# Autocratic Propaganda in Global Perspective*

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**Abstract**

Why do different autocrats employ different propaganda strategies? We develop a theory of autocratic propaganda that builds on two insights. First, when autocrats confront electoral constraints, they must seek some popular support. To occasionally persuade citizens of their merits, autocrats must instruct their propaganda apparatuses build credibility by occasionally conceding policy failures. Second, where autocrats confront no electoral constraints – where autocrats fully secure themselves with repression – propaganda aims to intimidate citizens, not persuade. By broadcasting content that everyone knows is absurd, autocrats make their capacity for repression common knowledge among citizens. We test the theory with the first cross-national dataset of propaganda, encompassing over five million articles from 68 countries in six languages. Propaganda in electorally constrained autocracies, we find, is roughly as pro-regime as Fox News is pro-Republican. In the most repressive dictatorships, propaganda apparatuses are some five times more pro-regime than Fox News is pro-Republican.

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# 1 Introduction

The battle for citizens' minds has long preoccupied the world's autocrats. Joseph Goebbels, architect of Nazi Germany's propaganda apparatus, believed that "propaganda becomes ineffective the moment we are aware of it" (Taylor 1998). This conviction permeated his work. When crafting propaganda, Goebbels insisted on truth, "otherwise the enemy or the facts might expose falsehoods." Since broadcasting exclusively positive news would "compel the German public to listen to foreign and enemy broadcasts," Goebbels instructed state media to report policy failures. Goebbels' conviction is echoed in formal models of persuasion. To persuade citizens of useful fictions, Gentzkow and Shapiro (2006) and Gehlbach and Sonin (2014) show, propaganda apparatuses must acquire a reputation for fact.

In this context, China's *People's Daily* is puzzling. In 2010, the Propaganda Department banned bad news from the front pages of newspapers. Accordingly, its content is absurdly positive. In 2017, the *People's Daily* claimed that President Xi Jinping's contributions to Chinese diplomacy had "transcended 300 years of Western theory on foreign affairs." State-run TV ran a six episode series on Xi's "Major Country Diplomacy." "Wherever he goes," it proclaimed, "Xi Jinping sets off a whirlwind of charisma!" (Phillips 2017). The *People's Daily* does violence to the truth, and so many citizens loathe it, as its vulgar sobriquets make clear.[1] One anonymous activist even created a Twitter account that disseminates particularly absurd articles. The *People's Daily*, the Twitter account observes, is the "newspaper no one is willing to read," with "news content and opinions [that] are the opposite of the public's perception."[2] Huang (2015, 420) describes it succinctly: "Such propaganda is not meant to 'brainwash' people …about how good the government is, but rather to forewarn the society about how strong it is via the act of the propaganda itself."

Why do autocrats employ such different propaganda strategies? The answer, we argue, is that different autocrats employ propaganda to achieve different ends. Our theory builds on two insights. First, many autocrats confront at least somewhat competitive elections (Levitsky and Way 2010). When they do, they must seek some degree of popular support, and so employ propaganda to persuade citizens of regime merits. To be persuasive, propaganda apparatuses must acquire a reputation for credibility, which requires occasionally conceding policy failures; we call this *honest propaganda*. Second, where autocrats confront no electoral constraints – where autocrats can fully secure themselves with repression and electoral fraud – propaganda serves to intimidate citizens, not persuade. Here, propaganda is absurdly positive. By broadcasting content that everyone knows is absurd, autocrats signal that their capacity for fraud and repression is totally unconstrained, and so they have no need to cultivate genuine popular support.

We test the theory with a dataset of state-run newspapers that contains over five million articles from 68 countries in six languages. We coded a newspaper as state-run if it is owned

[1] The newspaper is routinely called *Riren Minbao*, "Raping People Daily," a phonetic play on the newspaper's actual name, *Renmin Ribao* (China Digital Times 2018).

[2] `@FuckPeopleNews`.

by the state, like the *People's Daily*, or a member of the ruling elite. We collected state-run newspapers by scraping their online archives or downloading them from Lexis Nexis. We then created two measures of pro-regime propaganda. The first measures the valence of the 20 words surrounding each reference to a country's executive or ruling party. The second adopts a more expansive view of what constitutes the regime. For this, we implemented a multi-label topic model that identified all articles about government action, and then measured the aggregate valence of all words in each article. These two measures reflect Goebbels' view that propaganda is spin, not simply falsehood. Accordingly, in our dataset, more "propagandistic" coverage presents the regime more positively.

We find that propaganda in electorally constrained autocracies is roughly as pro-regime as Fox News is pro-Republican. In the most repressive dictatorships, by contrast, propaganda apparatuses are roughly five times more pro-regime than Fox News is pro-Republican. For two reasons, however, we treat these cross-country results with caution. First, they may be driven by reverse causality. If propaganda works, perhaps it *loosens* electoral constraints. Second, the cross-country results may be driven by omitted variable bias. Although we control for features that may be correlated with changes in electoral constraints and propaganda strategies, some features may remain unobserved. To ensure this is not driving our results, we exploit a rapid, exogenous change in the electoral constraints confronted by many autocrats: the fall of the Berlin Wall on November 9, 1989. With the Cold War over, Africa's autocrats lost the ability to pit the United States against the Soviet Union. When Western governments attached genuine political conditions to development aid and debt relief, Africa's autocrats were largely forced to comply (Bratton and van de Walle 1997; Levitsky and Way 2010).

For two countries we have propaganda data from before 1989: Gabon since 1974 and China since 1946. We show that the fall of the Berlin Wall had a plausibly causal effect on Gabonese President Omar Bongo's propaganda strategy, and we identify the strategy change as having occurred around the first multi-party legislative election since 1967. We observe no such change in China, where the government was less exposed to the geopolitical shift. With no change to the government's capacity for repression – and no meaningful electoral constraints – its propaganda strategy remained constant. Rather, trends in Chinese propaganda have been driven by changes in the political environment.

To the best of our knowledge, this paper is the first to measure propaganda cross-nationally and explain variation in its content. In so doing, it unifies a theoretical literature and advances an empirical literature. Theoretically, scholars have understood propaganda either as an attempt to persuade citizens (Lasswell 1938; Ellul 1973; Gentzkow and Shapiro 2006; Gehlbach and Sonin 2014; Rozenas and Stukal 2018) or an attempt to dominate them (Arendt 1951; Wedeen 1999; Huang 2015). Empirically, scholars have focused largely on measuring propaganda's effects. And, indeed, it is increasingly clear that propaganda "works": either by persuading consumers of the propagandists' convictions (DellaVigna and Kaplan 2007; Enikolopov, Petrova and Zhuravskaya 2011; Yanagizawa-Drott 2014; Adena et al. 2015) or by intimidating citizens into acquiescence (Huang 2015). These empirical results are consistent with the mech-

anisms proposed by theoretical literature. We unify the theoretical literature by tracing these competing mechanisms to the different electoral constraints an autocrat confronts. Put simply, *how* propaganda works depends on *why* it is employed, which varies according to an autocrat's electoral constraints. Empirically, we develop tools that enable scholars to measure propaganda cross-nationally, and thus expand the set of questions scholars can ask.

This paper is also related to a literature, mostly from economics, that traces variation in media bias to potential advertising revenue. Where potential advertising revenues are higher, the arguments generally go, media platforms are compelled to be more objective, which enables them to attract a broader readership and hence more advertising revenue (Besley and Prat 2006; McMillan and Zoido 2004; Corneo 2006; Petrova 2008; Gehlbach and Sonin 2014; Tella and Franceschelli 2011; Hamilton 2004; Gentzkow, Glaeser and Goldin 2006; Petrova 2011, 2012). Qin, Strömberg and Wu (2018) argue that these forces will ultimately compel the Chinese propaganda apparatus to moderate: "The entry of commercial papers from the bottom-up should fuel market competition [for advertising revenue] and induce higher-level governments to produce less-biased papers." In turn, they suggest, "economic development [will reduce] audience exposure to propaganda." We are less optimistic. Our computational techniques enable a more precise measure of propaganda and, in China, a longer time-series. Consistent with our theory, we find that trends in Chinese propaganda have been driven by politics, not by economic development.

Most broadly, our results challenge a large literature that locates the origins of autocratic survival in nominally democratic institutions. These institutions, scholars observe, enable autocrats to credibly commit to revenue sharing agreements with regime insiders or policy compromises with other elites (Magaloni 2006; Gandhi 2008; Magaloni 2008; Wright 2008). Scholars have suggested that elections enable autocrats to equitably distribute regime patronage, locate pockets of popular discontent, and identify effective party cadres (Lust-Okar 2006; Magaloni 2006; Blaydes 2011). As Lust-Okar (2006) writes: "The logic of authoritarian elections should lead us to question the value of pressing for, and applauding, the introduction of elections in authoritarian regimes." We show, however, that even weak electoral constraints force autocrats to concede occasionally damning policy failures. While nominally democratic institutions may yield some benefits, information control is not among them.

This paper proceeds as follows. Section 2 develops our theoretical framework. Section 3 introduces our dataset and our measures of propaganda. Section 4 presents our baseline results. Section 5 employs a regression discontinuity design in the context of Gabon. Section 6 shifts attention to China. Section 7 concludes with suggestions for future research. The Online Appendix includes robustness checks and additional information.

# 2 Theory

## 2.1 Framework

Formal theorists have provided a range of insights into how the world's autocrats employ propaganda (Gehlbach, Svolik and Sonin 2016). The canonical models entail a set of citizens and an autocrat, who employs some combination of repression, propaganda, and financial transfers to discourage mass protests and retain power. Citizens are generally uncertain about whether the autocrat implements sound public policy (Guriev and Treisman 2015; Egorov, Guriev and Sonin 2009; Gehlbach and Sonin 2014; Chen and Xu 2015) or whether the autocrat has a substantial repressive apparatus (Edmond 2013; Huang 2015). In some cases, citizens are also uncertain about their neighbors' beliefs: about whether their neighbors are prepared to revolt (Little 2017). Propaganda then serves as a signal, designed to manipulate these beliefs and, ultimately, discourage citizens from attempting to force the autocrat from power, either at the ballot box or through protests.

Our theory builds on this literature. Consider a society with citizens who pay taxes and, in return, expect the autocrat to implement policies that increase living standards. Citizens are uncertain about the link between policies and outcomes. They can observe whether things are improving, but they cannot observe precisely what the autocrat did: whether he implemented sound policies or, instead, is incompetent or corrupt.[3] Consequently, if living standards fail to improve, citizens are unsure whether there was some exogenous shock that undermined the autocrat's investment, or whether he was incompetent or kept tax revenue for himself. As the residual claimant on state revenue, the autocrat obtains utility from tax revenue less spending on investments that advance public welfare. Consequently, the autocrat's chief incentive is to minimize public spending, subject to securing some minimum level of popular acquiescence to retain power.

## 2.2 Welfare, Persuasion, and Honest Propaganda

If citizens are unhappy with the autocrat's performance, they can punish him in two ways. First, they can vote against him in an upcoming election. If citizens observe a welfare improvement, we assume citizens vote for him. If they observe no welfare improvement, they must decide whether responsibility falls on the autocrat – due to corruption or incompetence – or should be attributed to something outside his control. Citizens want to ascertain the truth because replacing a government is costly. The new government confronts start-up costs, which delay its ability to implement sound policy. They may also be uncertain about some alternative government's competence or civic-mindedness. As a result, citizens prefer to ascertain whether the autocrat's failure to improve living standards is a function of malfeasance or, simply, bad luck. If bad luck, they prefer not to penalize him.

