Informational Autocrats

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Forthcoming, *Journal of Economic Perspectives*, Fall 2019

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The model of dictatorship that dominated in the 20th century was based on fear. Many rulers terrorized their citizens, killing or imprisoning thousands, and deliberately publicizing their brutality to deter opposition. Totalitarians such as Hitler, Stalin, and Mao combined repression with indoctrination into ideologies that demanded devotion to the state. They often placed barriers between their citizens and the rest of the world with overt censorship, travel restrictions, and limits on international trade.

However, in recent years a less bloody and ideological form of authoritarianism has been spreading. From Hugo Chávez's Venezuela to Vladimir Putin's Russia, illiberal leaders have managed to concentrate power without cutting their countries off from global markets, imposing exotic social philosophies, or resorting to mass murder. Many of these new-style autocrats have come to office in elections and managed to preserve a democratic facade while covertly subverting political institutions. Rather than jailing thousands, they target opposition activists, harassing and humiliating them, accusing them of fabricated crimes, and encouraging them to emigrate. When these autocrats kill, they seek to conceal their responsibility.

The emergence of such softer, non-ideological autocracies was unexpected and so far lacks a systematic explanation. How do the new dictators survive without using the standard tools of 20th century authoritarians, and moreover without the traditional legitimacy or religious sanction that supported historical monarchs, or even the revolutionary charisma of anti-colonial leaders?

The key to such regimes, we argue, is the manipulation of information. Rather than terrorizing or indoctrinating the population, rulers survive by leading citizens to believe—rationally but incorrectly—that they are competent and public spirited. Having won popularity, dictators score points both at home and abroad by mimicking democracy. Violent repression, rather than helping, would be counterproductive because it would undercut the image of able governance that leaders seek to cultivate.

In this article, we document the changing characteristics of authoritarian states worldwide. Using newly collected data, we show that recent autocrats employ violent repression and impose official ideologies far less often than their predecessors. They also appear more prone to conceal rather than to publicize cases of state brutality. Analyzing texts of leaders' speeches, we show that "informational autocrats" favor a rhetoric of economic performance and provision of public services that resembles that of democratic leaders far more than it does the discourse of threats and fear embraced by old-style dictators. Authoritarian leaders are increasingly mimicking democracy by holding elections and, where necessary, falsifying the results.

A key element in our theory of informational autocracy is the gap in political knowledge between the "informed elite" and the general public. While the elite accurately observes the limitations of an incompetent incumbent, the public is susceptible to the ruler's propaganda. Using individual-level data from the Gallup World Poll, we show that such a gap does indeed exist in many authoritarian states today. Unlike in democracies, where the highly educated are more likely than others to approve of their government, in authoritarian states the highly educated tend to be more critical. The highly educated are also more aware of media censorship than their less-schooled compatriots.

The manipulation of information is not new in itself—some totalitarian leaders of the past were innovators in the use of propaganda. What is different is how rulers today employ such tools. Where Hitler and Stalin sought to reshape citizens' goals and values by imposing comprehensive ideologies, informational autocrats intervene surgically, attempting only to convince citizens of

their competence. Of course, democratic politicians would also like citizens to think them competent, and their public relations efforts are sometimes hard to distinguish from propaganda. Indeed, the boundary between low-quality democracy and informational autocracy is fuzzy, with some regimes and leaders—Silvio Berlusconi of Italy, say, or Cristina Kirchner of Argentina—combining characteristics of both. Where most previous models have assumed that formal political institutions constrain such leaders, we place the emphasis on a knowledgeable elite with access to independent media.

At the same time, today's softer dictatorships do not foreswear repression completely. Informational autocrats may use considerable violence in fighting ethnic insurgencies and civil wars—as, in fact, do some democracies. They may also punish journalists as a mode of censorship (although they seek to camouflage the purpose or to conceal the state's role in violent acts). Such states can revert to overt dictatorship, as may have happened after the 2016 coup attempt in Turkey, where the regime of Recep Tayyip Erdoğan detained tens of thousands (Amnesty International 2017). Still, as we show, the extent of mass repression in the regimes we classify as informational autocracies is dwarfed by the bloody exploits of past dictators.

The reasons for this shift in the strategies of authoritarian leaders are complex. We emphasize the role of economic modernization, and in particular the spread of higher education, which makes it harder to control the public by means of crude repression. Education levels have soared in many non-democracies, and the increase correlates with the fall in violence. But other factors likely contribute. International linkages, the global human rights movement, and new information technologies have raised the cost of visible repression. Such technologies also make it easier for regime opponents to coordinate, although they simultaneously offer new opportunities for surveillance and propaganda. The decline in the appeal of authoritarian ideologies since the end of the Cold War may also have weakened old models of autocracy.

Besides Chávez's Venezuela and Putin's Russia, other informational autocracies include Alberto Fujimori's Peru, Mahathir Mohamad's Malaysia, Viktor Orbán's Hungary, and Rafael Correa's Ecuador. One can see Lee Kuan Yew's Singapore as a pioneer of the model. As we describe later, Lee perfected the unobtrusive management of private media and instructed his Chinese and Malaysian peers on the need to conceal violence. Fujimori's unsavory intelligence chief Vladimiro Montesinos was another early innovator, paying million dollar bribes to television stations to skew their coverage (as discussed in this journal in McMillan and Zoido 2004).

As these examples suggest, informational autocracy overlaps with the new populism. Chávez and Orbán are known for their populist rhetoric. Yet others—such as Lee Kuan Yew and Mahathir Mohamad—hardly fit the populist template. Informational autocrats and populists both seek to split the "people" from the opposition-minded "elite"—although populists openly attack the elite, while informational autocrats make quiet efforts to co-opt or censor it. Populism is associated with a particular set of political messages, often involving cultural conservatism, anti-immigrant animus, and opposition to globalization. By contrast, informational autocrats are defined by a particular method of rule, which they can combine with various messages. Some— like Putin and Lee—have been committed statists, unlike the many populists who rage against unresponsive bureaucracy. While populists may attack or circumvent the state-controlled media, informational autocrats almost always view it as an essential tool.

Decreasing Violence

Most old-style dictators used violent repression, along with comprehensive censorship and sometimes ideological brainwashing, to control their citizens. Informational autocrats substitute a more sophisticated kind of information manipulation for overt violence. Thus, if informational autocracies are replacing old-style dictatorships, we should see a decrease over time in the brutality of authoritarian regimes.

A first measure of this is the changing proportion of non-democracies experiencing state-sponsored killings. Here and throughout this article, we turn to the widely used "Polity" data from the Virginia-based Center for Systemic Peace to distinguish "democracies" from "non-democracies." Specifically, the Polity IV dataset rates countries on a 21-point scale from -10, "full autocracy," to +10, "full democracy." It codes countries with a Polity2 score of 6 or higher as democracies.

To gain a better understanding of the dynamics of state violence, in Guriev and Treisman (2017) we created a dataset on Authoritarian Control Techniques. We collected information on all leaders who first came to power after 1945 and remained in power for at least five consecutive years in a non-democracy. Using more than 950 sources—reports of human rights organizations, government bodies, and international agencies; historical accounts; newspapers; truth commission reports; and other publications—we assembled best estimates of the number of state political killings under each leader, up to 2015. By state killings, we mean all killings of non-violent individuals by agents of the state for political reasons, including assassinations, executions of political prisoners or detainees, and all other deaths in custody of political prisoners and detainees, even if the authorities blamed natural causes (since, in such cases, the state is responsible for failing to provide adequate medical care). We also include indiscriminate killings of protesters and other unarmed civilians by the police, armed forces, or security personnel as these often serve the political goal of spreading terror. Finally, we interpret "political reasons" broadly and also count protesters killed in demonstrations making economic demands and those killed because of their religion (for example, persecuted sects). We do not include killings in two-sided violence. While the availability and accuracy of data on state violence are problematic and we do not attempt to make fine-grained comparisons, we believe these data can reliably distinguish countries whose records of political violence differ by orders of magnitude.[1] For instance, we can distinguish dictators such as Uganda's Idi Amin, with political killings in the tens of thousands per year, from those like Argentina's General Videla, with killings in the thousands per year, and others like Uzbekistan's Islam Karimov, with killings in the hundreds per year.

Figure 1 plots the trend in political killings. Since the incidence of violence is uneven across years and the tenure of dictators varies, we compare the average number of deaths per year under each leader. If sources gave a range of estimates, we take the midpoint. To show the dynamic, we classify by the decade in which the leader first took power.

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[1] The main bias to fear is that the spread of global media and human rights movements in recent decades will have rendered reporting progressively more comprehensive (Ulfelder 2015; Clark and Sikkink 2013). This factor should tend to lead to higher reporting over time of the violent incidents described here, which means that the downward trends noted in this section may underestimate the true decline in violence in these regimes.

Figure 1: Political Killings Per Year in Non-Democracies
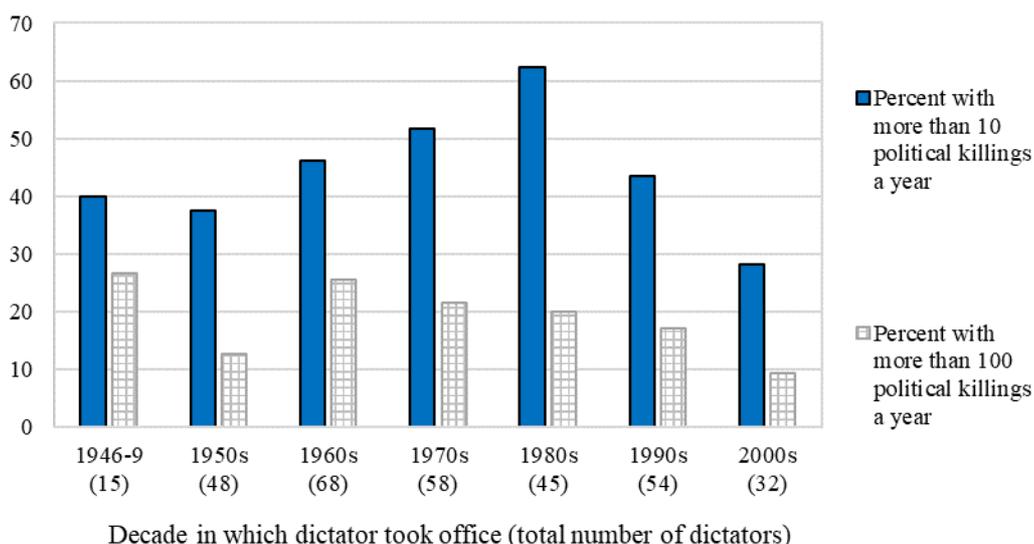
Source: Guriev and Treisman (2017).
Note: Only leaders who served at least five years in a non-democracy (Polity2 score below 6) included. State "political killings" are all killings of non-violent individuals by agents of the state for political reasons, including executions and all other deaths in custody of political prisoners or detainees, assassinations, and indiscriminate killings of unarmed civilians by armed forces, security personnel, or police. Deaths in two-sided violence are not included.

As Figure 1 shows, the frequency of state political killings has fallen sharply under leaders taking office since the 1980s. Whereas 62 percent of dictators who started in the 1980s (and lasted at least five years) had more than 10 political killings per year, that was true of only 28 percent of those starting in the 2000s. Not all early dictators were mass murderers: in each cohort, some were accused of few or no killings. And not all recent autocrats are less violent: Bashar al Assad of Syria, for instance, averaged nearly 1,500 estimated killings a year (up to 2015). But the balance has shifted.

Consider Cuba, for instance, where the estimated number of state killings under Fulgencio Batista in the 1950s was in the thousands per year; under Fidel Castro fewer than 100 per year; and under Raul Castro in the single digits. Or compare Morocco's King Hassan, who ruled from 1961 to 1999, under whom about 16 state killings were reported per year, with his son, King Mohammed, who has ruled since then and under whom less than one state killing has been reported per year.

We can exclude two possible explanations for the decrease. First, civil wars tend to increase other kinds of violence, and civil wars have become rarer since the 1990s. However, if we exclude from consideration all dictators whose terms overlapped with civil wars or major insurgencies, the recent fall in violence is even more dramatic. Second, dictators who came to power in the 2000s could not have ruled for as long as some of their longest-lasting predecessors. We already normalize by the leader's tenure and include only those who survived at least five years. But if very long-lasting leaders tended to commit atrocities late in their tenure, that might distort the pattern. However, if we consider only leaders who served no more than 10 years (and who had left office by the end of 2015), again excluding civil war cases, the decrease in killings is more dramatic than it appears in Figure 1: the proportion of non-democracies with

more than 10 political killings per year now falls from a peak of 61 for the 1970s cohort of dictators to 17 percent for the 2000s cohort.[2]

The pattern of reduced violence shows up in other measures as well. For example, mass killings by the state can be defined as "any event in which the actions of state agents result in the intentional death of at least 1,000 noncombatants from a discrete group in a period of sustained violence" (Ulfelder and Valentino 2008). The annual rate of such killings among non-democracies peaked in 1992 at 33 percent but since then has fallen sharply, reaching 12 percent in 2013.[3]

We also collected data on the number of political prisoners and detainees held under each authoritarian leader. We focus on the year in which the reported number in jail for political reasons was highest since complete annual counts were not available. We include detentions of anti-government protesters if they were held for more than a few hours.

Figure 2: Political Prisoners and Detainees in Dictator's Peak Year
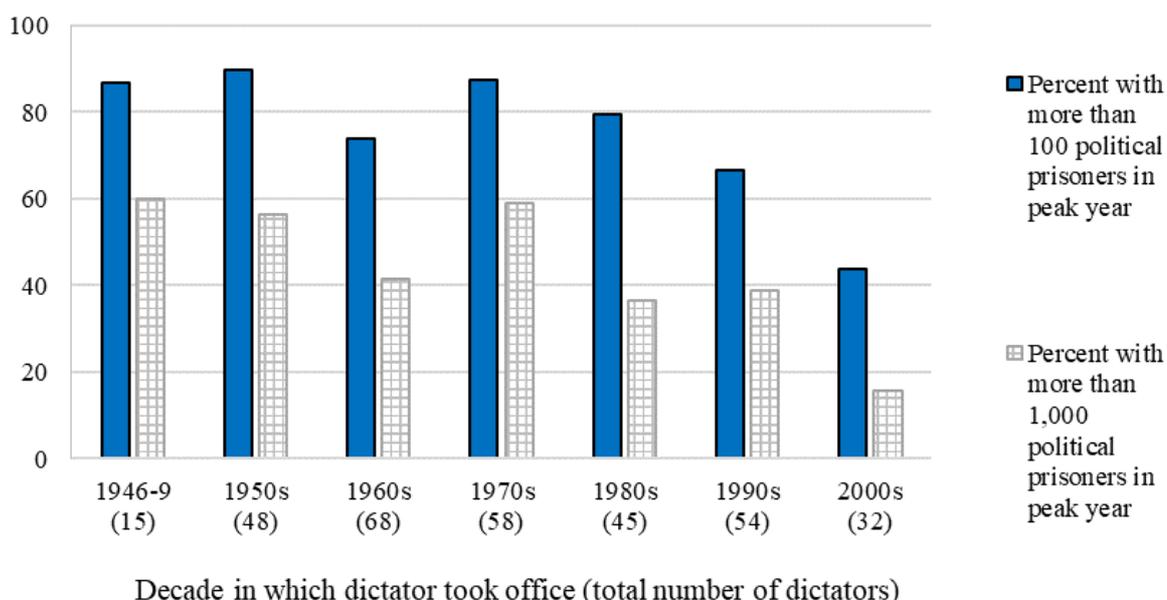
Decade in which dictator took office (total number of dictators)

Source: Guriev and Treisman (2017).
Note: Only leaders who served at least five years in a non-democracy (Polity2 score below 6) included. "Political prisoners" are individuals imprisoned or detained for more than a few hours by the state or its agents for political—rather than normal criminal—reasons, whether or not they are tried and convicted. We do not include those imprisoned for violent acts (e.g. ETA terrorists in Spain), but do include people imprisoned for seeking to overthrow the regime if, as best we can tell, they did not commit violence, as well as people detained for more than a few hours for participating non-violently in anti-government protests.

