

# China's Strategic Censorship

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*While it is often assumed that authoritarian regimes inevitably fear and restrict media independence, permitting watchdog journalism can actually help such regimes maintain power by improving governance. Yet such a strategy risks facilitating a coordinated uprising if discontent is revealed to be widespread. A formal model shows that under some conditions, a regime optimally permits investigative reporting on lower-level officialdom, adjusting how much reporting is allowed depending on the level of underlying social tensions. This strategy yields many of the benefits of free media without risking overthrow. An extension shows why an increase in uncontrollable information, such as from the Internet, may result in a reduction in media freedom. The model sheds light on important aspects of China's media policy and its evolution and on authoritarian media control more broadly.*

A free press is widely viewed as one of the crucial elements of democracy, valued for its own sake but also instrumentally for its ability to increase the public accountability of political actors. As a corollary, it is often assumed that less democratic governments will do their best to “stifle independent criticism and analysis” (Geddes and Zaller 1989, 319). Indeed, unchallenged centralized state control of the mass media is part of the classic definition of totalitarianism (Friedrich and Brzezinski 1956), and loss of control over the media has been associated with the downfall of authoritarian regimes (e.g., Lawson 2002; McMillan and Zoido 2006). As a consequence, it is often assumed that any negative reporting or critical commentary by the media under an authoritarian regime must result from weakness, reflecting its inability to achieve the objective of total media control (e.g., Levitsky and Way 2010).

Despite this, there is a growing recognition that, paradoxically, some independent reporting can actually help an authoritarian regime. China scholars in particular have argued that the Chinese Communist Party (CCP) has benefited from an active watchdog media that helps keep local officials in check, although it is largely blocked from serious reporting on malfeasance at higher levels of government (Liebman 2011; Shirk 2011; Zhao 2000). Egorov, Guriev, and Sonin (2009) show in a formal model that

such a watchdog media may help regimes lacking natural resources because the need for a functioning real economy makes effective local governance more important. However, that model examines only a binary choice between total openness and total censorship, leaving many questions unanswered. First, media independence is rarely an all-or-nothing proposition. Few regimes still hew to the pure totalitarian model, with the media only acting as the voice of the state. But even a limited sample of information about local problems could provide citizens with enough information to let them come to a negative evaluation of the regime. Furthermore, since information derived from the mass media is common knowledge, it becomes easier to base a coordinated challenge on it. In light of these considerations, how can an authoritarian regime best manage the media to maintain stability? Secondly, the degree and specifics of media control can vary a great deal over time even within non-resource-dependent polities. In China, the specific boundaries of permissible journalistic topics are constantly changing, and the regime's overall tolerance of investigative reporting has shifted over time, suggesting that important aspects of media control under authoritarianism require better explanation.

This article develops a formal model in which an authoritarian regime chooses precisely how much investigative reporting to permit, balancing its desire to minimize

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local corruption with the recognition that even reporting on local issues provides information about the aggregate picture. A key feature of the model is that the level of social tension and consequently the danger of revolt are not constant. The model has several important implications. First, it shows that permitting some independent investigative reporting will always be preferable to complete censorship. The risk of being exposed in the media acts to check corruption by local officials. This not only improves the quality of governance in ways that directly benefit the state, such as by enhancing economic efficiency, but also reduces discontent, potentially forestalling revolts that would otherwise occur. While these gains would be even greater if the media were totally free to report, such a strategy could lead to revolution if media reporting revealed that discontent was in fact widespread. This means a regime will wish to maintain controls even on local-level reporting unless corruption is a truly overwhelming problem.

Second, the model shows that in order to keep limited media independence from leading to revolt, the acceptable boundaries of reporting must be adjusted depending on the overall level of social tensions. When social tensions are high, more news must be censored, whereas when tensions are relatively low, censorship can be loosened. Only by doing this can the regime keep the level of discontent and corruption reported in the media roughly constant. Otherwise, despite limits on reporting, discontented citizens might be able to infer the true state of affairs and make a coordinated decision to challenge the regime.

A simple extension to the model yields a third important insight. Suppose that some fraction of the news will come out on the Internet and become widely known despite the best efforts of the regime to censor it. Even if the Internet will only reveal some portion of what would have become known in an unrestricted media environment, citizens could infer from this when social tensions are high enough that a revolt might attract widespread support. But if the regime still controls the traditional media, it can compensate for this and maintain uncertainty about the true state of affairs by giving the traditional media less leeway to cover new stories when more bad news is likely to come out via channels it cannot control. As a consequence, as the Internet spreads and an authoritarian regime finds itself less able to control what news becomes public, it will correspondingly reduce the latitude it grants to the traditional media. This runs contrary to the conventional view of the Internet as a liberating force, but it is consistent with cross-national findings that Internet penetration is negatively associated with media freedom in nondemocratic regimes (Petrova 2008).

In the second part of the article, I offer evidence for the applicability of the model to at least one important case, China. The model helps to explain many major institutional features of China's media control system as well as important changes over time. Most importantly, the boundaries of what can be reported are in constant flux, yet journalists are rarely punished for reporting on a topic that is later closed off. This makes sense when we consider how the regime's desire to encourage some investigative journalism is balanced against its need to maintain ambiguity about the overall level of discontent. In addition, the model helps explain some longer-term trends. Investigative journalism grew over the course of the 1990s when marketization of the economy made the use of advertising-driven media for watchdog purposes feasible. Instead of having to finance investigative journalism itself, the party could get it for free and even make a profit off it. Since the early 2000s, however, the media's autonomy has been scaled back. While it has been argued that this results from greater social instability, the model shows that the growth of the Internet would have created pressures on the regime to make this shift in any case.

This article contributes to a growing literature on the role that institutions normally associated with democracy can play in buttressing dictatorship. A growing number of scholars have argued that elections, parties, and legislatures can help to co-opt groups that might otherwise stand in opposition to the regime, giving them just enough stake in the status quo to keep them docile (Blaydes 2011; Gandhi 2008; Lust-Okar 2005; Magaloni 2006; Malesky, Abrami, and Zheng 2011). Others have pointed to the potential for reforms that might appear to reflect liberalization or a weakening of authoritarian control to paradoxically strengthen a regime by making top government leaders aware of where discontent lies and enabling them to discipline their subordinates (Lorentzen 2013; Magaloni 2006; Nathan 2003; Oi 2003; Rosberg 1995).