This is the first role of propaganda in our theory. The autocrat can use propaganda to shape citizens' beliefs about his performance. Here, propaganda aims to persuade citizens

[3]For simplicity, we think of these two as similar, as autocrats want to avoid perceptions of both.

that whatever frustrating outcomes they observe are not due to government corruption or incompetence, and that the government is working to make things better. Of course, since the propaganda's author is also its chief beneficiary, citizens will be inclined to discount it, *unless* that propaganda has a history of providing some objective coverage. This idea has a long theoretical and empirical lineage. It constituted Goebbels' core insight, is a key result of formal models of propaganda and censorship (Gentzkow and Shapiro 2006; Gehlbach and Sonin 2014; Guriev and Treisman 2015; Shadmehr and Bernhardt 2015), is how Rozenas and Stukal (2018) understand "blame shifting" in Russian state television, and builds on Iyengar (1990)'s observation that framing can indeed manipulate citizens' beliefs. To persuade citizens of useful fictions, in short, propaganda apparatuses must have a reputation for occasionally reporting policy failures. They must have some credibility in order to persuade citizens to attribute the causes of bad news to something other than government corruption or incompetence. We refer to accurate coverage of bad news as *honest propaganda*. By employing it, autocrats acquire some *credibility capital*: some ability to manipulate citizens' beliefs. We think of these beliefs, in turn, as setting the probability the autocrat wins reelection.

The Republic of Congo, ruled by Denis Sassou Nguesso for all but five years since 1979, illustrates honest propaganda. Congo is among Africa's leading oil producers, yet in 2017 it suffered a fuel shortage. Congo's oil refinery satisfies 45% of domestic fuel needs; the rest is imported. The state oil company, controlled by Sassou Nguesso, enjoys a monopoly on these imports, which makes them a valuable source of rents. Due to mismanagement and persistently low market prices, by early 2017 the state oil company was effectively bankrupt, and so unable to purchase fuel on the international market for import. Rather than lift the monopoly, Sassou Nguesso subjected citizens to a fuel shortage. His propaganda apparatus covered the fuel shortage, but attempted to persuade citizens of two useful fictions. First, it claimed the origins of the fuel shortage were logistic, not political: "With fuel needs estimated around 1.2 million tons per year," the domestic refinery satisfied "just 45% of demand." It substantiated this by publishing an interview with the CEO of a multinational oil firm, who corroborated the government's explanation: "There are difficulties in the distribution of fuel, due in particular to the difficulties of transport" (Vox Congo 2017*a*). Second, the propaganda apparatus covered the government's response. Taking cues from international experts, the government would "adapt" to the "global" oil crisis by building a pipeline, thus alleviating "transport difficulties." "The pipeline," readers were assured, "will be of great interest. The Democratic Republic of Congo, Cameroon, Chad, and the Central African Republic will be major clients" (Vox Congo 2017*b*). The Online Appendix measures this propaganda response quantitatively.

Honest propaganda is costly, not cheap, since it creates common knowledge among citizens about the government's policy failures. Indeed, if Congolese citizens were not already aware of the fuel shortage, Sassou Nguesso's propaganda apparatus ensured they were. Even though this common knowledge may help citizens coordinate collective action against the government (Egorov, Guriev and Sonin 2009; Rozenas and Stukal 2018), conceding bad news is imperative

if propaganda is to have any hope of shaping citizens' beliefs.

### 2.3 The Electoral Playing Field

If the autocrat loses the election, he may be able to retain power by engaging in enough fraud to claim victory, or by ignoring the results. Following Egorov, Guriev and Sonin (2009), we think of the strength of electoral institutions as exogenous. When electoral constraints are fully binding, the ruler is bound by their results, as in democracy. When the autocrat confronts no electoral constraints, the election either does not occur or its result is meaningless. We think of citizens as having an intuitive sense for this. They may not know precisely how binding are electoral institutions, but their beliefs are generally well-informed.

Our approach to electoral institutions in autocracies draws on Levitsky and Way (2010). Simply knowing whether an autocrat governs with nominally democratic institutions signals very little about the political competition he confronts: about how thoroughly he is able to "tilt the playing field," as Levitsky and Way (2010) put it. We are agnostic about why electoral institutions are more constraining in some autocracies than others. Some autocrats may be more vulnerable to Western pressure, which reduces the amount of electoral fraud they can engineer or the extent to which they can repress citizens (Carnegie and Marinov 2017). Some autocrats may exert weaker control over their security apparatuses, which, again, may limit their capacity for repression. Some autocrats may govern countries with relatively robust civil society institutions, which provide checks on executive power (Lindberg 2006). In short, we think of electoral constraints as the set of conditions that binds – or fails to bind – the autocrat to electoral outcomes.

### 2.4 Revolution, Absurd Propaganda, and Common Knowledge of the Possible

Citizens' second form of recourse is revolution. When autocrats can fully tilt the electoral playing field or do not organize elections, this is the only way citizens can remove the autocrat from power. If citizens observe a welfare improvement, they prefer not to revolt. If citizens do not observe a welfare improvement, however, they must decide whether to revolt. They consider a range of factors: the probability that some alternative government implements better policies, the autocrat's capacity for repression, and their beliefs about their neighbors' beliefs (Little 2017).

Autocrats can signal their capacity for repression in several ways. They can incarcerate dissidents (Truex 2018), block independent media, and fill the streets with police. They can commit human rights abuses that the international community condemns, which may signal some capacity to withstand international pressure. These forms of repression aim not just to suppress dissent, but also to signal the consequences of dissent. Similarly, autocrats can employ *absurd* propaganda: content that everyone knows is absurd, and that everyone knows everyone knows is absurd. Absurd propaganda is premised on *common knowledge of the possible*. Intuitively, while citizens may not know the precise rate of economic growth or public health

spending, there exist claims that citizens know are absurd, either because of direct observation or conventional wisdom.

This constitutes the second use of propaganda. By covering the regime in an absurdly positive way, the autocrat's propaganda apparatus signals his ability to fully tilt the electoral playing field: that his capacity for fraud and violence are totally unconstrained, and so he has no need to cultivate popular support. Wedeen (1999) described precisely this in Hafez al-Assad's Syria: "Power manifests itself in the regime's ability to impose its fictions upon the world. No one is deceived by the charade, but everyone ...is forced to participate." As Little (2017) observes, this signal may shape a citizen's own beliefs, or her beliefs about her neighbors' beliefs. This signal is costly, in part, because it cannot be sent by an autocrat who confronts somewhat binding electoral institutions. The reason is that, by fully alienating citizens – by doing obvious violence to the truth – autocrats forgo the opportunity to persuade citizens of regime merits. In turn, citizens vote overwhelmingly against the autocrat, and, in the presence of an electoral playing field that is difficult to tilt, the autocrat loses power.

Why does a totally unconstrained autocrat – who can employ violence against protesters at will – have an incentive to discourage citizens from revolt? Why not simply signal the capacity for violence by employing it? Put simply, violence against citizens is never costless. In China, for instance, the anniversaries of failed pro-democracy movements experience far higher rates of protest than other days (**?**). Citizens are cognizant of past regime crimes, and cognizant their neighbors are. By creating focal moments for protests, widespread violence entails costs to the regime long into the future. Absurd propaganda is relatively inexpensive.

If the autocrat's capacity for violence is so substantial, why would citizens need the signal associated with absurd propaganda? We believe citizens are deeply aware, but reminding them is useful, lest they think it diminished. Social psychologists recognize that the effects of persuasive communication are strongest immediately after consumption and decline quickly (Cook and Flay 1978). Absurd propaganda is an inexpensive reminder.

### 2.5 Hypotheses

Our theory's key insight is this: For propaganda apparatuses in autocracies, conceding policy failures is an investment in their capacity to shape citizens' beliefs. Put simply, honest propaganda is an investment in making genuine propaganda work. The key question, then, is when honest propaganda is attractive to autocrats. Our theory identifies two conditions.

First, consider the autocrat's strategy when he is totally unconstrained by electoral institutions. At this point, fully capable of securing power with violence, the autocrat has no incentive to provide public goods. Rather, his chief interest is in ensuring that his repressive capacity is common knowledge among citizens. By discouraging protests from emerging in the first place, the autocrat attempts to avoid the costs associated with violence against citizens. Here, our theory predicts, autocrats employ pro-regime propaganda that is absurdly effusive, and that everyone knows is absurdly effusive.

*Hypothesis 1: Where autocrats confront no electoral constraints, propaganda will be effusive.*

The autocrat's strategy shifts when electoral constraints are somewhat binding. When the autocrat confronts some intermediate electoral constraints, he now loses the election with some probability when he fails to provide public goods, and so occasionally provides them. This creates an opportunity. The autocrat can now exploit the fact that he occasionally provides public goods to foster uncertainty in the minds of citizens when he does not. Put differently, when the autocrat is forced to at least occasionally provide public goods, he can exploit this by leveraging the uncertainty that results. In this respect, public good provision and honest propaganda are complements. The autocrat occasionally concedes bad news to exploit the fact that he occasionally provides public goods. By mixing factual and fictitious reporting, the autocrat aims to foster uncertainty in the minds of citizens about his true performance.

Key to this, however, is that conceding policy failures must not be *too costly*. It is precisely the modest electoral constraints that make conceding policy failures politically feasible. In tilting the electoral playing field, the autocrat can concede policy failures, risk not successfully manipulating citizens' beliefs, and yet still retain power with some sufficiently high probability. Likewise, if the autocrat occasionally possesses private information about when conceding policy failures is slightly less costly, then the scope for honest propaganda increases further. The reason is that, when conceding policy failures is less costly politically, the autocrat can build credibility capital at less risk.

*Hypothesis 2: Where electoral constraints are more binding, propaganda apparatuses increase coverage of policy failures, and so the positivity of regime coverage declines.*

Our theory yields two key predictions. First, honest propaganda emerges when modest electoral constraints force autocrats to occasionally provide public goods. This creates uncertainty in the minds of citizens, which autocrats can exploit at political costs that are still manageable. Second, when autocrats are totally unconstrained, they employ absurd propaganda, which creates common knowledge among citizens about the costs of revolution.

# 3 Data

## 3.1 Identifying and Collecting State-Run Newspapers

To test the theory, we first attempted to catalogue the world's state-run newspapers. We consulted a range of authorities: Freedom House, *Press Reference*, the Knight Center for Journalism, and the Open Society Foundation, among others. Where a newspaper is owned by the state, like China's *People's Daily*, coding it as state-run was straightforward. In other cases, newspapers are owned by members of the ruling elite. Where these newspapers are regarded as government mouthpieces, we included them as well. We exclude newspapers intended for a foreign audience.

We restricted attention to languages for which quantitative text analysis methods are well developed: Arabic, Chinese, English, French, Russian, and Spanish. We further restricted attention to state-run newspapers with online archives. Although these restrictions were critical

for data collection, it is possible that state-run newspapers in major languages, and with online archives, are systematically different than their counterparts. However, we do not believe this is a major concern. First, most countries with a colonial history conduct official business in the language of their European colonizer, and their newspapers are generally published in the language of the colonizer as well. Second, we found that autocrats who govern poor countries are as likely to maintain online archives as those from more affluent countries. Rather, whether state-run newspapers maintain freely available online archives appears to be a function of regime type. The vast majority of autocrats, we found, make their state-run newspapers available online, accessible without restriction. Since propaganda is useful only when consumed, most autocrats aim to maximize its distribution, and so seldom treat it as intellectual property. This is consistent with their domestic distribution strategies. Denis Sassou Nguesso, for instance, subsidizes *Les Dépêches de Brazzaville* so it costs just $0.20. The primary independent newspaper, constrained by market forces, sells for $1.00. In democracies, state-affiliated newspapers appear to operate as businesses, with articles behind paywalls.

