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Why It Matters What Autocrats Say: Assessing Competing Theories of Propaganda

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Why It Matters What Autocrats Say: Assessing Competing Theories of Propaganda

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Abstract

This article investigates two accounts of political propaganda in autocratic regimes. One argues that propaganda's content does not matter substantively and that propaganda is mostly a signal of the regime's overwhelming power over citizens. A second argues that propaganda is substantively meaningful: autocrats may communicate strategically either by attracting attention through highlighting the regime's strengths or by distracting attention away from the regime's malperformance. Using nearly 135,000 North Korean state-generated news articles between 1997 and 2018 we show that North Korea systematically adjusted its communication strategies following the leadership transfer from Kim Jong Il to Kim Jong Un.

Keywords

Authoritarianism; Autocracy; North Korea; Text-as-data; Propaganda

Consider the following introductions to statements issued by the Korean Central News Agency (KCNA):

- a. "Seminars on the exploits of President Kim Il Sung took place in Bangladesh and Germany on July 5 and 7 in commemoration of the twenty-first anniversary of his demise. The president of the Bangladesh People's League and other speakers praised Kim Il Sung as an outstanding thinker and theoretician and prominent statesman" (KCNA 15.07.2015);
- b. "There is the Kyonghung Restaurant built in a peculiar style near the Pothong River here. It is a public catering complex which came into being under the deep care of leader Kim Jong Il" (KCNA 30.09.2013); and
- a) "The Lee Myung Bak regime of South Korea, which once hardly breathed in fear of the just and thunder-like declaration of the DPRK, is now speaking ill of the strong spirit of service personnel and people of the DPRK" (KCNA 03.09.2012).

These three statements give a first impression of how propaganda looks in an authoritarian setting like North Korea. Reading these messages, questions arise as to the functions of authoritarian propaganda and the mutability of messages over time. Are these messages meant mainly to signal regime power by repeating *ad nauseam* the same messages over the years? Or does the content of the messages change over time in meaningful ways to legitimize the regime substantively? If it changes over time, what underlying patterns are discernible? Building on classic studies (Neumann 1965; Rigby and Fehér 1982; Tucker 1963), contemporary students of autocratic politics have rediscovered the analysis of authoritarian propaganda and have advanced theoretical knowledge in this area considerably (e.g. Carter and Carter 2021; Dukalskis 2021; Dukalskis and Gerschewski 2020; Guriev and Treisman 2019; Huang 2015, 2018; Little 2017; Liu and Ma 2018).

In this article, we describe two conceptions of authoritarian propaganda that emerge from this recent literature and use the extreme case of North Korea to assess them. North Korea (or DPRK, standing for Democratic People's Republic of Korea) relies on arguably the most rigid, non-flexible, longest standing, and routinized state media apparatus in the world. On the one hand, there should be no other media system worldwide that is more prone to the constant repetition of meaningless propaganda, overwhelming their citizens with what seems to be the same messages over and over again. Yet, on the other hand, students of North Korea have pointed to the significance of the government's propaganda and have closely studied its content over time (e.g. Hassig and Oh 2009; Kim 2010; Kwon and Chung 2012; Lankov 2015; Myers 2011). The steadfast commitment by the DPRK to manufacture propaganda over decades and the assessment among North Korea scholars that propaganda "matters" there mean that it is suitable terrain for an initial test comparing these conflicting theories of propaganda.

The main contribution to scholarship that we make is to compare empirically two prevalent theoretical approaches to autocratic propaganda: signaling versus legitimation. Broadly, the signaling approach should communicate the regime's strength to the population via the sheer number of propaganda texts that are circulated, irrespective of their concrete content. It should convey mainly the extent of the government's overwhelming power over its citizens with relatively static messages, not specific messages, and not messages tailored to the concrete political context. The aim is mainly to deter challenges. In contrast, the legitimation approach holds

that the content of the messages matters and that authoritarian communications have purposes beyond signaling the government's unassailability.

To assess these approaches, we focus on North Korea's leadership succession from Kim Jong Il to Kim Jong Un. We find that the DPRK altered its messaging in substantive and significant ways when Kim Jong Un took over from his father Kim Jong Il during the last days of 2011. Going deeper theoretically, we find evidence that the DPRK sought to *attract* citizens to its political system and emphasized national accomplishments rather than *distract* them from its shortcomings when facilitating the delicate power transition. At more fine-grained levels, the most significant and important finding is that as Kim Jong Un assumed and consolidated power his administration emphasized the personality cult drastically more than in previous years. We take this mutability and adaptability as evidence in support of the "propaganda as legitimation" approach. However, we hasten to add that we do not claim this to be the final word on the subject, nor do we claim to have found a generalizable finding across time and space. Rather, we maintain that our contribution is to make explicit different theoretical approaches to authoritarian propaganda and attempt to test them rigorously, uncovering findings that lend qualified support in one context to one of the approaches.

Methodologically, we employ a "text as data" approach (see Grimmer and Stewart 2013) to the study of authoritarian political communication and complement it with case-specific background knowledge. Employing an unsupervised topic modeling approach, we uncover and quantify the evolution of North Korean messaging. Using a series of statistical tests, we explain variation in North Korean rhetoric surrounding the delicate period of the leadership transfer from 2009 to 2012. Our text analysis is based on nearly 135,000 articles from the North Korean press between 1997 and 2018. The corpus allows a unique perspective on how, why, and what autocratic regimes communicate.

Studying Authoritarian Regimes and Theorizing Authoritarian Propaganda

In the last three decades, scholars in the field of comparative authoritarianism have embarked on massive data collection efforts and constructed typologies that have advanced our understanding of authoritarian politics (e.g. Alvarez et al. 1996; Cheibub, Gandhi, and Vreeland 2010; Geddes, Frantz, and Wright 2014; Wahman, Teorell, and Hadenius 2013).

Using these data, a series of theoretically elaborated and empirically rich studies adopted an institutionalist perspective and argued that parties, parliaments, elections, or elite-centered power arrangements stabilize autocratic rule (Boix and Svoblik 2013; Gandhi 2008; Gandhi and Przeworski 2007; Meng 2020; Schedler 2013; Svoblik 2012). Moreover, institutional variables have been used extensively for explaining policy outcomes as well as international dimensions of autocratic rule (Escribà-Folch and Wright 2015; Stromseth, Malesky, and Gueorguiev 2017; Tansey, Koehler, and Schmotz 2016). Most of these studies have advanced an argument across a large number of cases and have traced developments over time. They have shone light into the black box of autocratic machines. Yet, it is possible that the institutional wave might be cresting and that these types of explanations are approaching a saturation point.