Aside from the article by Egorov, Guriev, and Sonin (2009) discussed earlier, a few other formal models have examined aspects of media control under authoritarianism. Gehlbach and Sonin (2013) explore when a dictator will skew news or nationalize the media in order to encourage citizens to invest. Petrova (2008) models media capture as a process by which the rich skew reporting about the value of public goods in order to keep the poor from voting for higher taxes, finding in an extension that these effects should be less pronounced in nondemocracies. Edmond (2007) examines a model in which the regime can exert costly effort to distort reporting about its strength, thereby making revolution more difficult. However, each of these three models assumes the dictator

has only limited control over the news and gets no value from accurate reporting. In a spirit closer to that of this article, Bueno de Mesquita and Smith (2009) model a dictator's trade-offs when investing in public goods that both improve economic efficiency and facilitate revolt, but without specifying the informational properties of these public goods. This article builds on these earlier efforts by explicitly modeling how the regime balances its desire to use the media to facilitate a vertical information flow, from ordinary citizens to higher officials, against its fear of horizontal information flows, from citizen to citizen.

## Model

In the model, a central government, "the regime," oversees a very large number of local officials, each of whom in turn oversees a single community. The regime and the officials first learn about the level of underlying social tensions, which is either low or high. These tensions depend on many factors, including the pace of economic growth, the uneven distribution of economic gains or opportunities, crime levels, and environmental problems. While ordinary people are not ignorant of these factors, regime insiders have access to more precise information about their severity.

The regime then chooses its degree of tolerance for watchdog reporting targeting local officials (or conversely, how much it will censor or repress such efforts). Given this, each official then decides whether to be corrupt, weighing the risk of getting exposed by the media against the potential gains, with some facing overwhelming temptation while others only have the opportunity for minor graft. Each community then learns how well off it will be if it accepts the status quo, either becoming discontented (and potentially revolutionary) or not. Which will occur depends both on the society-wide propensity to discontent (the level of underlying social tensions) and on the corruption or honesty of that community's local official. If the economy is booming and its gains are being widely shared, then corruption is less likely to have an impact, but if social tensions are already high, official corruption is more likely to tip a community over the edge to discontent.

The news media then report. The nature of the news is a key element of the model. In particular, I assume that the only important news is bad news—investigative reports or exposés revealing a community's problems. Good news is irrelevant, since in authoritarian societies people are inured to an endless flow of rosy stories about model factories and happy workers. In addition, I assume

that national-level news is not so credible and detailed as to give communities a precise indicator of underlying discontent. This could come about for one of two reasons. First, it might be that the central government simply does not permit objective reporting about national issues. Complementing this, however, is the fact that discontent is not necessarily something that can be directly inferred from national economic statistics. Rather, it results from a combination of a community's current economic circumstances and its assessment of its members' future prospects, combined with resentment at local abuses of power (whether petty or extreme) and perceived unfairness and inequality across society. Thus, an accumulation of investigative reports is necessary to gain an accurate picture of the true level of discontent.

The news media are treated as nonstrategic, simply reporting as much bad news as they are allowed.<sup>1</sup> The government then removes from office every official whose community has been the subject of an exposé. Finally, communities decide simultaneously whether to accept the status quo or to revolt, with the likelihood of a revolt succeeding higher if more communities participate. While the model is intended to capture a recurring process, with social tensions and the government's resulting censorship decision varying over time, I analyze it as a one-shot game. A full, repeated game setup would add significant notational and expositional complexity without enhancing or altering the basic intuition.

The government's decision of how much media coverage to permit takes into account its effects on the behavior of both communities and officials. Censorship affects communities because a discontented community's willingness to revolt depends on how many other communities it thinks share its discontent. This means that if the media are managed to maintain uncertainty among the discontented about the overall level of discontent, revolt can be avoided. This value of suppressing the news must be traded off against the incentives of officials, however. The more watchdog reporting is permitted, the more likely an official is to be exposed by the media for corruption and the larger the potential gain has to be for any particular official to risk engaging in corruption. In addition, improving the behavior of officials further lowers

<sup>1</sup>The experience of democratic societies shows that even without censorship, the news media often fall short of this ideal, becoming co-opted by elite sources (Bennett, Lawrence, and Livingston 2007; Entman 2003) or satisfying market demand for "soft" news at the expense of thorough investigative reporting (Hamilton 2004). Fortunately, for purposes of the present model, all one really needs to assume is that the media under authoritarian rule would engage in more investigative journalism if the regime became more tolerant of it, as shown in the supporting information available online.

discontent relative to what it would be if corruption proceeded unchecked.

Indeed, analysis of the model shows that complete censorship is never an equilibrium. Instead, two possible equilibria arise. If the damage done by corruption is severe, and there is low enough risk of being overthrown even when discontent is high, the government permits unlimited watchdog reporting. Because of this, communities can infer the true level of discontent and know how much support a revolution might attract. When discontent is high, they will revolt. Qualitatively, this could be thought of as the Gorbachev option—risking overthrow in order to improve governance. However, if the danger posed by such a revolt is too high, and the costs of corruption are not too severe, the government will pursue a partial censorship strategy. In this strategy, the media are permitted to report freely if tensions are low, but they only report on a fraction of the bad news if tensions are high. This ensures that from the perspective of society the true level of discontent remains unclear, thereby avoiding revolt.

As a simple example of the logic (eliding a few technical nuances), suppose that it is equally likely that 30% or 60% of the population is discontented and that the discontented would be willing to revolt only if they knew the discontent level was high (60%). If the government permits open reporting, citizens will revolt in the high-discontent state. If the government suppresses the media consistently, permitting only half of the instances of discontent to be reported, then citizens would see reports of discontent from either 15% or 30% of the population and could still infer the true state, again revolting when discontent was high. Permitting no reporting would avoid this problem, since citizens would see 0% discontent in either state. However, a better approach is a partial censorship strategy, permitting half of the discontent to be reported when discontent is high and all of the discontent to be reported when discontent is low, so that citizens see 30% discontent regardless. This reduces corruption while still maintaining citizens' uncertainty about the true level of discontent. I now present the model and results more formally.