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[2] Figure A2 in the online appendix available with this paper at the JEP website shows a graph similar to the one in the text, but excluding all dictators whose terms overlapped with civil wars or major insurgencies. Figure A3 includes only leaders who served no more than 10 years (and who had left office by the end of 2015), again excluding civil war cases.

[3] For an illustration of this point, see Figure A1 in the online appendix.

As Figure 2 shows, the share of authoritarian leaders holding large numbers of political prisoners or detainees has fallen markedly since the 1970s. Whereas 59 percent of those dictators who started in the 1970s (and lasted at least five years) held more than 1,000 political prisoners in their peak year, this was true of only 16 percent of those who came to office in the 2000s. The proportion of dictators holding more than 100 political prisoners fell from 88 percent to 44 percent.

Finally, although allegations of torture of political prisoners or detainees remain extremely common, their frequency seems to have fallen. Seventy-four percent of dictators taking office in the 2000s (and surviving at least five years) were alleged by human rights groups, historians, or other sources to have tortured political dissidents, compared to 96 percent of those starting in the 1980s. This is doubly surprising given the increased scope of human rights monitoring, which should make data for recent decades more comprehensive.[4]

These patterns suggest change across cohorts of autocrats. But individual leaders may also adapt while in office. Anecdotal evidence illustrates how some dictators have substituted less brutal techniques for open repression. Early on, Singapore's leader Lee Kuan Yew detained more than 100 political prisoners (Amnesty International 1980), but later he pioneered low-violence methods. In an interview, he recalled how, after the Tiananmen Square massacre, he had lectured China's leaders (as quoted in Elegant and Elliott 2005):

> I said later to [then Premier] Li Peng, "When I had trouble with my sit-in communist students, squatting in school premises and keeping their teachers captive, I cordoned off the whole area around the schools, shut off the water and electricity, and just waited. I told their parents that health conditions were deteriorating, dysentery was going to spread. And they broke it up without any difficulty." I said to Li Peng, you had the world's TV cameras there waiting for the meeting with Gorbachev, and you stage this grand show. His answer was: We are completely inexperienced in these matters.

Peruvian President Fujimori's intelligence chief, Vladimiro Montesinos, underwent a similar evolution. The regime brutally crushed the Sendero Luminoso insurgency and Montesinos organized death squads. Yet later, he came to favor indirect methods. When an aide suggested using death threats against a television magnate, he replied: "Remember why Pinochet had his problems. We will not be so clumsy." Instead, he stripped the tycoon of Peruvian citizenship, letting regulations against foreign media ownership do the rest (in this journal, McMillan and Zoido 2004, pp. 74, 85).

Instead of long sentences for dissidents, many rulers now favor short detentions interspersed with amnesties. Unlike his brother Fidel, who jailed some for more than 10 years, Cuba's Raoul Castro held dissidents for just a few days, enough to intimidate without attracting attention (Amnesty International 2012). Authorities in Russia and Morocco use preventative short-term detentions to disrupt opposition events. Related techniques include house arrest, job loss, and denial of housing, educational opportunities, or travel documents—all of which can be cast more easily as non-political. The ability to identify and target troublemakers before they act has been enhanced by new surveillance technology.

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[4] Figure A4 in the appendix illustrates this pattern. We do not include torture of ordinary criminal suspects. Nor can we verify whether torture actually took place. However, the decreased frequency of allegations suggests in itself that dictators are increasingly eager to avoid a reputation for abuses (as discussed in the next section).

Decreased violence may improve the dictator's odds of retiring safely, rather than being overthrown. Although we cannot make causal claims, our data are consistent with this. Among leaders of non-democracies who left office between 1946 and 2013 after serving at least five years, the probability of exile, imprisonment, or death within a year of exit correlated positively with the scale of political killing under the leader's rule. For those with no recorded political killings, the probability of these three post-tenure mishaps was only .36; for those with more than 10,000 killings per year, it was .86. The probability of post-tenure exile, imprisonment or quick death was .46 for those who had held political prisoners, but just .17 for those who had not, and .49 for those accused of torturing political detainees, compared to .26 for those not accused of this.[5]

Violence Concealed

In many autocracies, leaders publicize their brutality to deter opposition or energize supporters. From medieval monarchs to the Afghan Taliban, rulers have staged show trials and bloody executions of "traitors" and "heretics." Some organize macabre public rituals to increase the impact. Dominican dictator Rafael Trujillo, for instance, paraded the corpse of an executed rebel in a chair through his home province, forcing the rebel's peasant supporters "to dance with his remains" (Derby 2009, pp. 2-3). Ahmad bin Yahya, the king of Yemen, had the heads of executed "traitors" "hung on the branches of trees as a warning" (Roucek 1962, pp. 312-3).

The effect on observers is as important as that on the victim. General Muammar Gaddafi of Libya mocked those rulers who killed their enemies secretly, boasting that *his* opponents had been "executed on television" (Amnesty International 1988, pp.247-8). Generalisimo Francisco Franco of Spain even had a special sentence for those whose fate he wanted to advertise broadly: *garotte y prensa*, which loosely translates as "strangulation by garotte with press coverage" (Preston 2003, p. 42).

The point of such gruesome acts is not just sadism. In traditional dictatorships, especially those with limited state capacity, the horror of punishments must compensate for the relatively limited probability that disloyal acts will be detected. "Why should we fear a bit of shock?" Chairman Mao Zedong of China once asked. "We want to be shocking" (Mao 1964). Pakistan's General Muhammad Zia-ul-Haq insisted: "Martial Law should be based on fear" (as quoted in Noman 1989, p. 33).[6] For some dictators, violence was not just a deterrent but a tool of social engineering. Benito Mussolini hoped it would transform Italians from a "race of sheep" into a "Nordic people" (Adler 2005, p. 299). Tens of thousands of Italians who resisted were held in concentration camps on remote islands (Ebner 2011).

In informational autocracies, by contrast, violence can puncture the dictator's image, prompting a spiral of protest and insider defections. In Ukraine in 2000, a tape apparently implicating President Leonid Kuchma in a journalist's killing sparked demonstrations that ultimately led to the country's "Orange Revolution." In 1980s Poland, the murder by the security services of a popular priest, Father Jerzy Popieluszko, had a similar effect (Bloom 2013, p.354). More generally, among the 46 cases in 1989-2011 in which a government's violent response to an unarmed protest caused more than 25 deaths, the crackdown catalyzed domestic mobilization in

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[5] In the appendix, Figure A5 illustrates these patterns. Of course, we cannot exclude the possibility that violence increases both the odds of punishment after stepping down and the odds of surviving indefinitely in office, which would lead to censoring of our data.

[6] For other examples of deliberately public violence, see Table A1 in the online appendix.

30 percent of these cases and prompted security force defections in 17 percent (Sutton, Butcher, and Svensson 2014). Such repression backfired more often in countries with higher income and opposition media.

Those—usually in the security forces—who prefer a regime of raw repression sometimes commit atrocities to compromise their leader, hoping to compel a switch from information manipulation to blatant force. This dynamic also shows why an incompetent security apparatus can imperil a dictator. After troops shot dead the Philippine opposition leader Benigno Aquino in 1983, President Ferdinand Marcos could not deny complicity. This murder ignited the "People's Power" movement that eventually split Marcos' military support, triggering his overthrow.

Informational autocrats use various tricks to camouflage those acts of repression they still commit. One is to prosecute dissidents for non-political—preferably embarrassing—crimes. Nicolae Ceausescu of Romania instructed his security chief to use "inventiveness and creativity" in neutralizing dissidents: "We can arrest them as embezzlers or speculators, accuse them of dereliction of their professional duties, or whatever else best fits each case. Once a fellow's in prison, he's yours" (as quoted in Pacepa 1990, pp.144-5). Lee Kuan Yew of Singapore berated his Malaysian counterpart Mahathir Mohamad for arresting the opposition leader Anwar Ibrahim in 1998 under the Internal Security Act rather than for some ordinary crime (Pereira 2000). The non-political offenses that recent dictators have used to charge political opponents range from what one might expect, like corruption or adultery, to more exotic charges like disrupting traffic, stealing street art, and illegal elk hunting.[7]

End of Ideology

Many past autocrats sought to impose comprehensive ideologies. In totalitarian systems, these often involved holistic conceptions of man and society that legitimized the dictator's rule and required personal sacrifices (Linz 2000, p.76), while decisively rejecting capitalist democracy. Some non-totalitarian autocrats also adopted guiding doctrines. Reactionaries constructed worldviews based on Catholic teachings. Leftists combined Marxism with indigenous elements.

Almost all such ideologies defined regime opponents as evil and in this way justified harsh measures against them. We see their use as aimed, at least in part, at motivating state agents to violently punish opposition. Ideology is often a complement of repression.

Informational autocrats, eschewing mass repression, have less need for ideology. Although they are often critical of the West, they rarely reject democracy per se, merely insisting that it evolve within their unique conditions. For Hungary's Viktor Orbán that means "illiberal democracy"; for Russia's Vladimir Putin, "sovereign democracy." Many have no ideology at all. Those that do—for instance, Hugo Chávez, with his populist "Chavismo"—use it to signal commitment to social causes, rather than to control citizens' thought. In all these cases, the rulers pretend to care for citizens' well-being, thus mimicking democratic leaders.

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[7] For a list of some other nonpolitical offenses with which opposition members have been charged, see Table A2 in the online appendix.

Figure 3: Percentage of Non-Democracies with an Official Ideology
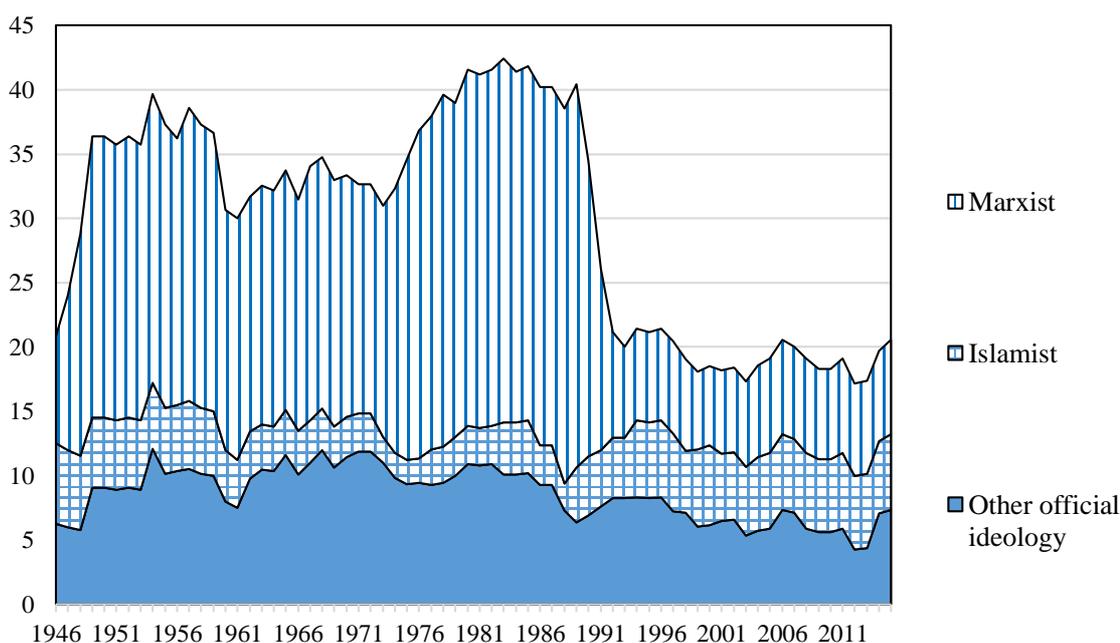
Source: Guriev and Treisman (2017).
Note: Number of non-democracies (Polity2 < 6) rose from 48 in 1946 to a peak of 108 in 1977, before falling to 68 in 2015.

We collected data on which post-war non-democracies had an official ideology—that is, a social, political, or religious doctrine, endorsed by top officials, that influenced the content of laws (see Figure 3). By far the most frequent was some form of Marxism: we coded regimes as Marxist if the government was dominated by a communist party or if the leader publicly said he was a Marxist. We categorized non-democracies as Islamist if they privileged Islamic over secular law on a broad range of issues. A residual category, "other ideologies," contains more exotic alternatives such as Ba'athism, Nasserism, Pancasila, and Kemalism.

The proportion of non-democracies with official ideologies dwindles from 42 percent in 1983 to around 20 percent in the 1990s and 2000s. This reflects a sharp drop in Marxist regimes (from 28 percent to about 7 percent), although "other ideologies" also lost ground. Islamism increased, but only from around 2 percent in the mid-1970s to 6 percent in 2015.

Mimicking Democracy

Overt dictatorships should have little use for ostensibly democratic institutions such as legal opposition parties, popularly elected parliaments, and partially free presidential elections. Such institutions complicate decision-making and could help opposition actors coordinate. Yet with the proliferation of informational autocracies, such institutions have multiplied. Consider elected parliaments. Whereas in 1975 almost one-half of non-democracies had no elected legislature at all, by 2015 more than two-thirds had parliaments in which non-government parties had at least a token presence, as shown in Figure 4.

Voting for head of the executive branch of government has also spread. More and more authoritarian leaders have been taking office by election, rather than by military coup or some other irregular path. Between the 1970s cohort and the 2000s cohort of dictators (who remained in office at least five years), the percentage originally elected rose from 14 to 56 percent (Guriev and Treisman 2017).

Coming to power through an election—like avoiding violent repression while in office—may increase a dictator's odds of a peaceful retirement. Again, we cannot make causal claims, but the evidence is consistent with this. Among dictators stepping down between 1946 and 2013 (after at least five years in power), more than one-half of those who had *not* come to power through election were either exiled, imprisoned or killed within one year. Among those who had been elected, only about one-third suffered any of these fates.

While totalitarian states also mobilize citizens to vote in ritual elections, most authoritarian states today seek to render their elections more credible. Rather than banning opposition parties outright—thus revealing a lack of confidence—they permit opposition but then harass candidates and manipulate the media to ensure large victories. Between the early 1990s and 2012, the proportion of elections in non-democracies in which media bias favoring the incumbent was alleged rose from 35 to 58 percent. In the same period, the proportion in which state harassment of opposition candidates was alleged rose from 29 to 45 percent (of those cases in which opposition was allowed) (Hyde and Marinov 2012). Seeking external and internal legitimacy, regimes invite international monitors, who tend to focus on the immediate pre-election period rather than on longer-term policies that disadvantage challengers. Since the late 1980s, the proportion of such elections monitored by international observers rose from 26 percent to 84 percent (Hyde and Marinov 2012).

