

# The Rule of Law in the Fight against Terrorism

**Tiberiu Dragu** New York University  
**Mattias Polborn** University of Illinois

*What is the role of legal limits on executive power, if any, when citizens demand more security from terrorism, and allowing executive officials legal flexibility of action appears necessary to achieve it? We develop a game-theoretic model to show that when the executive faces increased electoral incentives to provide security and has legal flexibility to choose any policy it finds optimal, security from terrorism can actually decrease. In contrast, when the executive faces increased electoral incentives to provide security and there is an explicit legal limit on executive counterterrorism activities, security from terrorism increases. We also show that the executive achieves the objective of terrorism prevention more effectively when there are some limitations on its counterterrorism powers. The article provides a security rationale for legal limits on executive power and has implications for understanding how to design the institutional structure of liberal governments when the social objective is terrorism prevention.*

A defining characteristic of liberal societies is the existence of legal limits on the exercise of public authority. These limits are often expressed as individual protections against the government and include the rights to life, free association, free expression, physical integrity, and due process of law. To ensure that the government respects the rights and liberties of individuals, the functions of government are divided among distinct branches, with each branch possessing the constitutional means to check the abuses of the others. Indeed, the history of liberal constitutionalism consists of sustained efforts to curtail discretionary actions, especially those associated with the executive.<sup>1</sup>

However, security crises pose fundamental challenges to the constitutional structure of liberal governments. Unexpected security dangers such as catastrophic terrorist attacks serve as a reminder that collective security is a precondition for the proper functioning of a liberal order. When the security of the nation is at stake, it becomes difficult to argue that the executive be bounded by constitutional rules that might hamper its capacity to ensure collective security. Under such circumstances, in fact, the citizens themselves will likely view a rigid adherence to

legal limits as problematic. As Justice Jackson poignantly put it, the Constitution is not a suicide pact.<sup>2</sup>

What is the role of legal limits on executive power, if any, when citizens demand more security, and allowing executive officials legal flexibility of action appears necessary to achieve it?

Scholars, policy experts, and even ordinary citizens ponder this question whenever security emergencies arise (Ferejohn and Pasquino 2004). It becomes most compelling when governments seek to *prevent* a security crisis rather than simply *react* to it (Posner 2006). Few if any would argue that executive officials should wait until the actual realization of catastrophic terrorist attacks and not take preventive actions to ward off such security threats. To prevent crises of such proportions, the executive must have the means to act proactively. Crisis prevention seemingly requires permanent executive discretionary powers and thus represents a constant challenge to the ideal of limited government enshrined in the U.S. Constitution and the Federalist Papers.

This tension between the institutional structure of liberal government and successful crisis prevention came to the fore in the aftermath of the 9/11 terrorist attacks.

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Tiberiu Dragu is Assistant Professor, Wilf Family Department of Politics, New York University, 19 West 4th St., New York, NY 10012 (tiberiu.dragu@nyu.edu). Mattias Polborn is Professor, Department of Economics and Department of Political Science, University of Illinois, 1407 W. Gregory Dr., Urbana, IL 61801 (polborn@uiuc.edu).

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<sup>1</sup>For a historical analysis of liberal constitutionalism and the rule of law, see Tamanaha (2004).

<sup>2</sup>Justice Robert H. Jackson in his dissenting opinion 1949 in *Terminiello v. City of Chicago*, 337, U.S. 1.

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To enhance their governments' capacities to prevent terrorist attacks, the discretionary powers of the executive were promptly augmented in the United States and other liberal societies (Alexander 2006; Epifanio 2011; Jacobson 2006; Ramraj, Hor, and Roach 2005). In turn, many of the executive's counterterrorism activities have infringed upon the rights and liberties of aliens and noncitizens, in particular. For example, in the United States, the executive undertook scores of repressive counterterrorism policies, ranging from ethnic profiling to increased restrictions on immigration, to increased surveillance of certain ethnic and religious communities and even torture of aliens suspected of terrorist activities (Herman 2011).

Such repressive counterterrorism policies ignited a public debate about the wisdom of executive discretion. Some scholars have argued that affording executive officials legal flexibility of action has resulted in egregious infringements upon the fundamental rights of minorities and noncitizens, and such outcomes are normatively undesirable because they depart from established liberal-democratic principles (Cole 2003). Moreover, repressive policies may also subvert the legitimacy of counterterrorism efforts in the eyes of the members of the ethnic and religious communities in which potential terrorists and terrorist groups have their roots. Yet such communities could help terrorism prevention in multiple ways: by expressing their opposition to radical activities directly to the potential terrorists; by speaking out publicly against violence-inciting speech; and by providing valuable information to executive agencies in charge of terrorism prevention (Donohue 2008; Wilkinson 2006). Thus, repressive counterterrorism policies are potentially costly.

Other scholars have argued that executive discretion is essential to respond effectively to terrorist activities, and thus the executive should be afforded legal flexibility to thwart security dangers (Paulsen 2004; Posner 2006; Tushnet 2005). Without necessarily denying that the ethnic and religious communities in which potential terrorists have roots are important in fighting terrorism, the presumption is that executive discretion increases security from terrorism because there are political controls on how executive counterterrorism powers are used. If repressive policies would be harmful for terrorism prevention, so the argument goes, the executive will restrain itself from undertaking such suboptimal counterterrorism policies because citizens can punish ineffective usage of executive power at election times. Limitations on executive action then may inhibit effective exercise of executive power, especially when the executive is motivated to provide security and responds to citizens' demands for more security.

