Autocratic Responses to Revolutionary Threats*

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Abstract

Revolution can only occur when a sufficient number of citizens coordinate, reaching a critical threshold or “tipping point.” To prevent coordination and thus deter revolution, autocrats can use domestic measures (cooptation, repression) and diversionary foreign policy. We develop a global games model of revolutionary threats that incorporates both types of policy instruments. We provide conditions under which domestic and foreign policies serve as substitutes or complements, and the consequences for collective action problems and the likelihood of revolution. Furthermore, we demonstrate that the relationship between revolutionary threats and policy responses may be non-monotonic, whereby smaller threats provide stronger incentives for autocrats to pursue preemption. We argue that this insight helps to resolve contradictory findings in the empirical literature.

Keywords: autocracy, cooptation, repression, foreign diversion, revolution, collective action, global games

Very Preliminary

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1 Introduction

All autocrats must confront the threat of revolution. While the severity of this threat may vary by regime, all autocrats have two basic responses: domestic and foreign policies. The existing literature tends to study each policy instrument in isolation. However, focusing on domestic or foreign policy overlooks the wider choice set that autocrats can exploit to deter revolution. In this paper, we develop a formal model that incorporates both domestic and foreign policy options, which we use to address the following questions. Under what conditions are these instruments substitutes or complements? How do different constraints (e.g., on resources) influence the autocrat’s preferred policy choices? Finally, what role do coordination problems play in the policy decisions of autocrats? We believe that our answers, which we now outline, contribute to a better understanding of the diverse ways in which autocrats may respond to revolutionary threats.

Our model starts with the premise that revolutions require coordination among citizens. While revolution may be attractive to aggrieved citizens, few will actually protest alone. Revolution can only occur when a sufficient number of citizens decide to revolt, reaching a critical threshold or “tipping point.” To formalize the tipping point, we take a global games modeling approach, which enables us to study how autocrats may use different policies to exacerbate coordination problems.

In the model, the autocrat chooses among two policy instruments. The first instrument concerns domestic measures like cooptation and repression, which discourage popular protest (Davenport, 2007), but at the cost of valuable state resources. The second instrument concerns foreign affairs. The autocrat may adopt a provocative foreign policy, which diverts attention away from domestic issues and toward a “scapegoat” foreign government (Levy, 1989). We can think of the “cost” of this policy choice as a higher survival risk, since provocation may incite foreign military intervention. Thus, the autocrat must not only consider how his foreign policy choice will influence the threat of revolt, but also whether the foreign government will decide to intervene.

Our model has general implications for autocratic policy-making and the likelihood of revolution. We show that the parameter space is split into two distinct zones, one in which revolution can occur, and one in which it cannot. A policy bundle in the

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1 By “citizen,” we intend any person that can affect the likelihood of the autocrat’s survival, including the general public and political elites. To the extent that coordination issues are present, our model should apply to either case.
no-revolution zone contains some mix of domestic and foreign policy choices such that the tipping point for revolution is never reached. By contrast, a policy bundle in the revolution zone leads to some strictly positive probability of revolution. Thus, moving from this zone into the no-revolution zone results in a discontinuous decline in the risk of revolution, from strictly positive to zero.

These two zones determine how the autocrat’s domestic and foreign policy choices interact. If the autocrat wants to eliminate all revolution risk, then the optimal choice is the most cost-efficient policy bundle in the no-revolution zone, which will be found on the zone’s frontier. This frontier has a negative slope, implying policy substitutability. Thus, if the autocrat increases the strength of the domestic policy response, then he does not need to maintain the same level of diversionary foreign policy (or vice versa). The substitution effect does not hold for policy bundles off the frontier. If preemption proves to be too costly, then the autocrat may be willing to accept some positive revolution risk, thereby placing the optimal policy bundle in the revolution zone. The discontinuous change in the threat of revolution that occurs by moving from this zone to the frontier implies that, under some conditions, domestic and foreign policies may reinforce each other. Even if a stronger domestic policy response cannot by itself preempt revolution, it reduces this risk when coupled with the foreign policy instrument. Thus, a change in the autocrat’s preferred position – from accepting some positive revolution risk, to fully eliminating it – induces policy complementarity.

Simple intuition may seem to suggest that a higher revolution risk will always lead to more drastic autocratic responses (e.g., a more provocative foreign policy). Our model demonstrates that this relationship can in fact be non-monotonic. Smaller threats of revolution can actually provide stronger incentives for the autocrat to pursue preemption. The reasoning is straightforward. Preemption is more cost-effective when the risk of revolution is low. Here, the autocrat can better afford some mix of domestic and foreign policies that fully eliminates nascent revolutionary challenges. Figure 1 shows descriptive evidence that is consistent with the logic of preemption. It plots the share of yearly observations for autocratic regimes for which there are zero observed unrest incidents from 1946 to 1999 according to Banks (2010). From the 1950s onward, this share typically accounts for 30 percent or more of the yearly observations.

Our argument for preemption speaks to the “contrasting” or “contradictory” results found in the empirical literature (Miller and Elgün, 2011). Existing work typi-
cally hypothesizes that there is a strictly positive relationship between domestic threats of revolution and the use of diversionary foreign policy: the greater this threat, the greater the diversion. Our model provides one explanation for why we may not observe such a relationship in practice. Similarly, empirical work that treats domestic and foreign policies as substitutes only (Gelpi, 1997; Powell, 2011) also generate mixed results (Enterline and Gleditsch, 2000), which may reflect the conditional nature of policy interactions. Our model suggests that empirical research designs should take preemption into account when testing whether autocratic policies are substitutes or complements.

The rest of the paper proceeds as follows. In Section 2, we review the current literature on autocratic policy responses to revolutionary threats. In Section 3, we describe how the global games approach allows us to model coordination problems within a richer theoretical framework. Sections 4 to 7 present the formal model. We
first study the benchmark case without coordination problems. Next, we allow for coordination problems and characterize the equilibrium strategies for the three types of players: autocrat, citizens, and foreign government. Section 8 concludes. To save space, we relegate all proofs to the appendix.

2 Revolutionary Threats and Autocratic Responses

All autocrats face threats of revolution. The severity of this threat differs across regimes, with some autocrats more vulnerable than others. Why regimes differ in this respect depends on structural factors (Skocpol, 1979; DeNardo, 1985), economic conditions (Haggard and Kaufman, 1995; Acemoglu and Robinson, 2001), and social demographics (Geddes, 1999). For simplicity, we ignore these general questions about the roots of revolutionary threats, and focus instead on the range and effectiveness of autocratic policy responses. Autocrats have two basic responses: domestic and foreign policies. We now review each of these policy instruments in turn.

Domestic policies are generally of two types: cooptation and repression. Existing work typically represents this choice as dichotomous (Wintrobe, 1998; Acemoglu and Robinson, 2000): autocrats may respond to threats by coopting the opposition or by repressing it. Each of these types of domestic measures may take any number of forms in practice. Cooptation strategies range from broad policy concessions (Malesky and Schuler 2010; Desai et. al. 2009; Bueno de Mesquita and Smith, 2009, 2010), to targeted distributive goods (Blaydes, 2006), to public sector jobs (Kim and Gandhi, 2010). Such benefits are used to selectively purchase support and undermine the opposition. This strategy helps to prevent the rise of revolutionary threats by eliminating grievances and disrupting organizations that could otherwise foment opposition. Cooptation may even be used at the outset of revolt, as was common in the Persian Gulf during the Arab Spring. Rulers from Saudi Arabia, Bahrain, and Oman used a mix of fiscal transfers and public sector jobs to buy off local opposition.

Alternatively, autocrats may use repression to respond to revolutionary threats. Like cooptation, this strategy can take various forms. All autocratic societies are subject to some form of regular surveillance or monitoring. Repression of this sort often depends on a vast intelligence community, who not only ferret out nascent opposition, but also monitor citizen activities. This surveillance helps control everyday social and political life within an autocratic state. Complementing this more passive form of
repression, autocrats may also use selective violence (e.g., imprisonment, torture, executions) to physically and psychologically attack the opposition (Haber, 2008). Such tactics can be found in full display during periods of revolt, when the autocrat’s rule is in jeopardy. From the Soviet Union to present-day Syria, the full mix of repressive measures are readily deployed when autocrats confront revolutionary challenges.

In addition to these domestic measures, autocrats can respond through foreign policies. Whereas domestic measures tend to exact economic costs on the regime, foreign policies can have large reputational costs, and may even decrease the odds of leader survival. Nonetheless, autocrats may pursue such policies in the hope that, despite the additional risk of war, these actions will divert attention away from domestic discontent and thus deter revolution. Generally, we can refer to such foreign policies as “diversionary.”