Figure 4: Proportion of Non-Democracies with Legislatures of Different Types
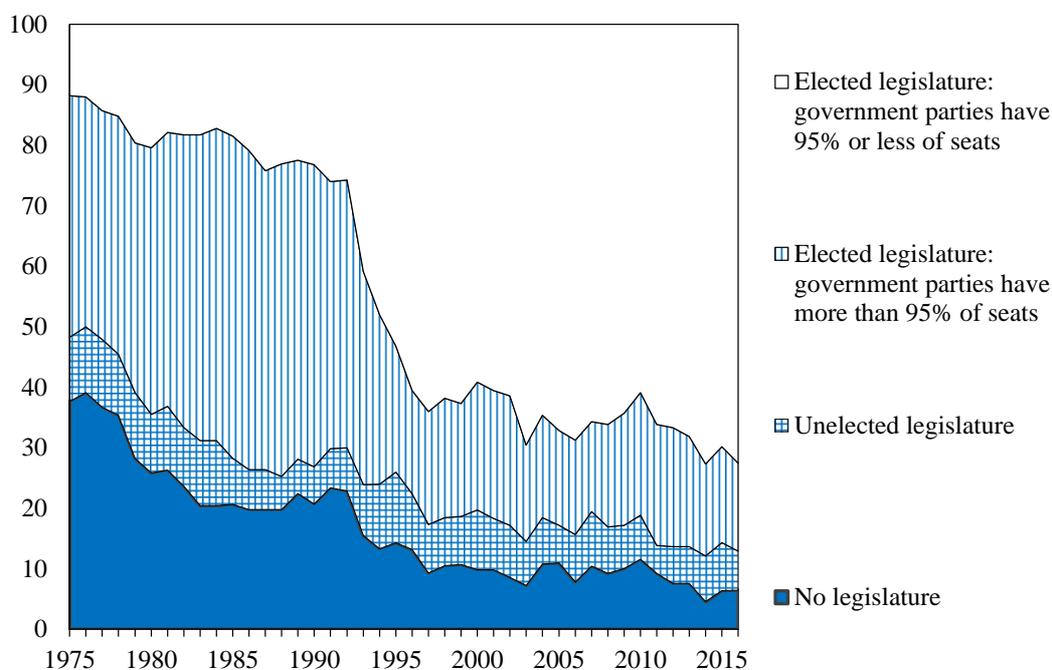
Sources: Cruz, Keefer, and Scartascini (2016).
Notes: Number of non-democracies (Polity2 < 6) was 107 in 1975 and 68 in 2015.

11

Rhetoric of Performance Rather Than Violence

When old-style dictators address the general public, they seek to instill anxiety, prompting citizens to rally behind the nation's protector-in-chief. We argue that informational autocrats—like democratic leaders—aim for something different: a reputation for competence. Thus, we expect the rhetorical style of informational autocrats to diverge from that of overt dictators and to mimic that of democrats. To see if this is the case, we compared speeches of several key examples of overt dictators, informational autocrats, and democrats.

Speech Data

Which statesmen to take as exemplars of these three categories? Our selection was determined by a mix of theory and data availability. We used two criteria: 1) leaders considered important in the historical or current literature; and 2) leaders for whom we could find a sufficient number of appropriate speeches. To identify informational autocrats, we focused on the level of repression. We singled out leaders of non-democracies under whom fewer than five state political killings occurred per year and no more than 100 political prisoners were held at the peak—and chose four of these for whom appropriate speeches were available: Vladimir Putin (Russia), Rafael Correa (Ecuador), Hugo Chávez (Venezuela), and Nursultan Nazarbayev (Kazakhstan).[8] In addition, we include Lee Kuan Yew of Singapore, using only speeches from his later years in office, when the number of political prisoners was well below 100. (Early in his tenure, more than 100 had been reported.) We see Lee as evolving from a relatively moderate overt dictator to a pioneer of informational autocracy. The overt dictators whose speeches we include all come from violent non-democracies: Josef Stalin, Adolf Hitler, Benito Mussolini, Francisco Franco, Saddam Hussein, Fidel Castro, and Kim Jong Un. The democrats are: Franklin Delano Roosevelt, Jawaharlal Nehru, Dwight Eisenhower, David Cameron, Nicholas Sarkozy, and Barack Obama. In both cases, we sought to include a mix of newer and older leaders.

We chose speeches directed at the general public rather than the elite or specific subgroups. Thus, we focus on those broadcast nationwide by radio or television. We exclude speeches made during wars, at party meetings, or outside the country, as well as those targeting primarily international audiences. We use addresses to parliament only when broadcast nationally and when better materials were unavailable—such speeches, although communicating with the public, may also incorporate strictly legislative business—and exclude interviews or press conferences where interviewers chose the topics. However, in several cases (Putin, Eisenhower) we used the leader's answers to questions from citizens in televised call-in or town-hall-meeting events (of course, dropping speech of questioners or hosts). Although the questioners—like interviewers—help set the agenda in such shows, the range of issues is usually broad, allowing the leader considerable freedom. (In addition, the leader's team may vet questions.)

We often included campaign speeches and regular radio or TV addresses. For Barack Obama, we took a random sample of 40 (out of his roughly 400) weekly radio addresses. For Franklin Roosevelt, we used the 13 "Fireside Chats" before World War II. For Hugo Chávez, we randomly selected six of 378 episodes of "Allo Presidente," a lengthy TV show in which he chatted with ministers and citizens, dropping parts not spoken by Chávez himself. Similarly, we used 12 recent episodes of Ecuadoran President Rafael Correa's broadcast "Enlace Ciudadano" (Citizens' Link) that were available online, again excluding parts not spoken by him.

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[8] Polity IV codes the Putin regime a non-democracy only from 2008, so we used texts only from that year on.

It might seem desirable to analyze texts in the speaker's language. However, each analysis employs a dictionary relating words to particular topics, and the different language dictionaries may not fully correspond. Therefore, we use English translations of each non-English speech. For most of the speeches, we could find high-quality English versions, but for a few leaders far more numerous appropriate speeches were available in the original language. While the best machine translation programs remain imperfect for most tasks, word count text analysis is arguably an exception. When estimating word frequencies, the order of words, punctuation, grammar, and so on do not matter, so the "software needs only to correctly translate the significant terms in the original document" (Lucas et al. 2015, p.7). As recommended by Lucas et al., we use Google Translate to obtain English versions of texts in the few relevant cases (Franco in Spain, Chávez in Venezuela, Correa in Ecuador).

Results

We use a dictionary method of text analysis to compare the frequency of certain words in the speeches of different leaders (Grimmer and Stewart 2013). Our hypothesis is that appeals to the general public by informational autocrats will in key respects resemble those of democrats more than those of overt dictators. We focus on three aspects. Overt dictators will use vocabulary related to violence (both domestic and external) to create anxiety among listeners. By contrast, informational autocrats—like democrats—will emphasize economic performance and public service provision in the attempt to convince citizens they are competent and effective leaders.

Our first task was to construct lists of words representative of the rhetorical strategies of dictators, informational autocrats, and democrats. Since we aimed to compare the vocabulary of informational autocrats to those of overt dictators and of democrats, we used the speeches of overt dictators and democrats as sources. From these, we compiled lists of candidate words and their cognates for all three topics. Of course, many words have multiple meanings. We therefore scanned the speeches to check how frequently a given word was used with the "wrong" meaning. (For instance, "spending" money is relevant to economic performance and public service provision; "spending" time is not.) When we found more than two non-germane uses, we excluded the word from the list.

Figure 5: Rhetoric of different types of leaders
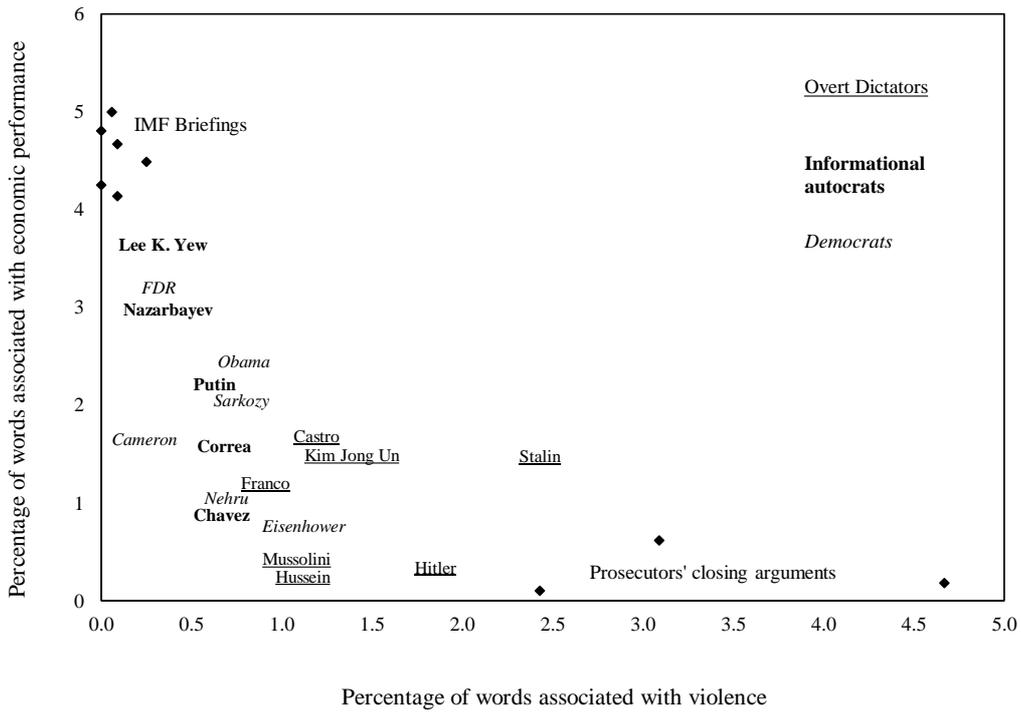

Figure 5a: Economic performance and violence
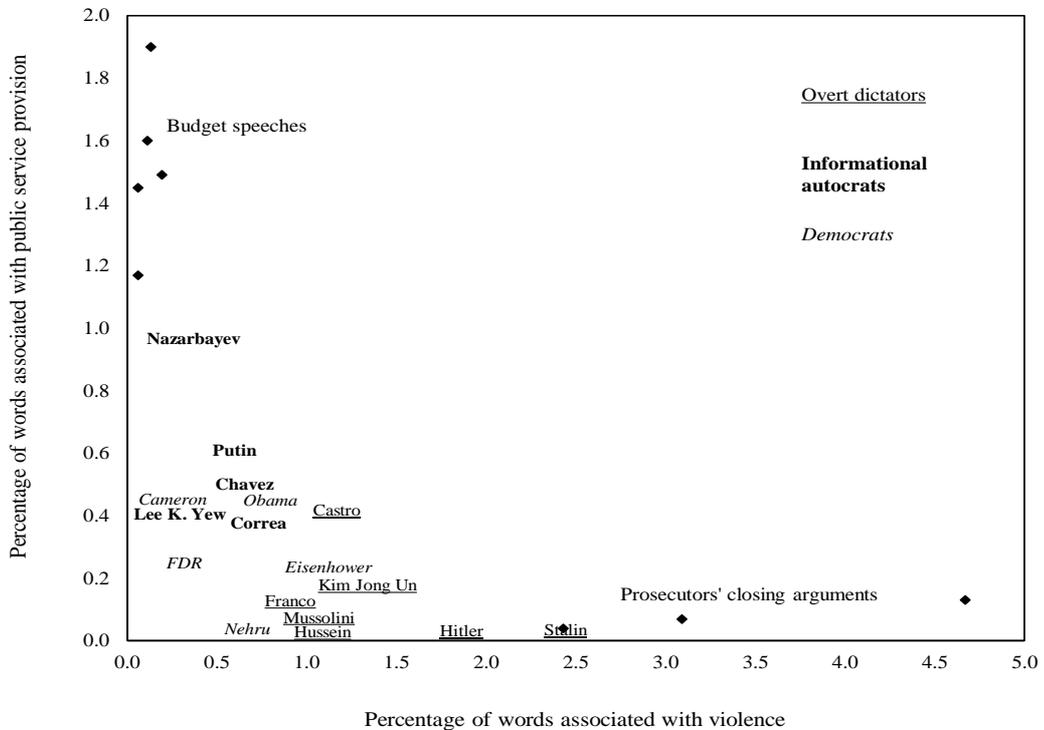
Figure 5b: Public service provision and violence

five democracies in 2016-18 (Australia, Trinidad and Tobago, India, South Africa, UK). "Prosecutors' closing arguments" are prosecutors' closing statements from the Nuremberg trial of Nazi leaders, the International Criminal Tribunal trial of former Serb leader Radovan Karadzic, and the trial of terrorist Dzhokhar Tsarnaev. For details, see Table A5.

This approach produced three "dictionaries" or lists of words in three categories: violence (142 word stems; examples: death*, massacre*, war, blood, prison); economic performance (112 word stems; examples: sales, wages, wealthy, inflation, prosper*); and public service provision (28 word stems; examples: expenditure, childcare, hospitals, education, funding). We used the text analysis program LIWC2015 (Pennebaker et al. 2015) to count the frequencies of words from the respective dictionaries.

To validate the dictionaries, we used them first to analyze three sets of texts deliberately selected to contain high concentrations of words related to: a) economic performance (transcripts of six IMF briefings on the *World Economic Outlook*); b) public service provision (budget speeches by the finance ministers of five democracies); and c) violence (closing arguments of prosecutors at the Nuremberg trial of Nazi leaders, the International Criminal Tribunal trial of former Serb leader Radovan Karadzic, and the trial of terrorist Dzhokhar Tsarnaev). If the word lists are well constructed, the IMF briefings should rate relatively high on economic performance (but not on violence), the budget speeches should rate high on public service provision (but, again, not on violence), and the prosecutors' statements should rate high on violence (but not economic performance or public service provision). Indeed, the scores of these three sets of validation texts should define benchmarks against which the leaders' speeches can be judged. In each case, the dictionary reliably placed the texts in the appropriate ranges on the three dimensions.[9]

Figure 5 presents the results for the leaders' speeches. For reference, we plot the scores of the validation texts using diamond markers—IMF briefings (high on economic performance words, low on violence), prosecutors' speeches (high on violence, low on economic performance and public service provision), budget speeches (high on public service provision, low on violence). As expected, the overt dictatorships cluster in the high violence and low economic performance and service provision parts of the graph. Stalin's public addresses sound about as violent as the prosecutor's summation in the Karadzic war crimes trial. Also as expected, the democratic leaders cluster in the low violence and high economic performance and service provision areas. Among overt dictators, Fidel Castro's rhetoric is the most oriented towards economic performance and service provision, but he still surpasses all democrats for violent imagery. Among democrats, Eisenhower employed unusually violent vocabulary—a function of the intense Cold War period (although we exclude all war years, so all Eisenhower's speeches are from after the end of the Korean War). Nehru spoke relatively little about service provision. These anomalies notwithstanding, the democrats and overt dictators mostly separate out neatly on these dimensions.

What about the informational autocrats? As hypothesized, they blend in with the democrats, emphasizing economic performance and service provision rather than violence. Indeed, the leader with the most insistent discourse of economic performance is Lee Kuan Yew, whose speeches sounded almost like an IMF briefing. The leader in discourse on service provision is

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[9] See the online appendix available with this paper at the JEP website for more details. For sources of all the speeches used, see Appendix Table A3. Appendix Table A4 provides the three lists of words used. Sources for the three sets of texts used as comparison for purposes of validation are in Table A5. Figure A7 shows how frequently words from the three dictionaries appear in the validation texts.

Kazakhstan's President Nazarbayev, whose "State of the Nation" addresses resemble democratic leaders' budget speeches.

Table 1: Means, standard errors, and significance levels in two-tailed tests of equivalence of means

	Violence	Economic performance	Public service provision
Overt dictators	1.41 (.21)	.99 (.23)	.12 (.06)
Democrats	.65 (.13)	1.87 (.37)	.32 (.07)
Informational autocrats	.51 (.08)	2.28 (.48)	.58 (.10)
Informational autocrats vs. overt dictators	p = .006	p = .02	p = .002
Informational autocrats vs. democrats	p = .42	p = .51	p = .07

Source: Authors' calculations.
Notes: Standard errors in parentheses.