Although our primary focus is autocracies, we include state-affiliated newspapers from democracies for comparison. Especially in Africa, these are generally holdovers from an autocratic regime, were reorganized by a democratic government, and are now subject to less political control. In Senegal, for instance, *Le Soleil* was founded in 1970 by President Leopold Sedar Senghor, who tightly circumscribed press freedom. Senegal's democratic transition occurred in 2000. While its editorial line remains somewhat pro-government, it is regarded as far less biased than before the transition (IREX 2014). Note that we refer to autocratic newspapers as "state-run" and democratic newspapers as "state-affiliated."

Figure 1 visualizes our coverage. Countries for which we could not identify state-run or -affiliated newspapers appear in gray. The 68 countries in our dataset appear in blue. The 29 countries that maintain state-run or -affiliated newspapers but are not in our dataset appear in red.[4] Our dataset includes state-run newspapers from countries that cumulatively comprise 93% of the world's population that lives in autocracy. Of our 70 newspapers, 34 were published under autocratic governments throughout the sample period, 20 under democratic governments throughout, and 14 experienced transitions from autocracy to democracy.[5] Tables 7 and 8 identify the newspapers in our dataset, sample periods, and the number of articles from each. The Online Appendix includes additional information.

### 3.2 From Text to Article Level Data on Propaganda

We obtained newspapers by scraping online archives or downloading articles from Lexis Nexis. Where newspapers were archived as PDF rather than text files, we transformed PDFs into JPGs with the open-source command-line program `imagemagick`, which enabled us to optimize image quality. We then extracted text from JPGs with `tesseract`, an open-source optical character

[4]There are two sets of countries in this group. The first maintains state-run newspapers in a language outside our six major language groups. The second set, of roughly 10 countries, maintains a state-run newspaper, but with archives we were unable to access.

[5]We draw our regime classifications from Svolik (2012) and update them through 2017.

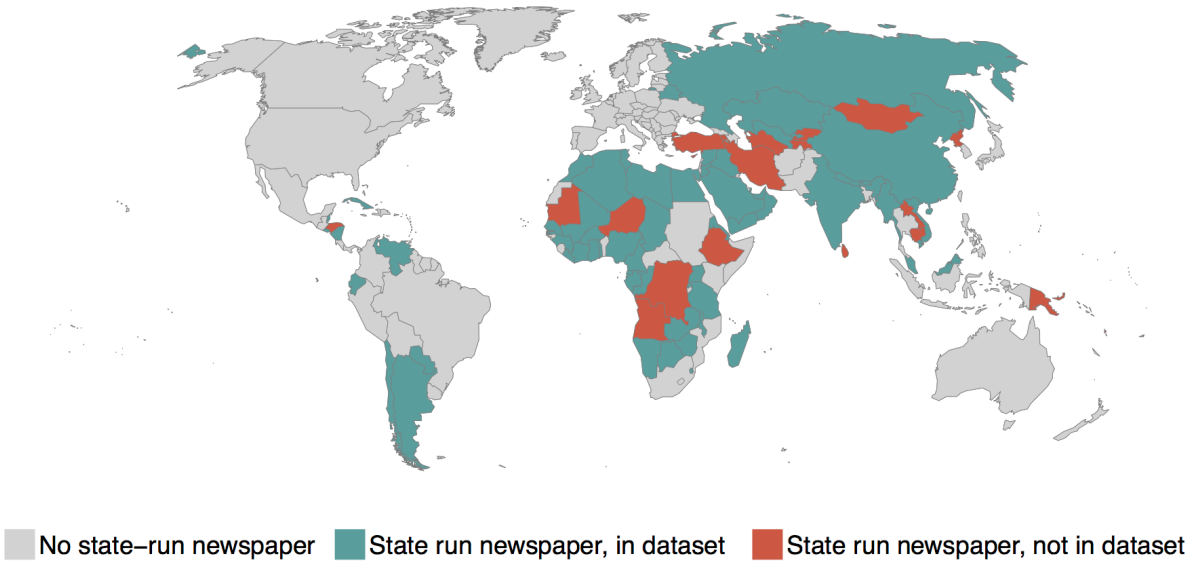


Figure 1: Global coverage of our dataset.

recognition program. The Online Appendix contains more information about our data collection strategy.

To convert text into propaganda data, we identified each instance that a newspaper from country $i$ referenced its executive or ruling party. For each reference, we extracted the 10 words before and after, a string known as a "concordance segment." Drawing on standard semantic dictionaries, we measured how fulsome or critical were these 20 words.[6] The variable *Positive Coverage Standardized*$_{ijt}$ constitutes our measure of pro-regime propaganda, and it measures net positive pro-regime coverage per reference: how many positive less negative words from among the surrounding 20, on average, from every reference to the autocrat or ruling party in article $j$ on day $t$. This operationalization reflects our view that propaganda should be defined as coverage positivity, not simply whether assertions are strictly true or false.

Critical to this measure of propaganda is correctly identifying references to the executive and ruling party. To maximize accuracy, we developed a country-specific list of executive identifiers. In English, these most often include "president," "head of state," or "prime minister." In monarchies, executive identifiers are more varied, such as "His Majesty" in Brunei or "The Leader" in Libya. Although accommodating these honorifics is critical, it creates the possibility of measurement error. To minimize this, we developed two filtering rules. First, we employed a *look behind filter*. If multiple references occurred within the same 20-word concordance segment, we counted the final reference only. This avoided double counting phrases like "President Sassou Nguesso." Second, we employed a *foreign executive filter*. If a foreign country was referenced

[6]For English, we used Harvard General Inquirer (2015). We translated the Inquirer into all other languages. For English, Spanish, French, and Russian, we lowercased and stemmed each word in our corpus, dictionaries, and list of identifiers. We did not stem Arabic words because a sophisticated stemming algorithm has not yet been developed. We split Chinese text into constituent word chunks with the `jieba` segmenting algorithm. For more, see Grimmer and Stewart (2013) and Lowe et al. (2010).

five words before or after an executive identifier, we assumed that a foreign executive had been referenced, and omitted it. In articles from Congo's *Les Dépêches de Brazzaville*, this avoids counting "Chinese President Xi Jinping" as a reference to Sassou Nguesso. Our complete list of executive identifiers, by country, appears in the Online Appendix.

### 3.3 Validation

Figure 2 presents a pair of heat maps, which report accuracy rates, by language, for our executive reference counts. The left panel codes our algorithm as accurate only if it captures the precise number of executive references in article $j$. Less restrictively, the right panel codes our algorithm as accurate if it records a positive number of executive references in articles where the executive was indeed referenced. This captures the intuition that our algorithm is basically accurate if it records five references to Xi Jinping when, in fact, there are six. Each cell corresponds to a language, with color shaded by accuracy and numeric accuracy rates in gray. Our algorithm is strikingly accurate. Across languages, it identified the precise number of references to country $i$'s executive in article $j$ with 82% accuracy, and it detected at least one to reference to the executive in articles where he or she is referenced with 86% accuracy. The Online Appendix explains this validation procedure in detail.

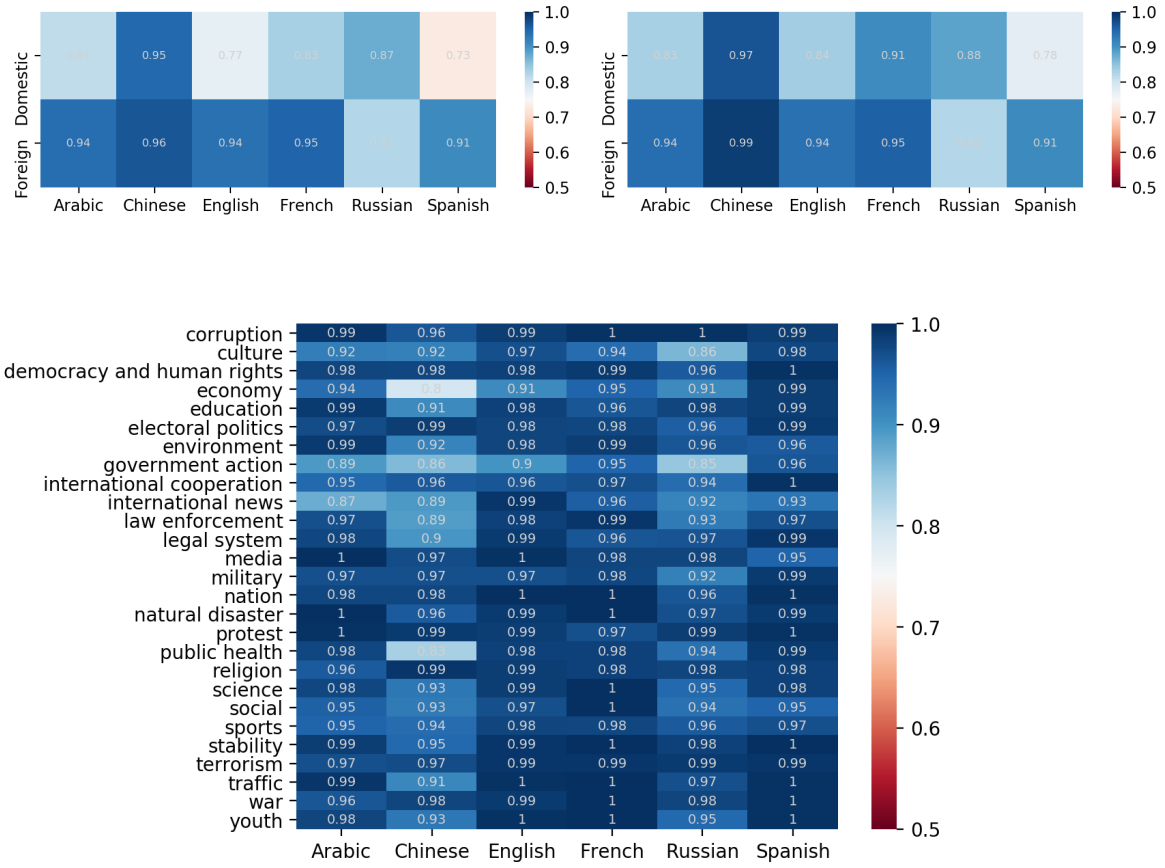


Figure 2: Validation.

### 3.4 Our Data Scaled

We help readers intuitively scale our measure of propaganda in two ways. First, Figure 3 displays concordance segments from Rwanda's *New Times*, which serves as President Paul Kagame's chief propaganda outlet. We **bold** references to the executive – either "Kagame" or "RPF," his political party – and show the 10 words on either side. Positive words appear in *red*, negative words in *blue*. The most flattering concordance, listed first, has Kagame thanking supporters for "continued trust and support." By contrast, negative concordances are critical, and one even acknowledges that some citizens believe the RPF participated in the 1994 genocide. The Online Appendix provides additional examples from Namibia, which illustrate how our measure of propaganda reflects policy failures conceded by the propaganda apparatus.

| Tone | Concordance Segment |
|---|---|
| 5 | 2010 presidential candidate. In his acceptance speech, President Kagame thanked **RPF** members for their continued trust and support for him. He |
| 4 | focus on education as well as job creation. Murayire said **RPF**'s goal is to enable young people realise their full potential |
| 3 | about, among other factors, is rapid rural-to-urban migration; which the **RPF** liberation unleashed with the freedoms accorded the people to seek |
| 2 | to be. Our history has taught us the right choice. **RPF** made the choice to work hard to achieve the dignity |
| 1 | at the National University of Rwanda, said. Omar said the **RPF** electorate appreciated their MPs' previous performance basing on the infrastructure |
| 0 | Rwanda to free the people from fear caused by the **RPF** government. She made the statements during an interview at Voice |
| -1 | Kayibanda before him. Yet, there was no guarantee that the **RPF** government would itself not fall in the same trap as |
| -2 | ground in Rwanda. Trevidic's predecessor, Jean-Louis Bruguiere, previously accused the **RPF** of shooting down the plane, a move that led Rwanda |
| -3 | a different story of the genocide in which he blames **RPF** for the massacres in 1994 that claimed over one million |
| -4 | all sorts of allegations and fabrications aimed at undermining the **RPF** party and its leadership. In a lecture he held at |
| -5 | opponents and exiled members of the genocidal machinery, Bruguiere accused **RPF** of carrying out the deadly April 6, 1994 attack that |

Figure 3: Example concordance segments.