Chiozza and Goemans (2003) characterize three mechanisms through which diversionary foreign policy may affect leader survival. The first two are psychological. Diversionary foreign policy either makes the foreign government a scapegoat for domestic failures or induces an “us-versus-them” mentality that galvanizes popular support for the regime (Coser, 1956; Levy 1989). However, these mechanisms depend on citizens being fooled. By contrast, the third mechanism derives from a rational choice context, where diversionary foreign policies are best seen as a “rational gamble” (Downs and Rocke, 1994). If a leader’s odds of survival are already low, then the opportunity cost of international conflict decreases. Furthermore, if this provocation produces some concessions, then this policy can even be a net benefit for regime survival. Regardless of the specific mechanism, the logic of diversionary foreign policy is clear: given domestic instability, this policy may help autocrats stay in power.

Both the domestic and foreign policy literatures provide important insights into autocratic rule and the menu of potential responses to revolutionary threats. These literatures have traditionally ignored each other, studying either the domestic or foreign sphere in isolation. Restricting the autocrat’s choice to only one policy instrument, however, may generate incomplete, or even misleading, implications.

For example, take the problem of resource-constrained regimes. If we only consider domestic policy options, then these regimes would appear to be highly con-

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2 The diversionary foreign policy builds on early insights in sociology about in-group/out-group dynamics (Simmel, 1964; Coser, 1956). In the context of international relations, this theory argues that individuals of the same nation share the same identity, which generates stronger cohesion when facing conflicts with out-groups (i.e., other nations). This mechanism enables political leaders to divert domestic opposition by intentionally provoking international tensions.
strained, since the cooptation strategy can be very expensive. For regimes that lack natural resources, or experience economic stagnation or sanctions, there may not be sufficient fiscal resources to pursue cooptation. Absent foreign policy options, this resource constraint would thus imply that repression is the regime’s only recourse. By ignoring foreign policy instruments, this implication likely overstates the regime’s dependence on repression. Even poor autocratic states do not rely exclusively on repression, which itself can become prohibitively costly. Constant reliance on repression presents its own challenges to the leader’s survival and may not be feasible over the long run (Haber, 2008; Wintrobe, 1990, 1998).

Pariah or rogue states present a similar challenge for the foreign policy literature. These states often receive attention for provocative foreign policies, which many observers attribute to a diversionary strategy. While diversionary foreign policy can be effective in helping to prevent revolutions from arising, it may have little impact on stopping an active revolt. Instead, autocrats are more likely to resort to cooptation or repression, which have more immediate effects during revolutionary events. Indeed, the empirical literature on diversionary foreign policy has produced “contrasting” or “contradictory” findings (Miller and Elgön, 2011). Better accounting for the autocrat’s domestic policy options may help explain these empirical results.

In the next section, we introduce a modeling framework that incorporates both domestic and foreign policy choices and allows for the interactions between them. We find that these policies may be strategic complements or substitutes, providing new insights into the question of autocratic policy response.

### 3 Global Games Approach

Successful revolutions require joint efforts from a group of heterogeneous citizens. To the extent that these citizens hold diverse preferences or come from distinct social groups, coordination may be difficult. At its core, the coordination problem is one of information: how do distinct groups, varying in their preferences over outcomes and levels of uncertainty about the true state of the world, coordinate on some collective action? The global games approach offers a natural framework for answering this question and modeling coordination problems.³

³Morris and Shin (2003) provide a review of the theoretical literature and its applications. Goemans and Fey (2009) and Baliga et al. (2011) consider heterogeneous citizens from which the ruler seeks support to
When deciding whether to revolt, citizens must evaluate their own beliefs about the world and, critically, how the beliefs of others will influence the success or failure of coordination efforts. By manipulating the information environment, the autocrat can undermine coordination and thus deter revolution. The global games framework is flexible and has led to a growing and varied literature, including the effects of violence among a revolutionary vanguard (Bueno de Mesquita, 2010), and punishment after failed revolution attempts (Shadmehr and Bernhardt, 2011). Our paper extends this logic to examine how an autocrat’s foreign and domestic policy choices affect the threat of revolution.

Existing work explores similar questions, but has traditionally drawn on different modeling approaches. The theoretical literature on diversionary foreign policy generally uses a principal-agent framework, focusing on the leader’s private information. A single “principal,” such as a member of the selectorate in an autocracy (B. Bueno de Mesquita et al., 2003), has the power to retain or replace his “agent,” namely the autocratic ruler. Here, the agent’s private information creates room for opportunistic behavior that may not be aligned with the interest of the principal (Downs and Rocke, 1994). In this framework, foreign policy can help signal the agent’s type: for example, an international crisis can provide the leader with the opportunity to “showcase” his ability (Richards et al., 1993; Hess and Orphanides, 1995; Smith, 1996, 1998; Tarar, 2006; Gent, 2009). This opportunity is particularly valuable when the leader’s competence is under question and his tenure is in jeopardy. To restore confidence, the leader may find war to be a rational “gamble for resurrection” (Downs and Rocke, 1994).

We depart from the existing literature and focus instead on the coordination problem that underlies revolutions. Drawing on the global games approach is a natural modeling choice. Within the broader global games literature, our framework belongs to the class of games with “one-sided limit dominance,” where only “not revolt” can be a dominant strategy for citizens (Bueno de Mesquita, 2010, 2011; Shadmehr and Bernhardt, 2010, 2011). While global games with two-sided limit dominance, where
both “revolt” and “not revolt” can be dominant strategies, typically yield a unique equilibrium, we opt for a framework of one-sided limit dominance to highlight the need for coordination.\footnote{Angeletos et al. (2006) is an exception to the result of a unique equilibrium with two-sided limit dominance. Here, signaling generates multiple equilibria.} Furthermore, the dynamic analysis of Angeletos et al. (2007) shows that even if one starts with a standard global game with two-sided limit dominance, after the ruler survives in the first period, it becomes common knowledge that the ruler is strong, and thus no single citizen will have a dominant strategy to revolt. Thus, we believe that one-sided limit dominance is sufficient in this context. Like Shadmehr and Bernhardt (2010, 2011), our payoff structure exhibits uncertain but common payoffs.

Having introduced our general modeling strategy and situated it within the existing literature, we now turn to the model itself.

4 Model of Autocratic Policy Choice

In this section, we develop a formal model of autocratic policy-making under the threat of revolution. We first introduce the benchmark case, which treats the domestic population as a unitary actor. This assumption excludes the possibility of coordination problems, generating a set of initial benchmark results. In the next section, we relax this assumption, allowing for coordination problems to affect the autocrat’s strategy. For now, however, let us consider the basic model without coordination problems.

The model includes three players: an autocratic ruler, a foreign government and a domestic populace. The autocrat moves first, choosing a policy bundle, \((c, \mu)\), consisting of a domestic policy and foreign policy. For simplicity, assume that there is only one instrument for each type of policy. The domestic policy instrument, \(c\), determines the population’s cost of revolt. Conceptually, we can think of this cost as a function of repression (i.e. punishment), or even the potential loss of benefits from cooptation (i.e. opportunity cost). In either case, \(c\) effectively sets the cost of popular revolt. The autocrat’s foreign policy choice is represented by \(\mu\), capturing the degree to which the autocrat takes a provocative stance \textit{vis-a-vis} some foreign government.

Such policy is consequential, as it affects the foreign government’s willingness to go to
war. The autocrat’s objective function (described in detail below) resembles that of a simple loss-minimization problem. This function has two parts: spending costs from the domestic measures and expected loss from foreign intervention. When choosing a policy bundle, the autocrat looks to minimize this total loss.

Given the autocrat’s policy choice, the foreign government then decides whether to intervene militarily. The foreign government will go to war if $\theta$ exceeds a threshold $f - \alpha \cdot A$. Here, $\theta$ represents the foreign government’s type, or its willingness to go to war. Both $f$ and $\alpha$ are exogenous parameters, with $\alpha \geq 0$. The variable $A \in [0, 1]$ captures domestic instability, more precisely, the expected threat to the ruler’s survival, and is an equilibrium outcome of the game. *Ceteris paribus*, when $\alpha > 0$, a higher $A$ (i.e., greater instability) reduces the decision threshold of the foreign government and makes military intervention more likely.\footnote{Alternatively, $\theta$ and $f - \alpha \cdot A$ can be the foreign government’s benefit and cost of military intervention, respectively.}

Only the foreign government knows the true value of $\theta$. *Ex ante*, it is common knowledge that $\theta$ is normally distributed with mean $\mu$ and variance $\sigma^2_\theta$. A more provocative foreign policy (i.e. higher $\mu$) increases the probability that the foreign government will go to war.\footnote{We assume that it is common knowledge what types of behavior constitute a provocative foreign policy, but provocation does not directly lead to military intervention. A well-known example is the “appeasement” strategy by British Prime Minister Chamberlain toward Nazi Germany at the end of the 1930s.} Let $M$ denote the set of foreign policies available to the autocrat, and define $\underline{\mu} > -\infty$ and $\bar{\mu} < \infty$ as the minimal and maximal elements, respectively.