The citizens' demand for more security not only provides democratic legitimacy to executive discretionary powers but also ensures that the executive uses its discretion efficiently. The logic behind the security rationale for executive discretion appears simple and intuitive. If the executive cares about security from terrorism and also about being in office, and if the citizens are more likely to reelect the executive if it is successful in preventing terrorism, then allowing executive officials legal flexibility of action should translate into more security from terrorism.

This article questions this security rationale on its own terms. To this end, we develop a game-theoretic model of an interaction among a representative citizen, an (elected) executive, and members of the communities whose actions can help prevent terrorism. We use this framework to show that when the executive faces increased electoral incentives to provide security, and the executive has legal flexibility to choose any policy it finds optimal, security from terrorism can actually decrease. In contrast, when the executive faces increased electoral incentives to provide security and there is a known limit on executive counterterrorism actions, security from terrorism increases. The analysis indicates that the executive achieves the objective of terrorism prevention more effectively when there are some legal limits on its counterterrorism powers rather than when executive officials have legal flexibility to devise security policy. The analysis also shows that even when citizens want a readjustment in the balance between security and liberty, it is not necessarily security-beneficial if the executive itself decides on the scope of governmental power. Taken together, these results suggest that some legal limits on executive counterterrorism powers can be beneficial *on security grounds alone*, and, therefore, strengthening institutions that uphold the rule of law in the fight against terrorism can be an effective way to achieve security from terrorism.

The article contributes to a general understanding of how to structure liberal governments to prevent security crises (Ackerman 2004; Dyzenhaus 2006; Ferejohn and Pasquino 2004; Gross and Ni Aolain 2006; Issacharoff and Pildes 2004; Manin 2008; Scheppele 2004). Most of this literature has analyzed how to devise institutional arrangements that allow executive officials sufficient discretion to fret terrorist threats while avoiding both excesses of executive power and the conflation of normal and emergency laws. More specifically, the literature has inquired whether judicial and legislative controls of executive counterterrorism powers will produce a better balance between security and liberty; however, it has mostly taken as given the security policy adopted by the

executive.<sup>3</sup> We instead investigate the optimality of security policy to show that some legal constraints on executive counterterrorism actions are beneficial for preventing security crises.

Our analysis thus suggests a novel rationale for legal limits and checks on executive powers. The traditional Madisonian argument for such institutions is that they stem abuses of governmental power and thus help preserve citizens' rights and liberties. Security crises challenge this very rationale. Times of duress are associated with unfettered governmental powers and ordinary, regular situations with separation-of-powers and checks-and-balances institutions. Without disputing the importance of constitutional limits and institutional checks within the tradition of a liberal distrust of government, the analysis here underscores another, perhaps less intuitive virtue: such institutional arrangements can increase a government's capacity to prevent crises. Thus, they might be a necessary component of structuring the government if the social objective is terrorism prevention.<sup>4</sup>

The article contributes to a political economy literature on terrorism (Crenshaw 1981). The existing scholarship on terrorism has addressed several critical questions about terrorism prevention, including the optimal (or suboptimal) counterterrorism policy (Bueno de Mesquita 2007; Powell 2007; Rosendorff and Sandler 2004), radical mobilization (Bueno de Mesquita and Dickson 2007), terrorism recruitment and support (Siqueira and Sandler 2006), strategies to fight terrorism (Arce and Sandler 2005; Kydd and Walter 2006; Savun and Phillips 2009; Shapiro and Siegel 2010), and the effect of democratic competition on terrorism (Aksoy and Carter 2012; Chenoweth 2010), among other topics. However, researchers have yet to determine whether enlarging executive discretion at the expense of fundamental rights and liberties increases security from terrorism, even though nearly all prominent (liberty-reducing) counterterrorism policies assume it does.

Our results can also speak to an empirical literature on terrorism and political violence. Scholars have noted that liberal democracies often resort to repressive policies and focus their coercive efforts on political, ethnic, or religious communities associated with a particular security threat.<sup>5</sup> Scholars have also empirically shown that repressive tactics at odds with fundamental liberal-democratic

principles can negatively affect security from terrorism. This relationship has been documented in studies of terrorism in Israel, the United Kingdom, Spain, France, Italy, and India (Araj 2008; Benmelech, Berrebi, and Klor 2012; Crenshaw 1995; Della Porta 1995; Dugan and Chenoweth 2012; Gil-Alana and Barros 2010; LaFree, Dugan, and Korte 2009; Maoz 2007; Parker 2007; Pedahzur and Perliger 2010; Wallace 2007; White 1989) as well as in cross-national analyses (Daxecker and Hess 2013; Walsh and Piazza 2010).<sup>6</sup> These empirical findings raise the following puzzle: why would a rational government intending to achieve security from terrorism nevertheless engage in repressive tactics that undermine it (Sanchez-Cuenca and de la Calle 2009)? Our model shows that it can be an equilibrium behavior for the executive to undertake repressive policies that harm security from terrorism, a behavior induced by electoral incentives to provide security from terrorism.