In this situation, we propose to analyze authoritarian communication as a valuable complement in the empirical study of authoritarian regimes. Enormous advances have been made in computer-assisted analyses of political text corpora (e.g., Grimmer and Stewart 2013; Lucas et al. 2015; Monroe and Schrodt 2008; Roberts 2016). Comparative authoritarianism is beginning to connect to these methodological advancements and open additional perspectives on how autocracies work.

The dominant approach to understanding authoritarian resilience posits that the main factor keeping authoritarian leaders in power is elite cohesion supplemented by successful co-optation and selective repression. The major threat for regime overthrow stems from within its own higher ranks. As such, there is little need to convince the population of the government's legitimacy, so authoritarian propaganda is not a central strategy for the regime. The main observable implication of this approach is that authoritarian regimes should not invest heavily in a propaganda apparatus. This approach implies that propaganda is more or less irrelevant to authoritarian resilience.

However, state-controlled information *is* prevalent. Since the high tide of totalitarian regimes, dictators have often desired a state monopoly of information (Friedrich and Brzezinski 1956). It is argued that propagating pro-government information plays some role in stabilizing autocratic rule. The fact that so many governments use propaganda provides *prima facie* evidence that they believe it contributes to bolstering their resilience. Recent studies have addressed similar themes by showing how authoritarian regimes manipulate online information strategically to prevent potentially threatening collective action (Guriev and Treisman 2019; Huang 2015, 2017; King, Pan, and Roberts 2013, 2017).

Accepting that propaganda is of potential relevance leads directly to the question of its theoretical underpinnings: What does it do for the regime? There are two main emergent theoretical approaches to the study of authoritarian propaganda (see Figure 1).¹ The first perspective, the "propaganda as signaling" approach, stresses that the main function of authoritarian propaganda is to communicate to the population the government's overwhelming power (Huang 2015). The idea is that the content of propaganda does not matter in meaningful ways; rather, it is the fact that the government is able to compel the population to consume propaganda by inundating the public sphere with pro-government messages. The ability of the government to expose the population to iterative messages is key here, rather than the content of the messages themselves, and can help facilitate ritualistic forms of participation (see Marquez 2018; Wedeen 1999). North Korean-style "hard" propaganda, which is crude, overbearing, and repetitive, can function to deter collective challenges even if it may erode regime legitimacy (Huang 2018). Content may change over time, but we would not expect changes to be systematic because change is incidental to the function of propaganda as a signaling device. If this approach is supported,

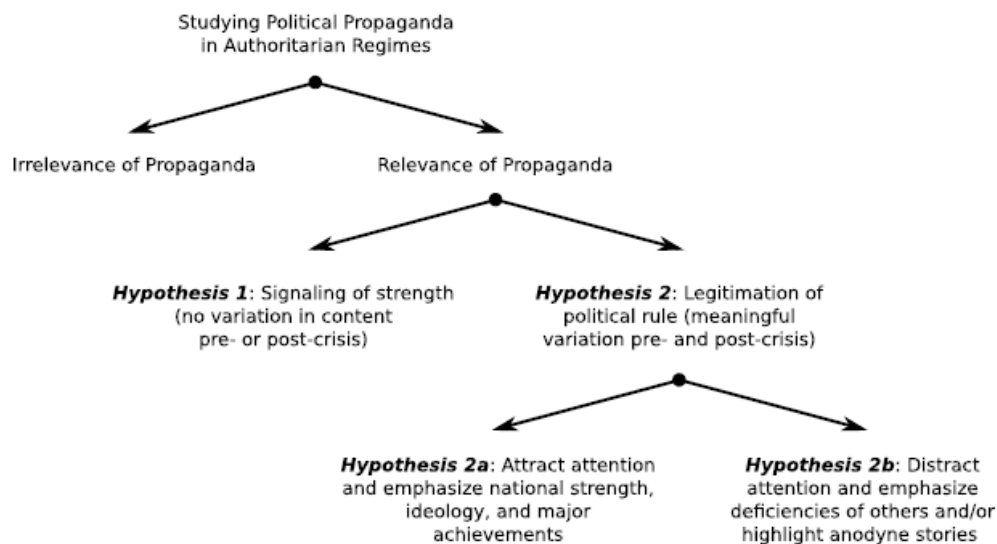


Figure 1. Theoretical expectations of authoritarian propaganda

then the content of authoritarian propaganda should not be expected to meaningfully change in systematic ways in relation to major developments or crises (Hypothesis 1).

The second, what we might call the legitimation approach, emphasizes that authoritarian regimes are compelled to justify their rule somehow (Dukalskis and Gerschewski 2017; Gerschewski 2018). They have to provide some plausibly convincing content to help explain why it is appropriate that this government rules the country, why and how it is performing well, and how it is preferable to alternatives. This approach speaks directly to a recent body of literature which demonstrates that autocratic media often frame rather than censor bad news and that these propaganda efforts do have a tangible effect on people's attitudes and behavior (Adena et al. 2015; Gehlbach and Sonin 2014; Huang 2018; Peisakhin and Rozenas 2018; Rozenas and Stukal 2019). The "propaganda as legitimation" approach shares with these works that content matters rather than the sheer and overwhelming quantity of propaganda materials alone. The observable implication of this approach is that the propaganda of autocracies should be dynamic; it should change substantively in anticipation of and in reaction to major developments or crises (Hypothesis 2).

Within the legitimation approach, we can distinguish two more specific competing hypotheses in relation to how propaganda changes relative to major challenges for the regime. Scholarship on framing emphasizes the value of rhetorically packaging events or processes in order to gain support (Benford and Snow 2000). Crafting frames entails explaining, connecting, and aligning "events and experiences so that they hang together in a relatively unified and compelling fashion" (Benford and Snow 2000, 623). This approach is generally applied to social movements that challenge the status quo, but states also frame events and processes so that they are consistent with broader official narratives (Tarrow 1998, 22; Dukalskis 2017; Rozenas and Stukal 2019). The general aim is to maintain or gain support for the government's rule rather than to challenge the status quo.