The domestic population observes some (private) information about $\theta$ and then decides whether to revolt at a cost $c > 0$. A successful revolution provides a benefit, $b > 0$, for those who take the costly action, and only when there is no foreign intervention or war. Recall that the autocrat can raise the cost of revolt by increasing $c$. We assume that $c$ is bounded, such that $c \in C \subset (0, b)$, and the expense to the autocrat, $E(c)$, is strictly increasing in $c$. Let $\underline{c}$ and $\bar{c}$ be the minimal and maximal feasible domestic policies, respectively, and, without loss of generality, let $E(\underline{c}) = 0$.

In summary, the game has two stages: At the first stage, the ruler publicly chooses a policy bundle $(c, \mu)$ that is observed by all players. At the second stage, the foreign government learns $\theta$ and decides whether to intervene; and, simultaneously, the domestic population observes a private signal of $\theta$ and decides whether to revolt against the autocrat. The game ends and payoffs are realized.
We further assume that $c < b$ for all $c \in C$, which implies that the benefit of replacing the ruler is always greater than the cost. This assumption ensures that the populace has some interest in deposing the ruler, who must use domestic and foreign policies to prevent revolt.\footnote{11} In solving the benchmark case without coordination problems, let us begin by first considering the population’s choice of whether to revolt. The populace, believing that foreign intervention occurs with probability $w_P$, decides to revolt if\footnote{12}

\[ b \cdot (1 - w_P) > c \Rightarrow 1 - w_P > \frac{c}{b}. \] (1)

The populace receives some private signal, $\theta_P$, that is positively, but imperfectly, correlated with $\theta$. The private signal is defined as follows: $\theta_P = \theta + \varepsilon_P$, where the noise term $\varepsilon_P$ is normally distributed with mean zero and variance $\sigma^2_{\varepsilon}$ and is independent of $\theta$. By the standard Bayesian updating, conditional on the private signal, $\theta$ is normally distributed with mean $\lambda \theta_P + (1 - \lambda) \mu$ and variance $\lambda \sigma^2_{\varepsilon}$, where $\lambda \equiv \sigma^2_{\theta} / (\sigma^2_{\theta} + \sigma^2_{\varepsilon})$. This information helps the population assess the likelihood of foreign intervention: a higher $\theta_P$ implies an upward shift of the distribution of $\theta$, and so a higher likelihood that $\theta$ will take a larger value.

Throughout the paper, we assume that the domestic audience and foreign government adopt the “switching strategy:” a party switches from one action to the other when its private information exceeds some threshold level. Suppose that the foreign government intervenes when its willingness, $\theta$, is greater than a cut-off value $I$. Given $I$, the populace’s private signal, $\theta_P$, helps determine the likelihood of foreign intervention, defined as follows:

\[ w_P = Pr(\theta > I|\theta_P) = 1 - \Phi \left( \frac{I - \lambda \theta_P - (1 - \lambda) \mu}{\sqrt{\lambda \sigma^2_{\varepsilon}}} \right) \] (2)

where $\Phi$ is the CDF of the standard normal distribution. The likelihood of intervention is higher when: (i) $I$ is lower, indicating that the foreign government will intervene over a broader range of $\theta$; and (ii) $\theta_P$ is higher, implying a greater expected
willingness to intervene. For all finite \( \mu \) and \( c/b \in (0,1) \), there exists a \( \theta_p \) such that the likelihood of intervention, \( w_P \), is sufficiently small and condition (1) holds. This implies that the autocrat always faces a non-zero probability of revolt.

For the benchmark case, we let \( A \) represent the probability that the population revolts. Suppose that the population revolts if the private signal \( q_P \) is smaller than a cut-off value \( P \). Since \( \theta_p \) is normally distributed with mean \( \theta \) and variance \( \sigma_e \), given \( \theta \) and \( P \), the foreign government believes that the ruler will be replaced with probability \( A = \Pr(\theta_p < P|\theta) = \Phi((P - \theta)/\sigma_e) \), and intervenes when \( \theta > f - \alpha \cdot A = f - \alpha \cdot \Phi((P - \theta)/\sigma_e) \), or, equivalently, when

\[
f < \theta + \alpha \cdot \Phi\left(\frac{P - \theta}{\sigma_e}\right).
\]

On the right-hand side, a higher \( \theta \) directly boosts the incentive to intervene. But it also implies that the domestic population is more likely to receive a higher private signal, and thus less likely to revolt. When \( \alpha > 0 \), this updating negatively affects the foreign government’s decision to intervene. That is, the foreign government exhibits what we call “strategic avoidance,” and is less willing to intervene when the autocrat prevents domestic political challenges.

We further impose Assumption 1 to constrain the magnitude of \( \alpha \). This assumption ensures that \( R \) is strictly increasing in \( \theta \) (i.e. the direct effect outweighs strategic effect), whereby the foreign government will optimally adopt a switching strategy.\textsuperscript{13}

\begin{assumption}
0 \leq \alpha \leq \sigma_e\sqrt{2\pi}.
\end{assumption}

\begin{lemma}
(Monotonic intervention decision) Given Assumption 1, for each finite \( P \), there exists a unique \( I \in (f - \alpha, f] \) such that the foreign government intervenes for \( \theta > I \).
\end{lemma}

Slightly abusing notation, an equilibrium \((I, P)\) simultaneously satisfies:

\[
I + \alpha \cdot \Phi\left(\frac{P - I}{\sigma_e}\right) \equiv f \text{ and } \Phi\left(\frac{I - \lambda P - (1 - \lambda)\mu}{\sqrt{\lambda}\sigma_e}\right) \equiv \frac{c}{b}.
\]

In the former condition, given \( P \), the foreign government is indifferent between intervention or not when \( \theta = I \). In the latter condition, given \( I \), the domestic population is indifferent between revolting or not when observing \( \theta_p = P \). In this case, a higher \( \mu \) always raises the equilibrium probability of foreign intervention \( \Pr(\theta > I) = 1 - \Phi((I - \mu)/\sigma_\theta) \). All told, these conditions imply the following proposition.

\textsuperscript{13}If \( \alpha > \sigma_e\sqrt{2\pi} \), then the foreign government’s intervention decision may not be monotonic in \( \theta \), even when domestic audience sticks to the switching strategy. A brief discussion is available upon request.
Proposition 1. (No coordination) When a single principal can replace the ruler, the ruler cannot fully eliminate domestic survival risks, and a more provocative foreign policy always raises the likelihood of foreign military intervention.

This proposition captures the basic result and insights from our benchmark case. Having treated the domestic population as a unitary actor, the threat of revolt always exists. Given such a threat, provocative foreign policy actually increases the likelihood of intervention. This result is important on its own but is especially instructive when compared to the next section. The relationship between provocative foreign policy and military intervention crucially depends on the absence of coordination problems, which makes revolt a constant threat. In the next section, we consider how coordination problems alter this relationship.

5 Coordination Problem

We now allow for coordination problems by relaxing the assumption of a unitary domestic populace. Successful revolutions depend on the coordination of a continuum of mass one citizens. The regime falls if and only if the number of citizens that revolt, \( A \in [0, 1] \), exceeds some threshold \( T \in (0, 1) \).\(^{14}\)

Citizens are ex ante identical. At the second stage, a citizen \( j \in [0, 1] \) observes a private signal \( \theta_j = \theta + \epsilon_j \), where \( \epsilon_j \) is normally distributed with mean zero and variance \( \sigma^2_\epsilon \) and independent of \( \theta \). The noise term is also independent across citizens. We only consider pure and symmetric strategies (i.e. citizens that receive the same private signal will behave in the same way).

If there is no foreign intervention, a citizen receives a benefit \( b \) only when she participates in a successful revolution that brings down the regime. Otherwise she receives a payoff of zero.\(^{15}\) When there is foreign military intervention, all citizens receive the same expected payoff. In other words, we assume that the fates of citizens are bound together by foreign intervention, without necessarily imposing a “rally

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\(^{14}\)Our framework encompasses both cases where political elites plotting a coup against the ruler, and ordinary citizens deciding whether to join a mass protest. The assumption of atomless citizens is also inconsequential. The coordination issue also occurs when there are only two citizens; see Shadmehr and Bernhardt (2010, 2011).

\(^{15}\)The reward \( b \) mitigates the free-riding problem of revolutions. We could assume that non-participants also benefit from revolutions as in Bueno de Mesquita (2010). Our analysis holds as long as participants receive additional rewards.
around the flag” effect against the foreign enemy (Simmel, 1964). Citizens can be better or worse off (in expectation) after foreign intervention.

The global games approach uses private information about a common parameter as the key modeling device to analyze coordination. By private signals, we do not assume that citizens know very much about the true $\theta$. The variance of the noise term $\sigma^2_e$ can be large and so the signal can be very coarse, as might be the case in a highly repressive regime. In fact, Assumption 1 puts a lower bound on $\sigma^2_e$. The crucial feature is that citizens have different, yet correlated, information upon which they evaluate both $\theta$ and the expected actions of other citizens.