That electoral pressures on the executive to succeed in terrorism prevention can have a perverse effect on policy effectiveness can be a more general conclusion. In this regard, the article contributes to a literature on electoral accountability (Ashworth and Bueno de Mesquita 2008; Fearon 1999; Ferejohn 1986). Most of this literature analyzes the disciplining effect of elections on public officials and the conditions under which elections work as sanctioning (Ferejohn 1986) or as selection mechanisms (Fearon 1999). In our model, governmental action alone does not determine the desired social objective while governmental activity affects the incentives of other actors whose actions also influence the respective policy outcome. In such settings, some limitations on governmental action can be necessary for increased electoral incentives to not have counterproductive effects on policy.

We proceed as follows. We begin with the formal model and then present the analysis. We next provide some extensions and robustness exercises on our basic framework, and, finally, we discuss some implications of our analysis.

## The Model

There are three players: a representative citizen, an (elected) executive, and members of the communities

<sup>3</sup>For an analysis of the optimality of security policy, see Dragu (2011).

<sup>4</sup>Although in a different setting than our model, for some recent analyses suggesting complementarities between separation of powers and electoral mechanisms, see Stephenson and Nzelibe (2010).

<sup>5</sup>For a discussion of this observation, see Moore (2010).

<sup>6</sup>Also, Siegel (2011) uses simulation techniques to show that repressive policies can be counterproductive for terrorism prevention. The literature on political violence and insurgency has also found that collateral damage in the form of (noncombatant) civilian casualties can be counterproductive (Condra and Shapiro 2011) and that, on the other hand, improving governance and service provision reduces violence (Berman, Shapiro, and Felner 2011).

whose actions can affect terrorism prevention. For simplicity, we will refer henceforth to the latter as *the community*. The executive chooses a level of (repressive) counterterrorism activities that we denote by  $s \in R_+$ . The community also chooses a level of activities to reduce terrorism, which we denote by  $i \in R_+$ . Since terrorism prevention is an explorative activity that entails detecting and disrupting terrorist plots before they mature into attacks, counterterrorism tactics such as drone strikes, coercive interrogations of suspected terrorists, or various surveillance activities are conducted in secrecy.<sup>7</sup> Thus, the executive and the community choose their actions simultaneously.<sup>8</sup>

Terrorism occurrence is a binary variable;  $T = 1$  denotes a successful terrorist attack and  $T = 0$  no terrorist attack. The actions of the executive and the community translate into a probability of a successful terrorist attack, given by the function  $p(s, i) \equiv \text{Prob}(T = 1)$ . This probability decreases in both arguments, and it is convex in both  $s$  and  $i$  (i.e., there are decreasing marginal returns to terrorism prevention in both  $i$  and  $s$ :  $\frac{\partial^2 p}{\partial s^2} > 0$  and  $\frac{\partial^2 p}{\partial i^2} > 0$ ). For simplicity of exposition, we assume that the cross-partial  $\frac{\partial^2 p}{\partial s \partial i} = 0$ .<sup>9</sup>

Let  $u_g(T)$  be the executive's payoff if the outcome is  $T \in \{0, 1\}$ . The executive prefers that no terrorist attack occur, and we denote the size of the utility difference by  $\Delta_g \equiv u_g(0) - u_g(1) > 0$ . The executive also cares about reelection and receives an additional payoff  $R$  if and only if reelected. Finally, a function  $c_g(s)$  measures the cost of engaging in counterterrorism activities. This cost is increasing in  $s$  (i.e.,  $\frac{\partial c_g(s)}{\partial s} > 0$ ) and is strictly convex in  $s$  (i.e.,  $\frac{\partial^2 c_g(s)}{\partial s^2} > 0$ ). We also assume that  $\lim_{s \rightarrow 0} \frac{\partial c_g(s)}{\partial s} = 0$  and that  $\lim_{s \rightarrow \infty} \frac{\partial c_g(s)}{\partial s} = \infty$ .<sup>10</sup> In summary, the execu-

tive's utility is

$$(1 - p(s, i)) \cdot [u_g(0) + R \cdot \pi(T = 0)] + p(s, i)[u_g(1) + R \cdot \pi(T = 1)] - c_g(s), \quad (1)$$

where  $\pi(T = j)$  is the reelection probability given the realization of  $T = j$  for  $j \in \{0, 1\}$ .

The community can also affect terrorism prevention by choosing a level of antiterrorism activities  $i$ . In practice, there is a range of community actions that reduce the threat posed by terrorism. For example, community members can discourage fellow members from providing active and passive support to terrorist groups, thus reducing the terrorists' ability to operate and plan attacks. They can also actively discourage extremism and violent activities, thus increasing the costs of terrorism by making it a less acceptable activity. Community members can provide information to executive officials about suspicious activities as well as about individuals who might be attracted to radical ideas, who might be connected to terrorists, or who are actively planning a terrorist attack. Indeed, numerous researchers and security officials have underscored this aspect of community intelligence. Wilkinson writes that co-opting the communities to provide intelligence is the "secret of winning the battle against terrorism in an open society" (2006, 61).