Second, we adapt our measures of propaganda to Fox News and the *New York Times* (*NYT*). For this, we used four identifiers – Republican, Republican Party, Democrat, and Democratic Party – and then computed our measures of propaganda, by party, for each outlet. For Fox News, we focus on the period between June and October 2017; for the *NYT*, we focus on the period between 2010 and 2015. Section 4.1 discusses this in more detail.

### 3.5 Coverage of Government Action

Our primary measure of pro-regime propaganda may be restrictive. Perhaps propaganda reveals itself over the course of a newspaper article, rather than in the 20 words surrounding references to the autocrat or ruling party. Perhaps pro-regime propaganda should also include government ministers and local appointees, who are excluded from *Positive Coverage Standardized*$_{ijt}$.

To accommodate this, we developed another measure of pro-regime propaganda. Intuitively, the words associated with government action – defined as engagement by government at any level – are different than the words associated with sports or culture. We used a series of machine learning techniques to train a computer to identify these words. To make our data as useful as possible to other scholars, we trained a computer to identify words associated with 28 other coverage topics as well. This list, which we developed after reading several thousand articles, appears in Table 1. Next, we assigned topic labels to articles with a multi-label topic model, which accommodates the possibility that some articles cover multiple topics. The bottom panel of Figure 2 reports the out-of-sample performance of our classifier. The $x$-axis gives language, the $y$-axis topic. The color of each cell is shaded by accuracy, with numeric accuracy rates in gray. Across languages, our classifier's accuracy generally exceeds 90%. The Online Appendix includes additional information about these machine learning techniques, our coverage topic labels, and our validation procedure.

Table 1: Topics

| | | | |
|---|---|---|---|
| corruption | culture | democracy and human rights | economy |
| education | electoral politics | environment | **government action** |
| international cooperation | international news | law enforcement | legal system |
| media | military | nation | natural disaster |
| obituary | protest | public health | religion |
| science | social | sports | stability |
| terrorism | traffic | war | weather |
| youth | | | |

We create our expanded measure of pro-regime propaganda by computing the aggregate valence of each article $j$ that is labeled "government action." We calculate aggregate valence as total positive less negative words, standardized by total dictionary hits:

$$\text{Article Valence}_{ijt} = \frac{\text{Positive Words}_{ijt} - \text{Negative Words}_{ijt}}{\text{Positive Words}_{ijt} + \text{Negative Words}_{ijt}} \quad (1)$$

This standardization accommodates the possibility that language dictionaries are of different quality. If, for instance, English language valence dictionaries are more thorough than those in Arabic or Russian, standardizing by dictionary hits corrects accordingly.

# 4 Electoral Constraints and Propaganda

## 4.1 Descriptive Statistics

To operationalize the electoral constraints an autocrat confronts, we use country $i$'s Polity score in year $s$. The Polity score is broad, but this breadth makes it appealing. A range of factors may constrain an autocrat's ability to tilt the electoral playing field: the intensity of party competition, state repression, and constraints on executive authority. Polity helps us capture this range. Note that in the statistical models below, we also employ a range of measures from the V-Dem project (Coppedge et al. 2017).

For each country in the dataset, we compute the mean value of *Positive Coverage Standardized*$_{ijt}$ and the mean Polity score during the sample period. The associated bivariate scatterplot appears in the left panel of Figure 4. The right panel presents an analogous scatterplot for the mean value of *Article Valence*$_{ijt}$. For scale, we plot mean coverage tone for Democrats and Republicans in Fox News and the *NYT*. We treat these descriptive statistics with caution, since there may be systematic differences across languages. Still, the relationship is clear. Where electoral constraints are more binding, pro-regime coverage is less flattering. Many of the most repressive countries – China, Uzbekistan, Eritrea, and Gambia – report on incumbents *four* times as positively as Fox News covers Republicans.

Second, propaganda apparatuses in a range of autocracies – often in the middle of the Polity scale – treat the regime like Fox News treats Republicans. Many Americans acknowledge Fox News' pro-Republican bias, but this bias, like that of Russian state media, is apparently not so great that it invalidates its ability to persuade (White, Oates and McAllister 2005; DellaVigna and Kaplan 2007; Enikolopov, Petrova and Zhuravskaya 2011).

## 4.2 Estimation Strategy

### 4.2.1 Country-Year Level

We employ two estimation strategies to probe this more systematically. First, we focus on within-country variation over time. When a country's political institutions change, does the incumbent's propaganda strategy change as well? We estimate models of the form

$$Y_{is} = \alpha + \beta X_{is} + \phi W_{is} + \gamma_i + \epsilon \quad (2)$$

where $i$ indexes country, $s$ indexes year, $X_{is}$ measures electoral constraints, and $W_{is}$ is a vector of controls that may be correlated with changes in electoral constraints and pro-regime propaganda. To accommodate unobserved differences by country, we include country fixed effects, given by $\gamma_i$. Since our key explanatory variables are measured annually, we compute country-year means for our outcome variables, *Positive Coverage Standardized*$_{ijt}$ and *Article Valence*$_{ijt}$, which are measured at the article level. Since these outcomes are continuous, we employ OLS.

The Polity scale imposes a linear relationship between our explanatory and outcome variables. It forces us to assume the effect of moving from $-9$ to $-5$ Polity score is identical to

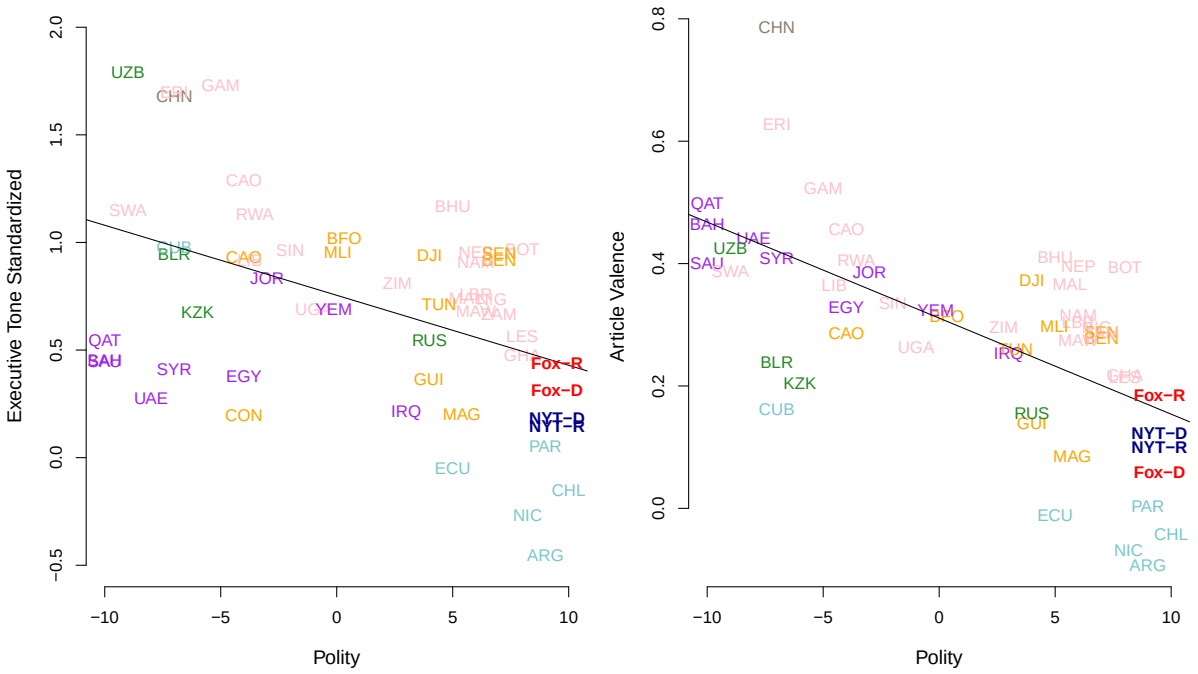


Figure 4: Pro-regime propaganda. Country abbreviations are shaded by language.

moving from 5 to 9, and so obscures the possibility that pro-regime propaganda in electorally constrained autocracies may more closely resemble state-affiliated newspapers in democracies than pro-regime propaganda in dictatorships. We adopt a more flexible estimation strategy by partitioning the Polity space. Following Polity's standard partition, we label countries with Polity scores between $-10$ and $-6$ as full dictatorships. Likewise, we label countries with Polity scores between 6 and 10 as full democracies. Polity treats countries with scores between $-5$ and 5 as "anocracies," with elements of both dictatorship and democracy. To avoid over-aggregating, we divide this category in two: one set between $-5$ and 0, and another between 1 and 5. We employ robust standard errors clustered by country.

We include a range of variables in $W_{is}$ that may be associated with changes in propaganda and electoral constraints. Since economic growth may compel citizens to press for democratic reforms and generate positive regime coverage, we control for changes in GDP per capita. We control for the share of country $i$'s GDP from natural resource revenue, elections, and ongoing civil wars. We also control for features of country $i$'s informational environment that might favor democratic reforms and constrain propaganda: its internet penetration and share of GDP from trade.

Importantly, country fixed effects also accommodate unobserved linguistic differences. Some languages, for instance, may express more sentiments per word or character than others. If so, by extracting the same number of words surrounding each identifier across languages, *Positive Coverage Standardized*$_{ijt}$ may understate propaganda in particularly expressive languages. Likewise, we may observe systematic differences across language groups if some linguistic dictionaries are more exhaustive than others, recognize more words, and hence generate

higher values of our propaganda measures. Again, country fixed effects accommodate this.

#### 4.2.2 Article Level

Second, we confirm that country-year results are consistent with article-level results. Here, we estimate models of the form

$$Y_{ijt} = \alpha + \beta X_{is} + \kappa Z_{it} + \phi W_{is} + \gamma_k + \gamma_i + \epsilon \quad (3)$$

where vectors $X_{it}$ and $W_{is}$, respectively, give day- and year-level controls, and $\gamma_i$ gives country random effects. The parameter $\gamma_k$ gives language fixed effects, which accommodate systematic differences by language. Since our explanatory and outcome variables are now measured at different intervals, we employ mixed effects models.

Article-level estimation offers a critical advantage. If electorally constrained autocracies are more likely to reference the political opposition, and that coverage is negative, then some observed decline in pro-regime propaganda may reflect opposition coverage rather than moderated pro-regime propaganda. To ensure this is not the case, we control for the number of opposition references in article $j$. To do so, we created an exhaustive list of opposition leaders and parties for each country in our sample. Across language groups, our algorithms were 95% accurate at identifying opposition references. We discuss how we counted and validated opposition references in the Online Appendix.

### 4.3 Results

The results appear in Table 2. To interpret them, we employ our Fox News index. The mean value of Fox News for *Positive Coverage Standardized: Republican* is 0.44, and for *Positive Coverage Standardized: Democrat* is 0.31; one unit of our Fox News index is thus 0.13. Likewise, the mean value of Fox News for *Article Valence: Republican* is 0.09, and for *Article Valence: Democrat* is 0.2; here, one unit of our Fox News index is 0.11.