As Table 1 shows, the differences between the informational autocrats and overt dictators included in the graphs are meaningful in size and unlikely to have arisen by chance. Whereas words associated with violence made up 1.41 percent of all those in the speeches of overt dictators, violent words were just .51 percent of those used by informational autocrats. Roughly every fortieth word of an informational autocrat—but only every hundredth word of an overt dictator—concerned economic performance. The informational autocrats were very close to the democratic leaders on vocabulary of violence and of economic performance, and they actually used more words related to public service than the democrats (difference significant at p = .07).

Beliefs of Elites and Masses

In a recent paper, we offer a formal account of how informational autocrats hold onto power (Guriev and Treisman 2018). The underlying logic is that of a game with asymmetric information. The ruler may be competent or incompetent. The general public does not observe competence directly, but a small "informed elite" does. Both the elite and public prefer a competent ruler, because this leads to higher living standards on average. If the public concludes that the ruler is incompetent, it overthrows him in a revolt. The elite may send messages to the public, and the leader can try to block these with censorship or to buy the elite's silence—but at the cost of diverting resources from sustaining living standards. The ruler can also send his own "propaganda" messages, blaming economic failures on external conditions.[10]

In some circumstances, the ruler achieves a higher probability of survival by manipulating information than by deterring revolt through repression (overt dictatorship) or alternatively by devoting all resources to improving living standards (democracy). Whether informational autocracy constitutes an equilibrium depends on two key variables—the size of the informed elite and the ease with which, given technology, the state can monopolize the media. Both of

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[10] In a related paper, Shadmehr and Bernhardt (2015) analyze the inference problem for citizens who must decide whether the absence of "bad news" is due to state censorship or the lack of bad news for journalists to report.

these relate to a country's level of economic development. In highly modern countries, the informed elite is generally too large for manipulation to work and censoring all private media is costly: democracy is the only option. In undeveloped countries, repression often remains more cost-effective. But at intermediate levels of development, both democracy and informational autocracy are possible outcomes. Which one occurs will depend on how effectively the state can dominate political communications to ordinary citizens.

From this perspective, the key goal of informational autocrats is to prevent elite members from revealing the regime's flaws to the general public. Of course, such manipulation only works if the public does not detect it. This has two implications: 1) the public should be less aware of censorship than the elite; and 2) informational autocrats should be more popular with the public than with the elite.

To test these implications, we use individual level data from the Gallup World Poll (GWP) for 2006-17. This annual poll surveys around 1,000 respondents from each of more than 120 countries, with broad coverage of democracies and informational autocracies.[11] As a rough proxy for membership in the informed elite, we use here a dummy for whether the respondent had completed tertiary education.

Censorship

Many 20th-century dictators used censorship, like public violence, to intimidate possible opponents. The Nazis burned certain books in public squares and the Soviets demonstratively banned them. In Chile, Augusto Pinochet stationed censors in every newspaper, magazine, radio station, and television channel (Spooner 1999, p. 89). African autocrats shuttered papers and imprisoned, exiled, or murdered their reporters (Lamb 1987, pp. 245-6).

For informational autocrats, such measures would be self-defeating, exposing their need to hide the truth. Instead, they adopt less obvious techniques. In Singapore, Lee Kuan Yew co-opted shareholders in key media companies. Newspapers' corporate boards—supposedly independent—then did the censoring for him. When loyalty failed, he punished offending journalists with lawsuits. In one analyst's words: "forsaken profits and stiff legal penalties have been more effective in fostering self-censorship than earlier methods of intimidation" (Rodan 1998, p. 69).

Others have acted similarly. Orbán, in Hungary, has starved critical radio stations of state advertising, leaving them vulnerable to takeovers by government allies (Howard 2014). In Russia, Putin has "often relied on surrogates and economic pressure to keep editors and journalists in line" (Gehlbach 2010, p. 78). Peru's Fujimori bribed most private media (Faiola 1999).

Such indirect methods of censorship, besides protecting the dictator's image, also avoid stimulating a search for the censored information. In China, blocking websites outright inspires net users to "jump the great firewall," but introducing technical search friction does not (Roberts 2018). Moreover, if censored sparingly, social networks can be used by the state as a tool of surveillance (Qin, Strömberg, and Wu 2017). In Russia, the Kremlin enlists supposedly independent hackers and trolls to hinder opposition communication. When informational

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[11] As data are for recent years, almost all non-democracies in the Gallup World Poll are informational autocracies. Coverage of the few remaining overt dictatorships is sparse: for example, there are no polls of North Korea or Syria and only one of Cuba.

autocrats do admit to censorship, they often claim—as Russia's government does—to be protecting citizens from "extremism," "vandalism," and child pornography (Kramer 2007).

Such techniques aim to conceal censorship from the public. If they succeed, ordinary citizens should have higher estimates of media freedom than members of the elite, who experience restrictions first hand. To test this, we used a Gallup World Poll question that asked: "Do the media in this country have a lot of freedom, or not?" We created a dummy taking the value 1 for an answer of "yes" and 0 for an answer of "no." (Respondents could also say "don't know," or refuse to answer.) We regressed this on elite membership, using a linear probability model, including country-year fixed effects, and clustering standard errors by country-year. (Note that the country-year fixed effects control for *actual* media freedom, as well as other country-wide influences. See the online appendix Table A6 for robustness checks where we also control for individual characteristics such as gender, age, age squared, and rural/urban status.)

Figure 6: Perceptions of media freedom, elite vs. general public.
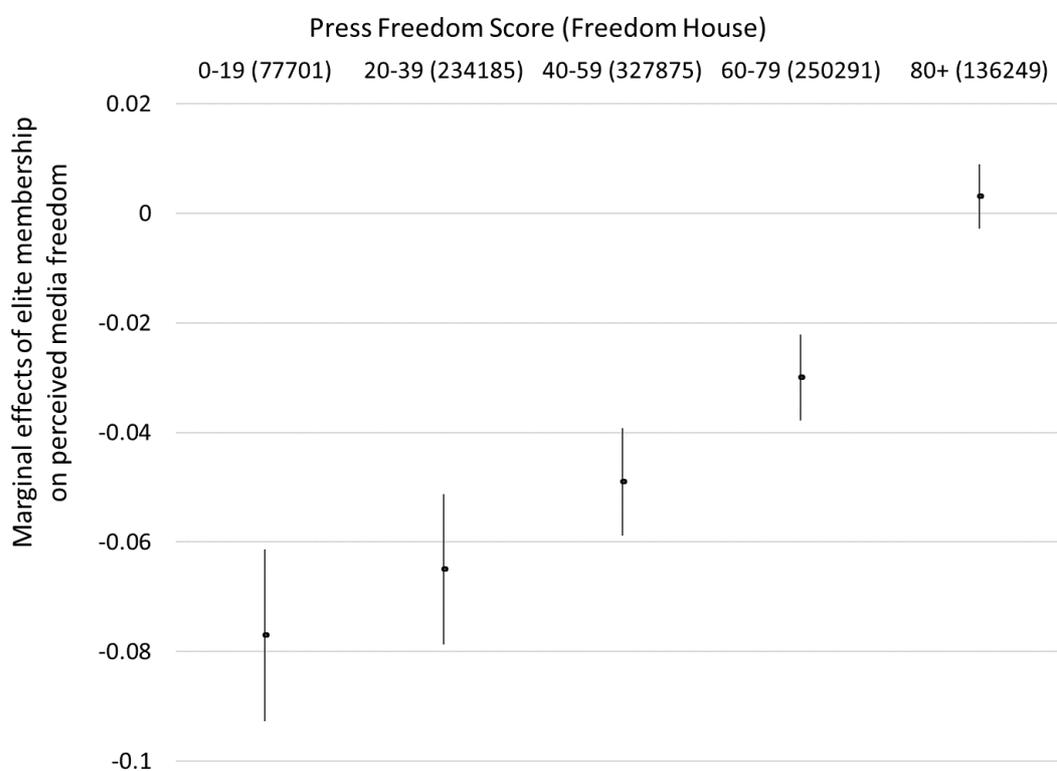
Sources: Gallup World Poll, Freedom House, authors' calculations.
Notes: The chart reports confidence intervals for the effect of elite membership on perceived media freedom for five subsamples of countries defined by their Freedom House Press Freedom Scores (0-19, 20-39, 40-59, 60-79, 80-100). We normalize the score so that 0 is perfect censorship and 100 full press freedom. Numbers in parentheses represent the number of observations in each subsample. The regressions include country-year fixed effects. Standard errors are clustered by country-year. See Table A6 in the online appendix for robustness checks including controls for age, age squared, gender, and urban status.

We divided countries up based on actual media freedom, as measured in Freedom House's press freedom ratings. Where the media are free, both elite and public should observe this, and so no perceptions gap should exist. However, as freedom falls, the gap between actual press freedom—as perceived accurately by the elite—and the overly positive assessment of the manipulated public should grow. As Figure 6 shows, the data strongly confirm this supposition. For countries with high press freedom, the gap between elite and public perceptions is zero. As actual press freedom falls, the gap widens to a maximum of almost 8 percentage points. Where the press is

censored, the general public—as predicted—is less aware of this than are highly educated citizens.[12]

Regime Support

Here we use the Gallup World Poll question: "Do you approve or disapprove of the job performance of the leadership of this country?" Again using a linear probability model, we regressed a dummy for positive approval on a dummy for elite membership, in sets of countries divided up according to their regime type. As noted earlier, the Polity IV data rates countries on a 21-point scale from -10, "full autocracy," to +10, "full democracy." As before, we controlled for country-year fixed effects and clustered standard errors by country-year. The main results are presented in Figure 7.

Figure 7: Approval of Country's Leadership: Elite vs. General Public
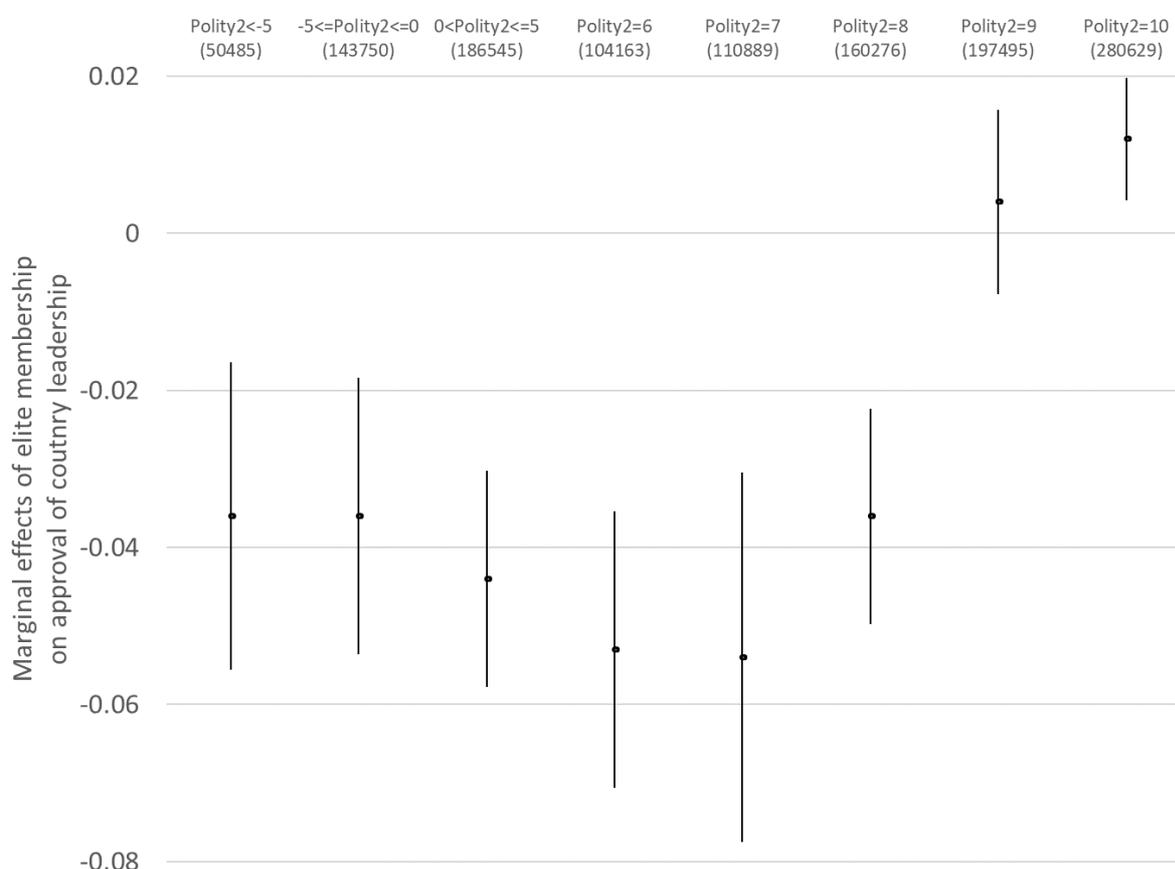
Sources: Gallup World Poll, Polity IV, authors' calculations.

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[12] In the online appendix, Table A6 provides a robustness check with controls for individual characteristics. Table A7 reports results for additional specifications, including the interaction between tertiary education and actual press freedom, and operationalizing the latter in several ways. In all specifications, results resemble those in Figure 6: the stronger the censorship, the greater the gap between perceptions of media freedom among the elite and ordinary citizens. In online Appendix B, we also consider a simple model microfounding the relationship between the true and perceived media freedom; its predictions are in line with the results in Table A7.

As predicted, in authoritarian states—as well as in flawed democracies, with Polity2 scores of 6 to 8—approval of the national leadership was lower among the highly educated. This contrasts with the consolidated democracies—with scores of 9 or 10—where the highly educated were *more* supportive of their government. Since the highly educated tend to earn more, their lower support for leaders in authoritarian states might seem surprising.[13] But it fits the notion—central to our theory—that the elite perceives its rulers' incompetence more accurately than does the general public.

As a placebo test, we checked whether in non-democracies the highly educated also had lower life satisfaction than the general public. They did not: in fact, as in democracies, their life satisfaction was substantially higher. We also tried controlling for income; education remained associated with lower approval, while the effect of income was insignificant.[14] This is consistent with our argument that it is political knowledge, proxied by higher education, that predisposes citizens to oppose authoritarian regimes. Income may include co-optation payments to some members of the elite, which align recipients' interests with those of the ruler.

Other theories of modern authoritarian governance

The logic of informational autocracy explains some otherwise puzzling features of current authoritarian politics. Much recent analysis assumes that citizens in such states detest their rulers but cannot coordinate to overthrow them. To block revolts, dictators restrict communication among citizens and criminalize protests (Kricheli et al. 2011); censor calls for anti-regime collective action (King, Pan, and Roberts 2013); publish misleading propaganda about their repressive capacity (Edmond 2013, Huang 2015); or use both propaganda and censorship to divide opponents (Chen and Xu 2015). Some argue that these actions can lead to tradeoffs for the ruler—censorship needed to prevent coordination deprives the regime of useful information (Egorov, Guriev, and Sonin 2009; Lorentzen 2014).

However, some autocratic leaders today—although corrupt and ineffective—seem genuinely popular. It is not that citizens cannot coordinate to resist them: many do not want to. Notwithstanding the difficulties of polling in unfree societies, most experts agree that Putin in

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[13] We estimated the relationship for the full sample including both elite membership and its interaction with the level of democracy, which appear in Table A9 of the online appendix. The results are very similar. We also estimated a Mincerian equation using Gallup World Poll data (Table A10). Controlling for gender, age, age squared, and urban status, individuals with tertiary education earned salaries 40 percent higher than those with secondary education (the difference was 30 percent if we controlled for occupation). As shown in Table A11, the returns to tertiary education are similar across countries with different levels of democracy (Polity2 score).