## Setup

The game is played between a regime, a measure 1 continuum of lower-level officials each indexed  $i$ , and a body of citizens divided into a corresponding continuum of communities  $i$  each overseen by one official. Nature moves first, determining a state of the world  $\theta \in \{\theta_L, \theta_H\}$ .  $\theta$  reflects an underlying level of social tensions which is ei-

ther low ( $\theta_L$ ) or high ( $\theta_H$ ), so  $0 < \theta_L < \theta_H < 1$ . This is observed directly by the regime and the officials. Upon learning the state, the regime determines how freely investigative reporters can operate, setting a level of tolerance  $t \in [0, 1]$ . Next, each official decides whether or not to be corrupt or honest, choosing an honesty level  $h_i \in \{0, 1\}$ . Each official has a different potential payoff to corruption  $g_i$ , drawn from a continuous distribution with probability density function  $h(g)$  and cumulative distribution function  $H(g)$ .  $h(g) > 0$  for  $g \geq 0$ , and the distribution satisfies the monotone likelihood ratio property.

Each community  $i$  then learns what its payoff will be if it accepts the status quo,  $Q_i \in \{Q_B, Q_G\}$ , with  $Q_B < Q_G$ . I will refer to communities with status quo payoff  $Q_B$  as discontented and those receiving  $Q_G$  as contented. A community  $i$  is discontented with probability  $(1 - h_i)\theta$ . Since there is a continuum of players, the fraction of the population that is discontented is  $\lambda = \int_0^1 (1 - h_i)\theta di = \theta(1 - H)$ , where  $H = \int_0^1 h_i di$  is the fraction of honest officials. Neither  $\theta$  nor  $\lambda$  is directly observed by communities. Instead, they have a common prior belief  $\beta = \Pr(\theta = \theta_H)$ , which they can update based on the news. A piece of news in this model is the fact that a particular community is discontented. The media report as much as the government permits, resulting in a publicly known level of bad news  $\hat{\lambda} = t\lambda$ .

To restate,  $\lambda$  is the true level of bad news. This is a consequence of the state of the world  $\theta$  and the fraction of officials who choose to be honest  $H$ . The tolerance for watchdog reporting  $t$  is the fraction of that news that the regime permits to be reported.  $\hat{\lambda}$  is the level of bad news that actually reaches the media consumer, given  $t$  and  $\lambda$ . Each of these variables can range from 0 to 1.

After the news is released, the government removes from office any official who was the subject of a news report.<sup>2</sup> Finally, each community  $i$  chooses whether to revolt,  $\rho_i \in \{0, 1\}$  based on  $Q_i$  and  $\hat{\lambda}$ . A revolt succeeds with probability  $\pi(\rho)$ , where  $\rho = \int_0^1 \rho_i di$  denotes the fraction of the population revolting and  $\pi'(\rho) > 0$ .

An official's job yields a payoff of 1, which is lost if he is the subject of a media report and removed. In addition, he receives  $g_i$  if he is corrupt.<sup>3</sup> A community that accepts the status quo receives payoff  $Q_i$ , whereas one that revolts foregoes this but receives a payoff of 1 if the

<sup>2</sup>I assume here that the regime will automatically remove an official exposed for corruption. An extension in the supporting information (available online) shows that this results endogenously if the regime has the choice to leave the official in place.

<sup>3</sup>I assume that the gains for corruption are retained (e.g., consumed or parked offshore), but the results remain the same if these are lost upon exposure. This is shown formally in the supporting information, available online.

revolt succeeds. The government incurs a cost of corruption  $c(H) > 0$ , reflecting the economic inefficiency and deadweight losses caused by the fraction  $1 - H$  of officials who are corrupt, with  $c'(\cdot) < 0$  (costs declining with greater honesty). In addition, the government receives rents of 1 if it holds power at the end of the game.

In order to rule out some extreme or uninteresting cases and simplify subsequent analysis, I make the following assumptions on parameters:

**Assumption 1** (uncertain support for revolt).  $Q_G > 1$ .

This assumption implies that contented communities are uninterested in joining a revolution even if it might succeed. Without this assumption, the game becomes a pure coordination game in which revolution could occur regardless of the level of discontent.

**Assumption 2** (maximum impact of corruption).  $\theta_H < \frac{1-H(\theta_H)}{h(\theta_H)}$

This assumption says that the probability of corruption causing discontent is never too high. If this assumption does not hold, then permitting additional reporting can actually lower the level of corruption reported in the media, a sort of “free lunch” for the regime. While this is theoretically possible, I focus on the parameter range that captures the trade-off most authoritarian regimes actually face.

**Assumption 3** (value of censorship).  

$$\frac{\beta\theta_H\pi(\theta_H(1 - H(\theta_L))) + (1 - \beta)\theta_L\pi(\theta_L(1 - H(\theta_L)))}{\beta\theta_H + (1 - \beta)\theta_L} < Q_B < \pi(\theta_H(1 - H(\theta_H)))$$

This assumption ensures that censorship affects revolt decisions. The first inequality will mean that discontented communities will not revolt when they are unsure about the underlying state of discontent, as long as the observed level of discontent implies that there is a sufficiently high level of watchdog reporting. The second inequality will ensure that they revolt rather than accept the status quo when social tensions are known to be high, even if official corruption is minimized by permitting the maximum amount of watchdog reporting. If these did not hold, the level of watchdog reporting would be irrelevant to regime stability because there would either always or never be revolt.

## Equilibrium

I will characterize the pure-strategy perfect Bayesian equilibria of this game. The regime’s strategy consists of levels of watchdog reporting  $t_H$  and  $t_L$  corresponding to states  $\theta_H$  and  $\theta_L$ . Each official’s strategy consists of a choice of

whether or not to be honest depending on the level of watchdog reporting  $t$ , the size of the temptation  $g_i$ , and the state of the world  $\theta$ . Each community  $i$  forms beliefs  $\hat{\beta}_i$  about the probability of state  $\theta_H$  conditional on the level of negative news reporting  $\hat{\lambda}$  and its own status quo payoff  $Q_i$  and decides whether or not to revolt based on these factors.

I make two additional restrictions to the set of equilibria examined in order to avoid spending time on equilibria that are not helpful in analyzing the situation in question. The first issue to deal with is coordination. In regime-change games like this one, there is always an equilibrium in which no one revolts because no one else will.<sup>4</sup> If the government could be confident that this would always be the equilibrium, it would be perfectly secure. History, however, suggests this would be unwise and unrealistic. Even in regimes that look stable, unforeseeable events can facilitate sudden shifts from coordinated quiescence to coordinated revolt, as occurred in East Germany in 1989 and across the Arab world in 2011. Therefore, I restrict attention to the alternative equilibrium, in which discontented communities revolt if they believe that it would be in their interest to do so as long as all other discontented communities revolt. While selecting this coordinated outcome is equally arbitrary, it is the one that a dictatorial regime must worry about. Formally, I assume the following:

**Assumption 4** (coordination). *A discontented community revolts if  $E[\pi(\lambda); \hat{\lambda}] > Q_B$ .*

This enables us to focus on the primary question of this article—what censorship might conceal or reveal and how this should affect political stability.

