: Variations in Incumbent and Predecessor Power: All Leaders in All Authoritarian Countries (Cont'd)

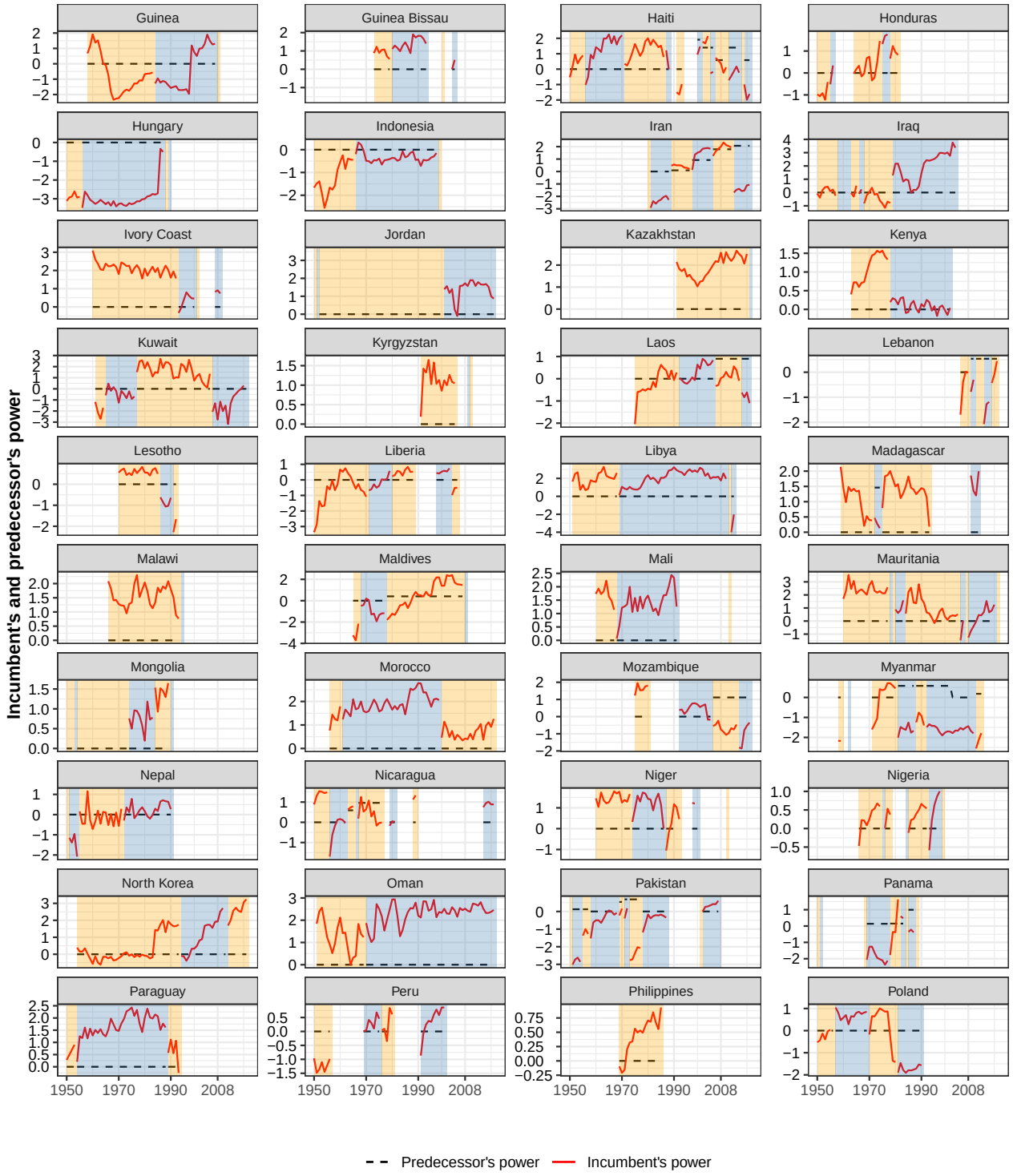
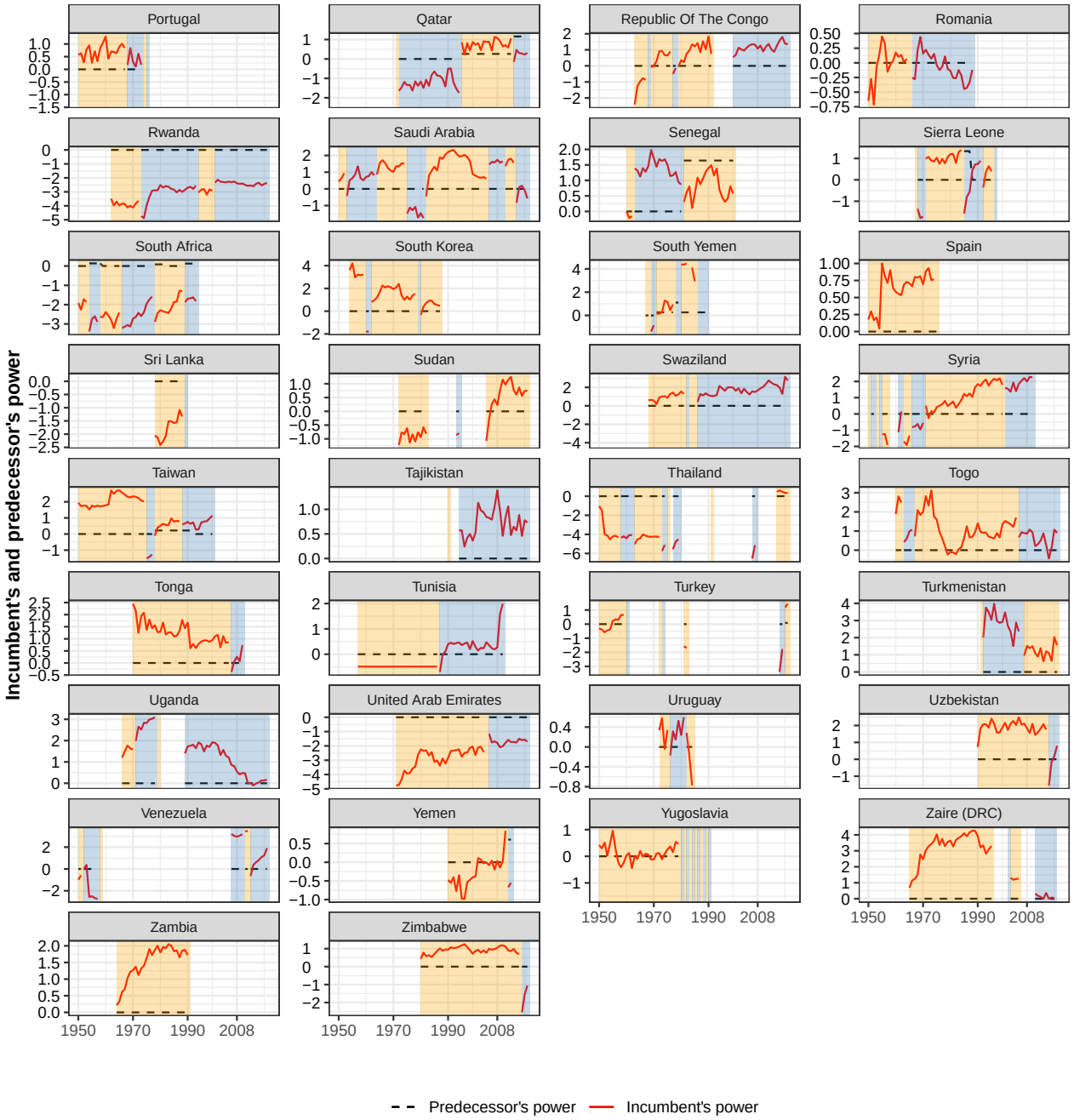


Figure A.19: Variations in Incumbent and Predecessor Power: All Leaders in All Authoritarian Countries (Cont'd)



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