However, repressive policies are likely to undermine the legitimacy of counterterrorism efforts in the eyes of the targeted communities (Art and Richardson 2007; Bueno de Mesquita and Dickson 2007; Cole 2005; Donohue 2008; Richardson 2007; Rosendorff and Sandler 2004; Siqueira and Sander 2006; Sthol 2006; Wilkinson 2006). Harsh and indiscriminate policies such as drone strikes, ethnic profiling, tougher immigration measures, surveillance directed at certain ethnic and religious groups, suspension of habeas corpus rights, preventive detentions, and coercive interrogations can create a perception that liberal democracies have double standards, rendering members of the targeted communities far less likely to help terrorism prevention. Indeed, recent empirical research indicates that the perceived legitimacy of counterterrorism efforts is the primary factor shaping the willingness of the members of the Muslim minority communities in the United States (Tyler and Huq 2010) and in the United Kingdom (Huq, Tyler, and Schulhofer 2011) to help the efforts of terrorism prevention.<sup>11</sup>

<sup>7</sup>In the United States, the secrecy of counterterrorism operations has been extensively defended by both Republican and Democratic administrations (e.g., Adam Liptak, "Obama Administration Weighs In on State Secrets, Raising Concern on the Left," *New York Times*, August 2, 2009); executive secrecy is also supported by various state secrecy legal doctrines. Moreover, there are practical reasons why such secrecy might be necessary, especially for repressive counterterrorism activities, reasons ranging from not revealing to potential terrorists existing tactics to protecting the identity of counterterrorism agents.

<sup>8</sup>In the online supporting information, we show that our results are robust if the community observes imperfectly the executive's counterterrorism activity before choosing  $i$ .

<sup>9</sup>In the online supporting information, we show that our results are robust if the executive's and the community's actions are substitutes or complements.

<sup>10</sup>These are standard Inada conditions that ensure a nonzero (finite) level of  $s$ .

<sup>11</sup>Anecdotal evidence also indicates that repressive tactics such as torture or drone killings have had a detrimental effect on the willingness of Muslim communities to help the efforts of terrorism prevention (e.g., Johann Hari, "Renouncing Islamism: To the Brink and Back Again," *The Independent*, November 16, 2009; Ibrahim Mothana, "How Drones Help Al Qaeda," *The New York Times*, June 13, 2012).

To capture these ideas, we assume that a higher level of (repressive) counterterrorism activities,  $s$ , induces community members to care relatively less about terror prevention. Technically, we assume that  $\Delta_c(s) \equiv u_c(0, s) - u_c(1, s) > 0$  (i.e., the community shares the objective of terrorism prevention), but  $\frac{\partial \Delta_c(s)}{\partial s} < 0$  (higher level of [repressive] counterterrorism activities reduces the intensity with which the community members care about terrorism prevention).

Also, the function  $c_c(i)$  measures the cost of the community for engaging in terrorism prevention activities. We assume that the cost function is increasing in  $i$  (i.e.,  $\frac{\partial c_c(i)}{\partial i} > 0$ ) and is strictly convex in  $i$  (i.e.,  $\frac{\partial^2 c_c(i)}{\partial i^2} > 0$ ). We also assume that  $\lim_{i \rightarrow 0} \frac{\partial c_c(i)}{\partial i} = 0$  and that  $\lim_{i \rightarrow \infty} \frac{\partial c_c(i)}{\partial i} = \infty$ . In summary, the community's utility is

$$p(s, i) \cdot u_c(1, s) + (1 - p(s, i)) \cdot u_c(0, s) - c_c(i) \\ = u_c(0, s) - p(s, i)\Delta_c(s) - c_c(i). \quad (2)$$

Alternatively, we can formalize the intuitive idea of a negative effect of (repressive) counterterrorism activities by assuming that the community's preference for reducing terrorism is independent of  $s$  but that the community's marginal cost for terror prevention activities increases with an increase in  $s$ , all else equal. That is, the community has a cost  $c(s, i)$  with a positive cross-partial,  $\frac{\partial^2 c}{\partial i \partial s} > 0$ . Both formulations are plausible. In the analysis, we use the first formulation although the results are identical if we use the second one.<sup>12</sup>

Given the interaction between the executive and the community, the representative citizen observes whether a terrorist attack occurs or not and then makes a binary decision whether to reelect or not to reelect the executive. The representative citizen's utility from reelecting the incumbent executive is  $U_V^I(T, W)$ , where  $W$  can be thought of as the utility from nonpolicy attributes (i.e., a valence parameter) and where  $W$  is a random variable when the executive chooses  $s$ . We assume that  $U_V^I(T, W)$  is decreasing in  $T$  (i.e., the representative citizen dislikes terrorist attacks), and increasing in  $W$ . The representative citizen's utility from electing the challenger is  $U_V^C$ .<sup>13</sup>

<sup>12</sup>To see this, note that we can write those parts of 2 that depend on  $i$  as  $-p(s, i)\Delta_c \zeta(s) - c_c(i)$ , where  $\Delta_c$  is a constant and  $\zeta(\cdot)$  is a positive and decreasing function (such that  $\Delta_c(s) = \Delta_c \zeta(s)$ ). Dividing the objective function by  $\zeta(s)$ , an operation that does not change the optimal  $i$ , yields  $-p(s, i)\Delta_c - \frac{c_c(i)}{\zeta(s)}$ . We can think of the fraction in this expression as a function  $c(s, i)$ .