There are numerous ways to achieve "frame resonance" such that messages are persuasive, but broadly we can identify two categories of legitimation messages that authoritarian governments might deploy amid major challenges: those that attract viewers to the government's point of view and those that distract the attention of the ruled away from the ruling regime. A strategy of attracting the attention of the people attempts to highlight the government's strength and appeal despite challenges or crises. The idea is to at best gain support directly for the government's policies or at minimum to communicate that, despite the crisis, the state is stable, and that its basic political structure should continue unchanged and will solve the problems at hand (Easton 1965). With a strategy of attraction, we would expect that before, during, and after a crisis an authoritarian regime would emphasize its leadership, ideological strength, and own achievements (Hypothesis 2a).

In contrast, a strategy of distraction attempts to deflect public attention away from challenges or crises. The idea is to de-emphasize whatever fault the government might have for poor outcomes. Such "attributional framing" focuses responsibility and exacerbates an us/them delineation (Benford and Snow 2000). Messages of distraction therefore entail highlighting deficiencies in the systems of the state's enemies. The implicit logic is that while people may be experiencing hardship, the alternatives available are even worse. At the most fundamental level, the objective is to distract attention from the government's troubles by changing the subject of public argument rather than responding to people's complaints (King, Pan, and Roberts 2017). With a strategy of distraction, we would expect authoritarian governments facing major challenges or crises to emphasize the deficiencies of enemy states and/or anodyne stories about other subjects (Hypothesis 2b).

Among the most fragile points in the life of any authoritarian regime is the power transfer from one leader to the next (Frantz and Stein 2017; Meng 2020). It represents a crucial

litmus test for the leadership. If the regime is not prepared for the power transfer, it is a window of opportunity for the opposition and/or internal rivals to join forces and topple it (Brownlee 2007; Svobik 2012). Given the key importance of this process, authoritarian regimes should prepare for this moment of uncertainty to the extent possible. The legitimation argument would hold that when power is transferred, this should be mirrored in the way the regime communicates. It might attract attention by highlighting its own appeal in the face of a power challenge, or it might go the opposite route and deflect from the potential power vacuum and distract the attention of its citizens. In contrast, the signaling hypothesis would posit that the content of the propaganda would not change in meaningful ways surrounding the transition but may increase in frequency or volume.

North Korea as a Context for Authoritarian Propaganda

As mentioned previously, we select North Korea's state-run media as an extreme case to examine political propaganda. It features probably the most well-developed and self-contained media apparatus in the world (Hassig and Oh 2009, 133–70). As is typical in one-party communist dictatorships, the media in North Korea are meant to guide opinion and communicate the government's dictates. Interviews with North Korean defectors who used to be journalists in that system reveal that every piece of news undergoes an official vetting process so that it is in line with the government's political directives (Dukalskis 2017; Fahy 2019).

To be sure, we are not the first to examine North Korean propaganda or to argue that the North Korean propaganda contains interesting information (Kim 2010; Kwon and Chung 2012; Myers 2011). In the political science genre, previous researchers have used North Korean state propaganda to discover policy debates and preferences within the system (e.g. Carlin and Witt 2006; McEachern 2010). Others have used DPRK media to decipher messages being sent to the outside world about the country's nuclear program (Rich 2012a, 2014a; Whang, Lammbrau, and Joo 2017). Some have used these sources to make inferences about the internal power politics of the regime—who is up and who is down within the elites (Haggard, Herman, and Ryu 2014; Ishiyama 2014). Still others have used these sources to track changing ideological trends or portrayals of the leadership (Dukalskis and Lee 2020; Joo 2014; Rich 2014b). Our aim is closer to this last group of studies, but slightly different: we intend to use the North Korean case to compare two competing theoretical approaches to authoritarian propaganda. Inferring underlying policy preferences, debates, or elite bargaining within the leadership is not our objective with this analysis. We believe our analysis does illuminate interesting dynamics within DPRK propaganda, but our contributions are primarily to situate these in wider theoretical debates and to apply novel empirical methods to systematically test these different theoretical expectations.

To explore these arguments, we examine the underlying content of North Korean propaganda across time. Our analysis spans the entire period from 1997 to 2018, but we particularly focus on the period of the power transfer from one dictator to the next. North Korea has observed a dynastic leadership transition twice. When Kim Jong Il succeeded his father and state founder Kim Il Sung, he had held party offices since the 1980s. Nevertheless, Korea scholars speculated about internal opposition (Oh 1988, 39–55). After Kim Il Sung's death in 1994, there was an official three-year mourning period during which the country was paralyzed, before Kim Jong Il could consolidate his power. The second, more recent leadership transfer took place between Kim Jong Il and his son Kim Jong Un. Kim Jong Un had been officially announced as the successor of his father in June 2009 and succeeded him when Kim Jong Il died in December 2011.

We concentrate on this most recent power transfer. Here, we are able to use text analysis to assess how North Korean state propaganda dealt with this power transfer in its messaging. We build on empirical insights from previous studies (Haggard, Herman, and Ryu 2014; Ishiyama 2014; Lim 2015; Rich 2012b, 2014b). However, we aim to widen the discussion of North Korean propaganda by connecting it with broader theoretical questions about the underlying functions of authoritarian propaganda.