[14] In the online Appendix, Table A12 shows the correlation between being highly educated and life satisfaction across non-democracies. Table A13 shows that the correlation continues to hold after controlling for income in non-democracies. By contrast, in *democracies* both education and income—even if included together—were both positively related to approval.

Russia, Erdoğan in Turkey, and Chávez in Venezuela have for substantial periods of time enjoyed genuine public support. This popularity is not based on the brainwashing and personality cults of totalitarian leaders, nor on narrow sectarian or ethnic identities and interests. At least some dictators in power today survive not by preventing the masses from rebelling, but by removing their desire to do so.

Another key feature of informational autocracies is the use of formally democratic institutions. Many scholars have pondered the role of such institutions in dictatorships. Some see them as mechanisms for solving time inconsistency problems. If a ruler creates institutions that constrain his own actions, that ruler can commit to repay state debts and to respect property rights (North and Weingast 1989; Gehlbach and Keefer 2011), to redistribute income to the poor (Boix 2003, Acemoglu and Robinson 2006), or to share power with colleagues (Myerson 2008; Svolik 2012; Boix and Svolik 2013). Partly competitive elections may inform the ruler about local attitudes or his agents' effectiveness (Cox 2009; Blaydes 2010) and project strength—both to his allies (Simpser 2013; Gehlbach and Simpser 2015; Gandhi and Lust-Okar 2009) and to his opponents (Rozenas 2016; Egorov and Sonin 2014; Little 2014).

These arguments make sense, although dictators seem to relish retracting the commitments that scholars had previously thought credible (most recently, consider Xi Jinping's elimination of presidential term limits in China). However, such institutions may perform a simpler function. If information manipulation has successfully inflated the autocrat's reputation, elections can be used to distill popularity into legitimacy. The appearance of democracy can be added to the image of competence.

Another literature models interactions between dictators and their support group when these are not mediated by institutions. Key questions in this approach are how the ruler chooses the size and characteristics of his inner circle and how this, in turn, determines his policy choices and survival odds (Bueno de Mesquita et al. 2003; Egorov and Sonin 2011). Like our approach, the "selectorate theory" of Bueno de Mesquita et al. considers three actors: a ruling individual or group, an elite, and the public. However, selectorate theory concerns the distribution of material benefits under—in most cases—perfect information; ours focuses on the transmission of information about the dictator's type. And while the selectorate gets to choose the ruler, our informed elite has no power except to influence and assist the public. Whereas rulers in selectorate theory bribe elites to prevent coups, our rulers bribe—or censor them—to stay silent so as to avoid mass unrest.

A number of authors have suggested alternative ways to classify non-democracies. Some emphasize the *objectives* of rulers. Besides the familiar distinction between authoritarian and totalitarian regimes, which aim for different degrees of social control (Linz 2000), Wintrobe (1990) introduced the "tinpot" dictator, who maximizes consumption subject to a power constraint. Others highlight the identity of the ruling group: for example, Geddes, Frantz, and Wright (2018) distinguish among monarchies and military, one-party, and personalist dictatorships. Our distinction between "overt dictatorships" and "informational autocracies" focuses on the *method* of maintaining power, and thus cuts across previous categories. Informational autocrats can aim for more or less power and more or less personal wealth. They are most often personalist dictators, but they can also be found in one-party regimes (Singapore, Malaysia) and even monarchies (some Middle Eastern and North African states).

Concluding Remarks

The totalitarian tyrants of the past employed mass violence, ideological indoctrination, and closed borders to monopolize power. Most authoritarian rulers also used brutal repression to spread fear. However, in recent decades a growing number of non-democratic leaders have chosen a different approach. Their goal—concentrating power—remains the same. But their strategy is new. Rather than intimidating the public, they manipulate information—buying the elite's silence, censoring private media, and broadcasting propaganda—in order to boost their popularity and eliminate threats.

We documented the growing presence of such informational autocracies. Modern authoritarians tend to be less brutal than their predecessors—and more secretive when they do repress. Eschewing official ideologies, they imitate democracy, creating legislatures and holding elections, harassing opposition candidates more often than banning them outright. Like democratic leaders, most dictators today focus on economic performance and service provision when they address the public, and avoid the violent rhetoric of old-style autocrats. They often seem to succeed in winning support from ordinary citizens while concealing from them the extent of their deception.

What explains the shift in models of autocracy? Global influences have likely contributed. The end of the Cold War, the emergence of an international human rights movement, and advances in information technology have all called into question old approaches. The cost of terrorizing one's most productive citizens is higher in an internationally connected economy that depends on innovation and mobile capital. Autarky is less feasible today than 50 years ago.

Our own favored explanation emphasizes change in *domestic* conditions—in particular, the spread of education and other aspects of social and economic modernization. As more and more citizens develop the skills and knowledge to organize opposition, repressing all potential rebels becomes difficult. Yet, if the educated elite is not *too* large and the state can control the mass media, autocrats can still achieve dominance by distorting information flows. The beauty of the method—if it is successful—is that many citizens do not realize they are being dominated. The argument combines the optimism of modernization theory with the pessimism of 20th century critics of "mass society," who feared that mobilization of unsophisticated groups into politics would leave them vulnerable to manipulation (for example, Kornhauser 1960).

Informational autocracy could spread in two ways: through change *of* leaders—as more modern autocrats take over from older ones—or change *in* leaders—as incumbents adapt to new conditions or learn from experience while in office. The decline in violence across successive cohorts (as shown in Figure 1) suggests replacement of leaders plays an important part. This echoes recent literature on democratization, which finds that economic development prompts political reform mostly right after new leaders take over (Treisman 2015).

Establishing whether incumbents change strategies while in office is harder. Even if they did not, they might seem to be more violent early on. A new dictator must establish credibility, which then can last for years without the need for additional brutal acts. Some autocrats come to power in coups or civil wars, which give their initial period a bloody coloration. For these reasons, we compared the average level of political killing over the entire course of each dictator's tenure. Still, anecdotal evidence suggests that some leaders, such as Lee Kuan Yew, do innovate or learn in office—and even share their discoveries with authoritarian peers.

Although better adapted to today's world than overt dictatorship, informational autocracy has clear limitations. The emphasis on economic performance leaves leaders vulnerable to downturns, the facts of which are hard to conceal from those laid off or suffering wage cuts. In Russia, rather than censoring bad economic news, Kremlin spokesmen have sought—with some success—to redirect blame onto foreign enemies (Rozenas and Stukal 2017).

Paradoxically, good economic performance can, over time, be equally destabilizing. As economic development expands the educated class, the cost of silencing it via cooptation or censorship rises. Informational autocrats therefore struggle to find a balance between supporting growth, which signals competence, and resisting economic progress out of fear of its political and social spillovers. Although increased propaganda and censorship can offset such spillovers for a while, in the long run continued modernization renders democracy the only equilibrium.

Thus, in Taiwan, an overt dictatorship under Chiang Kai-Shek evolved into an informational autocracy under his son, Chiang Ching-Kuo, in his later years, before transitioning to full democracy in the 1990s. In Malaysia, the informational autocracy of Mahathir Mohamad edged over the line into corrupt democracy in the 2000s. Such changes are never secure at first; countries can slide backwards, especially if growth stalls. And the timing of such transitions—since they depend in part on coordinated action by regime opponents—cannot be predicted with confidence. Still, as Taiwan demonstrates, with continuing development the change can last.

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Online Appendix

Figure A1: Proportion of non-democracies with ongoing mass killings.
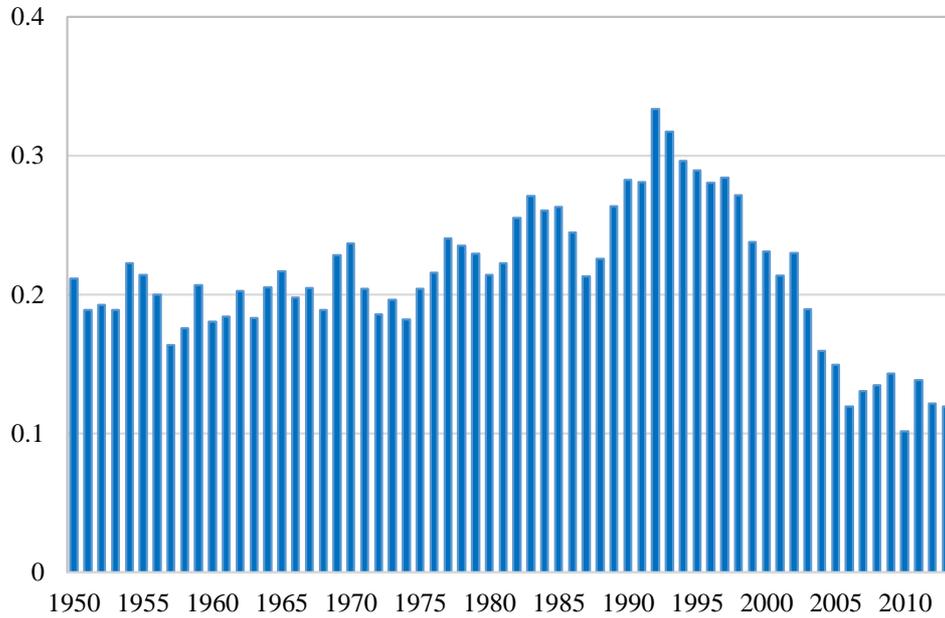
Sources: Polity IV; Mass Killings Database (see Ulfelder and Valentino 2008, and updated data at https://dartthrowingchimp.wordpress.com/2013/07/25/trends-over-time-in-state-sponsored-mass-killing).
Notes: "Non-democracies" are states with Polity2 scores of less than 6. A "mass killing" is "any event in which the actions of state agents result in the intentional death of at least 1,000 noncombatants from a discrete group in a period of sustained violence."

Figure A2: Political killings per year in non-democracies: cases with no civil war or major insurgency.
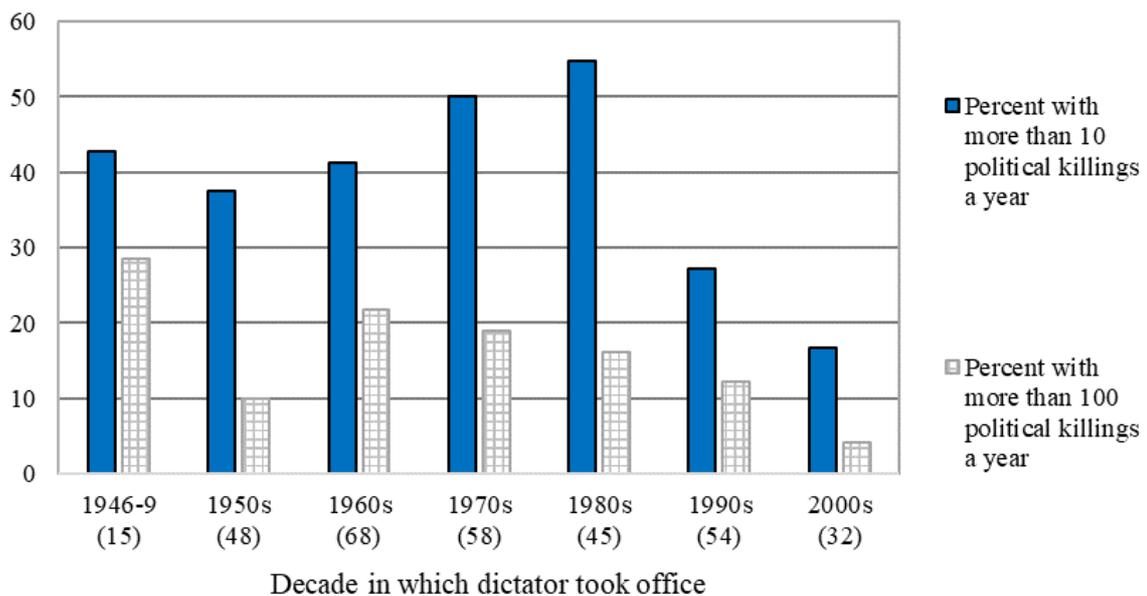
Source: Guriev and Treisman (2017).
Note: Only leaders who served at least five years in a non-democracy (Polity2 score below 6) included.

Figure A3: Political killings per year in non-democracies: cases with no civil war or major insurgency, just leaders in office 5-10 years.

Figure A4: Percentage of dictators under whom torture of political prisoners or detainees alleged

Figure A5: Violent repression and post-tenure fate of authoritarian leaders

A) By leader cohort.

Decade in which dictator took office (total number of dictators)
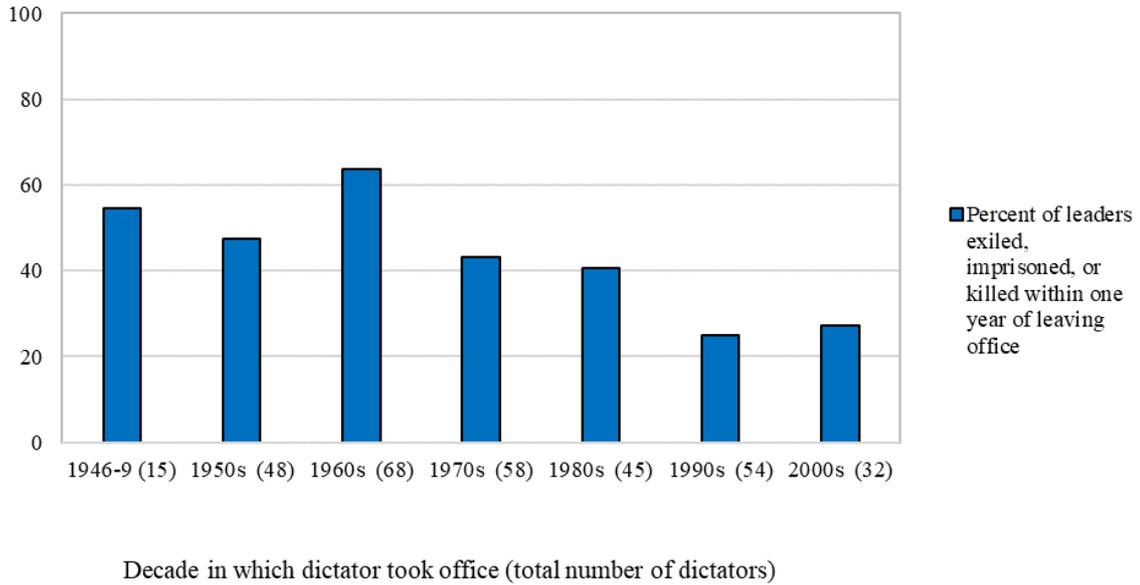
B) By level of political killing while in office.