The results suggest that propaganda apparatuses in dictatorships are profoundly different than in electorally constrained autocracies. The *Positive Coverage Standardized*$_{ijt}$ models suggest that propaganda apparatuses in dictatorships, on average, include between 0.5 and 1.4 more positive words from among the 20 surrounding each identifier. This is equivalent to between 4 and 10 units in our Fox News index. For the *Article Valence*$_{ijt}$ models, the marginal effect in dictatorships is equivalent to between 2 and 4 units in our Fox News index. Put simply, pro-regime propaganda in dictatorships is effusive. The article level results, which appear in Models 4 and 8, make clear that these results are not driven by differences in opposition coverage across regimes.

By contrast, propaganda apparatuses in constrained autocracies cover the incumbent in a way that is not profoundly different than state-affiliated newspapers in democracies. The point estimates suggest the difference between pro-regime coverage in constrained autocracies and democracies is approximately equal to a single unit of our Fox News index: roughly the

difference between how Fox News covers Republicans and how it covers Democrats. Constrained autocracies engage in pro-regime propaganda, for sure, but do so in a way that is reminiscent of Fox News. Strikingly, these estimates obtain for both our measures of pro-regime propaganda. In the Online Appendix, we adjust our partition of the Polity space to ensure that these results are robust to small changes in regime classifications.

Other coefficient estimates are equally striking. We find modest evidence that pro-regime propaganda decreases with per capita GDP, trade openness, and internet penetration. These estimates, however, are sensitive across models, and are not consistently significant. Put simply, propaganda is driven chiefly by the electoral constraints an autocrat confronts.

While Table 2 suggests that the relationship between electoral constraints and pro-regime propaganda is not linear, we nonetheless employ continuous measures of electoral constraints as robustness checks. These results appear in Tables 3 and 4. In Table 3, Models 1 through 4 focus on Polity, while Models 5 through 8 use the V-Dem project's Polyarchy index, which measures the strength of electoral democracy on the $[0, 1]$ interval. In Table 3, we use a series of more fine-grained measures from the V-Dem project, also measured on the $[0, 1]$ interval. Models 1 through 4 use legislative constraints on the executive. Models 5 through 8 use the civil liberties index, which measures the extent to which the government respects citizens' basic liberties. Models 9 through 12 use the government accountability index. Across specifications, we again find that more binding electoral constraints are associated with declines in pro-regime propaganda.

# 5 An Exogenous Shock: Evidence from Gabon

## 5.1 The Berlin Wall, Electoral Constraints, and Propaganda

For two reasons, however, we treat these results with caution. First, they may be driven by reverse causality. If propaganda works, then it may *loosen* electoral constraints. Second, the results may be driven by omitted variable bias. Although we control for a range of features that may be correlated with changes in electoral constraints and propaganda, some features may remain unobserved. To rule out these possibilities, we exploit a rapid, exogenous change in the electoral constraints confronted by many autocrats, especially those in Africa: the fall of the Berlin Wall on November 9, 1989.

The Berlin Wall's collapse marked a fundamental change for Africa's autocrats. During the Cold War, they could pit the United States and the Soviet Union against each other, and so secure financial support and weapons transfers. They lost this leverage when the Berlin Wall fell. When Western governments began to attach political conditions to development aid and debt relief, Africa's autocrats were largely forced to comply (Bratton and van de Walle 1997; Levitsky and Way 2010). In francophone Africa, this new world is associated with two dates. The first occurred in November 1989, when citizens in Benin demanded the resignation of dictator Mathieu Kérékou (Magnusson and Clark 2005). The second is June 20, 1990, when French President François Mitterand announced in La Baule, directly to African presidents,

Table 2: The Politics of Pro-Regime Propaganda (Regime Types)

| | *Dependent variable:* | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Outcome Variable | Positive Coverage Standardized | | | | Article Valence | | | |
| Unit of Analysis | Country-Year | Country-Year | Country-Year | Article | Country-Year | Country-Year | Country-Year | Article |
| Estimator | OLS | OLS | OLS | Mixed | OLS | OLS | OLS | Mixed |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Dictatorship | 0.903** | 1.198*** | 1.419** | 1.069*** | 0.308*** | 0.327*** | 0.464*** | 0.350*** |
| | (0.421) | (0.450) | (0.555) | (0.137) | (0.058) | (0.065) | (0.092) | (0.024) |
| Constrained Autocracy 1 | 0.273 | 0.270 | 0.260 | 0.751*** | 0.115** | 0.115* | 0.103 | 0.149*** |
| | (0.421) | (0.441) | (0.448) | (0.032) | (0.058) | (0.062) | (0.067) | (0.004) |
| Constrained Autocracy 2 | −0.292 | −0.297 | −0.297 | −0.081*** | −0.001 | −0.001 | −0.001 | −0.011*** |
| | (0.322) | (0.325) | (0.334) | (0.022) | (0.020) | (0.023) | (0.021) | (0.003) |
| Trade | | −0.001 | 0.001 | 0.002*** | | −0.00005 | −0.001 | 0.0001* |
| | | (0.001) | (0.005) | (0.0003) | | (0.0003) | (0.001) | (0.00004) |
| Log GDP Per Capita | | 0.016 | −0.109 | 0.671*** | | 0.014 | −0.146** | −0.020*** |
| | | (0.083) | (0.360) | (0.039) | | (0.026) | (0.066) | (0.004) |
| Natural Resources | | −0.004 | −0.003 | −0.002*** | | −0.001 | 0.00001 | 0.0003*** |
| | | (0.005) | (0.005) | (0.001) | | (0.002) | (0.001) | (0.0001) |
| Civil War | | −0.00001*** | −0.00001*** | −0.004 | | −0.00001*** | −0.00001*** | 0.018*** |
| | | (0.00000) | (0.00000) | (0.027) | | (0.00000) | (0.00000) | (0.004) |
| Internet Penetration | | | 0.00004 | −0.00003*** | | | −0.00000 | −0.00001*** |
| | | | (0.0001) | (0.00001) | | | (0.00001) | (0.00000) |
| Election | 0.012 | 0.024 | 0.024 | | −0.006 | −0.001 | 0.004 | |
| | (0.044) | (0.048) | (0.060) | | (0.007) | (0.006) | (0.007) | |
| Election Season | | | | −0.010 | | | | 0.018*** |
| | | | | (0.011) | | | | (0.002) |
| Opposition References | | | | −0.024*** | | | | −0.009*** |
| | | | | (0.0005) | | | | (0.0001) |
| Constant | −0.027*** | −0.169 | 1.009 | −7.048*** | −0.053*** | −0.187 | 1.421** | 0.398*** |
| | (0.000) | (0.830) | (3.506) | (0.537) | (0.000) | (0.251) | (0.655) | (0.057) |
| Country Effects | Fixed | Fixed | Fixed | Random | Fixed | Fixed | Fixed | Random |
| Language Fixed Effects | | | | ✓ | | | | ✓ |
| Observations | 270 | 223 | 194 | 396,061 | 268 | 221 | 190 | 977,106 |
| Adjusted $R^2$ | 0.827 | 0.788 | 0.720 | | 0.956 | 0.929 | 0.941 | |

*Notes:* *p<0.1; **p<0.05; ***p<0.01
For OLS models, standard errors are cluster robust within countries.

Table 3: The Politics of Pro-Regime Propaganda (Continuous Variables)

| | *Dependent variable:* | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Outcome Variable | Positive Coverage Standardized | | Article Valence | | Positive Coverage Standardized | | Article Valence | |
| Unit of Analysis | Country-Year | Article | Country-Year | Article | Country-Year | Article | Country-Year | Article |
| Estimator | OLS | Mixed | OLS | Mixed | OLS | Mixed | OLS | Mixed |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Polity | −0.035 | −0.075*** | −0.016*** | −0.014*** | | | | |
| | (0.041) | (0.003) | (0.004) | (0.0004) | | | | |
| Polyarchy | | | | | −0.948 | −1.623*** | −0.286*** | −0.282*** |
| | | | | | (0.762) | (0.063) | (0.089) | (0.008) |
| Trade | −0.0005 | 0.001*** | −0.001* | −0.0001** | 0.002 | 0.003*** | −0.001 | −0.0002*** |
| | (0.001) | (0.0003) | (0.001) | (0.00004) | (0.006) | (0.0004) | (0.001) | (0.00005) |
| Log GDP Per Capita | 0.091 | 0.725*** | −0.054 | −0.002 | 0.301 | 0.709*** | −0.010 | −0.001 |
| | (0.118) | (0.038) | (0.082) | (0.004) | (0.387) | (0.040) | (0.104) | (0.004) |
| Natural Resources | −0.005 | −0.002** | −0.00004 | 0.0005*** | −0.004 | −0.002** | 0.0002 | 0.001*** |
| | (0.006) | (0.001) | (0.002) | (0.0001) | (0.006) | (0.001) | (0.002) | (0.0001) |
| Civil War | −0.00001*** | 0.012 | −0.00001*** | 0.015*** | −0.00001*** | 0.009 | −0.00001*** | 0.013*** |
| | (0.00000) | (0.026) | (0.00000) | (0.004) | (0.00000) | (0.028) | (0.00000) | (0.003) |
| Election | 0.013 | | 0.007 | | 0.015 | | 0.002 | |
| | (0.046) | | (0.008) | | (0.055) | | (0.007) | |
| Internet Penetration | | −0.00004*** | −0.00001 | −0.00001*** | 0.00003 | −0.00000 | −0.00001 | −0.00002*** |
| | | (0.00001) | (0.00001) | (0.00000) | (0.0001) | (0.00001) | (0.00001) | (0.00000) |
| Election Season | | −0.002 | | 0.020*** | | 0.013 | | 0.021*** |
| | | (0.011) | | (0.002) | | (0.012) | | (0.002) |
| Opposition References | | −0.024*** | | −0.009*** | | −0.024*** | | −0.009*** |
| | | (0.0005) | | (0.0001) | | (0.0005) | | (0.0001) |
| Constant | −0.592 | −7.143*** | 0.663 | 0.369*** | −2.369 | −5.918*** | 0.290 | 0.477*** |
| | (1.219) | (0.539) | (0.794) | (0.051) | (3.593) | (0.597) | (1.002) | (0.057) |
| Country Effects | Fixed | Random | Fixed | Random | Fixed | Random | Fixed | Random |
| Language Fixed Effects | | ✓ | | ✓ | | ✓ | | ✓ |
| Observations | 223 | 396,061 | 190 | 977,106 | 190 | 335,583 | 186 | 892,257 |
| Adjusted $R^2$ | 0.776 | | 0.935 | | 0.694 | | 0.930 | |

*Notes:* *p<0.1; **p<0.05; ***p<0.01
For OLS models, standard errors are cluster robust within countries.