In addition, there is the standard problem that Bayes’ rule does not fix beliefs for actions that would not be chosen in equilibrium. As it is easy to create implausible equilibria using arbitrary beliefs, I restrict beliefs with three reasonable premises:

**Assumption 5** (beliefs). *Where Bayes’ rule does not apply, the following hold:*

- 1) (feasibility) *If  $\hat{\lambda}$  is not possible given state  $\theta_L$ ,  $\hat{\beta} = 1$ .*
- 2) (modified intuitive criterion) *If, for a given state  $\theta' \in \{\theta_L, \theta_H\}$ , the regime’s utility of choosing some  $t$  that would result in observed discontent  $\hat{\lambda}$  is less than the utility of choosing equilibrium  $t^*$ , regardless of how communities respond to this deviation, and this is not true in state  $\theta'' \neq \theta'$ , then probability 1 is assigned to state  $\theta''$ .*
- 3) (nonupdating) *If neither 1 nor 2 applies, communities disregard  $\hat{\lambda}$  when updating their beliefs.*

<sup>4</sup>Bueno de Mesquita (2011) shows that the technical fix implied by the global-games approach solves this problem only by making an assumption that is questionable in the context of revolts.

The first part addresses the fact that the regime cannot fake a level of discontent higher than what is actually occurring, so if communities see a level of discontent that is high enough, they are certain that the state is  $\theta_H$ . The second part says that if in one state the regime could only harm itself by deviating in a way that results in observed discontent  $\hat{\lambda}$ , and in the other state this deviation would at worst be harmless, citizens assume the second state is the true one. Finally, while in many applications the intuitive criterion or related refinements address all possible deviations by the “sender” (the regime in this case), that is not true in this model. Given an anticipated response by communities to a particular  $\hat{\lambda}$ , the regime may want to choose  $t$  resulting in that  $\hat{\lambda}$  regardless of the state. In that case, the most sensible assumption is that made in the third part, that communities treat this deviation as equally likely to have been made in either state.

## Analysis Corruption

Whether an official engages in corruption hinges on the likelihood of receiving a negative media report if he is corrupt, since such an exposé would cost him his job. If he is honest, he receives a guaranteed payoff of 1. If he is dishonest, he receives a payoff  $g_i$ , drawn from the distribution  $h(g)$ , but with probability  $\theta$ , the community under his jurisdiction becomes discontented as a result of this corruption, and with probability  $t$ , this results in a media report. Thus, the probability of something bad happening as a result of the corruption *and* the official getting exposed is  $t\theta$ . If he is exposed, he loses the payoff of 1 from holding his official position, but he keeps  $g_i$ . Therefore, his expected payoff if corrupt, given state  $\theta$  and tolerance for watchdog reporting  $t$ , is  $1 - t\theta + g_i$ , yielding the following straightforward result:<sup>5</sup>

**Lemma 1.** *An official is corrupt in state  $\theta$ , given  $t$ , if  $g_i \geq t\theta$ .*

That is, the official takes the graft if it is large enough to compensate for the increased likelihood that he is sacked. Since each individual official's corruption payoff  $g_i$  is generated by the same cumulative distribution function  $H(g)$ , a fraction  $H(t\theta)$  of the total population of officials has a potential gain from corruption smaller than  $t\theta$  and chooses honesty. Several other important values are also derived from  $H(t\theta)$ . The corresponding number of dishonest officials is  $1 - H(t\theta)$ . The number

of discontented communities or level of discontent is the number of dishonest officials multiplied by  $\theta$ , the state, or  $\lambda = \theta(1 - H(t\theta))$ . Finally, the number of negative media reports is the level of discontent multiplied by  $t$ , the amount of reporting permitted, or  $\hat{\lambda} = t\theta(1 - H(t\theta))$ .

## Revolt

Next, I turn to the question of when communities revolt. Recall that a successful revolt yields a payoff of 1 and succeeds with probability  $\pi(\rho)$ , where  $\rho$  is the fraction of communities backing the revolt, so by Assumption 1, contented communities never revolt. This lets us focus on the decision of the discontented communities. Participating in revolt makes sense for a community only if it thinks the probability of success is high enough to risk abandoning the security of the status quo, that is, if  $Q < E[\pi(\rho); \hat{\lambda}]$ . This depends crucially on beliefs about  $\rho$ , the amount of support a revolt is expected to achieve.

Each discontented community has access to two identical pieces of information—its own low-status quo payoff and the reported level of discontent  $\hat{\lambda} = t\lambda$ . Because of this, they share a common belief about the probability that social tensions are high,  $\hat{\beta}$ . Note, however, that this is only a belief about the underlying state,  $\theta$ . The actual number of discontented communities is  $\lambda = \theta(1 - H(t\theta))$ , which also depends on how honest officials are,  $H(t\theta)$ . This in turn depends both on the level of social tension  $\theta$  and on the strength of the incentives officials have been given by the regime's choice of  $t$ . Since, as noted above, every discontented community has the same beliefs about  $\lambda$ , Assumption 4 (coordination) implies that we only have to look at whether it is worthwhile in expectation for all discontented communities to revolt together. By Assumption 3, we know that if they are certain that social tensions are high,  $\hat{\beta} = 1$ , they will revolt, and if they are certain tensions are low,  $\hat{\beta} = 0$ , they will not revolt. To understand what happens when there is uncertainty,  $\hat{\beta} \in (0, 1)$ , the following technical lemma is helpful.