Estimated number of political killings per year
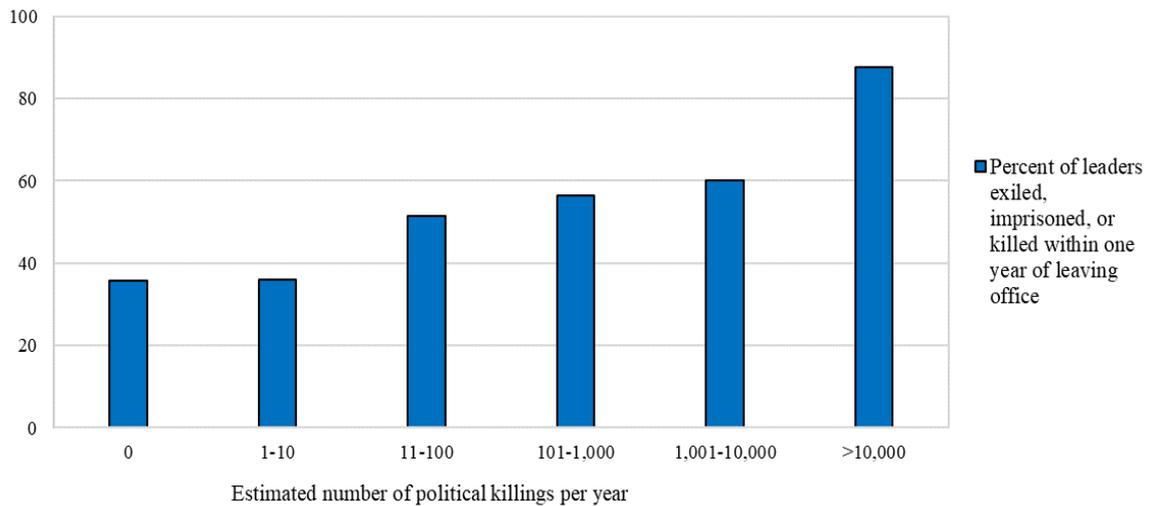
Sources: Guriev and Treisman (2017), Goemans et al. (2009).
Note: Only leaders who served at least five years in a non-democracy (i.e. country with Polity2 score below 6), who had left office by the end of 2013, and who did not die a natural death within six months of stepping down included. Categories rounded (e.g., "1-10" = 0.51-10.49).

31

Figure A6: How authoritarian regimes manipulate elections, 1980-2015
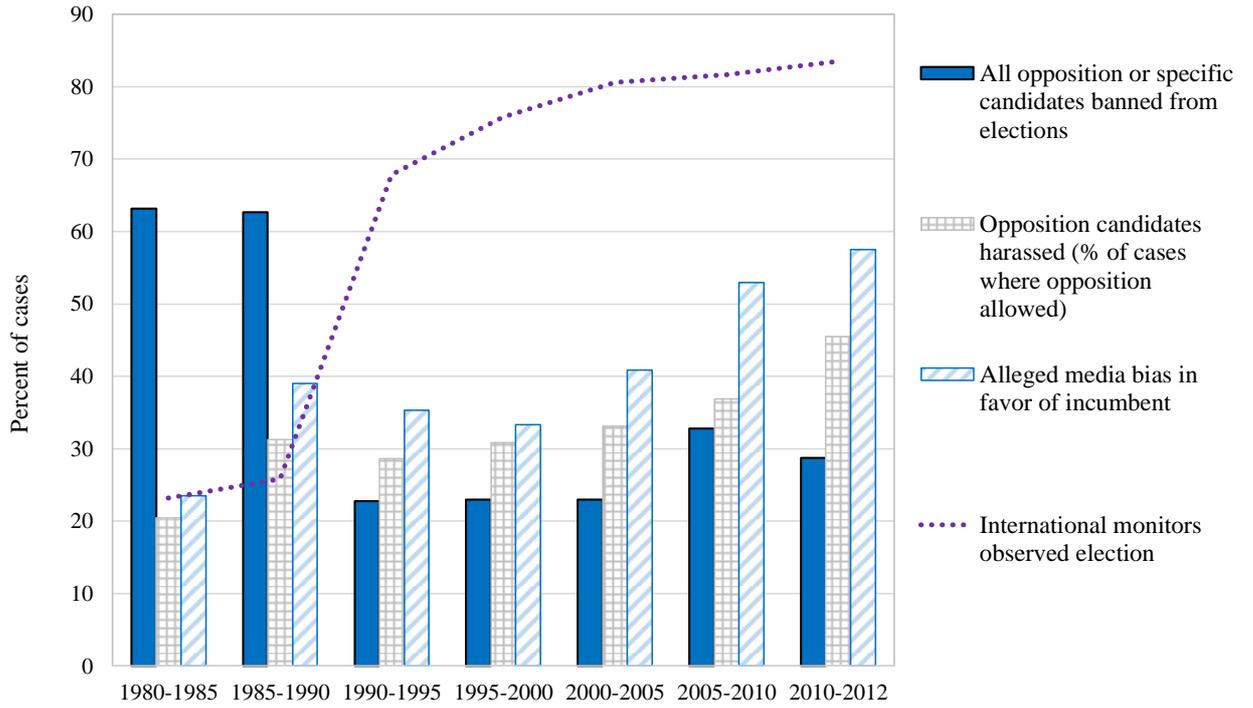
Sources: Hyde and Marinov (2012).
Note: Based on elections in countries that in previous year had Polity2 score less than 6.

Figure A7: Validating the dictionaries
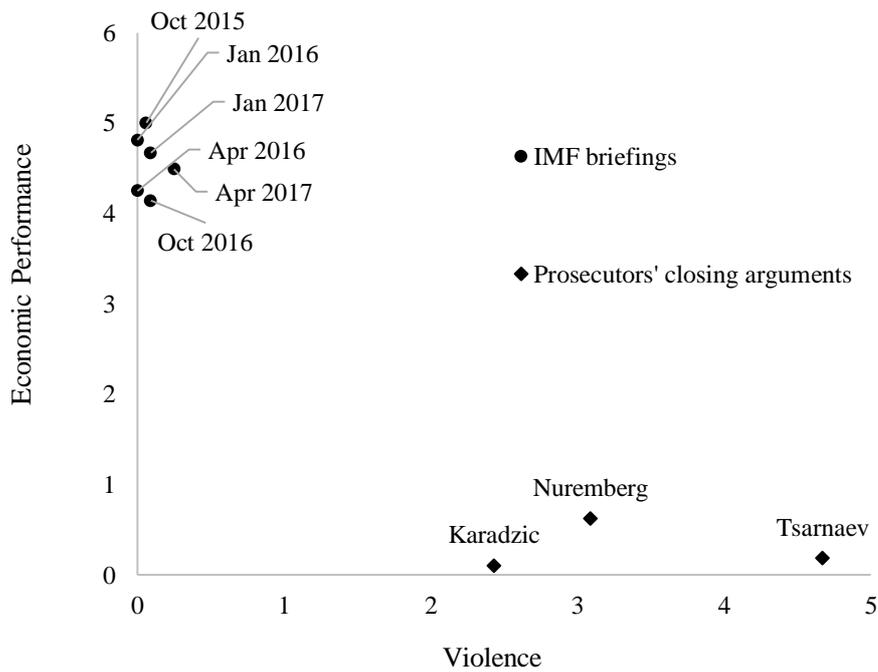
Figure A7a: Violence and economic performance
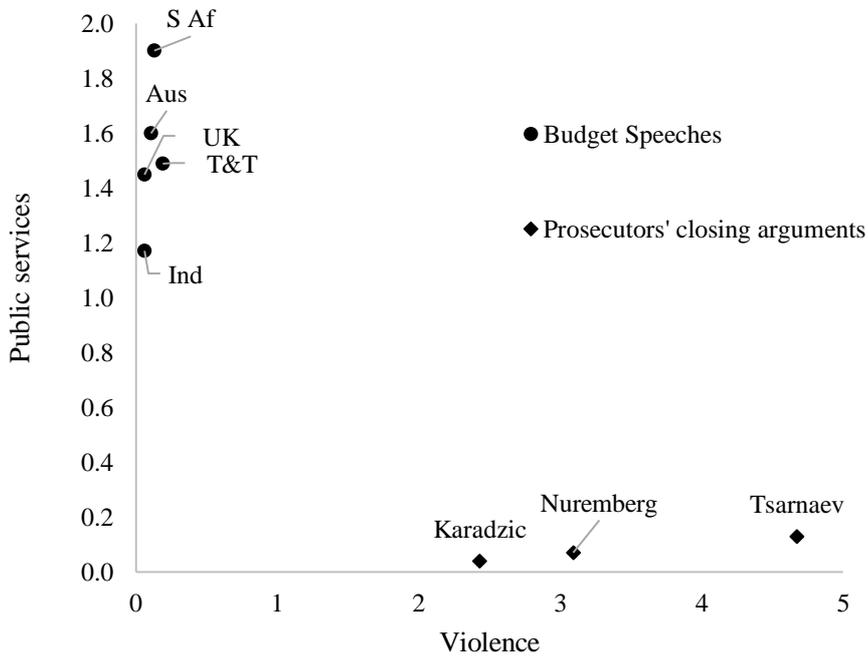
Figure A7b: Violence and public service provision

Source: Authors.
Note: Graphs show the percentage of words in the validation texts that correspond to words in our respective dictionaries. For instance, 5% of words in the October 2015 IMF briefing overlap with those in our "economic performance" dictionary, 0.2% overlap with words in our "public service" dictionary, and 0.1% overlap with those in our "violence" dictionary. By contrast, 4.7% of words in the prosecutor's closing argument in the Tsarnaev case corresponded to words in our "violence" dictionary, while 0.2% corresponded to those in our "economic performance" dictionary and 0.1% to those in our "public service" dictionary.

Table A1: Dictators who publicized their political violence: selected examples

Benito Mussolini (Italy, 1922-43)	Advocated violence to "transform the Italians from a bunch of undisciplined, chattering 'mandolin players' into fearsome, conquering warriors." They needed "*bastone, bastone, bastone* [the club, the club, the club]" (Ebner 2011, pp.13-14). "By the time of Italy's involvement in the Second World War, there were concentration camps, political prisons, work houses, confinement colonies, and sites of internment scattered throughout the entire Italian peninsula" (Ebner 2011, p.2).
Josef Stalin (USSR, 1923-53)	Show trials used to deter and intimidate in the 1930s. In 1937, Stalin ordered the security service to organize "two to three open show trials in each district" and to publish reports of the executions in the local press (McLoughlin and McDermott 2003, p.42).
Rafael Trujillo (Dominican Republic, 1930-61)	"[A]bductions under Trujillo were typically public affairs, as official spies patroling the capital in their black Volkswagen beetles created the sensation that Trujillo was always watching." The corpse of one executed rebel "was paraded in a chair throughout the province and his peasant supporters were forced to dance with his remains" (Derby 2009, pp.2-3).
Antonio Salazar (Portugal, 1932-68)	"[P]assersby on the street in front of police headquarters were allowed to hear the screams of detainees subjected to both bluntly crude and exquisitely refined forms of torture" (Birmingham 1993, p.162).
Adolf Hitler (Germany, 1933-45)	Violence deliberately public. On *Kristallnacht* in 1938, 191 synagogues set on fire by Storm Troopers and 91 murdered in the streets (Gilbert 1986).
Francisco Franco (Spain, 1939-75)	Used a special sentence *garotte y prensa* ("strangulation by garotte with press coverage") to punish political enemies, intensify their families' suffering, and deter others (Preston 2003, p.42).
Boleslaw Bierut (Poland, 1944-56)	"The dates of some [political] trials were fixed to coincide with various elections so that the propaganda effect was maximized" (Paczkowski 1999, p.378).
Ahmad bin Yahya (Yemen, 1948-62)	Had 40 rebels "beheaded by swords on the football field in Taiz." Had the heads of executed "traitors" "hung on the branches of trees as a warning" (Roucek 1962, pp.312-3).
Mao Zedong (China, 1949-76)	During the Cultural Revolution, political victims were humiliated and tortured before crowds. "10,000 are said to have watched as Ba Jin, China's most famous contemporary novelist, was forced to kneel on broken glass. Thousands watched, too, at the execution of 28-year-old Yu Luoke" (Thurston 1990, p.154). As Mao said: "One cannot not kill; one cannot kill too many; kill a few, scare them. Why should we fear a bit of shock? We want to be shocking. Also, if we kill wrongly, the dead cannot come back to life" (Mao 1964).
Francois Duvalier (Haiti, 1957-71)	In August 1964, for three days a headless corpse was propped up in a chair at a busy downtown intersection in Port au Prince, with a sign hung on the mutilated body identifying it as a "renegade" (Natanson 1966).
Fidel Castro (Cuba, 1959-2008)	Public executions of political opponents by firing squad (Clark 2011).
Modibo Keïta (Mali, 1960-68)	Tuareg population forced to attend executions and applaud (Boilley 2012, p.341).
Ferdinand Marcos (Philippines, 1965-86)	"The roughly 2,500 'salvagings' [extrajudicial executions] committed by Marcos's security forces had a purposefully public character: victims' corpses—mutilated from torture—were commonly displayed as an example for others not to follow" (Hutchcroft 2011, p.565).
Mobutu Seso Seke (1965-97)	"Challengers, both imagined and real, often paid with their lives, like the four former Cabinet ministers whom Mr Mobutu had publicly hanged before 50,000 spectators six months after he took office" (French 1997).
Macias Nguema (Equatorial Guinea, 1968-79)	Macias "celebrated Christmas Eve in 1977 by ordering the shooting and hanging of 150 prisoners in the national soccer stadium. During the spectacle, loudspeakers blared a recording of 'Those Were the Days'" (Lamb 1987, p.106).
Siad Barre (Somalia, 1969-91)	Obligatory attendance at public executions (Africa Watch 1990, p.122).
Muammar Gaddafi (Libya, 1969-2011)	Addressing the General People's Congress in Tripoli, Colonel Gaddafi was quoted deriding those who run over their political enemies with cars or poison them. "We do not do that. He whom we have executed we have executed on television" (Amnesty International 1988, pp.247-8).
Idi Amin (Uganda, 1971-79)	Executed a crosssection of the Ugandan elite, from government ministers and judges to diplomats, church leaders, university rectors, and business executives. "Their killings were public affairs carried out in ways that were meant to attract attention, terrorize the living and convey the message that it was Mr. Amin who wanted them killed" (Kaufman 2003)
Juan Bordaberry, Aparicio Méndez, Gregorio Álvarez (Uruguay, 1973-1985)	"In Uruguay, interrogation sessions were devised not only to physically and psychologically degrade each prisoner but to send a chilling signal to all… political opposition… [Torture victims] were returned to society so they could exhibit to others the horrors of their ordeals" (Pion-Berlin 1995, p.85).
Muhammad Zia-ul-Haq (Pakistan, 1977-88).	Political prisoners were "publicly flogged… by bare-chested wrestlers" (Talbot 2009, p.250), "with loudspeakers relaying the cry of the person being whipped" (International Commission of Jurists 1987, p.84). President Zia: "Martial Law should be based on fear" (quoted in Noman 1989, p.33).
Saddam Hussein (Iraq, 1979-2003)	"In a 1992 attempt to control market forces, Saddam Husain detained 550 of Baghdad's leading merchants on charges of profiteering; 42 of them were executed, their bodies tied to telephone poles in front of their shops with signs around their necks that read 'Greedy Merchant'" (Makiya 1998, p.xvi). Army deserters were branded on the forehead.
Kim Jong-il (North Korea, 1994-2011)	Public executions. "In October 2007, a factory boss in South Pyongon Province was reportedly executed by firing squad in front of a stadium crowd of 150,000; he was condemned for making international phone calls on 13 phones he had installed in a factory basement" (Johnson and Zimring 2009, p.362).

Table A2: Non-political offenses with which opposition members have been charged (selected cases)

Russia under Vladimir Putin	-defrauding companies (MacFarquhar and Nechepurenko 2017). -stealing street art (MacFarquhar and Nechepurenko 2017). -illegal elk hunting (MacFarquhar and Nechepurenko 2017).
Venezuela under Hugo Chávez	-corruption (Reuters 2008)
Turkey under Recep Tayyip Erdoğan	-using a fake health report to avoid military service (Gokoluk 2007).
Malaysia under Mohathir Mohamad and Najib Razak	-sodomy (Doherty 2015).
South Korea under Chun	-disrupting traffic (Greitens 2016, pp.225-6). -interfering with police investigations (Greitens 2016, pp.225-6).
Morocco under Mohammad VI	-adultery (Amnesty International 2016, p.257-8). -public drunkenness (Amnesty International 2016, p.257-8). -robbery (Amnesty International 2016, p.257-8). -forming a criminal gang (Amnesty International 2016, p.257-8).
China since 1978	-swindling (Woodman and Ping 1999, p.225). -hooliganism (Woodman and Ping 1999, p.225). -soliciting prostitutes (Roberts 2018, p.70).