<sup>13</sup>If the representative citizen's utility function is additively separable in the utility from terrorism prevention and the utility from nonpolicy attributes, then we can think of  $W$  as the difference in valence between the incumbent executive,  $W_I$ , and the challenger,

## Reelection Decision

We start with the analysis of the election stage, which is very simple. The representative citizen reelects the incumbent executive if and only if  $U_V^I(T, W) \geq U_V^C$ . For each  $T = j, j \in \{0, 1\}$ , there exists a critical level,  $w_j$ , such that the executive is reelected if and only if  $W \geq w_j$ . Because  $U_V$  is decreasing in  $T$  and increasing in  $W$ , it follows that  $w_0 < w_1$ . Let  $q_j = \text{Prob}(W \geq w_j)$  denote the probability that the representative citizen reelects the executive when  $T = j$ . Note that  $w_0 < w_1$  implies  $q_0 \geq q_1$ . That is, the reelection probability is higher if the executive is more successful in preventing a terrorist attack, a result that has received empirical support.<sup>14</sup>

We use a simple probabilistic voting rule for the representative citizen because our primary focus is to assess the security rationale for executive discretion, which presumes that increased electoral incentives to prevent a terrorist attack induce the executive to choose optimal security policies. In the appendix, we provide a micro-foundation for our reelection rule in a framework in which the policy outcome provides information about an unknown level of the executive's competence to prevent terrorist attacks and in which the representative citizen is prospectively rational in the sense that her goal is to maximize future utility.

## Discretionary Executive

In this section, we analyze the game in which the executive has discretion to choose any action it finds optimal to reduce terrorism, without facing any legal constraints; we label this interaction the discretionary executive game. In the next section, we analyze the game in which the executive faces some legal limitations on its actions; we label this interaction the constrained executive game. We

$W_C$ . That is,  $W = W_I - W_C$ , and thus the representative citizen's utility from reelecting the incumbent executive increases in  $W$ . Because the incumbent executive might not know the identity of the challenger she will face, we can think of  $W$  as being a random variable from the incumbent executive's perspective when choosing  $s$ .

<sup>14</sup>The empirical connection between successful terrorism prevention and reelection outcomes appears strong. Using a large data set consisting of more than 800 elections in 115 countries over the period 1968–2002, Gassebner et al. (2007) show that the occurrence of terrorism increases the probability that the incumbent government is replaced at the next election, depending on the severity of the terrorist attack. Terrorist attacks without casualties or injuries increase the probability of a government change by only 1.3%, while terrorist attacks with at least one casualty increase the probability of a government change by 20.3%.

compare the equilibria of the two games in terms of how the executive achieves the objective of terrorism prevention and how the probability of a terrorist attack changes when the executive faces increased electoral incentives to provide security from terrorism.

As mentioned, we can summarize the election stage by  $q_1$  and  $q_0$ , which denote the reelection probabilities if  $T = 1$  and if  $T = 0$ , respectively. Substituting  $q_j = \pi(T = j)$  in 1 and rearranging it gives us the executive's objective function:

$$U_G(s, i) = u_g(0) + q_0 R - p(s, i)[\Delta_g + QR] - c_g(s), \tag{3}$$

where  $Q \equiv q_0 - q_1$ .

We now solve for the Nash equilibrium of the discretionary executive game. Maximizing the executive's objective function, equation (3), implies that its optimal action is the solution of the first-order condition:

$$-\frac{\partial p(s, i)}{\partial s} \cdot [\Delta_g + QR] - c'_g(s) = 0. \tag{4}$$

The executive's objective function is strictly concave in  $s$  because the second derivative is negative. Thus, there is a unique optimal  $s$ . The community's objective function (2) is also strictly concave in  $i$ , and thus the unique optimal  $i$  is the solution of the first-order condition:

$$-\frac{\partial p(s, i)}{\partial i} \Delta_c(s) - c'_c(i) = 0. \tag{5}$$

The equilibrium of the game is the solution to the system of equations (4) and (5). Because (4) is independent of  $i$  and because there is a unique solution of (5) for every value of  $s$ , there is a unique equilibrium. We have the following proposition:

**Proposition 1.** *The discretionary executive game has a unique pure-strategy Nash equilibrium.*

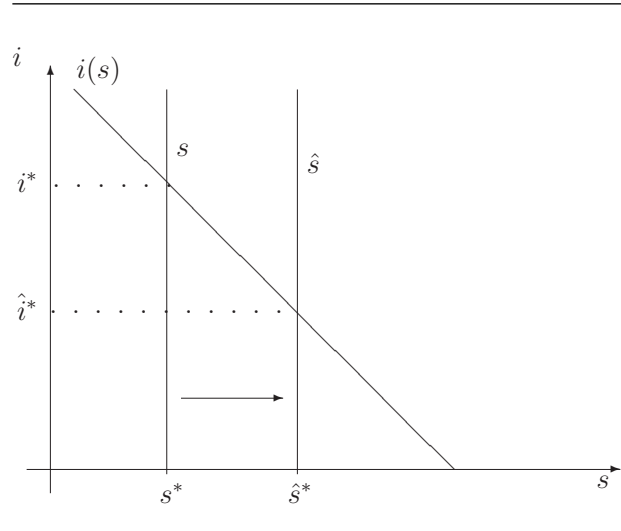
The two players' response functions and the resulting equilibrium are shown in Figure 1. Applying the implicit function theorem to equation (5), we can find the slope of the community's best response function to be

$$\frac{di}{ds} = \frac{\frac{\partial p(s, i)}{\partial i} \frac{\partial \Delta_c(s)}{\partial s}}{-\frac{\partial^2 p(s, i)}{\partial i^2} \Delta_c(s) - c''_c(i)}.$$