**Lemma 2.**  *$t$  and  $\hat{\lambda}$  are in a one-to-one correspondence.*

What this lemma tells us is that for a given state of the world  $\theta$ , we can think of the regime as choosing either  $t$  or  $\hat{\lambda}$ , since either one implies the other through the invertible relationship  $\hat{\lambda} = t\theta(1 - H(t\theta))$ . This also means that knowing the reported level of bad news, citizens know how tolerant of watchdog reporting the regime would have to be in each state in order for this to come about. They therefore also know how strong an incentive to honesty officials would face under each state and consequently what the true level of discontent would be

<sup>5</sup>Additional formal details of the proofs are provided in the supporting information, available online.

conditional on the state in equilibrium. Technically, let  $t(\hat{\lambda}, \theta)$  be the level of tolerance implied by  $\hat{\lambda}$  and a particular state of the world  $\theta$ . The actual level of discontent can be treated as a function  $\lambda(\theta, \hat{\lambda}) = \theta(1 - H(\theta t(\hat{\lambda}, \theta)))$ . The probability of success given state  $\theta$  is  $\pi(\lambda(\theta, \hat{\lambda}))$ , or just  $\pi(\theta, \hat{\lambda})$ , with expected payoff

$$E[\pi(\lambda); \hat{\lambda}, \hat{\beta}] = \hat{\beta}\pi(\theta_H, \hat{\lambda}) + (1 - \hat{\beta})\pi(\theta_L, \hat{\lambda})$$

Comparing this with the payoff to a discontented community of accepting the status quo,  $Q_B$ , some minor algebra yields the following result:

**Proposition 1.** *Revolt is preferable to accepting the status quo outcome for discontented communities if  $\hat{\beta} > \frac{Q_B - \pi(\theta_L, \hat{\lambda})}{\pi(\theta_H, \hat{\lambda}) - \pi(\theta_L, \hat{\lambda})}$ .*

That is, if the discontented believe the likelihood of social tensions being high is greater than some threshold, they revolt. However, this threshold depends on  $\hat{\lambda}$  because for a given level of social tension, the actual level of discontent depends on how widespread corruption is, which in turn is affected by watchdog reporting. Letting  $\bar{\beta}(\hat{\lambda}) = \frac{Q_B - \pi(\theta_L, \hat{\lambda})}{\pi(\theta_H, \hat{\lambda}) - \pi(\theta_L, \hat{\lambda})}$ , we also have the following useful result:

**Corollary 1.** *The revolutionary threshold  $\bar{\beta}$  increases in  $\hat{\lambda}$ .*

This corollary establishes that the more negative news is reported, the more certain the discontented must be that underlying social tensions are high in order to revolt. The logic is this: for a given level of social tensions, more negative news reporting means that more watchdog journalism is being tolerated. This in turn means that there is less corruption and therefore fewer discontented communities that might join in a revolt. The expected payoff of joining in a revolt is therefore lower for either high or low social tensions, so  $\bar{\beta}$ , the minimum degree of confidence that a community has to have that social tensions are high in order to be willing to revolt, increases. It may seem nonsensical to suppose that the regime could choose a policy that would increase the level of negative news without changing beliefs about the state of the world, but we shall see that this can indeed occur as we examine the regime's media strategy.

## Optimal Censorship

When determining its tolerance for watchdog reporting, the regime faces a trade-off between the desire to avoid revealing that social tensions are high and the desire to have a more active media reduce corruption. As in standard signaling theory, there are two types of pure-strategy

equilibria: separating equilibria in which citizens (the receiver) observe a different signal depending on the state of social tensions (the regime's type) and pooling equilibria in which citizens receive the same signal in either state. However, this model differs from the standard framework because the sender's (regime's) actions are not directly observed by the receiver (the citizens). Here, choosing the same action in both states will actually make it possible for the receiver to correctly infer the state, whereas sending different signals in each state might conceal it.

In a separating equilibrium of this game, citizens can infer the state of the world based on the reported level of discontent and therefore hold the accurate beliefs  $\hat{\beta} = 0$  or  $\hat{\beta} = 1$ . The same is true when off-equilibrium-path behavior is observed that could only be optimal for the regime in one state, by Assumption 5. In a pooling equilibrium, or following off-path behavior that Assumption 5 does not assign to only one type, discontented citizens gain no information from the reported level of discontent. However, they are able to update their beliefs based on the fact they are themselves discontented, yielding:

$$\hat{\beta}' \equiv \frac{\beta\theta_H}{\beta\theta_H + (1 - \beta)\theta_L}$$

By Assumptions 3 and 4, the discontented revolt if it becomes common knowledge that social tensions are high ( $\hat{\beta} = 1$ ). This gives the regime a strong motivation to manipulate the media in a way that obscures this information, inducing citizen beliefs  $\hat{\beta}'$ . In order to do this, it must choose  $t_H$  and  $t_L$  that ensure that  $\hat{\lambda}$  is identical regardless of the state of the world  $\theta$ . The following lemma characterizes the set of policies  $t_H$  and  $t_L$  that would result in a constant  $\hat{\lambda}$ , thereby obscuring the true state.

**Lemma 3.**  *$\hat{\lambda}$  is identical in either state of the world if and only if  $t_H$  and  $t_L$  satisfy  $t_H\theta_H = t_L\theta_L$ .*

One way to satisfy this is to permit no reporting at all, setting  $t_L = t_H = 0$ . However, the same objective can be achieved by choosing any  $t_H$  and  $t_L$  in the ratio  $\frac{t_H}{t_L} = \frac{\theta_L}{\theta_H}$ . That is, in order to keep communities in the dark about how much discontent there is, the government can adjust its tolerance for watchdog reporting depending on the state of the world. When underlying tensions are low, the government can permit a higher level of reporting, but when underlying tensions are high, it must restrict watchdog reporting in order to present the same positive face to its people. This amounts to choosing a level of bad news  $\hat{\lambda}$  that is released regardless of the underlying state. By contrast, if it chooses any ratio between  $t_H$  and  $t_L$  other than  $\frac{\theta_L}{\theta_H}$ , communities are able to infer the truth from the news, learning precisely what the level of discontent is.

Intuitively, imposing total censorship, with  $\hat{\lambda} = t_L = t_H = 0$ , might seem the obvious way to achieve the objective of avoiding revolt. However, recall that the revolt threshold is  $\hat{\beta}(\hat{\lambda})$ , which increases in  $\hat{\lambda}$ .  $\hat{\beta}(0)$  is the lowest possible threshold, so if  $\hat{\beta}(0) < \hat{\beta}'$ , the discontented revolt despite their uncertainty about the state. As long as the regime can maintain a pooling strategy, permitting more discontent to be reported (higher  $\hat{\lambda}$ ) lowers this threshold because citizens remain uncertain about the state, but they know that whatever the true state is, less corruption underlies it.