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Table A3: Speeches analyzed

Leader	Texts	Sources	Words
Overt Dictators			
Adolf Hitler	*Speeches broadcast by radio:* -Berlin, October 14, 1933. -Hamburg (Blohm and Voss Shipyard), August 17, 1934. -Berchtesgarden Post Office, January 15, 1935. -Berlin, April 19, 1937.	*Adolf Hitler: Collection of Speeches, 1922-1945.* *https://archive.org/details/AdolfHitlerCollectionOfSpeeches19221945* Domarus, Max. *Hitler: Speeches & Proclamations, 1932-1945: The Chronicle Of A Dictatorship*. Bolchazy-Carducci Publishers, 1988, P.887. Domarus translation	7,187
Josef Stalin	- Speech Delivered by Comrade J. Stalin at a Meeting of Voters of the Stalin Electoral Area, Moscow, December 11, 1937. -Speech Delivered by J.V. Stalin at a Meeting of the Voters of the Stalin Electoral District, Moscow, February 9, 1946.	Josef Stalin, *Works*, Vol. 14, Red Star Press Ltd., London, 1978. J. Stalin, *Speeches Delivered at Meetings of Voters of the Stalin Electoral District, Moscow*, Foreign Languages Publishing House, Moscow, 1950.	6,995
Francisco Franco	-New Year's Eve Speeches, broadcast to the nation, each December from 1946-1974, translated from Spanish by Google Translate.	http://www.generalisimofranco.com/Discursos/mensajes/00000.htm.	100,733
Benito Mussolini	- "Speech to Workers of Milan," October 6, 1934, translation by Italian Consulate in New York, ***Vital Speeches of the Day,*** 12/31/34, Vol. 1 Issue 7, pp.208-9. - "The Absurdity of Eternal Peace," before 20,000 soldiers, fascists, and peasants at the Annual War-Games, Avellino, Italy, and by radio to all parts of the nation, August 30, 1936, ***Vital Speeches of the Day,*** 10/1/36, Vol. 2 Issue 26, p.824. - "Armed Peace! With Glimpses of Things to Come," November 1, 1936, ***Vital Speeches of the Day***, 11/15/36, Vol. 3 Issue 3, pp.76-7. - "Fascists, Nazis, Bolsheviks," English resume transcribed from the air over NBC, from Rome, August 20, 1937, ***Vital Speeches of the Day,*** 9/15/37, Vol. 3 Issue 23, pp.714-15. - "Italy's Position Today" Plebiscites for All is the Answer," Trieste, September 18, 1938 , ***Vital Speeches of the Day***, 10/1/38, Vol. 4 Issue 24, pp.745-6.	*Vital Speeches of the Day,* various issues.	6,356
Saddam Hussein	-Revolution Day Speech, July 1996. -Revolution Day Speech, July 1995. -Revolution Day Speech, July 1994. -Revolution Day Speech, July 1993. -Revolution Day Speech, July 1992. -Revolution Day Speech, July 1989	*Baghdad Iraq Television Network,* texts translated in FBIS Daily Report.	35,788
Kim Jong Un	-New Year's Address, 2013. -New Year's Address, 2014. -New Year's Address, 2015. -New Year's Address, 2016.	http://www.ncnk.org/resources/news-items/.	17,934
Fidel Castro	-May Day Speeches, 1966, 1971, 1972, 1973, 1980, 2000, 2001, 2002, 2003, 2004, 2005, 2006 (all available after 1965).	http://lanic.utexas.edu/project/castro/db/1966/19660502.html; http://www.cuba.cu/gobierno/discursos.	100,739
Informational Autocrats			
Lee Kuan Yew	Prime Minister's National Day Television Addresses, 1980-1990.	http://www.nas.gov.sg/archivesonline/speeches/.	15,236
Vladimir Putin	Direct Line call in shows with President (or PM) Putin, 2008, 2009, 2010, 2011, 2013, 2014, 2015 (only Putin's speech).	http://en.kremlin.ru/events/president/transcripts; http://archive.premier.gov.ru/eng/events/news/.	136,182
Hugo Chávez	Six randomly selected episodes of "Aló Presidente," (out of 378), just Chávez 's parts: 8 (01/08/1999), 44 (24/09/2000), 47 (15/10/2000), 296 (30/09/2007), 307 (16/03/2008), 347 (10/01/2010); Google translated.	TodoChávez .gob.ve	192,503
Rafael Correa	12 recent transcripts (2016-17) of Correa's TV show "Citizen's Link," (*Enlace Ciudadano*) from among recent episodes for which transcripts are published by *El Comercio*. Episodes 496, 502, 503, 504, 506, 508, 509, 511, 512, 513, 517, 519. Only Correa's directly quoted parts.	http://www.elcomercio.com	36,431
Nursultan Nazarbayev	State of the Nation Addresses 2000, 2001, 2004, 2005, 2006, 2008, 20011, 2012, 2014, 2015.	http://www.akorda.kz/en/addresses/addresses_of_president/	57,660

Democrats			
Leader	**Texts**	**Sources**	**Words**
Franklin Delano Roosevelt	First 13 "Fireside Chats," 1933-1938. All that were broadcast before the outbreak of WWII.	http://millercenter.org/president/speeches	39,461
Dwight D. Eisenhower	- Radio and Television Address to the American People Following Decision on a Second Term, February 29, 1956. - Radio and Television Address Opening the President's Campaign for Re-Election September 19, 1956. -Television Broadcast: "The People Ask the President." October 12, 1956 (only Eisenhower's words). -Radio and Television Report to the American People on the Developments in Eastern Europe and the Middle East October 31, 1956. -Second Inaugural Address, January 1957. -Address on Little Rock, Arkansas, 1957. -Radio and Television Address to the American People on Science in National Security, November 7, 1957. -Radio and Television Report to the American People on the NATO Conference in Paris. December 23, 1957. -Remarks at the National Food Conference, February 24, 1958. -Statement by the President following the Landing of United States Marines at Beirut. July 15, 1958. -Remarks Upon Signing the Proclamation Admitting Alaska to the Union and the Executive Order Changing the Flag of the United States, January 3, 1959. -Radio and Television Report to the American People: Security in the Free World, March 16, 1959. -Remarks Upon Signing the Proclamation Admitting Hawaii to the Union and the Executive Order Changing the Flag of the United States, August 21, 1959. -Remarks Upon Arrival at Andrews Air Force Base, May 20, 1960. -"Farewell Address," January 1961.	http://www.americanrhetoric.com/speeches/dwightdeisenhowerfarewell.html; http://www.presidency.ucsb.edu; http://historymatters.gmu.edu/d/6335/.	29,155
Jawaharlal Nehru	-"A Historic Day." Message to the Nation, January 26, 1950. -"The General Elections." Speech broaueast from All India Radio, Delhi, November 22,1951. -"Hopeful Prospects." Broadcast from All India Radio, Delhi, June 14, 1952. -"Laying the Foundations." Brooadcast from All India Radio, Delhi, December 31, 1952. -"A Great Challenge." Broadcast from All India Radio, Delhi, January 24, 1951. -"To Our Services." Broadcast from All India Radio, Delhi, December 7, 1949. -"A Half-Century Ends." Broadcast from All India Radio, Delhi, December 31, 1950. -"The S.R.C. Report." Broadcast ot the nation, October 9, 1955. -"Appeal for Good Will." Broadcast from New Delhi, January 16, 1956.	Jawaharlal Nehru. *Jawaharlal Nehru's Speeches*, Vol. 2 (1949-53), and Vol. 3 (March 1953-1957), Delhi: Publications Division, Ministry of Information and Broadcasting, Government of India, 1954 and 1958. All from 1949 to ?? 1957 that were broadcast to the public.	13,531
Barack Obama	-Weekly radio addresses (40 randomly selected from out of c.400)	https://www.whitehouse.gov/briefing-room/weekly-address	24,480
David Cameron	-Scottish Independence Speech in Aberdeen, 15 September 2014. -JCB Staffordshire: Prime Minister's speech, 28 November, 2014. -Campaign Manifesto Speech, April 14, 2015. -"Rebalancing the Economy," 20 April, 2015. -"Making Work Pay," 22 April, 2015. -Chatham House Speech on Europe, 10 November 2015.	http://www.politics.co.uk/comment-analysis/2015/04/14/david-cameron-manifesto-speech-in-full; https://www.politicshome.com/news/uk/economy/news/63341/david-cameron-speech-rebalancing-economy; https://www.politicshome.com/news/uk/economy/news/63265/david-cameron-speech-making-work-pay; https://www.gov.uk/government/speeches/; http://www.independent.co.uk/news/uk/scottish-independence/scottish-independence-full-text-of-david-camerons-no-going-back-speech-9735902.html.	22,805
Nicolas Sarkozy	President Sarkozy's New Year's Greetings for 2009 to 2013.	http://www.ambafrance-uk.org; http://franceintheus.org/spip.php?article3103	4,418

| | -January 2, 2009.
-January 5, 2010.
-December 31, 2010.
-January 3, 2013 | . | |

Table A4: Dictionaries used in speech analysis

Violence
dead, death*, deadly, casualt*, die, died, dies, dying, exterminat*, annihilat*, fatal*, funeral*, holocaust*, kill*, massacre*, mourn*, murder*, slaughter*, war, warfare*, wars, warring, smash*, rout, routed, routs, routing, strike, struck, harass*, conflict*, hostil*, weapon*, gun, guns, gunned, battle, battles, armed, , hurt, hurts, harm, harmed, harms, assault*, fight*, fought, aggress*, attack*, clash*, oppress*, destroy*, destruct*, prison*, jail*, punish*, enslave*, slave*, prey, blood*, bled*, bled, martyr, martyrs, martyred, armies, army, pain, painful, pains, invade*, invasion, violence, violent, explode*, explos*, bomb*, crush*, wound*, injur*, combat*, persecut*, tyranniz*, eradicat*, skirmish*, soldier*, conquer*, cannon*, terror, terrorism, terrorist*, atrocity, atrocities, brutal*, cruel*, torment*, bayonet*, starv*, siege*, surrender*, shatter*, armament*, tanks, artillery, mortar*, armor*, conquest, militar*, crusade*, criminal*, crime*, arrest*, prosecut*, navy, enemy, enemies, enmity, captive, scourge, mutilat*, perish*, ravage*, barbar*, police*, vanquish*, victim*, hostage*, bullet*, weapon*, butcher*, demise, troops, plunder*, hatred*, suffer*, brigade*, detention, liquidation, mistreat*, imprison*, incarcerat*, hostage*

Economic performance
affordable, auditor, auditors, borrow*, bought, budget*, buy*, cheap, cheaper, currenc*, customer*, debt*, deposit*, discount*, dollar, dollars, earnings, econ*, recession*, rent*, retail*, revenue*, richer, riches, richest, salar*, sale, sales, saving*, sell, selling, shop, sold, store, trade*, trading , wage, wages, wealth, wealthier, wealthiest, wealthy, exchang*, expenses, expensive, financ*, fund, income*, insurance, invest, investment*, invested, invests, lease*, lend, lending, loan*, market*, merchant*, money*, monopol*, mortg*, pension*, pesetas, poverty*, price*, prici*, profit*, purchas*, salary, stock, commerc*, growth, job, jobs, product*, industry, industries, industrial, industrializing, industrialization, manufactur*, labour*, labor, labored, laboring, labors, produce*, consum*, factory, factories, remunerat*, goods, employ*, unemploy*, inflation, agricultur*, agrarian, tariff, ration, rationing, export*, import, imports, imported, output, entrepreneur*, efficien*, prosper*, deficit, farming, cultivation

Public service provision
expenditure*, medical, medicine*, education*, housing, school, schools, universities, university, classroom*, childcare, hospital, hospitals, doctor*, maternity, infrastructure, literacy, administration, transportation, retirement, funding, disabled, revenue*, budget*, fees, fund, insurance, pension*

Source: Authors.

Table A5: Texts used for dictionary validation

Text	Source
Australia 2016-17 Budget Speech	http://budget.gov.au/2016-17/content/speech/html/speech.htm
India 2017-18 Budget Speech	http://indiabudget.nic.in/bspeecha.asp
South Africa 2017 Budget Speech	https://www.oldmutual.co.za/docs/default-source/markets/budget-for-south-africans/budgetspeech2017.pdf?sfvrsn=0
Trinidad and Tobago 2017 Budget Statement	http://www.finance.gov.tt/wp-content/uploads/2016/09/Budget-Statement-2017-for-web-r1.pdf
UK 2017 Budget Speech	https://www.ft.com/content/0b0dfdde-03fb-11e7-aa5b-6bb07f5c8e12
Transcripts of the Press Conferences on the Release of the World Economic Outlook (Oct 2015, Jan 2016, Apr 2016, Oct 2016, Jan 2017, Apr 2017)	www.imf.org/en/news/articles
Prosecution Closing Statement, Trial of Radovan Karadzic	http://www.icty.org/case/karadzic/4#trans
Robert J. Jackson, *Closing Arguments for Convictions of Nazi War Criminals* (Nuremberg)	https://www.roberthjackson.org/wp-content/uploads/2015/01/Closing_Argument_for_Conviction_of_Nazi_War_Criminals.pdf
Closing Argument, Trial of Dzhokhar Tsarnayev	http://thebostonmarathonbombings.weebly.com/uploads/2/4/2/6/24264849/day_59_trial_day_closing_argument_may_13_2015_unfiled.pdf

Table A6: Perceived media freedom by subsamples.

	Dependent variable: Perceived media freedom				
	(1)	(2)	(3)	(4)	(5)
	Freedom House Press Freedom score				
	0-19	20-39	40-59	60-79	80-100
Elite	-0.063***	-0.051***	-0.037***	-0.020***	0.006**
	(0.007)	(0.006)	(0.005)	(0.004)	(0.003)
Female	0.050***	0.024***	0.014***	0.001	0.000
	(0.005)	(0.003)	(0.002)	(0.002)	(0.002)
Age/100	-0.514***	-0.219***	-0.250***	-0.202***	-0.058*
	(0.106)	(0.040)	(0.031)	(0.038)	(0.033)
AgeSq/10000	0.737***	0.328***	0.353***	0.335***	0.131***
	(0.124)	(0.045)	(0.034)	(0.039)	(0.031)
Small Town	-0.022*	-0.013**	-0.014***	-0.003	-0.011***
	(0.011)	(0.006)	(0.004)	(0.005)	(0.004)
Suburb of Large City	0.002	-0.053***	-0.039***	-0.009	-0.015***
	(0.021)	(0.009)	(0.006)	(0.006)	(0.004)
Large City	-0.057***	-0.055***	-0.042***	-0.022***	-0.024***
	(0.010)	(0.007)	(0.005)	(0.006)	(0.007)
Observations	76717	228024	324371	245119	134359

Standard errors in parentheses
* p<0.1, ** p<0.05, *** p<0.01

Source: Gallup World Poll, Freedom House, author's calculations.
Notes: Standard errors are clustered at the level of country-year. Country-year fixed effects are included but not reported. Elite: dummy for tertiary education. Freedom House Press Freedom score is normalized to 0-100 with 0 corresponding to perfect censorship and 100 to perfect media freedom

Table A7: Perceived media freedom, full sample, interaction terms.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Elite * Censorship	-0.045***	-0.046***	-0.059***	-0.044***	-0.075***	-0.111***	-0.111***	-0.108***
	(0.003)	(0.004)	(0.005)	(0.006)	(0.005)	(0.009)	(0.007)	(0.010)
Elite		0.001		-0.016***		0.020***		-0.002
		(0.003)		(0.002)		(0.004)		(0.003)
Observations	991750	991750	991750	991750	991750	991750	991750	991750

Standard errors in parentheses
* p<0.1, ** p<0.05, *** p<0.01

Source: Gallup World Poll, Freedom House, author's calculations.
Notes: Standard errors are clustered at the level of country-year. Controls for individual characteristics (age, age squared, gender, size of the settlement), country-year fixed effects are included but not reported. Elite: dummy for tertiary education. Measures of censorship: columns (1)-(2) — dummy for non-free or partially free press, columns (3)-(4) — dummy for non-free press, columns (5)-(6) — Freedom House Press Freedom score normalized to 0-1, columns (7)-(8) — Freedom House Press Freedom score normalized to 0-1 squared. See Appendix B for the microfoundations of the relationship between true media freedom and the gap in perceived media freedom between elites and masses.