The preceding expression is strictly negative, and therefore  $i(s)$  is decreasing in  $s$ . And because the optimal  $s$  is independent of  $i$ , the executive's optimal response function in Figure 1 is vertical.

Since the game has a unique pure-strategy Nash equilibrium, we can perform a comparative static analysis on how changes in the executive's electoral incentives to provide more security from terrorism (i.e., increased  $Q$ ) af-

**FIGURE 1 Best Response Functions and Equilibrium**



fect the players' equilibrium actions and the equilibrium probability of a terrorist attack. Applying the implicit function theorem to equation (4) gives

$$\frac{ds}{dQ} = \frac{\frac{\partial p(s, i)}{\partial s} R}{-\frac{\partial^2 p(s, i)}{\partial s^2} \cdot [\Delta_g + QR] - c''_g(s)} > 0. \tag{6}$$

The preceding expression is strictly positive, and therefore an increase in  $Q$  shifts the executive's best response function to the right in Figure 1. Intuitively, the increased responsiveness of the representative citizen to successful terrorism prevention means that the executive now prefers to choose a higher level of (repressive) counterterrorism activities,  $s$ . The same logic applies to an increase in  $R$ , the executive's payoff from being in office. As a consequence, the equilibrium changes from  $(s^*, i^*)$  to  $(\hat{s}^*, \hat{i}^*)$ ; and while the equilibrium value of  $s$  increases, the equilibrium value of  $i$  decreases.

Because the security-enhancing aspect of a higher equilibrium level of  $s$  is counteracted by a reduction in the equilibrium level of  $i$ , the overall effect on the equilibrium probability of a terrorist attack depends on which one of these effects is more important. Proposition 2 provides a necessary and sufficient condition for the equilibrium probability of a terrorist attack to increase if the executive's electoral incentives to provide security from terrorism increase.

**Proposition 2.** *When the executive faces increased electoral incentives to prevent a terrorist attack, the equilibrium*

probability of a terrorist attack increases if and only if

$$-\frac{\frac{\partial p}{\partial s}}{\left(\frac{\partial p}{\partial i}\right)^2} < \frac{-\Delta'_c(s)}{\frac{\partial^2 p}{\partial i^2} \Delta_c + c''_c}. \quad (7)$$

*Proof.* See the appendix. □

Both the left-hand side and the right-hand side of expression (7) are positive. Therefore, for the probability of a terrorist attack to go up when the executive has more electoral incentives to prevent a terrorist attack, the decrease of the community's action,  $i$ , must outweigh the increase in the executive's action,  $s$ . This is more likely if  $\partial p/\partial s$  is small in absolute value, so that the direct effect of the executive's action is limited; if  $\partial p/\partial i$  is large in absolute value, so that the reduction of the community's action has a large effect on the probability of an attack; if  $-\Delta'_c(s)$  is large, so that the negative marginal effect of executive action on the community's goodwill is significant; and if  $\frac{\partial^2 p}{\partial i^2} \Delta_c + c''_c$  is small, which implies that the community's objective function is not very concave, and thus marginal parameter changes in the community's optimization problem have a large effect on the optimal value of  $i$ .

Also, the extent to which the executive reacts to increased electoral incentives depends on how secure the executive is of her reelection. Both an executive who is very secure and one who has only a very small chance of reelection will respond less to increased electoral incentives than an executive in a very competitive electoral situation. However, this matters only for the size of the effect on security, not for its direction.

As mentioned, some researchers argue that executive officials should have legal flexibility of action because elections induce correct incentives in terms of choosing efficient security policies. That is, executive officials will do their best to maximize security if this is what citizens want. In particular, if the executive knows about the negative effect a higher level of  $s$  has on the incentives of the community, the executive will refrain itself from choosing an inefficient level of  $s$ . Proposition 2 suggests that this rationale for executive discretion is not necessarily correct. When the executive has increased electoral incentives to prevent terrorist attacks, the executive will do more of what is under its control (i.e., increase  $s$ ), irrespective of the effect on  $i$  because what matters for the community is the expected level of  $s$ , not the chosen level. As a result, the executive does not have a marginal incentive to restrain itself in order to achieve more cooperation from

the community. For this reason, stronger electoral incentives may not produce efficient security policies, as often assumed.