Given this private information and the expectations it generates, we can begin to solve for the typical citizen’s optimal strategy. Since there is a benefit of revolutions only when the foreign government does not intervene, at the second stage, citizen $j$ protests when

$$ (1 - w_j) \cdot S_j \cdot b > c \Rightarrow \ln (1 - w_j) + \ln S_j > \ln \left( \frac{c}{b} \right),$$

where $w_j$ and $S_j$ are the expected likelihoods of intervention and revolution, respectively. Comparing this expression with condition (1), the decision of the principal, the requirement of coordination registers in the term $\ln S_j \leq 0$. In condition (1), the principal will replace the ruler whenever the belief $1 - w_j$ is higher than the cost-benefit ratio $(c/b)$. But, here, the coordination issue brings in the element $S_j$, or $\ln S_j$. Since $S_j$, as a probability, cannot be higher than one, $\ln S_j$ must be negative. To revolt the level of belief $1 - w_j$ has to be sufficiently greater than $c/b$, $\ln (1 - w_j) > \ln (c/b) - \ln S_j \geq \ln (c/b)$, to overcome the additional challenge introduced by coordination. The importance of this force is attested by the equilibrium of “pure coordination failure,” where no citizen protests because of the expectation that no one else will protest, $\ln S_j = -\infty$ for all $j$ (Bueno de Mesquita, 2010, 2011; Shadmehr and Bernhardt, 2010, 2011). In contrast to the benchmark case, coordination problems imply that the ruler may not face a threat of revolt.

In autocracy, imperfect state control may create opportunities for its subjects to receive diverse information about the outside world. Citizens may try to seek alternative information sources other than state-sponsored media through unofficial or even illegal means. Since unofficial information may be easier to obtain by certain groups, there may be uneven information access among domestic audiences. In particular, the information gap between elites and ordinary citizens may be significant, since the former group may be able to obtain unofficial information via foreign media or travel. For ordinary citizens, on the other hand, obtaining unofficial information may entail considerable risks (e.g., cellphone access in North Korea; see 7). Heterogeneity among ordinary citizens may lead different citizens to take diverse risks and thus have access to different information.

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Lemma 2. (Coordination failure) There is always an equilibrium where no citizen protests.

To determine when protest can emerge, we begin with the case of \( \alpha = 0 \). When \( \alpha = 0 \), the citizens’ collective action, \( A \), does not affect the foreign government’s decision. Hence, the foreign government intervenes when \( \theta > f \). Since citizen \( j \)'s private signal \( \theta_j \) is generated by the same stochastic process as the principal in the benchmark case, we can use condition (2) to obtain his assessment of foreign intervention. By incorporating the foreign government’s intervention threshold \( I = f \) and using his private signal \( \theta_j \) instead of \( \theta_P \), citizen \( j \) believes that foreign intervention occurs with probability

\[
w_j \equiv \Pr(\theta > f | \theta_j) = 1 - \Phi \left( \frac{f - \lambda \theta_j - (1 - \lambda)\mu}{\sqrt{\lambda \sigma_e}} \right). \tag{6}\]

Citizen \( j \) must also evaluate the likelihood of collapse from condition (5). The private signal \( \theta_j \) helps inform this belief. Let citizen \( j \) adopt the switching strategy, choosing to revolt when her private signal is smaller than some threshold \( J \). Given \( J \) and \( \theta_j \), citizen \( j \) believes that revolutions occur with probability\(^{17}\)

\[
S_j \equiv \Pr(A \geq T | \theta_j) = \Phi \left( \frac{I - \sigma_e \Phi^{-1}(T) - \lambda \theta_j - (1 - \lambda)\mu}{\sqrt{\lambda \sigma_e}} \right). \tag{7}\]

This expectation is decreasing in \( \theta_j \) and increasing in \( J \). Given correlated signals, a higher \( \theta_j \) implies that the other citizens are also more likely to receive higher private signals. In expectation then, the citizens should be less willing to revolt, given the threat of intervention. Conversely, a higher threshold means that citizens will revolt over a wider range of private signals, and thus raises the likelihood of revolutions.

A threshold \( J \) is an equilibrium threshold if the marginal citizen (i.e. whose private signal is equal to \( J \)), is indifferent between revolting or not:

\[
\ln \left[ \Phi \left( \frac{f - \lambda J - (1 - \lambda)\mu}{\sqrt{\lambda \sigma_e}} \right) \right] + \ln \left[ \Phi \left( \frac{(1 - \lambda)(J - \mu) - \sigma_e \Phi^{-1}(T)}{\sqrt{\lambda \sigma_e}} \right) \right] = \ln \left( \frac{e}{b} \right), \tag{8}\]

\(^{17}\) We derive equation (7) in the proof of Lemma 3. The no-protest equilibrium has the equilibrium threshold \( J = -\infty \). Shadmehr and Bernhardt (2011) show the existence of an equilibrium with a non-switching strategy, where citizens protest if and only if their private signals fall in an interval bounded on both sides. Intuitively, no protest for low private signals is “self-enforcing” similar to pure coordination failure. Despite the implication of low likelihood of foreign intervention, if all other citizens do not protest for low private signals, then no citizen will protest when observing low signals. We omit this case.
where \( w_J \) and \( S_J \) are the marginal citizen’s expectations of foreign intervention and regime collapse, respectively. We further denote \( L(J) \equiv \ln(1 - w_J) + \ln S_J \), which incorporates the marginal citizen’s overall evaluation of obtaining the reward \( b \). This expression, \( L \), includes all the probability terms in the equilibrium determination, allowing us to focus on the information part of the problem.

Higher \( J \) reduces \( 1 - w_J \) but raises \( S_J \). This is evident in the following comparative statics:

\[
\frac{\partial (1 - w_J)}{\partial J} = \frac{-\lambda}{\sqrt{\lambda} \sigma_e} \phi \left( \frac{f - \lambda J - (1 - \lambda) \mu}{\sqrt{\lambda} \sigma_e} \right) < 0, \tag{9}
\]

and

\[
\frac{\partial S_J}{\partial J} = \frac{1 - \lambda}{\sqrt{\lambda} \sigma_e} \phi \left( \frac{(1 - \lambda)(J - \mu) - \sigma_e \Phi^{-1}(T)}{\sqrt{\lambda} \sigma_e} \right) > 0, \tag{10}
\]

where \( \phi(\cdot) \) is the density function of the standard normal distribution. The equilibrium threshold, by equating \( L(J) \) to the cost-benefit ratio of protest, \( \ln(c/b) \), strikes a balance between higher intervention risk and broader protest participation. Figure 2 illustrates the key feature of \( L \) as a function of \( J \) as well as equilibrium protest outcomes. The following lemma provides a formal characterization.

**Lemma 3. (Tipping point)** Suppose that \( \alpha = 0 \). \( L(J) \) has a unique maximizer \( \hat{J} \equiv \arg \max_J L \), and a finite maximal value \( \hat{L} \equiv \max_J L \) that is strictly decreasing in \( \mu \). Given \( c/b \in (0, 1) \), there exists a unique \( \hat{\mu} \) such that \( \hat{L}(\hat{\mu}) = \ln(c/b) \), and \( \hat{\mu} \) is strictly decreasing in \( c \).

If \( \ln(c/b) > \hat{L} \), or, equivalently, \( \mu > \hat{\mu}(c) \), then no one protest is the unique equilibrium.

If \( \ln(c/b) \leq \hat{L} \), or, equivalently, \( \mu \leq \hat{\mu}(c) \), then there also exists another equilibrium with equilibrium threshold \( J^* \geq \hat{J} \) (and when \( \mu = \hat{\mu}, J^* = \hat{J} \)). When \( J^* > \hat{J} \), both \( dJ^*/dc \) and \( dJ^*/d\mu < 0 \).

Setting the likelihood of intervention equal to the expected value from revolting, implies that any equilibrium threshold that leads to revolt cannot take extreme values. In Figure 2, \( L \rightarrow -\infty < \ln(c/b) \) for both \( J \rightarrow \pm \infty \). When \( J \) is too high, the marginal citizen would find the likelihood of foreign intervention too high to be worth the cost or revolt. As \( J \rightarrow \infty \), \( \ln(1 - w_J) \rightarrow -\infty \); there is no equilibrium where all citizens revolt, regardless of the value of their private signal. On the other hand, a very low threshold means that few citizens will have private signals smaller than the threshold, and with few participants the revolution is doomed to fail. Formally, as \( J \rightarrow -\infty \), \( \ln S_J \rightarrow -\infty \). Note that, in the benchmark case, since the domestic populace is a unitary actor, there is no need for coordination and revolution occurs whenever foreign
Figures 2: Equilibrium Protest Outcomes

military intervention is highly unlikely. For this to hold, the foreign government’s equilibrium threshold, $P$, cannot be $-\infty$. Panel (a) and (b) of Figure 2 illustrate the existence condition for a finite equilibrium threshold (i.e. an equilibrium threshold $-\infty < J < \infty$ such that some citizens will revolt). Letting $\hat{L}$ represent the maximal value of $L$, if $\hat{L} < \ln(c/b)$, as in Panel (a) of Figure 2, then no $J$ can satisfy condition (8). The autocrat does not face a threat of revolution because no revolt is the unique equilibrium outcome. If $\hat{L} \geq \ln(c/b)$, as in Panel (b), then revolt can emerge in equilibrium, with a unique equilibrium threshold $J^* \geq \hat{J}$ (where $\hat{J} \in (-\infty, \infty)$) that attains the maximal value $\hat{L}$.