## Table 4: The Politics of Pro-Regime Propaganda (Robustness Checks)

| | *Dependent variable:* | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Outcome Variable | Positive Coverage Standardized | | Article Valence | | Positive Coverage Standardized | | Article Valence | | Positive Coverage Standardized | | Article Valence | |
| Unit of Analysis | Country-Year | Article | Country-Year | Article | Country-Year | Article | Country-Year | Article | Country-Year | Article | Country-Year | Article |
| Estimator | OLS | Mixed | OLS | Mixed | OLS | Mixed | OLS | Mixed | OLS | Mixed | OLS | Mixed |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| Legislative Constraints | $-0.647^{*}$ | $-0.952^{***}$ | $-0.184^{***}$ | $-0.170^{***}$ | | | | | | | | |
| | (0.366) | (0.039) | (0.045) | (0.004) | | | | | | | | |
| Civil Liberties | | | | | $-1.645^{***}$ | $-1.763^{***}$ | $-0.420^{***}$ | $-0.322^{***}$ | | | | |
| | | | | | (0.509) | (0.070) | (0.072) | (0.009) | | | | |
| Government Accountability | | | | | | | | | $-0.407^{***}$ | $-0.427^{***}$ | $-0.105^{***}$ | $-0.090^{***}$ |
| | | | | | | | | | (0.089) | (0.016) | (0.024) | (0.002) |
| Trade | 0.003 | $0.004^{***}$ | $-0.0005$ | $-0.0001$ | 0.003 | $0.004^{***}$ | $-0.001$ | $-0.0001^{*}$ | 0.002 | $0.004^{***}$ | $-0.001$ | $-0.0002^{***}$ |
| | (0.006) | (0.0004) | (0.001) | (0.00005) | (0.006) | (0.0004) | (0.001) | (0.00005) | (0.006) | (0.0004) | (0.001) | (0.00005) |
| Log GDP Per Capita | 0.302 | $0.583^{***}$ | $-0.008$ | $-0.016^{***}$ | 0.296 | $0.602^{***}$ | $-0.015$ | $-0.021^{***}$ | 0.220 | $0.608^{***}$ | $-0.034$ | $-0.012^{***}$ |
| | (0.396) | (0.039) | (0.107) | (0.004) | (0.367) | (0.039) | (0.096) | (0.004) | (0.293) | (0.039) | (0.074) | (0.004) |
| Natural Resources | $-0.005$ | $-0.003^{***}$ | $-0.0001$ | $0.001^{***}$ | $-0.003$ | $-0.005^{***}$ | 0.001 | $0.0004^{***}$ | $-0.003$ | $-0.002^{**}$ | 0.0004 | $0.001^{***}$ |
| | (0.006) | (0.001) | (0.002) | (0.0001) | (0.006) | (0.001) | (0.002) | (0.0001) | (0.006) | (0.001) | (0.002) | (0.0001) |
| Civil War | $-0.00001^{***}$ | $-0.015$ | $-0.00001^{***}$ | $0.009^{**}$ | $-0.00001^{***}$ | $-0.015$ | $-0.00001^{***}$ | $0.009^{**}$ | $-0.00001^{***}$ | 0.012 | $-0.00001^{***}$ | $0.013^{***}$ |
| | (0.00000) | (0.028) | (0.00000) | (0.003) | (0.00000) | (0.028) | (0.00000) | (0.003) | (0.00000) | (0.028) | (0.00000) | (0.003) |
| Internet Penetration | 0.00004 | 0.00001 | $-0.00001$ | $-0.00002^{***}$ | 0.00004 | $-0.00001$ | $-0.00001^{*}$ | $-0.00002^{***}$ | 0.00004 | 0.00001 | $-0.00001$ | $-0.00001^{***}$ |
| | (0.0001) | (0.00001) | (0.00001) | (0.00000) | (0.0001) | (0.00001) | (0.00001) | (0.00000) | (0.0001) | (0.00001) | (0.00001) | (0.00000) |
| Election | 0.002 | | $-0.002$ | | 0.019 | | 0.001 | | 0.025 | | 0.003 | |
| | (0.059) | | (0.007) | | (0.053) | | (0.007) | | (0.054) | | (0.007) | |
| Election Season | | $-0.005$ | | $0.017^{***}$ | | 0.002 | | $0.019^{***}$ | | 0.009 | | $0.020^{***}$ |
| | | (0.012) | | (0.002) | | (0.012) | | (0.002) | | (0.012) | | (0.002) |
| Opposition References | | $-0.024^{***}$ | | $-0.009^{***}$ | | $-0.024^{***}$ | | $-0.009^{***}$ | | $-0.024^{***}$ | | $-0.009^{***}$ |
| | | (0.0005) | | (0.0001) | | (0.0005) | | (0.0001) | | (0.0005) | | (0.0001) |
| | | (0.641) | | (0.056) | | (0.599) | | (0.062) | | (0.629) | | (0.058) |
| Constant | $-2.575$ | $-4.658^{***}$ | 0.209 | $0.632^{***}$ | $-1.643$ | $-4.556^{***}$ | 0.485 | $0.737^{***}$ | $-1.776$ | $-5.420^{***}$ | 0.444 | $0.493^{***}$ |
| | (3.800) | (0.576) | (1.052) | (0.056) | (3.617) | (0.554) | (0.930) | (0.059) | (2.818) | (0.569) | (0.720) | (0.057) |
| Country Effects | Fixed | Random | Fixed | Random | Fixed | Random | Fixed | Random | Fixed | Random | Fixed | Random |
| Language Fixed Effects | | ✓ | | ✓ | | ✓ | | ✓ | | ✓ | | ✓ |
| Observations | 190 | 335,583 | 186 | 892,257 | 190 | 335,583 | 186 | 892,257 | 190 | 335,583 | 186 | 892,257 |
| Adjusted $R^2$ | 0.695 | | 0.929 | | 0.706 | | 0.936 | | 0.707 | | 0.937 | |

*Notes:* $^{*}$p<0.1; $^{**}$p<0.05; $^{***}$p<0.01
For OLS models, standard errors are cluster robust within countries.

that France would henceforth tie aid to democratic reforms.

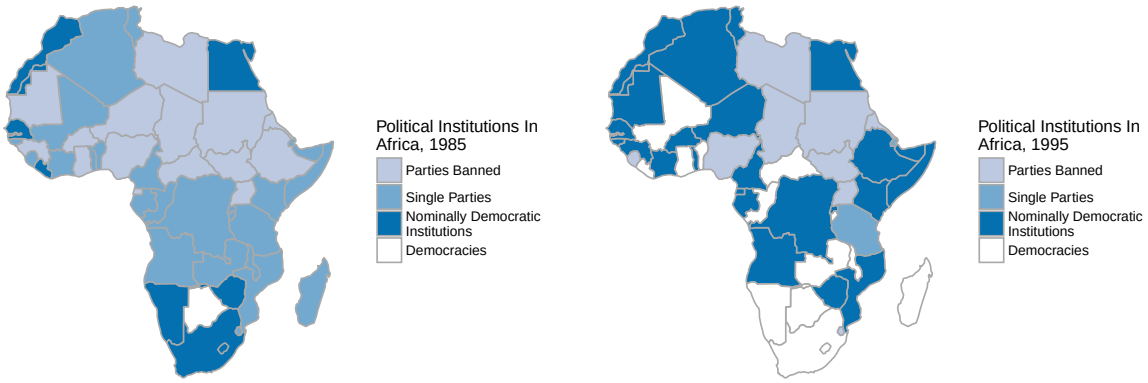


Figure 5: Political institutions in Africa, before the Berlin Wall fell and after.

Figure 5 displays two maps: one in 1985, one in 1995. Prior to the Third Wave of Democracy, less than a quarter of Africa's autocrats governed with nominally democratic institutions. After, less than a quarter of its autocrats *did not*. Of the 37 constitutions in force by 1994, all but four featured presidential term limits. By December 1992, only Liberia and Sudan had avoided major reforms (Bratton and van de Walle 1997).

These geopolitical changes were felt acutely in Gabon. Upon taking power in 1967, Omar Bongo outlawed opposition parties, save for his Gabonese Democratic Party (PDG), and, with no opponents, "won" presidential elections in 1973, 1979, and 1986 with between 99.56% and 99.97% of votes. In exchange for cheap oil and campaign finance, successive Gaullist governments in France made Bongo extraordinarily wealthy. France also guaranteed Bongo's personal security with a military installation that was connected by tunnel to the Presidential Palace (Heilbrunn 2014).

University students began protesting in January 1990, just two months after the Berlin Wall fell. Labor unions quickly joined. To placate protesters, Bongo legalized political parties and independent newspapers, and convened a National Conference in April 1990, which reduced presidential terms from seven years to five, imposed a two term limit, and created an independent judiciary. Presidential elections were scheduled for December 1993. "The PDG controls the government," Bongo acknowledged, "but the opposition controls the streets." Bongo also recognized the uprising's geopolitical origins. "The winds from the east," he observed at La Baule, "are shaking the coconut trees" (Gardinier 1997).

As the 1993 elections approached, Bongo confronted genuine electoral constraints. Polls showed Bongo claiming only 40% of the vote, with the main opposition candidate only slightly behind (Gardinier 1997). Though he prevailed, he did so narrowly, with 51% of the vote. Post-election protests forced Bongo to create an independent electoral commission and surrender direct control of the Presidential Guard, which had long served as the primary agent of state repression.

In May 1995, Bongo received a reprieve. Jacques Chirac, whose electoral campaign Bongo financed and who once called democracy in Africa a "political error," was elected French president. Chirac effectively gave Bongo *carte blanche*. In July 1996, Chirac said this: "Gabon has been under the direction of President Bongo: under the best management possible." The electoral constraints that Bongo confronted were gradually relaxed. In December 1998, Bongo claimed 67% of the vote, and in 2003, Bongo secured a change in the Constitution, which increased presidential term limits from five years to seven and removed term limits. In November 2005, Bongo claimed 79%, giving him a seventh term in office. He died in 2009 at 73 years old, having spent 42 years as president.

Bongo confronted genuine electoral constraints only briefly: from the fall of the Berlin Wall until the late 1990s or early 2000s. Our theory predicts that Bongo should have shifted his propaganda strategy accordingly.

### 5.2 Descriptive Statistics and a Non-Parametric Smoother

Founded in 1973, the *L'Union* newspaper was Bongo's chief propaganda outlet. Our dataset encompasses its entire history: 125, 797 pages published on 8, 964 days. The left panel of Figure 6 presents *Positive Coverage Standardized*$_{ijt}$, averaged by month $m$, between 1974 and 2015. For clarity, we include two dashed vertical lines. The first gives the fall of the Berlin Wall, and the second Bongo's re-consolidation of power around 2000. The right panel of Figure 6 employs a regression discontinuity approach, treating the fall of the Berlin Wall as a discontinuity. We fit a non-parametric regression to *Positive Coverage Standardized*$_m$ on either side of the discontinuity, which rules out the possibility of some pre-existing trend in propaganda that simply coincided with the Berlin Wall's collapse.

The results are striking in three respects. First, just before the Berlin Wall fell – as the winds from the east began to shake Libreville's coconut trees but before Mitterand delivered his La Baule speech – Bongo launched a propaganda campaign greater than any before. After the Berlin Wall fell, however, Bongo's propaganda apparatus moderated, as our theory predicts. Third, when Bongo reconsolidated power in the late 1990s and early 2000s – as his electoral constraints loosened – his propaganda apparatus responded by returning to levels of the single party period.