### Legal Limits on Executive Power

The previous analysis suggests that when the executive responds to increased popular demands to provide more security and has legal flexibility to choose any policy it finds optimal, security from terrorism can actually decrease. In this section, we show that there is a security rationale for having some legal limits on executive counterterrorism actions. To this end, suppose that there is a legal limit  $s_{res}$  such that the executive can only choose a counterterrorism level of activities  $s \leq s_{res}$  where  $s_{res}$  is smaller than the equilibrium choice in the discretionary executive game,  $s^*$ .<sup>15</sup>

As mentioned, we label the interaction in which the level of counterterrorism activities is limited (i.e.,  $s \leq s_{res}$  such that  $s_{res} \in (\underline{\ell}, s^*)$ ) as the *constrained executive game*. The following proposition shows that there is a range of such limits that result in a higher utility for the executive as compared to the discretionary executive game.

**Proposition 3.** *There exists an interval  $(\underline{\ell}, s^*)$  such that the executive's utility is strictly higher when  $s_{res} \in (\underline{\ell}, s^*)$  than in the discretionary executive game.*

*Proof.* See the appendix. □

Proposition 3 shows that some legal constraints on  $s$  are desirable even from the executive's perspective. The reason is that such a constraint ameliorates the problem identified in the previous section in that the executive is in some sense too aggressive for its own benefit and cannot restrain itself when facing increased electoral incentives to provide security from terrorism. The restriction  $s_{res}$  provides a credible constraint on the executive. It encourages cooperation by the community, which, for the executive, has large positive benefits while only leading to relatively minor direct losses from the decrease in the level of  $s$ .

We next analyze how the executive achieves the objective of terrorism prevention in the constrained as compared to the discretionary executive game. In this context, let the executive's utility from terrorism prevention be defined as the benefits minus the costs of terrorism

<sup>15</sup>Otherwise, the limits on executive counterterrorism actions are meaningless since the outcome is exactly the same as in the discretionary executive game.

prevention,  $u_g(0) - p(s, i)\Delta_g - c_g(s)$ .<sup>16</sup> We have the following result:

**Proposition 4.** *The utility from terrorism prevention,  $u_g(0) - p(s, i)\Delta_g - c_g(s)$ , is higher in the constrained executive game than in the discretionary executive game.*

*Proof.* See the appendix.  $\square$

Proposition 4 suggests that the executive achieves the objective of terrorism prevention more effectively when there are some legal limitations,  $s_{res} \in (\underline{\ell}, s^*)$ , on executive actions. Because of reelection concerns, the executive's incentive to prevent a terrorist attack is somewhat excessive in the discretionary executive game in that the executive will choose a higher level of  $s$  than what is optimal for terrorism prevention. Proposition 4 then shows that it is beneficial for the objective of terrorism prevention to restrict the executive by more than the executive would prefer if the executive were to have legal flexibility of action.

James Madison argues in Federalist 57 that an ideal representative is one who cares about the public good but nonetheless is also responsive to electoral concerns. Note that we can think of the executive in our model as a Madisonian representative; that is, the executive's utility in equation (3) is such that the executive cares about terrorism prevention, the public good, and reelection.<sup>17</sup> Proposition 4 suggests that even in such a rather ideal situation for executive discretion, the objective of terrorism prevention is better achieved if there are some legal limitations on executive power.

Propositions 3 and 4 show that it is beneficial to have a legal limit  $s_{res} \in (\underline{\ell}, s^*)$  on the executive counterterrorism actions. Next, we analyze a situation in which there might be a need to adjust the rules that govern the policy intended to prevent future terrorist attacks (i.e.,  $s_{res}$ ) as citizens demand more security from terrorism because of external shocks such as a large-scale catastrophic terrorist attack.<sup>18</sup> In the discretionary executive game, we showed that increased electoral incentives to prevent terrorist attacks can lead to an increase in the equilibrium probability of a terror attack. Proposition 5, in contrast,

shows that, in the constrained executive game, increased electoral incentives translate into a reduced equilibrium probability of a terrorist attack if the restriction  $s_{res}$  is adapted optimally to the new demands.

**Proposition 5.** *Increased electoral incentives to provide security (weakly) decrease the equilibrium probability of a terrorist attack in the constrained executive game.*

*Proof.* See the appendix.  $\square$

Propositions 2 and 5 have implications for designing decision-making procedures when there may be a need to redraw the scope of governmental powers in order to respond to popular demands for security. That is, there can be external shocks, such as large-scale terrorist attacks, shocks that may require a readjustment in the scope of individual rights and consequently restrictions on executive power because citizens want more security.<sup>19</sup> However, even when citizens want a readjustment in the balance between security and liberty, Propositions 2 and 5 suggest that it is not necessarily security-beneficial if the executive decides on the scope of governmental power.

Overall, our results suggest an efficiency rationale for legal limits on executive counterterrorism actions. The intuition for why some limitations on executive power help is as follows. In the discretionary executive game, the executive chooses its optimal action such that the direct benefits and costs of the marginal unit of  $s$  just balance each other. In equilibrium, the executive knows that a higher level of  $s$  has a negative effect on the community's incentives; however, the executive cannot credibly restrain itself when facing increased electoral incentives to provide security from terrorism. A known legal limit on executive actions can serve as a commitment device when the executive has incentives to respond to popular demands for more security.<sup>20</sup>

We obtain our results in a framework where the electoral incentives to provide security from terrorism are provided solely on the basis of the (observed) policy outcome: a terrorist attack or no terrorist attack. Scholars have also argued that a public perception that the executive is tough on fighting terrorism has its own electoral rewards. Such a public perception can create incentives for the executive to undertake even a higher level of anti-terrorism activities as compared to the equilibrium level

<sup>16</sup>Note that this is just the executive's utility as defined in equation (3) minus the reelection payoff,  $q_0 R - p(s, i)QR$ .