Equivalently, we can represent the existence of a revolt equilibrium $J^*$ on the domain of policy space $(c, \mu)$, as in Figure 3. Given some $c$, $\hat{\mu}$ is the maximal level of foreign provocation under which revolt can emerge. Alternatively, we can define a “revolution deterrence frontier,” $RD \equiv \min\{\mu : \mu \in M, \mu > \hat{\mu}\}$, as the minimal for-
Figure 3: Policy effects under the tipping-point constraint

eign policy that is strictly greater than $\hat{\mu}$. This value is the minimally provocative foreign policy that can deter revolutions. As shown in Figure 3, $RD$ has a negative slope and separates the policy space into two zones. A policy bundle $(c, \mu)$ falls in the “no revolution zone” when it satisfies $\mu \geq RD(c)$ and so fully preempts domestic revolt from arising. Otherwise, the policy bundle falls in the “revolution zone” and, with an equilibrium threshold $J^* \geq \hat{J}$, the citizens successfully revolt with probability

$$S^* \equiv \Phi\left(\frac{\theta^* - \mu - \sigma_e\Phi^{-1}(T)}{\sigma_\theta}\right).$$ (11)

The size of the equilibrium threshold, $J^*$, affects the scale of revolt. When citizens adopt a higher equilibrium threshold, revolting across a larger range of private signals, in expectation, there will be a larger scale of revolt and a higher likelihood, $S^*$, of successful revolution. The condition $J^* \geq \hat{J}$ further implies that the expected scale of citizen revolt, should it occur, cannot be too small. If too small, the chance of success would be extremely low, providing no citizen an incentive to participate. Citizen revolt thus faces a “tipping point” constraint: either there is no revolt at all, or citizen revolt emerges with an expected scale that is no smaller than when citizens adopt the threshold $\hat{J}$. The equilibrium threshold $J^*$ generates intuitive comparative statics. A

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$^{18}$If $RD$ is not well-defined, e.g., when $M = [\mu, \bar{\mu}]$ is an internal, we let $RD = \bar{\mu} + \epsilon$, where $\epsilon > 0$ but arbitrarily close to zero while keeping $RD \in M$.

$^{19}$The value of the maximizer $\hat{J}$ may vary with $\mu$. The sign of $d\hat{J}/d\mu$ is the same as the sign of $\partial^2 L/\partial \mu \partial J$, evaluated at $\hat{J}$. As shown in panels (b)-(d) of Figure 2, when $\ln(c/b) < \hat{L}$ another equilibrium exists with
higher cost-benefit ratio from revolt (i.e. greater \( \ln (c/b) \) in Panel (c) of Figure 2), or a more provocative foreign policy (i.e. higher \( \mu \) in Panel (d) of Figure 2), reduces \( J^* \) and thus decreases the threat of revolution.

**Proposition 2. (Coordination and preemption) The need to coordinate produces a tipping-point constraint, such that no revolt occurs when \( \mu \geq RD(c) \).**

### 6 Preemptive Policy

To this point, we have principally focused on the critical thresholds and switching strategies for the citizens and foreign government. We now consider the autocrat’s optimal policy decision, completing the model by discussing his objective function and feasible set. We begin by considering two possible cases. In the first case, citizens may be trapped in an equilibrium of coordination failure. In the second case, a tipping point constraint binds, implying the possibility of mass revolt should a sufficient number of citizens coordinate. We explore the autocrat’s policy response in each case. Finally, we evaluate the initial choice itself: whether to respond at all to a revolutionary threat, or simply accommodate.

Referring to Figure 3, we assume that the ruler has at his disposal a sufficiently wide range of foreign policy choices: \( \mu < RD(c) \) and \( RD(c) \leq \bar{\mu} \), such that, for each \( c \in \mathcal{C} \), there exists a feasible foreign policy that can deter revolutions.

The ruler incurs a loss \( d^w(S) \geq 0 \) when the foreign government intervenes (the superscript \( w \) stands for “war”) and a loss \( d^p(S) \geq 0 \) otherwise (the superscript \( p \) stands for “peace”). Both loss functions are strictly increasing in \( S \), the probability of regime collapse. The expected loss is

\[
wd^w(S) + (1 - w)d^p(S) = w[d^w(S) - d^w(0)] + (1 - w)[d^p(S) - d^p(0) + d^p(0)]
\]

\[
= w[d^w(S) - d^w(0)] + (1 - w)[d^p(S) - d^p(0)] + w \cdot d^w(0) + (1 - w) \cdot d^p(0).
\]

When we single out the loss due purely to foreign intervention (i.e. when \( S = 0 \), the threat of revolution threat. Without loss of generality, we normalize \( d^p(0) = 0 \). Let

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threshold \( J^{**} \). This equilibrium exhibits counterintuitive comparative statics: a higher \( c \) or \( \mu \) raises \( J^{**} \) and invites more protesters. It is also unstable (Shadmehr and Bernhardt, 2010; Bueno de Mesquita, 2011). If a small perturbation occurs such that domestic audiences adopt a slightly lower threshold \( J < J^{**} \), then by \( L(J) < \ln (c/b) \) the audience with private signal \( J \) will not protest. The equilibrium threshold will thus be set further away from \( J^{**} \). We exclude this equilibrium from our analysis.
\[ d \equiv d^w(0) - d^p(0) = d^w(0), \] and
\[ D(w, S) \equiv w \cdot [d^w(S) - d] + (1 - w) \cdot d^p(S), \] (13)
as the remaining part of loss, which is strictly positive if and only if both \( S \) and \( w \) (the probability of foreign intervention) are strictly positive. The ruler chooses a policy bundle \((c, \mu) \in C \times M\) to minimize
\[ w(\mu) \cdot d + D(w, S) + E(c), \text{ where } w(\mu) \equiv 1 - \Phi[(f - \mu)/\sigma_\theta]. \] (14)

Finally, we make the following assumption, which ensures that when there are no revolution threats (i.e. \( S = 0 \)), the autocrat suffers a greater loss from intervention than non-intervention. In other words, intervention is costly for the ruler.

Assumption 2. (Diversionary foreign policy) \( d > 0 \).

If \( S = 0 \), then the ruler chooses the most friendly foreign policy \( \mu \) in order to minimize the likelihood of foreign intervention. Any provocation, \( \mu > \mu_\text{r} \), is motivated by concerns of domestic survival threats.

### 6.1 Coordination Failure or Tipping-Point Constraint?

When citizens are unable to coordinate, the ruler faces no threat to survival risk. Under this condition, \( S = 0 \) and \( D = 0 \). The autocrat’s objective function, \( w(\mu) \cdot d + E(c) \), is minimized by the minimal policy \((c, \mu)\). There is no need for the ruler to enact repressive measures (higher \( c \)) or provocative foreign policy (higher \( \mu \)).

Alternatively, suppose that the tipping-point constraint binds. Under this condition, the minimal policy bundle, \((c, \mu)\), by assumption, cannot preempt revolt. Instead, it results in a non-zero probability \( S^*(\underline{c}, \underline{\mu}) \) of regime collapse and a loss \( w(\mu)d + D(w(\mu), S^*(\underline{c}, \underline{\mu})) \) to the ruler. The ruler may raise \( c \) at an expense of higher \( E(c) \), or raise \( \mu \) at a cost of higher \( w(\mu) \), or both, to reduce the threat of revolution. The ruler prefers a policy bundle \((c, \mu)\) in the no revolution zone to \((c, \underline{\mu})\) when
\[ D(w(\underline{\mu}), S^*(\underline{c}, \underline{\mu})) > d \cdot |w(\mu) - w(\underline{\mu})| + E(c), \] (15)
where \( w(\mu) \geq w(\underline{\mu}) \). The condition holds when \( D \) is sufficiently large under \((\underline{c}, \underline{\mu})\). For instance, the ruler may extract a large amount of rent from staying in power, so that the loss from intensified foreign relations is less important.
These challenges to coordination help explain why we do not observe open revolt or unrest in many autocratic regimes. In some cases, coordination failure is the equilibrium outcome. When this condition obtains, the autocrat does not need to provoke international tensions, nor resort to repressive measures or expensive cooptation. In other cases, however, coordination may be possible but revolt fails to meet some critical threshold. In countries like North Korea and Iran, some combination of diversionary foreign policy and repression/cooptation frustrate collective action by preventing successful coordination (i.e. citizens face a binding tipping-point constraint). Under such conditions, autocrats will preempt revolt at the cheapest cost possible. Rulers look to minimize the loss $w(\mu) \cdot d + E(c)$, subject to the condition $\mu \geq RD(c)$. The optimal policy must locate on the revolution deterrence frontier. Once reaching this frontier, further provocations only encourage foreign intervention, and more expansive domestic measures only consume more resources; neither bring any benefit for the ruler. And since $RD(c)$ is decreasing in $c$, diversionary foreign policy has an upper bound $RD(\zeta)$.  