Even if citizens do not revolt in a particular pooling equilibrium, the regime can always make itself better off by increasing watchdog reporting, as long as this does not induce citizens to revolt. In fact, the only possible pooling equilibrium is one in which  $t_L^* = 1$  and  $t_H^* = \frac{\theta_L}{\theta_H}$ . That is, if things are going well, all the media can operate freely, whereas if the state of social tensions is high, tolerance for watchdog reporting must be reduced to result in the identical reported level of discontent.

To see that there cannot be  $t_L^* < 1$ , consider the benefits of deviating to  $t_L = 1$ . First, the direct costs of corruption are reduced. In addition, the regime benefits from this deviation if citizens will not revolt. Consequently, citizens are at worst agnostic about whether the state is low or high, holding beliefs  $\hat{\beta}'$ . Given this, they do not revolt, and the deviation indeed is attractive. Similarly, deviating downward from  $t_L^* = 1$  to  $t_L < 1$  is never worthwhile, as it increases corruption even if it does not result in revolt.

Given this, the only possible pooling equilibrium behavior in the high state is  $t_H^* = \frac{\theta_L}{\theta_H}$ . Since revolt is avoided, deviating downward to  $t_H^* < \frac{\theta_L}{\theta_H}$  brings the regime no benefit. However, deviating upward might. Since such a deviation results in a level of reported discontent that would not be possible in the low state, citizens would conclude that discontent is high and revolt. Given this, the best possible deviation is to  $t_H = 1$ . Let  $\pi(\theta, t)$  be the probability of the regime being overthrown if all discontented communities rise up, given the state and the level of tolerance. This deviation would give the regime a payoff of  $1 - \pi(\theta_H, 1) - c(H(\theta_H))$ , while the pooling equilibrium would give a payoff of  $1 - c(H(\theta_L))$ . Thus, in order for the pooling equilibrium to exist, it must be that  $c(H(\theta_L)) - c(H(\theta_H)) \leq \pi(\theta_H, 1)$ .

A very similar analysis applies for the separating equilibrium. The only possible separating equilibrium has  $t_L^* = t_H^* = 1$ , unlimited watchdog reporting in both states. Since the high state experiences revolt in equilibrium, anything less than  $t_H^* = 1$  simply increases corruption. Deviations to  $t_H < \frac{\theta_L}{\theta_H}$  in hopes of convincing citizens that the state is in fact low do no better than deviation to  $t_H = \frac{\theta_L}{\theta_H}$ , an attempt to look like the low state

holds. Therefore, the key comparison is once again between whether in the high-discontent state the regime would choose a pooling strategy with no revolt, yielding  $1 - c(H(\theta_L))$ , or a separating strategy with revolt, yielding  $1 - \pi(\theta_H, 1) - c(H(\theta_H))$ .

Combining the above results, we have the following:

**Proposition 2.** *In any equilibrium,  $t_L^* = 1$ . A pooling equilibrium in which  $t_H^* = \frac{\theta_L}{\theta_H}$  and there is no revolt exists if and only if  $c(H(\theta_L)) - c(H(\theta_H)) \leq \pi(\theta_H, 1)$ . If and only if  $c(H(\theta_L)) - c(H(\theta_H)) \geq \pi(\theta_H, 1)$ , there exists a separating equilibrium in which  $t_H^* = 1$  and there is revolt in the high state.*

In words, the regime chooses a pooling strategy, restricting watchdog reporting when social tensions are high, as long as the resulting increase in corruption is not too severe. If this is not true, the regime views the risk of being deposed in the high-discontent state as acceptable in order to reduce the impact of corruption, resulting in unrestricted reporting in both high- and low-discontent states.

Technical details aside, the two kinds of equilibria capture a very straightforward trade-off. A regime chooses to permit watchdog reporting even when social tensions are high only if the costs of corruption are so severe that it is worth the risk of losing power when revolution erupts. In practice, the leaders of authoritarian regimes seem to place a very high value on remaining in power, so such situations are rare. The more practical implication of the model is that for the typical regime, wishing to mitigate corruption without losing power, the optimal media policy is not a total blackout nor any constant policy of permitting some stories while forbidding others. Rather, it must adjust how much news it permits to be reported depending on the underlying level of discontent. When discontent is relatively low, it can allow more open reporting, but in periods where there is a great deal of discontent to report on, it must rein in the news media.

## New Media

The partial censorship pooling strategy just described requires that the regime exert tight control over all media outlets. The rise of the Internet, however, has created important holes in this control for most authoritarian regimes. Around the world, activist Internet users and governments are engaged in a technological arms race (Deibert et al. 2012; Mailland 2010). While strong authoritarian regimes can severely restrict the amount of unfavorable information communicated over the Internet, a significant number of unflattering stories nonetheless

make it through (Diamond 2010). How much of an impact this has remains the subject of ongoing debate (Farrell 2012), but it seems clear that it is much harder for today's authoritarians to squelch a news item than when every news item had a writer, an editor, and a publisher who could be identified and punished. This incomplete news control can be easily incorporated into the model, yielding the important and somewhat surprising implication that censorship of traditional media may increase as new media become more widespread.

Formally, suppose that some fraction  $\gamma$  of all bad news becomes widely known, despite the government's best efforts to suppress it. This means that if the government tolerance for watchdog reporting by the traditional media is  $t$ , the effective level of tolerance is  $t_e = \gamma + t(1 - \gamma)$ . However, this essentially just sets a floor under the amount of bad news that is reported under a given state of the world. As long as that floor is not too high, that is,  $\gamma \leq \frac{\theta_L}{\theta_H}$ , the government can still maintain a pooling equilibrium by tightening its censorship of the conventional news media, setting  $t_H = \frac{\theta_L - \gamma}{1 - \gamma}$ . That is, it must tighten censorship on conventional news media in order to have the same overall number of news stories broken in the high-discontent state. Of course, if  $\gamma > \frac{\theta_L}{\theta_H}$ , then even if the regime permits no stories to be broken by the traditional media, citizens would realize from the large number of stories reported through the new media that discontent was high. This extension also implies a very straightforward comparative static. As independent online news sources become more and more common, a regime wishing to maintain partial censorship is forced to be more restrictive in the control it exerts over the traditional media, reducing  $t_H$ . Traditional media become less and less free to do their own novel investigative reporting, although they still are allowed and even encouraged to report on stories that Internet sources have revealed. The following proposition states this formally:

**Proposition 3.** *A pooling equilibrium exists if and only if  $\gamma \leq \frac{\theta_L}{\theta_H}$  and  $c(H(\theta_L)) - c(H(\theta_H)) \geq \pi(\theta_H, \theta_H)$ . If it exists,  $t_L^* = 1$  and  $t_H^* = \frac{\theta_L - \gamma}{1 - \gamma}$ , and there is no revolt.  $t_H^*$  decreases in  $\gamma$ .*

However, this would still not be enough if communities could easily distinguish stories broken through independent media from those broken by the government-controlled media. If they could, then they could simply infer the true level of discontent by relying solely on the level of bad news reported by the independent media. Thus, it is also crucial for the government to obscure the difference between news coming from the two sources, reporting on anything that might be revealed through independent media so that communities cannot easily un-

cover whether the independent news sources are following up on a story broken by the state media, or vice versa.

## Evidence

In this section, I offer evidence for the utility of this model in understanding important aspects of China's media policy in the post-Mao era, first sketching some of its key characteristics and showing how the model sheds light on them, then discussing what the model suggests about some of the broad trends in Chinese media control over the past 30 years.

### Contemporary Chinese Media Policy

China's news media are subject to the control and influence of the Chinese Communist Party (CCP) through a variety of channels. Most directly, all media outlets must be sponsored by and under the authority of a government entity, which can hire and fire the editors and managers of the journal and is responsible for ensuring that it complies with government and party directives (Hassid 2008). In addition, any journalist must possess a government-issued press card, which the CCP can cancel or choose not to renew. Where these controls are insufficient, the CCP can suspend or shut down media outlets and jail journalists, with 32 journalists in jail as of December 2012 (Committee to Protect Journalists 2013). Others have been beaten, threatened, detained, or placed under surveillance. As a consequence, China consistently ranks near the bottom of global press-freedom rankings (Freedom House 2013; Reporters without Borders 2013).

Despite this, it has also been sincerely argued that "Chinese news coverage... is in the midst of something of a golden age" (French 2007). This is largely due to the rapid growth of investigative reporting since the early 1990s. Chinese news media have broken shocking stories. The pervasiveness of the Chinese state means that they rarely fail to implicate officialdom at some level, even when their primary targets appear to be businesses. Stories have revealed villages in which almost the entire population had been infected with HIV due to cost-cutting in for-profit blood-donation businesses, regions in which large numbers of adults and children had been enslaved to work in brick kilns, and schools collapsing from earthquake damage due to shoddy construction when the buildings beside them remained standing.<sup>6</sup> The most exciting

<sup>6</sup>For English-language summaries of these stories, originally broken by Chinese media outlets, see Rosenthal (2000), Zhou (2007), and Wong (2008).

reporting has usually been pursued by commercially oriented spin-offs of party newspapers and often is carried out by reporters from other provinces than that being covered, as in-province media outlets are too tightly linked to the local power structure (Tong and Sparks 2009). However, this reporting is not restricted to scrappy regional newspapers. Many leading-edge media outlets are based in Beijing, and even China Central Television, the state's authoritative voice, has prime-time news shows devoted to original investigative reporting (Li 2002).

Yet all journalists understand that investigative reports should "only target low level officials and solvable problems" (Brady 2008, 80). Critiquing the broader political system is much riskier, and criticizing the central role of the party is out of the question. In more colorful language, the injunction has been to "swat flies but don't beat tigers" (Zhao 2012). This makes sense in the context of the model. While reporting on low-level corruption helps the central state and can be controlled to avoid revealing too much, unrestricted reporting on national issues would provide a direct indication of the overall state of affairs  $\theta$ , which could facilitate a coordinated uprising. Thus, the apparently increasing willingness of Chinese journalists to pursue what might appear to be a Western ideal of press freedom reflects their awareness of a centrally driven policy change as much as it does a new value placed on a universal human right to information (Lorentzen and Scoggins 2011).

The dynamic, state-contingent aspects of media policy implied by the model are also clearly in evidence. Rather than setting guidelines ahead of time, the Central Propaganda Department (CPD), under the direct control of the CCP's Central Committee, issues a constant stream of specific directives and guidance regarding what news items can be reported and how to report them.<sup>7</sup> Its representatives are located in all major government news outlets, and editors from more-independent news organizations are expected to subscribe to a bulletin containing this information and pay close heed when they receive instructions from the CPD (Brady 2008).<sup>8</sup> If the goal were only to avoid having "too much" negative news, according to some consistent standard, there would be less need for this routine, microlevel intervention by the CPD. The model shows that the reason for these constant adjustments is that how much is too much necessarily depends on the overall state of discontent at any given time.

<sup>7</sup>Selections of these are leaked regularly to the University of California, Berkeley-based China Digital Times website (<http://chinadigitaltimes.net>).

<sup>8</sup>The State Council Information Office takes the lead role in Internet censorship. It seems to coordinate, if imperfectly, with the CPD.

Indeed, the CPD frequently permits investigative reporting on a specific topic or incident for a period of time, then it requires reporters to close ranks, writing fewer articles or restricting themselves to approved government talking points. The fact that anything is reported at all is often attributed to clever tactical maneuvering by journalists in order to get a story out before officialdom can shut them down.<sup>9</sup> While this is certainly the lived experience of the journalists involved, it does not explain why the central government lets these journalists get away with it and continue to report. The regime's response to those who critique or challenge the regime's core principles, like Nobel Peace Prize winner Liu Xiaobo and many others, is harsh and unequivocal. By contrast, the regime is tolerant of journalistic muckrakers because it wants their help to uncover new types of official malfeasance, even though it sooner or later has to restrict reporting in order to maintain the desired ambiguity about how prevalent this malfeasance truly is.<sup>10</sup>

The model also provides an explanation for the common observation among journalists that the boundaries of permissible reporting are continually and (from their perspective) unpredictably in flux (Stern and Hassid 2012). This is in part an inevitable consequence of conflicting interests within the state, but the model shows that even a perfectly unified state has good reasons to regularly change what it will tolerate. Hassid (2008) argues that uncertainty induces the media to be more cautious than they would otherwise be. However, it is unclear why uncertainty should induce more conservative reporting than a sharp line between the permissible and the punishable. Stern and O'Brien (2012) conjecture that the opposite is true, that the regime may deliberately behave unpredictably in order to encourage activists (both journalists and others) to take risks that will reveal useful information without establishing a precedent that it might later wish to go against. Instead, the model in this article shows that such uncertainty is a natural result of the regime's own inability to forecast exactly how much and what kind of reporting it will wish to permit at any given moment. Indeed, even once it has a target for an overall level of watchdog reporting, the regime benefits from leaving ordinary journalists in the dark as much

<sup>9</sup>See, for example, the accounts in Bandurski and Hala (2010) and Fowler and Dean (2006).