### 5.3 Regression

Next, we estimate models of the form

$$Y_t = \alpha + \beta X_t + \phi W_t + \epsilon \tag{4}$$

where $t$ indexes day, $X_t$ is the explanatory variable of interest, and $W_t$ is a vector of day-level controls. The explanatory variable of interest, $X_t$, assumes value 1 between November 9, 1989, and July 15, 1996, when Jacques Chirac, newly elected, announced his unequivocal support for Bongo during a visit to Libreville. We control for dates that could be associated with

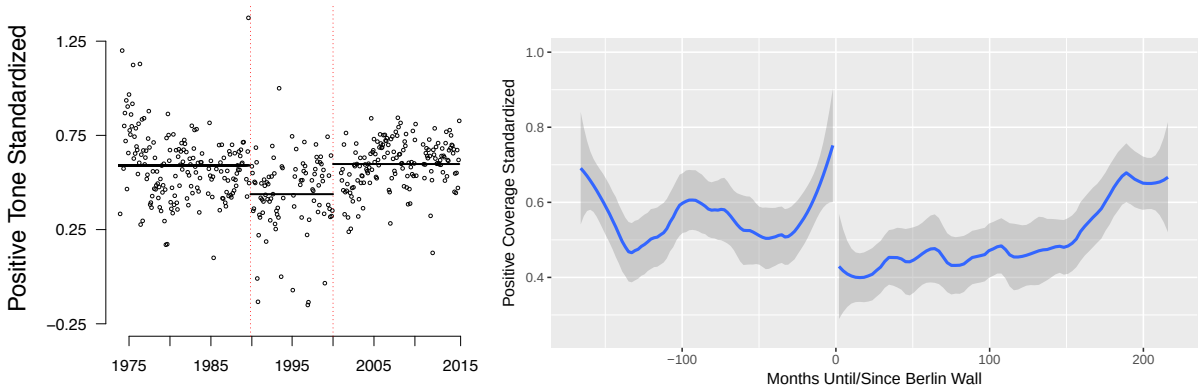


Figure 6: The left panel gives monthly averages of pro-regime propaganda in Gabon. The right panel fits a non-parametric smoother; the $x$-axis gives the number of months until or since November 1989, which is represented as month 0, and the $y$-axis gives the predicted level of *Positive Coverage Standardized*$_m$. The shaded area represents a 95% confidence interval.

particularly elevated levels of pro-regime propaganda, including the six presidential elections between 1973 and 2017, as well as for the 15 days before and after, which we refer to as an election season.

The results appear in Table 5.[7] Again, we find a sharp change in Bongo's propaganda strategy after the Berlin Wall fell. Prior to November 9, 1989, the daily mean of *Positive Coverage Standardized*$_{ijt}$ was 0.45. Between November 9, 1989, and Chirac's 1996 Libreville announcement, the daily mean value of *Positive Coverage Standardized*$_t$ fell dramatically, by some 20%. As expected, by the late 1990s, after his electoral constraints had loosened, Bongo's propaganda strategy returned to its 1980s levels.

## 5.4 Bayesian Change Point Models

Finally, we explore when precisely Bongo's propaganda strategy shifted. Intuitively, we treat the positive words used to describe Bongo in the *L'Union* newspaper as generated by an underlying process: the propaganda strategy itself. These positive words, moreover, occur at some rate, which changed around the time the Berlin Wall fell. We employ a Bayesian change point model to identify the moment at which this underlying data generating process shifted (Spirling 2007). Poisson models require that the count being modeled is non-negative and whole. Since *Positive Coverage Standardized*$_m$ is neither, we rescale it by shifting the entire set of values up by the absolute amount that the least value is negative, and then multiplying this shifted distribution by 100, so it is comprised exclusively of whole numbers. The change point model is

$$\begin{aligned} \text{Positive Coverage Standardized}_m &\sim \text{Poisson}\left(\lambda_m\right) \\ \lambda_m &= \exp\left(W_m \beta_{mn}\right) \end{aligned}$$

[7] Because we digitized this newspaper from historical archives, Model 3 reports positive tone at the page level rather than the article level.

Table 5: Evidence from Gabon

| | *Dependent variable:* | | |
|---|---|---|---|
| | Positive Tone Standardized | Positive Tone Per Day | Positive Tone Per Page |
| | (1) | (2) | (3) |
| Third Wave | $-0.116^{***}$ | $-1.453^{***}$ | $-0.216^{***}$ |
| | (0.017) | (0.235) | (0.025) |
| Post-Third Wave | 0.018 | $3.964^{***}$ | $0.045^{**}$ |
| | (0.015) | (0.222) | (0.022) |
| Election | $-0.262$ | 7.200 | 0.509 |
| | (0.305) | (4.789) | (0.442) |
| Election Season | $-0.058$ | $6.760^{***}$ | $0.327^{***}$ |
| | (0.051) | (0.839) | (0.075) |
| Constant | $0.549^{***}$ | $4.171^{***}$ | $0.662^{***}$ |
| | (0.011) | (0.158) | (0.016) |
| Observations | 6,364 | 10,176 | 6,397 |
| $R^2$ | 0.011 | 0.063 | 0.023 |
| *Note:* | | | $^{*}$p<0.1; $^{**}$p<0.05; $^{***}$p<0.01 |

where $m$ indexes month and $n$ indexes propaganda regime. This lets the covariates in vector $W_m$, which are identical to those in equation (5), condition propaganda differently according to the prevailing propaganda regime. We estimate the model using Markov chain Monte Carlo simulations, with conjugate prior distribution Gamma for the rate parameter $\lambda$. We assign an uninformative prior.

The results appear in Figure 7. The $y$-axis measures the probability that the propaganda strategy shift occurred during the month along the $x$-axis. The change point model assigns a 0.6 probability to the strategy shift occurring in September 1990, which, strikingly, coincides with the first multi-party legislative election since 1967. This election marked a profound shift in Gabon's political climate. Voting occurred in two rounds, with the first on September 16. As before, Bongo attempted to rig the election, though this time citizens responded with mass protests, ultimately forcing the annulation of results from more than 25% of electoral districts. The second round occurred on October 28, after which the government claimed 63 of the National Assembly's 120 seats. Although the results were almost certainly fraudulent, the election nonetheless marked the onset of genuine political competition.

Figure 7 identifies a second candidate date for the propaganda strategy shift: March 1990. This coincides with two events. First, the Benin National Conference concluded in late February, with Kérékou stripped of sovereignty and effectively toppled. Then, in early March Bongo announced that Gabon's National Conference would occur in April. These too marked fundamental changes.

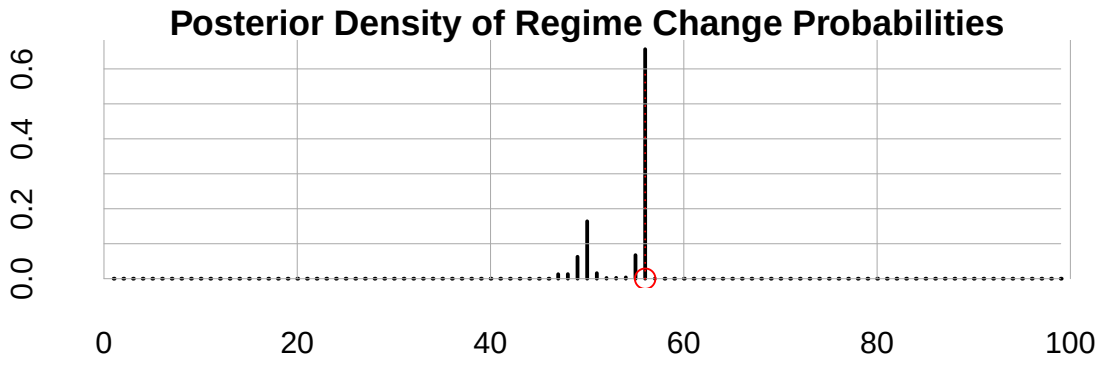


Figure 7: When Bongo's propaganda strategy changed.

# 6 Alternative Explanations: Evidence from China

## 6.1 Access to Information, Economic Development, and Long-Term Change

The electoral constraints an autocrat confronts, we find, determine the propaganda strategy he employs. By forcing autocrats to curry some amount of popular support, electoral constraints force autocrats to concede policy failures to persuade citizens of regime merits.

Perhaps the most prevalent alternative explanations for declines in media bias focus on market competition, advertising revenue, and citizen preferences for objectivity. Where potential advertising revenues are higher, the arguments generally go, media platforms are compelled to grow more objective, which enables them to attract a broader readership and hence more advertising revenue (Besley and Prat 2006; McMillan and Zoido 2004; Corneo 2006; Petrova 2008; Gehlbach and Sonin 2014; Tella and Franceschelli 2011; Hamilton 2004; Gentzkow, Glaeser and Goldin 2006; Petrova 2011, 2008, 2012). Relatedly, scholars have also attributed the growth of unbiased media to population growth (Besley and Prat 2006; Ellman and Germano 2009; Gentzkow, Glaeser and Goldin 2006). Qin, Strömberg and Wu (2018) extend these arguments to China, where the government maintains a series of local newspapers that are more commercially oriented. These market forces, they argue, will ultimately compel the government to reduce bias. Over time, they conclude, "economic development [will reduce] audience exposure to propaganda."

In Section 4, we attempted to accommodate this by controlling for economic development and internet penetration. Still, socio-economic changes may occur very slowly, making a long-term perspective potentially critical. Although evidence from Gabon suggests that Bongo's propaganda strategy was driven by electoral constraints, we nonetheless turn to China, where we also have historical data.

## 6.2 Descriptive Statistics

We created an article-level dataset of the *People's Daily* that extends to May 1946. The dataset encompasses $1,572,726$ articles from $24,659$ days. Figure 8 shows the history of the *People's Daily*. The left panel displays the mean of *Positive Coverage Standardized*$_{ijt}$, by month, since

1946, with China's annual Polity score in orange. The right panel gives economic and informational variables: logged GDP per capita, trade intensity, urbanization rate, internet users per capita, and total newspaper copies published, which we interpret as a measure of media market size. These data provide a unique opportunity to understand how propaganda has changed over time, as living standards rose and the media market expanded.

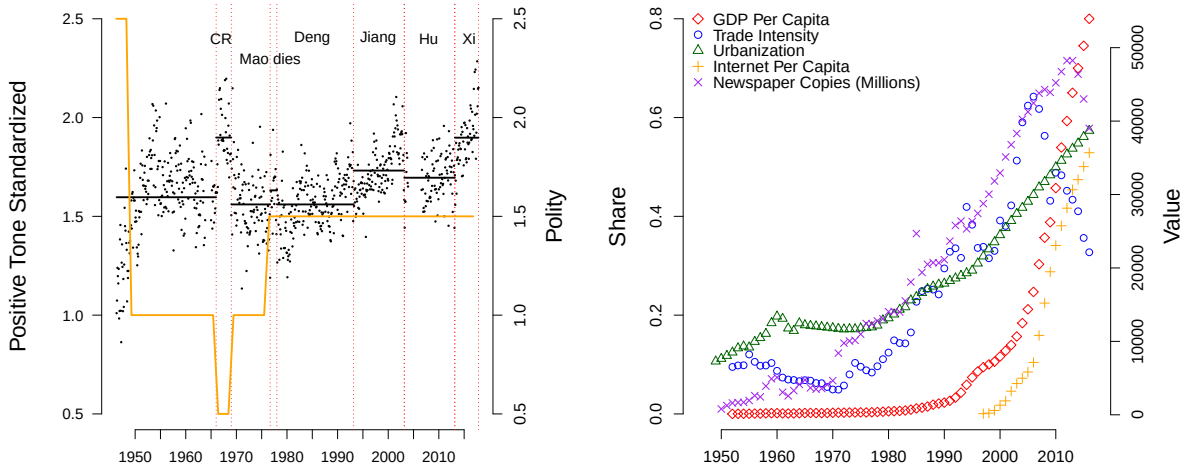


Figure 8: The history of propaganda, political institutions, economic growth, and the information environment in China.

Again, we find, propaganda is driven by politics, with economic and informational trends either secondary or irrelevant. As Mao Zedong consolidated power between 1946 and the PRC's founding in 1949, propaganda grew more effusive. It climaxed at the apex of Mao's personal power: the high phase of the Cultural Revolution between 1966 and 1969. Propaganda ebbed during Deng Xiaoping's reform era in the 1980s, which was characterized by liberalization and collective governance among elites. The nationwide pro-democracy movement of 1989 prompted the CCP to amplify repression. As those policies intensified throughout the 1990s and 2000s, propaganda rose dramatically. Indeed, after Xi Jinping abolished term limits in 2017, Chinese propaganda returned to its Cultural Revolution high point. Note too that, as each Chinese leader consolidated power, pro-regime propaganda grew more effusive.