The autocrat’s choice over multiple policy instruments also generates straightforward comparative statics. Consider two cost functions, $E_1$ and $E_2$. Suppose that $dE_1/dc > dE_2/dc$ for all $c$ (i.e. $E_1$ entails a higher marginal cost of implementing domestic measures). The optimal policy under $E_t$, $(c_t, \mu_t)$, satisfies $\mu_t = RD(c_t)$, $t = 1$ and 2, as well as $c_1 \leq c_2$ and $\mu_1 \geq \mu_2$; see Figure 3.

When domestic policy becomes more expensive (i.e. when the cost function raises from $E_2$ to $E_1$), the autocrat will substitute it with foreign policy by increasing $\mu$ from $\mu_2$ to $\mu_1$ and reducing $c$ from $c_2$ to $c_1$. Multiple policy instruments offer autocrats greater flexibility when responding to challenges. Substitution effects allow regimes to shift spending or resources from one policy to another as the marginal costs change. If some shock to the international or domestic system alters the marginal costs, the autocrat will respond by substituting the more expensive or risky policy for the other. This choice over multiple instruments ultimately provides the autocrat with a critical advantage when the tipping point constraint binds. All told, this dynamic can be summarized in the following proposition.

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20 The opposite of Assumption 2, i.e., $d < 0$, may capture a “hawkish” ruler that would prefer international crisis for reasons unrelated to domestic survival risks. In this case, unless there is a direct cost of raising $\mu$, the ruler will choose the more provocative foreign policy $\bar{\mu}$ regardless the constraint facing citizens. And since foreign policy alone can preempt protest, the ruler will choose the minimal $c = \zeta$. The opposite assumption leads to an autocracy that is characterized by extremely provocative stance in the international arena, but lax domestic control.
Proposition 3. (Equilibrium inference) When coordination failure prevails, the ruler chooses the minimal policy \((c, \mu)\). When citizens face the tipping point constraint, the autocrat may use some mix of domestic measures and provocative foreign policy to reduce the threat of revolution. Diversionary foreign policy is bounded above by \(RD(c)\). When the ruler decides to fully deter domestic protest, domestic and foreign policies are substitutes.

6.2 Deterrence or Accommodation?

More generally, when citizens need to overcome the constraint of tipping point, the ruler also has to decide whether to deter or accommodate revolutionary threats. Accommodation here refers to a ruler choosing not to fully eliminate a threat. Instead of incurring the cost of deterrence, the ruler allows for some non-zero probability of revolt.

The ruler chooses a policy bundle \((c, \mu) \in C \times M\) to minimize the loss function

\[
\begin{cases}
  w(\mu) \cdot d + E(c) & \text{if } \mu = RD(c), \\
  w(\mu) \cdot d + D(w(\mu), S^*) + E(c) & \text{if } \mu < RD(c),
\end{cases}
\]

(16)

where \(S^*\) and \(w(\mu)\) are determined by condition (11) and (14), respectively. When the ruler moves from the revolution-deterrence frontier to revolution zone, the loss function exhibits an upward jump with a size of \(D\). By this discontinuity, policy bundles in the revolution zone that are “too close” to the revolution-deterrence frontier, namely, the grey area in Figure 3, cannot be optimal. A policy bundle \((c, RD(c))\) on the deterrence frontier dominates a bundle \((c', \mu')\), with \(\mu' < RD(c')\), when

\[
[w(RD(c))d + E(c)] - [w(\mu')d + E(c')] < D(c', \mu'),
\]

(17)

where \(D(c', \mu') = D(w(\mu'), S^*(c', \mu'))\).

The discontinuity also implies non-trivial comparative statics. First, complementarity between domestic and foreign policies may occur when the ruler considers whether to deter or accommodate protest in the first place. Referring to Figure 3, suppose that, in the example of two costs of domestic policy \(E_1\) and \(E_2\), with \(dE_1/dc > dE_2/dc\), the ruler finds it too costly to deter revolutions under the high cost \(E_1\), hence chooses the optimal policy \((c_1, \bar{\mu}_1)\) in the revolution zone. When the cost of domestic policy falls to \(E_2\), the ruler will optimally raise the repression/cooptation level to, say, \(c_2\), with \(c_2 > c_1\).\(^{21}\)

\(^{21}\)This can be established by the same “revealed preference” reasoning in the proof of Proposition 3.
\( \bar{\mu}_1 < RD(c_2) \), it reduces the extra international tensions that is necessary to eliminate revolutionary threats. To capitalize on the gain of suppressing domestic survival risks, the ruler may now find it worthwhile to raise \( \mu \) until it meets the revolution-deterrence frontier, i.e., \( \mu_2 = RD(c_2) \). In this case, domestic policies and foreign provocation become complementary.

Second, empirical research typically hypothesizes that domestic instability encourages autocrats to pursue diversionary foreign policy. The possibility of preempting domestic protest, however, points to a more subtle relationship. It is easier to preempt revolt at lower levels of discontent. Implicitly, we can capture this level of discontent with \( b \), the benefit of participating in revolutions. As discontent or grievances increase, citizens will be more willing to revolt, expecting a greater benefit, \( b \), from revolution.

Consider two discontent levels \( b^H \) and \( b^L \), with \( b^H > b^L > \bar{c} \). Suppose that the status quo policy bundle \((c_0, \mu_0)\) cannot preempt revolt at either level (i.e., \( \mu_0 < RD(c_0) \) for both \( b^H \) and \( b^L \)). A higher level of discontent implies a greater threat of revolution: fixing the policy bundle, \( J^* \) and so \( S^* \) and \( D \) are all increasing in \( b \).

The ruler decides whether to implement a more aggressive policy bundle \((c_0 + \Delta c, \mu_0 + \Delta \mu)\), where \( \Delta \mu \geq 0 \) or \( \Delta c \geq 0 \) and at least one is strictly positive. Suppose that \((c_0 + \Delta c, \mu_0 + \Delta \mu)\) can only preempt revolt under the low discontent level, and fails under the high discontent level. Facing high discontent, the ruler chooses \((c_0 + \Delta c, \mu_0 + \Delta \mu)\) if

\[
D(c_0, \mu_0, b^H) - D(c_0 + \Delta c, \mu_0 + \Delta \mu, b^H) > [w(\mu_0 + \Delta \mu) - w(\mu_0)]d + E(c_0 + \Delta c) - E(c_0).
\]

That is, if the reduction in domestic survival risks can offset the cost of intensified international relations or more repressive domestic measures (or both). By similar calculation, low discontent prompts the ruler to choose \((c_0 + \Delta c, \mu_0 + \Delta \mu)\) if

\[
D(c_0, \mu_0, b^L) - 0 > [w(\mu_0 + \Delta \mu) - w(\mu_0)]d + E(c_0 + \Delta c) - E(c_0).
\]

In both situations, switching to the more aggressive policy bundle has the same cost, seen on the right-hand side. The difference is driven by the benefit, which is found on the left-hand side of each expression. There is less survival risk under low discontent, even when the ruler maintains the status quo, \( D(c_0, \mu_0, b^L) < D(c_0, \mu_0, b^H) \). Nevertheless, the ruler can have stronger incentives to choose \((c_0 + \Delta c, \mu_0 + \Delta \mu)\) under \( b^L \).
than under $b^H$. In other words, we can have
\[ D(c_0, \mu_0, b^L) > D(c_0, \mu_0, b^H) - D(c_0 + \Delta c, \mu_0 + \Delta \mu, b^H), \]

because protest can only be preempted under low discontent. The possibility of preemption creates a strong incentive to pursue diversionary foreign policy. This incentive is critical for understanding the murky empirical record on domestic instability and diversionary foreign policy. Given this strategic environment and the autocrat’s choice over multiple policy instruments, the conventional wisdom is problematic. The linear and increasing relationship between domestic instability and provocative foreign policy may not hold. Future empirical work should consider this problem when evaluating the relationship between domestic conditions and foreign policy in autocratic regimes.

Proposition 4. (Comparative statics) When policy bundles in the revolution zone are also taken into account, (i) foreign and domestic policies may be complementary; and (ii) the ruler may have stronger incentives to provoke international tensions at a lower level of domestic discontent.

7 Strategic Avoidance

Some critics argue that diversions may not be useful if the foreign target, or scapegoat, avoids conflict after provocations (Smith, 1996; Chiozza and Goemans, 2004). In this final subsection, we consider this issue, which we call strategic avoidance. We explore the conditions under which strategic avoidance will influence the probability of revolt and the autocrat’s optimal policy choice.