Table A8: Approval of country's leadership by subsamples.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Polity2<-5	-5≤Polity2≤0	0<Polity2≤5	Polity2=6	Polity2=7	Polity2=8	Polity2=9	Polity2=10
Elite	-0.020**	-0.018**	-0.032***	-0.040***	-0.036***	-0.020***	0.013**	0.023***
	(0.009)	(0.008)	(0.008)	(0.010)	(0.013)	(0.007)	(0.006)	(0.004)
Female	0.028***	0.031***	0.024***	0.021***	0.021***	0.011***	0.002	-0.005
	(0.005)	(0.005)	(0.004)	(0.005)	(0.005)	(0.004)	(0.003)	(0.003)
Age/100	-0.610***	-0.169***	-0.196***	-0.359***	-0.383***	-0.560***	-0.446***	-0.684***
	(0.107)	(0.048)	(0.052)	(0.062)	(0.054)	(0.052)	(0.051)	(0.045)
AgeSq/10000	0.845***	0.281***	0.294***	0.484***	0.534***	0.730***	0.547***	0.800***
	(0.119)	(0.059)	(0.055)	(0.071)	(0.059)	(0.057)	(0.059)	(0.045)
Small Town	-0.014	-0.002	-0.023***	-0.029***	-0.007	-0.019***	-0.026***	-0.006
	(0.012)	(0.007)	(0.007)	(0.010)	(0.009)	(0.006)	(0.010)	(0.005)
Suburb of Large City	-0.037**	-0.051***	-0.054***	-0.094***	-0.031***	-0.055***	-0.015	-0.012**
	(0.018)	(0.016)	(0.011)	(0.014)	(0.012)	(0.010)	(0.012)	(0.005)
Large City	-0.024**	-0.064***	-0.070***	-0.072***	-0.080***	-0.053***	-0.032***	-0.014**
	(0.012)	(0.010)	(0.008)	(0.013)	(0.009)	(0.008)	(0.009)	(0.006)
Observations	48181	137244	172086	97192	104360	152794	193445	273834

Standard errors in parentheses
* p<0.1, ** p<0.05, *** p<0.01

Source: Gallup World Poll, Polity IV, authors' calculations.

Table A9: Approval of country's leadership, full sample, interaction terms.

	(1)	(2)	(3)	(4)	(5)	(6)
Elite	-0.026***	-0.017***	-0.027***	-0.023***	-0.041***	-0.067***
	(0.004)	(0.003)	(0.005)	(0.003)	(0.005)	(0.007)
Elite * Polity2	0.003***					
	(0.001)					
Elite * Polity2=10		0.043***				
		(0.005)				
Elite * Polity2>5			0.031***			
			(0.006)			
Elite * Fully Free Press				0.052***		
				(0.005)		
Elite * Free Press					0.033***	
					(0.003)	
Elite * Press Freedom Score/100						0.112***
						(0.012)
Observations	1179136	1179136	1179136	1179305	1179305	1179305

Standard errors in parentheses
* p<0.1, ** p<0.05, *** p<0.01

Source: Gallup World Poll, Polity IV, Freedom House, author's calculations.
Notes: Standard errors are clustered at the level of country-year. Controls for individual characteristics (age, age squared, gender, size of the settlement), country-year fixed effects are included but not reported. Elite: dummy for tertiary education. Measures of press freedom: column (4) — dummy for fully free press, column (5) — dummy for fully or partially free press, column (6) — Freedom House Press Freedom score normalized to 0-1 with 0 corresponding to full censorship and 1 corresponding to full media freedom.

Table A10: Mincer equation.

	(1)	(2)	(3)	(4)
	Log Income	Log Income	Top 10% Income	Top 10% Income
Tertiary Education	0.812***	0.654***	0.225***	0.202***
	(0.011)	(0.014)	(0.005)	(0.007)
Secondary Education	0.423***	0.372***	0.088***	0.084***
	(0.008)	(0.009)	(0.003)	(0.004)
Female	-0.085***	-0.088***	-0.025***	-0.027***
	(0.004)	(0.006)	(0.001)	(0.002)
Age/100	0.109*	-0.314***	0.088***	-0.288***
	(0.064)	(0.112)	(0.019)	(0.033)
AgeSq/10000	0.339***	0.758***	-0.002	0.446***
	(0.068)	(0.144)	(0.022)	(0.037)
Small Town	0.194***	0.133***	0.035***	0.034***
	(0.011)	(0.013)	(0.002)	(0.004)
Suburb of Large City	0.378***	0.284***	0.077***	0.080***
	(0.015)	(0.019)	(0.004)	(0.006)
Large City	0.429***	0.345***	0.104***	0.112***
	(0.015)	(0.018)	(0.004)	(0.006)
Occupational dummies	No	Yes	No	Yes
Observations	1386883	385323	1410964	386115

Standard errors in parentheses
* $p<0.1$, ** $p<0.05$, *** $p<0.01$

Source: Gallup World Poll, author's calculations.
Notes: Standard errors are clustered at the level of country-year. Country-year fixed effects are included but not reported.
In columns (3) and (4) the dependent variable is the dummy for belonging to top 10 percent of income distribution within a given country-year. In columns (2) and (4) dummies for 12 occupations are included (but not reported).

Table A11: Mincer Equation by Subsamples.

	(1)	(2)	(3)	(4)	(5)	(6)
	Polity2<-5	-5≤Polity2≤0	0<Polity2≤5	6≤Polity2≤8	Polity2=9	Polity2=10
Tertiary Education	0.754***	0.875***	0.760***	0.917***	0.842***	0.681***
	(0.044)	(0.024)	(0.031)	(0.022)	(0.023)	(0.019)
Secondary Education	0.397***	0.460***	0.387***	0.473***	0.396***	0.314***
	(0.034)	(0.019)	(0.017)	(0.012)	(0.014)	(0.013)
Female	-0.030***	-0.060***	-0.078***	-0.116***	-0.087***	-0.117***
	(0.009)	(0.011)	(0.010)	(0.008)	(0.014)	(0.005)
Age/100	-0.639***	0.355**	0.273**	0.328***	0.089	1.157***
	(0.172)	(0.177)	(0.133)	(0.098)	(0.134)	(0.175)
AgeSq/10000	0.687***	-0.117	-0.100	0.133	0.420***	-0.452**
	(0.200)	(0.248)	(0.149)	(0.122)	(0.152)	(0.181)
Small Town	0.300***	0.167***	0.205***	0.216***	0.177***	0.058***
	(0.040)	(0.020)	(0.025)	(0.013)	(0.021)	(0.008)
Suburb of Large City	0.582***	0.398***	0.458***	0.447***	0.436***	0.131***
	(0.061)	(0.026)	(0.042)	(0.018)	(0.035)	(0.010)
Large City	0.595***	0.498***	0.482***	0.479***	0.417***	0.177***
	(0.063)	(0.023)	(0.028)	(0.016)	(0.022)	(0.012)
Observations	-5.933***	-7.762***	-7.217***	-7.014***	-6.606***	-5.279***
	(0.058)	(0.035)	(0.041)	(0.023)	(0.037)	(0.034)

Standard errors in parentheses
* p<0.1, ** p<0.05, *** p<0.01

Source: Gallup World Poll, Polity IV, author's calculations.
Notes: Standard errors are clustered at the level of country-year. Country-year fixed effects are included but not reported. The dependent variable is logarithm of income.

Table A12: Life satisfaction by subsamples.

	(1)	(2)	(3)	(4)	(5)	(6)
	Polity2<-5	-5≤Polity2≤0	0<Polity2≤5	6≤Polity2≤8	Polity2=9	Polity2=10
Tertiary Education	0.461***	0.604***	0.612***	0.670***	0.757***	0.562***
	(0.023)	(0.035)	(0.027)	(0.019)	(0.021)	(0.017)
Female	0.130***	0.058**	0.028*	0.045***	0.021	0.094***
	(0.019)	(0.023)	(0.017)	(0.011)	(0.013)	(0.012)
Age/100	-3.658***	-2.425***	-2.232***	-4.337***	-3.409***	-4.063***
	(0.360)	(0.308)	(0.253)	(0.226)	(0.427)	(0.214)
AgeSq/10000	3.364***	1.816***	0.872***	3.138***	1.826***	3.238***
	(0.405)	(0.331)	(0.283)	(0.238)	(0.384)	(0.212)
Small Town	0.177***	0.178***	0.156***	0.177***	0.139***	-0.071***
	(0.043)	(0.035)	(0.031)	(0.024)	(0.041)	(0.014)
Suburb of Large City	0.289***	0.333***	0.335***	0.352***	0.448***	-0.074***
	(0.052)	(0.048)	(0.042)	(0.030)	(0.070)	(0.020)
Large City	0.421***	0.378***	0.409***	0.414***	0.421***	-0.029
	(0.044)	(0.041)	(0.040)	(0.024)	(0.043)	(0.021)
Observations	218737	199945	201871	401474	220889	364399

Standard errors in parentheses
* $p<0.1$, ** $p<0.05$, *** $p<0.01$

Source: Gallup World Poll, Polity IV, authors' calculations.
Notes: Standard errors are clustered at the level of country-year. Country-year fixed effects are included but not reported.
The dependent variable is self-reported life satisfaction on a 10-point scale.

Table A13: Approval of country's leadership by subsamples controlling for education and income.

	(1)	(2)	(3)	(4)	(5)	(6)
	Polity2<-5	-5≤Polity2≤0	0<Polity2≤5	6≤Polity2≤8	Polity2=9	Polity2=10
Tertiary Education	-0.012	-0.019**	-0.030***	-0.025***	0.003	0.020***
	(0.011)	(0.009)	(0.008)	(0.006)	(0.006)	(0.004)
Log Income	0.003	0.001	0.000	-0.011***	0.021***	0.016***
	(0.005)	(0.003)	(0.003)	(0.002)	(0.004)	(0.002)
Female	0.026***	0.034***	0.026***	0.016***	0.003	-0.004
	(0.006)	(0.005)	(0.004)	(0.003)	(0.003)	(0.003)
Age/100	-0.599***	-0.199***	-0.213***	-0.511***	-0.441***	-0.672***
	(0.130)	(0.053)	(0.055)	(0.035)	(0.053)	(0.049)
AgeSq/10000	0.804***	0.332***	0.316***	0.677***	0.531***	0.785***
	(0.142)	(0.064)	(0.058)	(0.039)	(0.062)	(0.049)
Small Town	-0.010	-0.003	-0.025***	-0.012**	-0.029***	-0.006
	(0.012)	(0.008)	(0.007)	(0.005)	(0.011)	(0.005)
Suburb of Large City	-0.010	-0.057***	-0.064***	-0.052***	-0.022*	-0.014**
	(0.011)	(0.016)	(0.012)	(0.007)	(0.012)	(0.006)
Large City	-0.022**	-0.063***	-0.074***	-0.059***	-0.041***	-0.015**
	(0.010)	(0.010)	(0.008)	(0.006)	(0.011)	(0.006)
Observations	35782	118215	151355	284944	170488	230816

Standard errors in parentheses
* $p<0.1$, ** $p<0.05$, *** $p<0.01$

Source: Gallup World Poll, Polity IV, author's calculations.
Notes: Standard errors are clustered at the level of country-year. Country-year fixed effects are included but not reported.

Appendix B: Censorship and perceptions of media freedom

By definition, censorship blocks information about the true state of media freedom as well. Therefore, the relationship between the observed values of true media freedom (as measured by Freedom House) and the public's perceptions of media freedom is not trivial.

Consider a country, c, at time t, where the true level of media freedom is TMF_{ct}. For simplicity, we will normalize TMF_{ct} to vary between 0 and 1 and to be metrized in terms of the probability that the messages about the true state of nature reach the public. Perceived media freedom, PMF_{ict}, is individual i's perception of the true level of media freedom in country c in year t. Naturally, PMF_{ict} also ranges from 0 to 1. As the government tries to censor information on censorship as well, the probability of true information (on censorship) getting through government filters depends on whether the recipient is in the informed elite and on the level of censorship.

If the individual belongs to the informed elite ($ELITE_{ict}$ =1), she directly observes TMF_{ct} so for her PMF_{ict} =TMF_{ct}. The general public ($ELITE_{ict}$ =0), observes the true state ($PMF_{ict} = TMF_{ct}$), with probability TMF_{ct} and observes the government's signal "media is free" (PMF_{ict} =1), with probability 1-TMF_{ct}. Therefore, for the general public $PMF_{ict} = (TMF_{ct})^2 + (1-TMF_{ct})$. Hence

$$PMF_{ict} = ELITE_{ict}\ TMF_{ct} + (1-\ ELITE_{ict})\ [(TMF_{ct})^2 + (1-TMF_{ct})] =$$
$$= [1-TMF_{ct} + [(TMF_{ct})^2] - ELITE_{ict}\ (1-TMF_{ct})^2$$

The first term (in brackets) is absorbed by the country-year dummy but the second term represents within-country-year variation. We therefore should estimate the following regression

$$PMF_{ict} = D_{ct} + b\ ELITE_{ict}\ (1-TMF_{ct})^2 + a\ X_{ict} + e_{ict}$$

where D_{ct} is the dummy for country-year, which captures all country-level and country-year-level variation (including the levels of democracy and economic growth), and X_{ict} is the vector of individual controls (age, gender, city size); in some specifications we also include education, which may also have a direct effect on perceptions. The model predicts a negative coefficient at $ELITE_{ict}\ (1-TMF_{ct})^2$, i.e. b <0.

This prediction is taken to the data in the Table A7. In columns (7)-(8) we proxy censorship (1-TMF_{ct}) by the continuous Freedom House Press Freedom score and interact its square with the tertiary education dummy as a proxy for $ELITE_{ict}$. The model rules out the direct impact of $ELITE_{ict}$ on the perceived media freedom. However, as there may be additional channels through $ELITE_{ict}$ affects perceived media freedom—other than those discussed in the simple model above—we run specifications with and without controlling for $ELITE_{ict}$. In columns (1)-(4) we proxy censorship with a dummy for non-free or partially free press (columns (1)-(2)) and with a dummy for non-free press (columns (3)-(4)). As these are dummies, the linear term is equivalent to the squared term. Finally, as we are agnostic whether Freedom House's Press Freedom score is metrized in the same way as the measure of censorship 1-TMF_{ct} in the model (share of blocked messages), in columns (5)-(6) we also present a specification with a linear term (1-TMF_{ct}). In all specifications, the results are consistent with the predictions of the simple model above.