Data and Methodology

The Korean Central News Agency (KCNA) is the official state media agency of North Korea. The *Rodong Sinmun* is the newspaper of the Worker's Party of Korea. Its articles can also be found on public bulletin boards and are sometimes read aloud at morning work meetings in North Korea. This article draws on both sources and is therefore able to illustrate broad patterns of North Korean propaganda. In November 2016 we retrieved 118,092 KCNA articles and 8,948 *Rodong Sinmun* articles from the Korean news aggregator kcnawatch.com. In May 2018 we updated the KCNA corpus with the addition of 7,781 articles retrieved from kcnaco.jp.² The corpus used in this study, therefore, contains a combined total of 134,821 articles over the period January 1, 1997, to May 10, 2018.³

Measuring the Thematic Structure of North Korean Propaganda via Dynamic Latent Dirichlet Allocation

To begin, we measure the span and frequency of themes discussed by the KCNA and *Rodong Sinmun* over the period 1997–2018. What subjects populate the agenda in the official North Korean news outlets and how does the news agenda change over time? A content analysis of the corpus is necessary to answer this question; but, clearly, the cost of manually classifying 134,821 articles would be prohibitive. Also, while there are some studies that have classified certain themes within the KCNA (e.g., Kwon 2005; Rich 2012a), we have weak *a priori* knowledge of the full range of thematic categories that run throughout the entire corpus. To overcome these challenges, we rely on a computer-assisted content analytic method to measure the topics discussed by the KCNA and *Rodong Sinmun*. Specifically, we employ an *unsupervised* machine learning algorithm to detect meaningful clusters of terms that appear in the news corpus (see Grimmer and Stewart [2013, 14] and Wilkerson and Casas [2017] for

a review of automated text analysis in political science). This method allows us to detect underlying patterns in the corpus that might not be discernible using a supervised approach. While there are numerous unsupervised learning models that are useful for uncovering the thematic structure of large text corpora—commonly known as topic models, such as Latent Dirichlet Allocation (LDA) (Blei, Ng, and Jordan 2003) and the Structural Topic Model (STM) (Roberts et al. 2014)—in this paper we rely on a *dynamic* topic model. Specifically, we employ the dynamic LDA model developed by Blei and Lafferty (2006).⁴ We use this particular topic model because (1) our text data cover a large time period that contains a shift in political leadership, which means that, in the North Korean context, terminology about a given theme may change over time; and (2) certain themes that exist in the earlier period may disappear naturally. One main advantage of the dynamic LDA over more standard topic modeling approaches is that it departs from a strict assumption of document interchangeability. That is, while topic models such as classic LDA assume that all documents, no matter the date of generation, are exchangeable, the dynamic LDA model assumes that documents within predefined time periods (i.e. “time slices”) are exchangeable but that the sequence of these time periods matters. The topic probability distributions, therefore, are allowed to evolve over time. For the particular implementation of the dynamic LDA model used in the current study, approximate posterior inference is achieved using variational inference (Blei and Lafferty 2006, 3).

Dynamic Topic Model Estimation

Following the procedure described above, we first arranged the 134,821 articles of the corpus chronologically into yearly groups. These unstructured text documents were then passed through a set of text pre-processing steps so as to reduce the dimensionality of the data to increase computational efficiency while ensuring that meaningful and predictive terms are preserved (see Grimmer and Stewart 2013, 6).⁵ These processed texts were then used as input in the dynamic LDA algorithm to eventually produce per document dynamic topic probabilities. We estimate the model using the *gensim* Python wrapper for the dynamic LDA model.⁶ Running on a machine with an Intel Core i5-4590 3.3 Ghz Processor, posterior inference of the $k = 85$ dynamic topic model took approximately 24.2 hours.⁷

Topic Model Interpretation

Having estimated the parameters of the dynamic topic model with 85 topics, we next proceed with the interpretation of the substantive meaning of the topics. The first task is to assign a descriptive label to each topic. Given that each term in the corpus vocabulary is assigned some probability to each topic, we reviewed the 20 terms with the highest probability for each dynamic topic. The objective here is to infer the unifying theme of each of these groups of keywords. For instance, a topic that contains large probabilities for the terms “war,” “military,” and “aircraft” is likely related to a “defense” theme. After assigning a tentative label to each dynamic topic, a group of experts finalized the labels by reading the titles and main body text of the 20 articles with the highest probability for each topic and evaluating whether the content of these articles conforms to the labeled theme inferred from the cluster of top keywords. The full results from this labeling procedure for the full 85 topic model are presented in Online Appendix A1. Of course, the analysis of such a large number of topics leads to practical problems; also, many of the estimated topics cover similar overarching themes. To increase analytical parsimony, we provide a second level of topic aggregation whereby topics that deal with a similar overarching theme are grouped together into a new “super-topic” (see, for example, Boussalis, Coan, and Poberezhskaya [2016] for a similar approach).

This involves summing the topic probabilities of a given document into a smaller set of topics. Specifically, we use both the keywords with the largest probability of being assigned to each topic as well as the human-annotated topic labels to guide the allocation of the estimated topics into a new set of 14 super-topic labels. These super-topics group lower-order topics together by theme. Online Appendix A2 provides an overview. As a last step of aggregation, the authors independently determined whether a given super-topic was intended by the North Korean propaganda agency to “attract” or “distract.” That is, we assigned each super-topic as being about attraction, distraction, or neither, using a set of coding rules. Super-topics designed to *attract* the attention of North Korean citizens to the ruling regime contain topics with themes that extol the virtues of the North Korean political system, legitimize its leaders, bolster its ideology, induce rally-around-the-flag sentiment, highlight material progress, and rhetorically bolster domestic institutions.⁸ Super-topics designed to *distract* attention contain articles with themes that undermine external actors or contain frivolous or apolitical material.⁹ The *Natural Disasters* super-topic was coded as neither attracting nor distracting because it covered disasters around the world, including in North Korea, and therefore contained no underlying attraction/distraction logic (please refer to Online Appendix A2).¹⁰ As was the case at each level of topic labeling, the coding was done independently by the authors and differences were reconciled through deliberation.

Topic Model Validation

Following the interpretation of the topic model output, we next proceed with the crucial task of validating the model. A key advantage of a computer-assisted approach to studying large text corpora is that the method ensures high levels of reliability (Laver, Benoit, and Garry 2003; Laver and Garry 2000). However, the validity of the method employed cannot be taken for granted outright. As Grimmer and Stewart (2013, 5) put it, there is a clear need to “validate, validate, validate” an automated text-analysis model. In the sections below, we discuss three approaches we used to demonstrate that the model sufficiently measures the identified underlying themes within the North Korean news corpus. Specifically, we (1) explore the *semantic validity* of the estimated topics by observing topic clustering based on between-topic similarity of term usage; (2) examine the *predictive validity* of the model by observing the correspondence of topic salience with external events; and (3)

demonstrate *concurrent validity* by calculating agreement between human-coded documents and model predictions of thematic content.