Assume $\alpha > 0$ and suppose the citizens face the tipping point constraint, adopting a threshold $J^\alpha$. By Lemma 1, there is a unique threshold $I^\alpha$ such that the foreign government intervenes when $\theta > I^\alpha$. Given a citizen’s private signal $\theta_j$, the likelihood of foreign intervention is then $1 - \Phi[(I^\alpha - \lambda \theta_j - (1 - \lambda) \mu) / \sqrt{\lambda \sigma_e}]$. An equilibrium

\[ \text{Assumption 1 still ensures that it is mutually compatible for both sides, citizens and the foreign government, to adopt switching strategies. But, as in Shadmehr and Bernhardt (2010, 2011), when $a > 0$ protest decisions may no longer be globally strategic complementary. The positive impact of $A^\alpha$ on foreign intervention may cause the protest incentive of a citizen to to be (locally) decreasing in $A^\alpha$.} \]
threshold for the citizen now solves
\[
\ln \left[ \Phi \left( \frac{I^a(f^a) - \lambda l^a - (1 - \lambda)\mu}{\sqrt{\lambda \sigma}} \right) \right] + \ln \left[ \Phi \left( \frac{(1 - \lambda)(f^a - \mu) - \sigma T^{-1}(T)}{\sqrt{\lambda \sigma}} \right) \right] = \ln \left( \frac{c}{b} \right) \tag{21}
\]

\[\equiv L^a(f^a)\]

The left-hand side, denoted as \( L^a \), shares similar properties with \( L \), as shown in the following lemma.\(^{24}\)

Lemma 4. (Strategic avoidance) Suppose \( \alpha > 0 \) but Assumption 1 holds. The maximal value of the function \( L^a \), \[ \max_\mu L^a \equiv \hat{L}^a \], is strictly decreasing in \( \mu \). Given \( c/b \in (0, 1) \), there exists a unique \( \hat{\mu}^a \) such that \( \hat{L}^a(\hat{\mu}^a) \equiv \ln (c/b) \), and \( \hat{\mu}^a < \hat{\mu} \).

Strategic avoidance actually facilitates revolution deterrence. The revolution-deterrence frontier exhibits a downward shift, \( \hat{\mu}^a(c) < \hat{\mu}(c) \) for all \( c \), because now the marginal citizen would recognize that a larger scale of protest (i.e. a higher threshold \( J^a \)), encourages foreign intervention. Let \( RD^a \) be the corresponding revolution deterrence frontier. As shown in Panel (b) of Figure 3, for all \( c \), \( RD^a \) is lower than \( RD \).

Contrary to conventional wisdom, provoking international tensions may actually lower the probability of foreign intervention in equilibrium. For illustration, return to Panel (b) of Figure 3. Here, we fix domestic policy \( c \) and consider two foreign policies \( \mu_L \) and \( \mu_H \), such that \( \mu_L < \hat{\mu}^a(c) < \mu_H \). This assumption implies that only \( \mu_H \), but not \( \mu_L \), preempts revolt. Let \( I^a_L < f \) be the equilibrium intervention threshold of the foreign government. The foreign policy \( \mu_L \) gives rise to an equilibrium probability of foreign intervention \( 1 - \Phi(\frac{I^a_L - \mu_L}{\sigma}) \). By contrast, the more provocative policy, \( \mu_H \) induces the foreign government to choose a threshold \( f \), resulting in an equilibrium probability of foreign intervention \( 1 - \Phi(\frac{f - \mu_H}{\sigma}) \). Taking these two probabilities and re-arranging terms, we reach the following condition
\[
f - \mu_H > I^a_L - \mu_L \iff \alpha \cdot \Phi \left( \frac{I^a_L - \mu_L}{\sigma} \right) > \mu_H - \mu_L, \tag{22}
\]

If this condition is met, then the more provocative foreign policy, \( \mu_H \), causes a lower likelihood of foreign intervention. In this case, foreign policy becomes a more attractive instrument than domestic policy because it no longer entails a trade-off between internal and external threats.

\(^{24}\)The strict concavity of \( L^a \) may require additional conditions, e.g., \( J^a < I^a \). If the function \( L^a \) is not strictly concave in \( J^a \), then for \( \mu \leq \hat{\mu}^a \) there may be more than two finite equilibrium thresholds, some of which are local maxima like \( \hat{f} \) in Figure 2 and some of which resemble \( J^a \) or \( J^{**} \) depending on the slope of \( L^a \) around these solutions. The results in this section are based on the possibility of preemption and thus valid when any of these finite equilibrium thresholds is selected.
This result is critically important. In a sense, foreign policy now dominates domestic measures. With a more provocative foreign policy, the ruler not only preempts domestic revolt but also reduces the likelihood of foreign intervention. If the condition above holds, autocrats should thus pursue diversionary foreign policy whenever facing domestic challenges or instability. Such policies are cheaper than domestic measures and do not include the risk normally associated with international provocations. This result is summarized in the following proposition.

Proposition 5. (Strategic avoidance) Suppose that $\alpha > 0$ but satisfies Assumption 1. Diversionary foreign policy may cause a lower probability of foreign military intervention in equilibrium.

8 Conclusion

Revolutions only occur when enough citizens coordinate. This coordination problem provides autocrats with the opportunity to preempt collective action, and thus deter revolt, through the strategic use of domestic and foreign policies. By incorporating domestic and foreign policy choices into a single modeling framework, we show that a strictly positive relationship between autocratic instability and provocative foreign policy does not always hold. Rather, our model demonstrates that this relationship may be non-monotonic, whereby smaller threats of revolution provide stronger incentives for the autocrat to pursue preemption. This result, which we believe to be novel, depends crucially on the role of domestic policies, which also serve to deter revolutions. Depending on the marginal costs and the parameter space, domestic and foreign policies may be substitutes or complements.

Our model provides one explanation for why the empirical literature on diversionary foreign policy has produced “contrasting” or “contradictory” findings (Miller and Elgün, 2011). It also leads to new predictions, including the upper bounds on policy choices, the “gap,” or discontinuity of policy bundles chosen by revolution-preempting regimes and those that tolerate revolutionary threats, and policy substitutability among revolution-preempting regimes.

Beyond an empirical analysis of these new predictions, future research should explore the various factors that influence coordination. Our model considers the effects of autocratic policy on revolutionary threats when domestic audiences face different sorts of coordination constraints (i.e., from pure coordination failure to barriers on the
minimal protest scale). A next step would be to identify the specific conditions under which one or the other constraint prevails. A better understanding of the role of coordination therefore calls for a theory of equilibrium selection, which we leave to future work.

**Appendix: Proofs**

□ Lemma 1

*Proof.* When \( \alpha = 0 \), then \( I = f \) for all \( P \). Suppose that \( \alpha > 0 \) and fix \( P \). Define \( R(\theta; P) \equiv \theta + \alpha \cdot \Phi[(P - \theta)/\sigma_{\varepsilon}] \). Since \( R \) is continuous in \( \theta \) and \( R(f; P) > f > R(f - \alpha; P) \), by the intermediate value theorem, there exists \( I \in (f - \alpha, f) \) such that \( R(I; P) \equiv f \). The standard normal density \( \phi(\cdot) \) is bounded above by \( 1/\sqrt{2\pi} \). If \( \alpha \leq \sigma_{\varepsilon}\sqrt{2\pi} \), then

\[
\frac{\partial R}{\partial \theta} = 1 - \frac{\alpha}{\sigma_{\varepsilon}} \phi \left( \frac{P - \theta}{\sigma_{\varepsilon}} \right) \geq 0. \tag{23}
\]

The equality holds only when \( \alpha = \sigma_{\varepsilon}\sqrt{2\pi} \) and \( \theta = P \). Since \( R \) is strictly increasing except possibly at one point, \( I \) must be unique. Q.E.D.

□ Proposition 1

*Proof.* The comparative static with respect to \( \mu \) is

\[
\begin{bmatrix}
1 - \frac{\alpha}{\sigma_{\varepsilon}} \phi_P & \frac{\alpha}{\sigma_{\varepsilon}} \phi_P \\
1 & -\lambda
\end{bmatrix}
\begin{bmatrix}
dI/d\mu \\
dP/d\mu
\end{bmatrix} = \begin{bmatrix}
0 \\
1 - \lambda
\end{bmatrix}, \tag{24}
\]

where \( \phi_P \equiv \phi[(P - I)/\sigma_{\varepsilon}] \). Therefore,

\[
dI/d\mu = \frac{(1 - \lambda)(\alpha/\sigma_{\varepsilon})\phi_P}{\lambda[1 - (\alpha/\sigma_{\varepsilon})\phi_P] + (\alpha/\sigma_{\varepsilon})\phi_P} < 1, \tag{25}
\]

and so \( d(I - \mu)/d\mu < 0 \). Q.E.D.