<sup>10</sup>While this is not fully captured by this simple model, subsequent reporting even about an existing news story can be unwelcome. The initial reporting can reveal types of problems the regime may not have been aware of, such as shoddy school construction. Subsequent reporting is more likely to go beyond the facts of a particular incident to highlight general governance problems, giving citizens additional information about the overall state of social tensions  $\theta$ .

as possible because if they knew exactly how much was being censored ( $1 - t$  in the model), they would be able to infer the true amount of bad news ( $\lambda$ ) and potentially communicate this to citizens.

### Change over Time

This model also provides insights into how China's media environment has evolved over time. The CCP has long given the news media the task of gathering information on local problems. However, only some of this information was published for general consumption, and any information that could in some way harm the Party would be compiled into secret "internal" reports.<sup>11</sup> This might seem an even better system from the regime's perspective, controlling local officials without disclosing any useful information to the public. However, such a system is costly, as the reporting generates essentially no revenue. With the marketization of the economy starting in the 1980s, this changed. The introduction of advertising made news organizations self-financing or even profitable, so the regime could cheaply generate much more comprehensive coverage simply by permitting journalists and editors to respond to the strong commercial incentives to produce exciting, publicly available investigative journalism, which they did. Rather than representing a loss of control and weakening of the regime's power, as Lynch (1999) argues, this can be seen as the replacement of a costly and inefficient command-and-control system with one organized around market mechanisms (albeit with strong state guidance).<sup>12</sup> As with the concurrent process of economic reform, this represents not a weakening of the state but a more sophisticated and pragmatic approach to achieving consistent goals.

Indeed, there is not an inevitable link between marketization of the media and ever-more-vigilant watchdog journalism. While the 1990s saw a dramatic increase in investigative reporting, the consensus among informed observers has been that China's journalists suffered significant setbacks in the past decade (Fowler and Dean 2006). China's rating on the Freedom House index of censorship bottomed out at 80 in 2000 but by 2011 had risen back to 85.<sup>13</sup> This new restrictiveness has been effected in several different ways. In 2005, the CPD issued a formal ban on the widespread practice of media organizations from one province reporting on issues in other provinces. While

widely flouted, it provided additional justification to rein in some of the more aggressive media outlets (Tong and Sparks 2009, 342). Many of the more courageous media outlets have come under pressures of various sorts. In 2006, the editor of the China Youth Daily's *Freezing Point* weekend supplement was fired, and the journal briefly closed down (Branigan 2010). In 2009, the editor-in-chief of the cutting-edge financial and economic magazine *Caijing* led an exodus of senior staff due to clashes with the magazine's sponsors, although she was able to rapidly reconstitute a very similar publication with new sponsorship (Barboza 2010).

Some have explained this new restrictiveness as resulting from a rise in social tensions generated by the market transition (Tong and Sparks 2009). While this would be consistent with the model, it is unclear whether these tensions and grievances are truly more severe than in previous periods. The reform of the state sector that peaked in the late 1990s resulted in the net loss of over 40% of formal urban jobs, creating a restive population of workers, many of whom felt betrayed by the state (Hurst 2009). At the same time, unbearably high agricultural taxation led to widespread rural protests (Bernstein and Lu 2003). Time and targeted policy shifts have largely resolved both problems. While new problems have arisen since, sociologist Martin Whyte concluded from a nationwide survey that most Chinese largely accept the current system (Whyte 2010). Any assessment of increasing tensions over time is therefore highly subjective.

The logic of the model suggests that an equally important reason for this shift in media policy may be the technological shift embodied by the Internet. By 2012, China had over 500 million Internet users (Reuters 2012). Independent Chinese bloggers, employed by no official media source, can now post and circulate unofficial accounts of controversial events (Yang 2009). While the Chinese government exerts substantial and very sophisticated control over what information flows over the Internet by blocking keywords, restricting access to foreign news sources, frightening most Chinese users into varying degrees of self-censorship, and rapidly removing posts on issues that start to attract unwelcome attention (King, Pan, and Roberts 2013), this control is still far less than what it can exert over the traditional media, physically dependent on printing presses or broadcasting facilities. As a consequence, many important and damaging stories have become widely known that might never have appeared in the traditional media (Xiao 2011). As the extension shows, this increase in uncontrollable news forces the government to restrict the traditional media more to maintain ambiguity about the true state of social tensions, going against the conventional wisdom that the spread of the Internet should lead to freer media.

<sup>11</sup>See Nathan (1985, 152–57) for an overview.

<sup>12</sup>See Stockmann (2012) for an argument along similar lines.

<sup>13</sup>Reporters without Borders also began publishing a numeric rating in 2002 but has changed its methodology each year in ways that make year-on-year comparison impossible.

## Conclusion

Media control is not simply an interesting facet of authoritarian politics. It is fundamental to determining whether such regimes survive or fall. While conventional wisdom takes for granted that authoritarian regimes will always strive to minimize independent reporting, this assumption deserves more scrutiny. Using a formal model, this article has shown how an authoritarian regime can benefit from a more sophisticated media control strategy, permitting journalists to report aggressively on low-level malfeasance in order to improve governance, but constantly adjusting the amount of reporting in order to avoid giving discontented citizens enough information to be certain about whether a revolt would receive sufficient support to be worthwhile. The model helps explain the actual practice of censorship in China more fully than existing theories, both in its routine operations and in longer-term trends.

China's totalitarian legacy, in particular the established authority of the CCP's Propaganda Department and absence of an organized opposition, made it particularly well equipped to pursue the media control strategy outlined here. However, while media control may be less highly refined in other regimes, the logic of the model still applies. This suggests that those researching the stability or failure of authoritarian regimes may benefit from looking beyond a simplistic conflict between dictators fearing independent media and a civil society pushing for it and should try instead to understand what the regime permits, why it does so, and how it deals with the trade-offs it faces.

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