Semantic Validity

The evaluation of highly probable terms for each topic that was conducted above provides an initial approximation of the semantic validity of the model output. But how accurate are the labels that we assigned to the 85 topics? In this section we determine how topics that are theoretically similar relate to one another (Quinn et al. 2010). Recall that “topics” produced by the dynamic LDA model are represented as a probability distribution over the fixed corpus vocabulary. Thus, we would expect the probability distributions of topics related to a similar broader theme to have a more similar shape than otherwise. To demonstrate the semantic similarity of all 85 topics produced by the model, we compute the pairwise Jensen-Shannon distances (Endres and Schindelin 2003; Osterreicher and Vajda 2003) for all topics and project these distances onto a two-dimensional space via classical multidimensional scaling (MDS) (Borg and Groenen 2003). Topics that deal with similar themes, and therefore have more similar probability distributions, should share a smaller distance, while unrelated topics should be farther apart.

Figure 2 displays the results of this procedure. Generally, the 85 topics cluster in a theoretically consistent manner. On the left and bottom part of the plot, we can see how topics related to North Korea’s rivals (i.e. South Korea, Japan, and the United States) are clustered together, even though the thematic content of this set of topics varies considerably (e.g., joint military exercises, domestic politics in foreign countries, human rights violations of foreign powers, etc.). Moving to the center and top of the plot, we find clusters of news topics related to culture, ideology, and development. The right segment of the plot contains a distinct cluster of topics related to diplomatic themes and ceremonial relations with friendly nations. In sum, this analysis further strengthens confidence in our interpretation of the semantic content of the model output.

Predictive Validity

A second approach to determine how well the model classified the thematic content of the news corpus, as well as the researchers’ ability to interpret the model output, is to estimate the predictive validity of the results—that is, how well the estimated topics are explained by external events (Quinn et al. 2010). The prevalence of a certain topic within the corpus should increase during periods in which events relevant to the topic occur. One problem that we face with our corpus is that

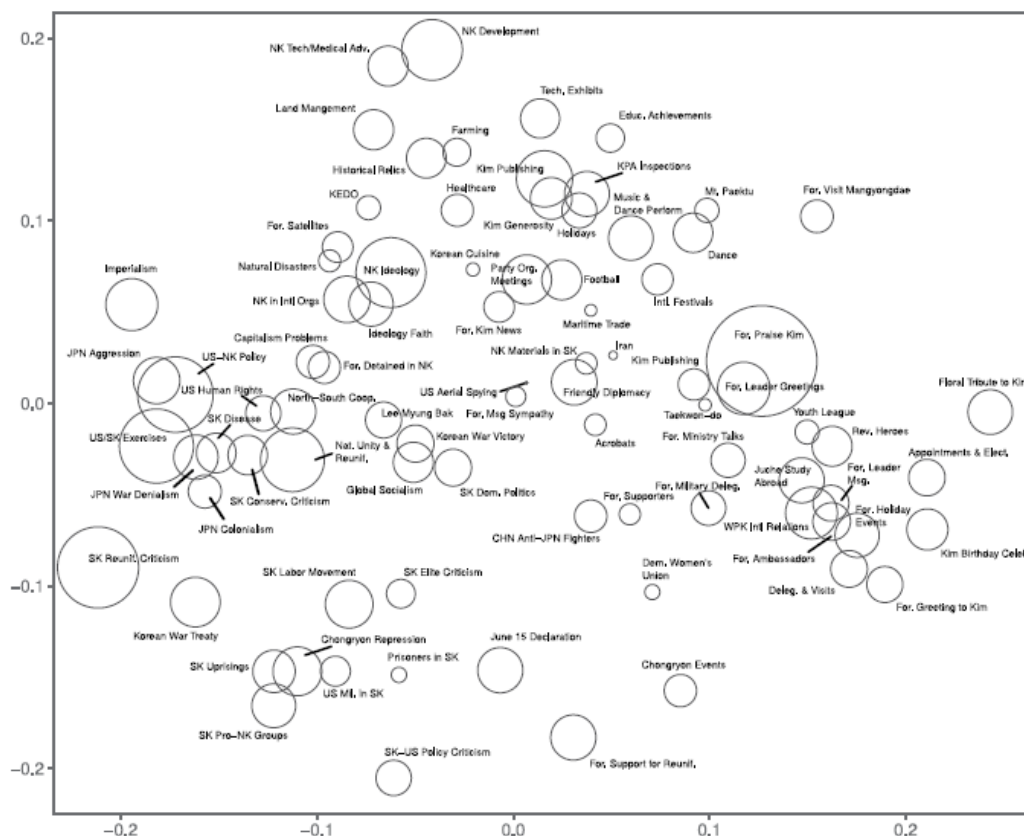


Figure 2. Semantic similarity of 85 topics from the North Korean news corpus. This figure illustrates topic similarity by displaying Jensen-Shannon distances that are projected onto a 2D space via classical multidimensional scaling (MDS). Topics are represented by circles, the size of which corresponds to the prevalence of given topic in the entire corpus. Topics that use more similar terms are closer to each other and vice-versa.

certain topics are likely to be underreported by the North Korean state media during periods of objective salience, such as economic crises or natural disasters.

Public holidays and festivals, however, are a good candidate to test the predictive validity of the topic model. The prevalence of cultural themes detected by the model should reliably increase around the dates of respective holidays. North Korea's most important public holiday is the Day of the Sun on April 15, which marks the birthday of the state founder and long-term leader Kim Il Sung. Another important public holiday falls on February 16, which is the birthday of his son and successor Kim Jong Il.

Figure 3 displays average monthly topic probability for the topic of festivals. It generally confirms our expectation that thematic discourse surrounding festivities should increase in February and April.

Concurrent Validity

We further explore the validity of the model output by estimating the concurrent validity of the labeled topics by comparing the predicted topic classifications provided by the algorithm to a human-coded gold standard. If the model is performing well and if the interpretation of the output is correct, we would expect there to be high levels of agreement between the predicted primary topics for a given document and those classified by human coders. To estimate this level of agreement, two researchers were tasked with selecting which of the 14 super-topics listed in Table A2 in the Online Appendix is the primary theme for a given document in a randomly selected set of 600 articles. The details of this procedure are discussed in Online Appendix E. When comparing the human-coded primary super-topic to the "top 3" most probable super-topics predicted by the model, we observed a satisfactory level of classification performance ($F1 > 0.8$) for 9 of the 14 super-topics. Crucially, these highly performing super-topics include the most theoretically meaningful categories for the research objectives of the study.