□ Lemma 3

*Proof.* Given \( J \) and \( \theta \), citizen \( j \) joins the protest when \( \theta_j = \theta + \varepsilon_j \leq J \), which occurs with probability \( \Pr(\varepsilon_j < J - \theta) = \Phi((J - \theta)/\sigma_{\varepsilon}) \). By the law of large numbers, it also measures the number of protesters \( A \). Regime collapse occurs when \( A \geq T \), or, equivalently, \( \theta \leq J - \sigma_{\varepsilon}\Phi^{-1}(T) \). We then obtain equation (7).
Let \( \phi \) be the pdf of standard normal distribution. Since the standard normal distribution is log-concave, \( d^2 \ln [\Phi(z)]/dz^2 = d(\phi/\Phi)/dz < 0 \), the function \((\phi/\Phi)(z)\) is strictly decreasing in \( z \). In addition, \( \phi/\Phi \rightarrow 0 \) as \( z \rightarrow \infty \), and, by l'Hôpital’s rule, \( \lim_{z \rightarrow -\infty} \phi/\Phi(z) = \lim_{z \rightarrow -\infty} \frac{\phi'(z)}{\Phi'(z)} = \lim_{z \rightarrow -\infty} \frac{-\phi(z)}{\Phi(z)} = \infty \). Let \( x \equiv [f - \lambda J - (1 - \lambda)\mu]/(\sqrt{\lambda}\sigma_x) \) and \( y \equiv [(1 - \lambda)(J - \mu) - \sigma_c\Phi^{-1}(T)]/(\sqrt{\lambda}\sigma_x) \). Strict concavity holds:

\[
\frac{\partial L}{\partial J} = -\frac{\sqrt{\lambda}}{\sigma_x} \phi(x) + \frac{1 - \lambda}{\sqrt{\lambda}} \phi(y) \quad \text{and} \quad \frac{\partial^2 L}{\partial J^2} = \left(\frac{\sqrt{\lambda}}{\sigma_x}\right)^2 \frac{d(\phi/\Phi)}{dx} + \left(\frac{1 - \lambda}{\sqrt{\lambda}}\right)^2 \frac{d(\phi/\Phi)}{dy} < 0 \quad (26)
\]

As \( J \rightarrow -\infty \), \( x \rightarrow \infty \) and \( y \rightarrow -\infty \), and so \( \partial L/\partial J \rightarrow \infty \). Similarly, \( \partial L/\partial J \rightarrow -\infty \) for \( J \rightarrow \infty \). The maximizer \( \hat{J} \), determined by \( \partial L/\partial J \equiv 0 \), is unique and takes a finite value, and \( L \) is strictly increasing in \( J \) for \( J < \hat{J} \) and strictly decreasing for \( J > \hat{J} \). Since \( \hat{J} \) is finite, \( L \leq 0 \).

For \( \mu < \mu' \), \( \hat{L}(\mu) = L(\hat{J}(\mu), \mu) \geq L(\hat{J}(\mu'), \mu) > L(\hat{J}(\mu'), \mu') = \hat{L}(\mu') \), where the strictly inequality comes from fixing \( J \),

\[
\frac{\partial L}{\partial \mu} = -\frac{1 - \lambda}{\sqrt{\lambda}\sigma_x} \left[ \frac{\phi}{\Phi}(x) + \frac{\phi}{\Phi}(y) \right] < 0 \quad (27)
\]

For all \( J \), a higher \( \mu \) reduces \( L(J) \). Given \( \ln (c/b) < 0 \), any \( \hat{\mu} \) such that \( \hat{L}(\hat{\mu}) = \ln (c/b) \) must be unique. The existence of \( \hat{\mu} \) comes from \( \hat{L} \rightarrow 0^- \) for \( \mu \rightarrow -\infty \) and \( \hat{L} \rightarrow -\infty \) for \( \mu \rightarrow \infty \). For all \( J \), \( L(J, \mu) \rightarrow 0^- \) when \( \mu \rightarrow -\infty \). Since, by the definition of \( \hat{L} \),

\[
0 > \hat{L}(\mu) \geq L(J, \mu), \quad \text{it implies that} \quad \hat{L} \rightarrow 0^- \quad \text{for} \quad \mu \rightarrow -\infty.
\]

Suppose that \( \mu \rightarrow \infty \). Since \( \hat{L} \) is strictly decreasing in \( \mu \), if \( \hat{L} \rightarrow -\infty \), then \( \hat{L} \) is bounded below (and converges to a finite number). Consider a strictly increasing sequence \( \{\mu^n\} \) such that \( \mu^n \rightarrow \infty \). For each \( n \), define \( \delta^n \equiv \hat{J}(\mu^n) - \mu^n \), where \( \hat{J}(\mu^n) \) is the maximizer corresponding to \( \mu^n \). For each \( n \), the maximal value is

\[
\hat{L}^n = \ln \Phi \left( \frac{f - \mu^n - \lambda \delta^n}{\sqrt{\lambda}\sigma_x} \right) + \ln \Phi \left( \frac{(1 - \lambda)\delta^n - \sigma_c\Phi^{-1}(T)}{\sqrt{\lambda}\sigma_x} \right) \quad (28)
\]

If \( \delta^n \rightarrow -\infty \), then the second term, and so the whole \( \hat{L}^n \rightarrow -\infty \), for the first term is bounded above by zero. But if \( \delta^n \rightarrow -\infty \), then for each real number, there is a subsequence \( \delta^{k(n)} \) whose elements are larger than this number. For this subsequence, \( \mu^{k(n)} + \lambda \delta^{k(n)} \rightarrow \infty \). The first term, and so \( \hat{L}^{k(n)} \rightarrow -\infty \), which contradicts the requirement that \( \hat{L} \) is bounded below.

When \( \hat{L} > \ln (c/b) \), since \( L \rightarrow \ln 0 + \ln 1 = -\infty \) for \( J \rightarrow \pm \infty \), there exist unique \( J^* \) and \( J^{**} \) such that \( J^* > \hat{J} > J^{**} \) and \( L(J^*) = L(J^{**}) = \ln (c/b) \). The equilibrium threshold \( J = -\infty \) does not depend on \( c, b, \) or \( \mu \). The implicit function theorem fails
at \( \hat{J} \) for \( \partial L / \partial J = 0 \) at this point; comparative static results are not well-defined. When \( c \) increases, for instance, the equilibrium threshold jumps from \( \hat{J} \) to \(-\infty\), and when \( c \) decreases, it goes to either \( J^* \) or \( J^{**} \). At \( J^{**} \), the comparative static results are

\[
\frac{dJ^{**}}{dc} = \frac{1}{c \cdot \left( \frac{\partial L}{\partial J} \right)_{J^{**}}}, \quad \frac{dJ^{**}}{db} = \frac{-1}{b \cdot \left( \frac{\partial L}{\partial J} \right)_{J^{**}}}, \quad \text{and} \quad \frac{dJ^{**}}{d\mu} = \left( \frac{\partial L}{\partial \mu} \right)_{J^{**}}, \tag{29}
\]

where \( \partial L / \partial J < 0 \) at \( J^{**} \). The results for \( J^* \) are obtained by evaluating \( \partial L / \partial J \) at \( J^* \) and thus have opposite signs.

\( \square \) Proposition 3

Proof. The optimality of policy \((c_t, \mu_t)\), \(t = 1 \) and 2, implies that

\[
w(\mu_1) d + E_1(c_1) \leq w(\mu_{-i}) d + E_1(c_{-i}), \quad \text{where} \quad -i \neq i
\]

\[
\Rightarrow E_1(c_1) - E_1(c_2) \leq d \left[ w(\mu_2) - w(\mu_1) \right] \leq E_2(c_1) - E_2(c_2). \tag{30}
\]

If \( dE_1 / dc > dE_2 / dc \) but \( c_1 > c_2 \), then

\[
\int_{c_2}^{c_1} \frac{dE_1}{dc} \, dc = E_1(c_1) - E_1(c_2) > \int_{c_2}^{c_1} \frac{dE_2}{dc} \, dc = E_2(c_1) - E_2(c_2);
\tag{31}
\]

a contradiction. \( \quad \boxQED \)

\( \square \) Lemma 4

Proof. Since \( I^a < f \), for all finite \( J^a \), \( L^a(J^a) < L(J^a) \). For all \( \mu \), the maximal value \( \hat{L}^a < \hat{L} < 0 \). By \( I^a > f - \alpha \), for finite \( \mu \), the maximal value \( \hat{L}^a \to -\infty \). The same arguments in Lemma 3 apply here to show that \( \hat{L}^a \) is strictly decreasing in \( \mu \), and that \( \hat{L}^a \to 0^- \) as \( \mu \to -\infty \). When \( \mu \to \infty \), the property of \( \hat{L}^a < \hat{L} \) ensures that \( \hat{L}^a \to -\infty \). We then obtain the existence and uniqueness of \( \hat{\mu}^a \). By \( \hat{L}^a < \hat{L} \) for finite \( \mu \), \( \hat{\mu}^a < \bar{\mu} \). \( \quad \boxQED \)

References