China's economic and informational landscape changed dramatically over the period. Living standards rose, foreign trade expanded, citizens moved to cities and gained internet access, and the newspaper market boomed.[8] Existing theories suggest that propaganda should have declined. This has not happened. The *People's Daily* now covers the regime more effusively than at any time since the Cultural Revolution.

[8]We draw all data from China's National Bureau of Statistics.

### 6.3 Estimation

To probe this more systematically, we estimate models of the form

$$Y_s = \alpha + \beta X_s + \phi W_s + \epsilon \quad (5)$$

where $s$ indexes year, $X_s$ gives China's Polity score, and $W_s$ gives year-level variables that capture alternative explanations. Since these variables are measured annually, our outcome variable is the mean annual value of *Positive Coverage Standardized*$_{ijt}$. Vector $W_s$ includes logged GDP per capita, trade intensity, urbanization rate, and a series of measures of the market for advertising revenue: the logged number of published newspaper copies, the number of newspapers and magazines published, the kinds of newspapers published, newspaper copies per capita, and internet users per capita. Internet data are recorded from 1996 onwards; China's Polity score has not changed since, and so is omitted from this model.

The results appear in Table 6. As expected, China's Polity score is negatively associated with pro-regime propaganda, while none of the economic or media market covariates has a consistent effect. In models 1 and 4, GDP per capita is actually associated with *more* propaganda, not less. Although total newspaper copies and newspapers copies per capita are associated with less pro-regime propaganda, neither the number of newspapers and magazines published nor internet users per capita is. Moreover, the effect of newspaper copies per capita is quite small. In 2016, there were 28 newspaper copies per capita in China. Model 4 implies that it would require 100 additional copies per capita to reduce *Positive Coverage Standardized*$_{ijt}$ in the *People's Daily* by one unit of our Fox News Index. Though economic growth and media market size may shape regime coverage in China's local newspapers, we find little evidence that these factors have induced a change in China's flagship propaganda newspaper.

## 7 Conclusion

This paper proposes a unified theory of autocratic propaganda, and tests it with a dataset of state-run newspapers that contains over five million articles from 68 countries in six languages. The electoral constraints an autocrat confronts, we find, determine the propaganda strategy he employs. By forcing autocrats to curry some measure of popular support, electoral constraints force autocrats to concede policy failures as an investment in their ability to persuade citizens of regime merits. When autocrats confront no electoral constraints, they employ absurdly effusive propaganda, which makes their capacity for violence common knowledge. In tracing variation in propaganda strategies to variation in electoral constraints, this paper also advances our understanding of nominally democratic institutions in autocracies.

Our dataset, as well as the tools we developed to create it, can be used to address a range of important questions. How, for instance, do propaganda apparatuses cover an autocrat's rivals? Likewise, propaganda is also about *narratives* that the autocrat presents to citizens: about the country's economy, the state of its democracy, and its international standing (Rozenas and Stukal 2018). Students of propaganda have long recognized the power of narratives, but they

Table 6: Alternative Explanations in China

| | *Dependent variable:* | | | | |
|---|---|---|---|---|---|
| | Positive Coverage Standardized | | | | |
| | (1) | (2) | (3) | (4) | (5) |
| Polity | −0.100** | −0.196*** | −0.163*** | −0.118*** | |
| | (0.042) | (0.046) | (0.036) | (0.044) | |
| Log GDP Per Capita | 0.190*** | 0.073 | −0.013 | 0.139** | −0.696 |
| | (0.056) | (0.056) | (0.063) | (0.053) | (0.630) |
| Trade | −0.239 | −0.092 | −0.333 | 0.071 | −0.380 |
| | (0.219) | (0.233) | (0.241) | (0.234) | (0.806) |
| Urbanization | −0.702 | 0.198 | 0.962 | 0.132 | 5.203* |
| | (0.592) | (0.679) | (0.691) | (0.576) | (2.656) |
| Log Total Copies | −0.130*** | | | | |
| | (0.040) | | | | |
| Issues | | 0.00000 | | | |
| | | (0.00000) | | | |
| Kinds | | | 0.0001** | | |
| | | | (0.0001) | | |
| Copies Per Capita | | | | −0.016** | |
| | | | | (0.007) | |
| Internet Per Capita | | | | | 0.720 |
| | | | | | (1.956) |
| Constant | 2.793*** | −0.410 | 0.187 | −0.022 | 6.290 |
| | (1.025) | (0.440) | (0.439) | (0.410) | (4.823) |
| Observations | 62 | 62 | 62 | 62 | 18 |
| $R^2$ | 0.614 | 0.544 | 0.586 | 0.583 | 0.486 |
| *Note:* | | | | | *p<0.1; **p<0.05; ***p<0.01 |

have yet to be studied cross-nationally. Does variation exist? If so, what explains it?

Although we focused on propaganda for a domestic audience, many autocrats maintain propaganda apparatuses that target citizens abroad. *Russia Today* is noteworthy, but not alone. The Chinese government operates the *China Daily*. Paul Biya and Teodoro Obiang, who have ruled Cameroon and Equatorial Guinea, respectively, for a cumulative 75 years, jointly own Africa 24, a leading Pan-African media outlet. Denis Sassou Nguesso lured Euronews's Africa subsidiary, Africanews, to Brazzaville by building their headquarters along the Congo River, and provided the capital for *Forbes Afrique*, which circulates widely among Africa's financial elite. Why do autocrats employ propaganda that targets citizens abroad? Is there variation in its content?

The tools we developed for print propaganda can be used to understand radio and television propaganda. This question is critical, since state-run radio and television may well reach more citizens than state-run newspapers. Are these platforms conditioned by the same political dynamics as print?

Popular protests increasingly constitute the chief threat to the world's autocrats (Goemans and Marinov 2014). Indeed, more than ever, "thoughts are bullets" (Lasswell 1938). This paper makes clear that propaganda is not a function of an autocrat's whims or idiosyncrasies. Rather, the propaganda strategy an autocrat employs is driven by the electoral constraints he confronts. And these propaganda strategies can be understood with the tools of computational social science.

Table 7: Newspaper Corpus (I). * Indicates editions or pages, rather than articles.

| Country | Language | Newspaper | Articles | Start | End |
|---|---|---|---|---|---|
| Algeria | Arabic | El Massa | 2686 | 2016 | 2017 |
| Argentina | Spanish | Pagina 12 | 3094 | 2016 | 2017 |
| Bahrain | Arabic | Akhbar Al Khaleej | 212611 | 2012 | 2016 |
| Belarus | Russian | Segodnya | 168666 | 2013 | 2017 |
| Belize | English | Guardian | 12193 | 2009 | 2017 |
| Benin | French | La Nation | 4868 | 2013 | 2017 |
| Bhutan | English | Kuensel | 7383 | 2015 | 2017 |
| Botswana | English | Daily News | 3505 | 2012 | 2015 |
| Brunei Darussalam | English | Borneo Bulletin | 97970 | 2014 | 2017 |
| Burkina Faso | French | Sidwaya | 23875 | 2010 | 2015 |
| Cameroon | Eng, Fre | Cameroon Tribune | 30635 | 2010 | 2017 |
| Chile | Spanish | La Nacion | 1888 | 2017 | 2017 |
| China | Chinese | People's Daily | 1565109 | 2007 | 2008 |
| China | Chinese | Workers' Daily | 165761 | 2009 | 2017 |
| Congo | French | Les Depeches | 1144* | 2013 | 2017 |
| Côte D'Ivoire | French | Fraternite Matin | 6180 | 2012 | 2016 |
| Cuba | Spanish | Granma | 30062 | 2014 | 2016 |
| Djibouti | French | La Nation | 3402 | 2013 | 2015 |
| Ecuador | Spanish | El Telegrafo | 168984 | 2011 | 2017 |
| El Salvador | Spanish | Diario Co Latino | 31640 | 2013 | 2017 |
| Egypt | Arabic | Al Ahram | 27515 | 2014 | 2017 |
| Equatorial Guinea | Spanish | La Gaceta | 2535* | 2006 | 2017 |
| Eritrea | English | Hadas Shabait | 8707 | 2010 | 2015 |
| Gabon | English | L'Union | 1127000* | 1973 | 2017 |
| Gambia | English | Daily Observer | 36161 | 2007 | 2015 |
| Ghana | English | Ghanaian Times | 458 | 2013 | 2015 |
| Guinea | French | Aminata | 4871 | 2012 | 2015 |
| India | English | Pioneer | 33889 | 2013 | 2017 |
| Iraq | Arabic | Al Sabaah | 5322 | 2011 | 2011 |
| Jordan | Arabic | Al Rai | 52881 | 2012 | 2017 |
| Kazakhstan | Russian | Pravda | 20479 | 2015 | 2017 |
| Lesotho | English | Times | 7668 | 2008 | 2017 |
| Liberia | English | New Liberian | 1003 | 2007 | 2017 |
| Libya | English | JANA | 3291 | 2009 | 2015 |
| Madagascar | French | La Verite | 1716 | 2012 | 2015 |

Table 8: Newspaper Corpus (II). * Indicates editions or pages, rather than articles.

| Country | Language | Newspaper | Articles | Start | End |
|---|---|---|---|---|---|
| Malawi | English | The Nation | 9391 | 2012 | 2015 |
| Malaysia | English | Star | 22517 | 2011 | 2015 |
| Mali | French | L'Essor | 775 | 2015 | 2016 |
| Morocco | Arabic | Assahara | 4974 | 2015 | 2017 |
| Myanmar | English | Global New Light | 10596 | 2014 | 2017 |
| Namibia | English | New Era | 22702 | 2009 | 2015 |
| Nepal | English | Rising Nepal | 4001 | 2014 | 2015 |
| Nicaragua | Spanish | El Nuevo Diario | 40352 | 1998 | 2009 |
| Nigeria | English | Observer | 11966 | 2014 | 2016 |
| Oman | Arabic | Oman Daily | 2397* | 2015 | 2017 |
| Paraguay | Spanish | La Nacion | 87365 | 2015 | 2017 |
| Qatar | Arabic | Al Rayah | 72907 | 2012 | 2016 |
| Russia | Russian | Rossiskaya Gazeta | 115478 | 2013 | 2017 |
| Rwanda | English | New Times | 40474 | 2010 | 2015 |
| Saudi Arabia | Arabic | Al Riyadh | 74878 | 2000 | 2005 |
| Senegal | French | Le Soleil | 30365 | 2010 | 2015 |
| Seychelles | English | Nation | 47824 | 2004 | 2017 |
| Singapore | English | Straits Times | 200851 | 2010 | 2015 |
| Swaziland | English | Observer | 838 | 2015 | 2015 |
| Syria | Arabic | Al Thawra | 19399 | 2005 | 2009 |
| Tanzania | English | Daily News | 634 | 2017 | 2017 |
| Togo | French | Presse | 17* | 2017 | 2017 |
| Tunisia | French | La Presse | 53811 | 2010 | 2015 |
| Uganda | English | New Vision | 33013 | 2010 | 2013 |
| United Arab Emirates | Arabic | Ettihad | 117191 | 2012 | 2016 |
| Uzbekistan | Russian | Narodnoye Slovo | 6532 | 2014 | 2017 |
| Venezuela | Spanish | Diario Vea | 6585 | 2016 | 2017 |
| Vietnam | French | Le Courrier | 7211 | 2009 | 2015 |
| Yemen | Arabic | Al Thawra | 13989 | 2010 | 2017 |
| Zambia | English | Times of Zambia | 137486 | 2010 | 2015 |
| Zimbabwe | English | The Herald | 59718 | 2010 | 2015 |

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