Statistical Methods

Having sufficiently validated the topic model, we next use a set of aggregations of the estimated topic probabilities as dependent variables to test whether the North Korean leadership transition influenced the rhetoric of the KCNA and the *Rodong Sinmun*. Specifically, the dependent variables employed in the analysis are average weekly topic probabilities of the *Attraction* and *Distraction* topic aggregations, as well as the *Personality Cult*, *Domestic Development*, and *Ideology and Revolutionary Legacy* super-topics, which are three important ones for types of autocratic legitimation as they correspond to common legitimation foundations posited in the literature, namely personalism, performance, and ideology. The key explanatory variable of the analysis is the succession treatment period following the December 19, 2011, ascendancy of Kim Jong Un to the North Korean leadership.¹¹

Given that we are interested in the effect of this discrete event, we use an interrupted time-series approach to test our hypotheses (Morgan and Winship 2015; Shadish, Cook, and Campbell 2002). The topic probability data are appropriate for this method since we have temporally granular observations over a very long period of time along with a well-defined treatment event. The granularity of the data therefore helps alleviate fears of concurrent confounding effects that might have an independent influence on the rhetorical strategy of the North Korean news agency around the time of the treatments. We estimate the interrupted time-series model using a Prais-Winsten regression model, which assumes an AR(1) process, and Huber-White standard errors.¹²

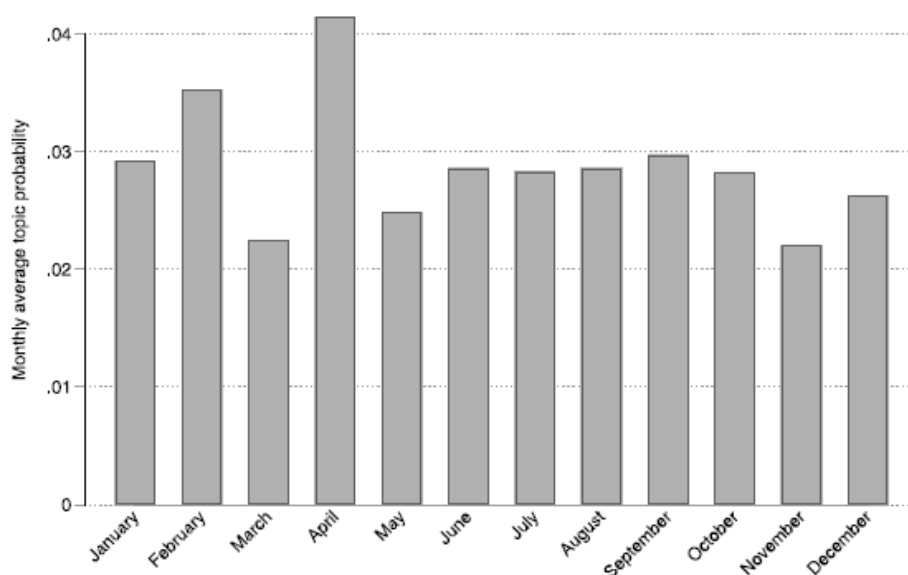


Figure 3. Predictive validity. This figure displays the monthly average topic probability for the culture super-topic.

Results

The results of the statistical models are presented in graphical form below, with tables of statistical results presented in Online Appendix B. The first question that we pose is to what extent we can observe a significant change in the official communication of the regime after foreseeable crisis situations. More generally, does the substantive content of the propaganda change in anticipation of or in reaction to major events, and if so, how? The first two plots in the first row of Figure 4 and Table B.1 in Online Appendix B report the statistical results for the most highly aggregated topics, namely *Attraction* and *Distraction*, respectively. As discussed above, the *Attraction* theme presents an appealing vision of politics and highlights the achievements of the government. *Distraction*, in contrast, deflects attention away from the political system and instead highlights other entities or processes. As can be seen in the figure, compared with the pre-treatment period, we find a statistically significant increase in the level of *Attraction* ($p < .01$) and a decrease in the level of *Distraction* ($p < .05$) in the period following the succession decision by Kim Jong Il. These results are also substantive. An average document in the post-announcement period, relative to the pre-treatment period, contains 4.9 percent more terms related to *Attraction* and 4.4 percent fewer terms related to *Distraction*.

If we disaggregate *Attraction* and *Distraction*, however, we can observe more definite trends in the types of domestically oriented thematic discussion that the North Korean government emphasized. Specifically, we focus on three of the most important super-topics in this regard: *Personality Cult*, *Domestic Development*, and *Ideology and Revolutionary Legacy*. Conceptually, these map onto theoretically relevant modes of legitimation, namely personal charisma, performance, and political ideology (Dukalskis and Gerschewski 2017; Grauvogel and Von Soest 2014; Tannenber et al. 2021). They therefore provide clues as to how the regime perceives its evolving foundation for legitimizing its rule.

The remaining plots in Figure 4 and Table B.2 in the Online Appendix display the statistical results on the effects of the leadership transition treatments on the salience of these three rhetorical themes. Perhaps the most dramatic and significant change in the analysis can be observed with the *Personality Cult* super-topic whose results are illustrated in the third plot of the first row in Figure 4. We find a pronounced positive and statistically significant increase ($p < .01$) in the level of *Personality Cult* communication when compared to the pre-transition period. The effect is substantively meaningful as well: discussion of the Kim family cult increased by more than 9 percentage points when compared to the pre-transition period.

Our final set of results, which focus on *Domestic Development* and *Ideology and Revolutionary Legacy*, are shown in the bottom row of Figure 4. By and large, we find modest to no difference in messaging for these themes. In the case of *Domestic Development*, Kim Jong Un's accession was accompanied by a drop in this messaging ($p < .01$). For discussion related to ideology and revolutionary legacy, however, no meaningful difference in communication levels can be discerned following the transition.

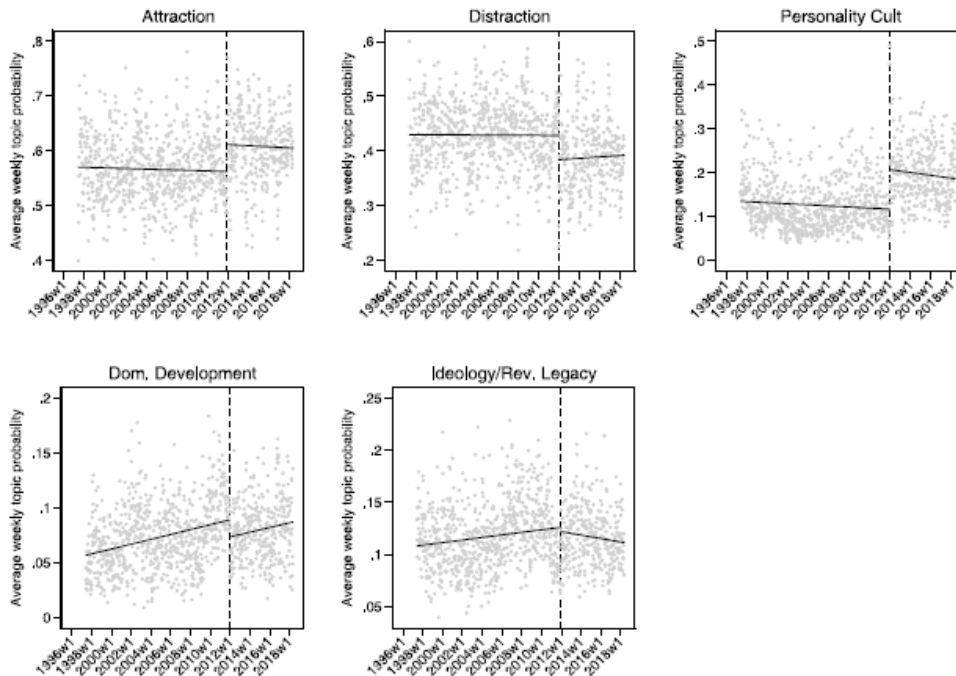


Figure 4. Interrupted time-series analysis results using only transition period as treatment. This figure displays the average weekly topic proportions for (a) *Attraction*, (b) *Distraction*, (c) *Personality Cult*, (d) *Domestic Development*, (e) *Ideology and Revolutionary Legacy* over the period May 26, 1997 - May 10, 2018. The dashed vertical line represents the succession of Kim Jong Un to leadership. Predicted values for the pre-treatment and succession treatment are represented by the solid lines.

Lastly, we note that Online Appendix C includes a set of permutation analyses that compare the observed effect of the actual succession period on North Korean propaganda communication with a null distribution of estimates from all alternative treatment cutoffs from the pre-succession period. The results of this procedure help reduce concerns that the results discussed above are simply the product of artifacts in the data.

Discussion

Overall, the analysis reveals qualified support for the “propaganda as legitimation” approach. At the highest level of aggregation, there were apparent changes in the tactics of attracting or distracting the audience. Overall, it can be concluded that the North Korean government attempted to increase its level of attraction in the initial phase of the leadership transfer (Hypothesis 2a), most likely to generate enthusiasm for a third generation of Kim rule. These changes suggest modest support for the “propaganda as legitimation” approach insofar as discernible changes are evident. From a methodological standpoint, the empirical results lend credence to a rhetorical approach in comparative authoritarianism that takes seriously what autocrats communicate and treats their texts as valuable data. At the next level down, theoretically important themes, such as personalism, ideology, and performance, changed to varying degrees as the government prepared for and consolidated a leadership transfer. Perhaps the most revealing result of this analysis is the impact of the leadership transition on the salience of personalist rhetoric. The personality cult of the Kim family had been on a slight but steady decline until the power transfer from Kim Jong Il to Kim Jong Un. However, the underlying prevalence of the personality cult took a drastic and immediate leap after Kim Jong Il's death and remained steady throughout the rest of the timespan. This change has at least two implications. First, it suggests that the Kim Jong Un government has amplified the extent to which it bases its legitimacy on personalism relative to Kim Jong Il (Mahdavi and Ishiyama 2020). While the former has prioritized economic development and national defense as policy areas, these topics lag far behind personalism as a foundation of regime legitimacy. Notice as well that the personalism is not accompanied by an amplification of revolutionary legacy or ideology like “Juche” or “Songun.”¹³ Rather, this is purely about the wisdom and charisma of the leading family. While North Korea has long sought to institutionalize the charisma of Kim Il Sung (Kwon and Chung 2012), the Kim Jong Un administration appeared to be taking this strategy to new heights relative to the previous period. Second, these results shed light on the debate about what kind of regime the DPRK is. Over time, some have seen it as a military regime (Wintrobe 2013), others as a single-party regime (Smith 2005), and still others view it as a single party–personalist hybrid (Geddes, Wright, and Frantz 2014). Whatever one labels the DPRK institutionally, it is clear from this evidence that the current administration took a much more personalist approach to legitimate its rule upon assuming power. Whether the propaganda works to convince the audience is one question, but clearly the North Korean government has adjusted its legitimating messages in important ways over time. While it is clear that there are some themes, such as ceremonial diplomacy, that function more or less as empty signals of regime power, a pure “propaganda as signaling” approach has difficulty explaining the other substantive and theoretically important changes revealed by the analysis. Although there is mixed evidence to distinguish between sub-hypotheses 2a and 2b, the authoritarian messaging of North Korea changed amid the leadership transition in meaningful ways that lend qualified support to the “propaganda as legitimation” approach in this context.

Conclusion

Our analysis suggests that North Korea uses information strategically by adjusting its messages to accommodate its rhetoric to political events. The study provides only a peek into a broader propaganda apparatus that includes, among others, politicized school curricula, party propaganda officials in workplaces and military units, visual propaganda, speeches, and a state-controlled film industry (e.g. Cathcart, Green, and Denney 2014; Kim 2010; Kwon and Chung 2012). However, it has the advantage of systematizing a standard set of messages, which disciplines the researcher in the search for patterns or non-patterns. Here we submit that this article has contributed to scholarship two main ways. First, this article compared two general approaches to authoritarian propaganda, and can be situated in an emerging literature on autocratic legitimation (for an overview, see Gerschewski 2018). Authoritarian regimes attempt to justify their rule by, for example, framing particular events or processes, highlighting regime power and unity, harking back to foundation myths, discrediting alternatives, blaming undesirable outcomes on non-state actors, and trumpeting positive performance (Dukalskis 2017). Legitimation patterns have been shown to have discernible impacts on a number of important outcomes, including regime duration (Kailitz and Stockemer 2017), propensity for mass violence (Kim 2018), and the incentives of political elites (Holbig 2013). Indeed, in addition to co-optation and repression, legitimation is a crucial aspect of autocratic stability (Gerschewski 2013; Maerz 2020). Incorporating text analysis of the sort we have performed here has the potential to push our understanding of authoritarian propaganda in search of legitimation forward. Comparative text analysis of authoritarian regimes could push it even further (Rozenas and Stukal 2019). Second, this article speaks to how legitimation can be used to aid autocratic survival. The analysis is suggestive of the changing meaning of communist ideology in a globally post-communist ideological context (Dimitrov 2013; Dukalskis and Gerschewski 2020). It is well known that the DPRK was heavily influenced materially by the collapse of Soviet communism, which led to significant changes in the texture of everyday life for ordinary North Koreans (Joo 2010; Dukalskis and Joo, 2021). Understanding how patterns of North Korea's legitimation efforts evolved over time provides a unique insight into the survival strategies of an autocratic state. Given that leadership succession is a particularly fraught issue for autocratic regimes, it is instructive to understand changes the DPRK made to its legitimation amid a leadership succession in 2011. This adds

evidence to literature that emphasizes how autocracies adjust their legitimation messages to changes in their domestic or international environments. It matters what autocrats say and we can yield important inferences for real-world politics. Authoritarian propaganda is not only cheap talk that contains no valid information. Instead, the case of North Korea shows that the state agencies cushion foreseeable crisis moments like a power transfer by actively highlighting the nation's strength and by drawing attention to a new form of personality cult. While we could demonstrate the added value of a political communication approach for the case of North Korea, it remains to be seen to what extent the effects hold across other authoritarian contexts, both spatially and temporally.

Notes

1. The distinction between these two approaches should not be seen as absolute. We treat them as ideal-typical approaches for the sake of analytic clarity.
2. The May 2018 update does not include articles from *Rodong Sinmun*. The series for this news outlet covers the time period January 15, 2015, to March 6, 2017. Further, the article count of the total corpus does not include 16,034 articles that are in Spanish. With respect to replicability, the kcna.co.jp servers, which are geo-blocked in many Western countries, were accessed through a Japanese IP address via VPN.
3. The articles are officially translated English-language versions, which is consistent with previous scholarship using North Korean text as data (e.g. Rich 2014a, 2012b; Whang, Lammbrau, and Joo 2017). Nevertheless, some might be concerned about differences. Therefore, as a robustness check, we asked an independent coder (a native Korean speaker with knowledge of North Korean politics) to assess the quantity and content of the English and Korean language outputs of KCNA material for 25 randomly selected days in our sample ($n = 412$ articles). While differences in tone and intensity were sometimes apparent, the content and quantity were very similar. On a 5-point scale, with 5 being "fundamentally the same in tone, content, and meaning" and 1 being "major differences in tone, content, and meaning," the average score across the 25 days was 4.46 ($SD = 0.93$).
4. Note that a proximate dynamic topic modeling approach using Non-negative Matrix Factorization has been developed by Greene and Cross (2017).
5. Specifically, we (1) lowercase all tokens; (2) remove stop words (function words listed in the Python NLTK English corpus), punctuation, and numbers; and (3) drop tokens that show up only once or contain less than 2 characters.
6. The Python code used to estimate the model by the wrapper can be found at <https://github.com/blei-lab/dtm>.
7. A perennial issue that arises when implementing unsupervised topic models is that the number of topics k is set by the researcher *a priori*. Given that we have weak theoretical prior information on the number of themes contained in the corpus, we estimated a number of topic model solutions at various levels of k . Based on our qualitative evaluation of topic coherence and exclusivity, we chose $k = 85$.
8. Please note that we differ here in our conceptualization from King, Pan, and Roberts (2017). They argue for the Chinese case that pro-regime "cheerleading" by online commentators is a form of "distraction" as these commentators do not engage in serious arguments with skeptics of the Communist Party. In that sense, they are distracting from the argument at hand, but not distracting from the achievements of the Chinese Communist Party. We use the concept of attraction and distraction in a different way, such that the regime "cheerleading" for achievements is actually a strategy of attraction. We argue that attracting attention to the regime via cheerleading state propaganda is achieved by referring to positive aspects, performances, and achievements of the regime. In contrast, we use distraction of attention when the regime tries, for example, to shift blame to external actors. The propensity for authoritarian states to distract from failures has also been studied in electoral authoritarian regimes (see Aytac 2021).
9. More concretely, we argue that the super-topics of "domestic development," "ideology/revolutionary legacy," "reunification," and rally-around-the-flag-messages and national solidarity appeals via topics of "external threat," "foreign affairs," and the "nuclear issue" attract attention to the ruling regime because they provide an image of a strong and active state. In contrast, we argue that distracting attention from its performance appears when the regime criticizes "South Korean Politics," "Japanese Politics," "International Politics," and makes reference to only "Ceremonial Diplomacy."
10. We also replicated the regression analyses discussed above using an alternative Distraction super-topic dependent variable which also includes the Natural Disaster topic. The results of the model estimation are very similar to those reported in Table B.1 in the Online Appendix, where we continue to observe a statistically significant decrease in Distraction communication ($\beta_2 = -0.04928$, $p < 0.05$) following the formal succession of Kim Jong Un.
11. We also perform a second set of statistical tests which include two succession treatment periods: (1) the decision by Kim Jong Il to appoint Kim Jong Un as his successor (June 2, 2009) and (2) the actual succession of Kim Jong Un (December 19, 2011). These models produce very similar effects of the succession on North Korean propaganda communication.
12. We estimate the interrupted time-series models using the user-written *itsa* command in Stata (Linden 2015).
13. "Juche" is the official state ideology that goes back to state founder Kim Il Sung. It is an ultranationalist ideology with communist borrowings that particularly emphasizes self-reliance. "Songun" is the succeeding ideology of Kim Jong Il that emphasizes the dominant role of the military.

Disclosure Statement

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