<sup>17</sup>In the appendix (in the section where we provide a microfoundation for the reelection rule), we model the representative citizen as having the same preference for the benefits and costs of terrorism prevention as the executive, which indicates that Proposition 4 can be obtained in a setup where the executive and the representative citizen have the same utility from terrorism prevention.

<sup>18</sup>If the legal constraint on executive actions is fixed, then neither  $s$  nor  $i$  can change, and thus the probability of a terrorist attack remains unaffected by changes in electoral incentives.

<sup>19</sup>An empirical literature suggests that the citizens support readjustments in the scope of individual rights when a country faces security threats (e.g., Berrebi and Klor 2008; Merolla and Zechmeister 2009).

<sup>20</sup>This theoretical result is consistent with empirical analyses showing a positive relation between the rule of law and terrorism prevention (e.g., Abrahms 2007; Choi 2010; Findley and Young 2011).



of  $s$  in the discretionary executive game.<sup>21</sup> Modeling such additional electoral incentives then can only increase the policy inefficiency documented in Proposition 2 and thus strengthens our argument for some limitations on executive power.

## Extensions and Robustness

In the online supporting information, we present four extensions of the basic model. First, we analyze a situation in which the community's and the executive's actions are complements or substitutes in the function  $p(s, i)$ . Second, we analyze a situation in which there is a terrorist organization in addition to the executive, the community, and the representative citizen. This extension provides a microfoundation for the function  $p(s, i)$  and shows that all our results can be obtained in a model in which there is a terrorist organization as a strategic player. Third, we show that our results are robust if the community observes an imperfect signal of  $s$  before choosing its level of  $i$ . Fourth, we show that our results are robust if all players observe the legal limit with some error; that is,  $s_{res} = \ell + \chi$ , where  $\chi$  is some common observation error.

Our analysis shows that the equilibrium of the discretionary executive game is relatively inefficient and that this inefficiency can be corrected by explicitly restricting the range of executive actions. One might conjecture that reputational mechanisms in repeated games can be an alternative manner of correcting the inefficiency. However, the executive's ability to commit to a level of  $s$  lower than  $s^*$  (by using reputational mechanisms) might be very limited for at least two reasons.

First, reputational "folk theorem" arguments require that players have strong interest in future payoffs relative to the present (i.e., their discount factor is close to 1). However, elected officials' discounting is likely to be relatively steep because they always have to take into account that they will be voted out of office. As a result, they will be inclined to increase the chance of winning the next election, even if this might create problems in the future.

Second, the executive's ability to commit to a certain action depends on how effectively the community can punish the executive for deviations. However, the community's ability to punish the executive is limited because of the secrecy of counterterrorism operations, which is typically maintained for a substantial period of time. Because the delay with which the actions of the executive can

become "common knowledge" is substantial, the community cannot learn potential deviations by the executive very soon. As a result, this makes it difficult to provide incentives for the executive not to behave aggressively in equilibrium.

## Discussion

Our analysis suggests an efficiency rationale for legal limitations on executive powers and has some implications for ongoing scholarly debates. First, the notion that discretionary powers are necessary for effective crisis government rests upon an impressive intellectual and historical pedigree. Even prominent liberal scholars including Locke, Madison, and Hamilton have insisted that executive discretion is necessary to handle crises effectively.

This classical image of the effectiveness of discretionary powers needs reconsideration when the task is crisis prevention rather than management of an already realized crisis.<sup>22</sup> In the classical paradigm, executive discretionary powers are triggered by a realized crisis. For example, a terrorist attack such as 9/11 creates an immediate state of emergency. Besides the obvious devastation wrought by the attack itself, executive officials have to deal with widespread fear, confusion, and ensuing panic, as well as with massive disruptions in transportation, communication, and finances. They might need to take extraordinary measures such as imposing a quarantine in certain areas or closing down transit and financial systems. The powers used in this context are reactive, and the executive's actions respond to the specific consequences of a terrorist attack.

Preventing a crisis is a different issue altogether; executive officials act before a crisis occurs, and therefore the purpose of discretionary powers is preemptive. Thinking about crisis prevention requires us to account for the interactions between executive and nongovernmental actors whose actions also affect (future) crisis occurrence. Our analysis shows that, when accounting for such strategic interactions, executive discretion can lead to less security if citizens demand more security from terrorism. It suggests that to effectively prevent a crisis, it can be beneficial for security if there are some legal constraints on executive powers.

Second, the idea of an irreconcilable tension between constitutionalism and democracy pervades scholarly and policy discourse. In this view, the principles of

<sup>21</sup>This is the case because if there are additional benefits from choosing a higher level  $s$ , then the executive's optimal  $s$  would be higher than the optimal  $s$  that solves equation (4).

<sup>22</sup>For an argument that terrorism prevention is different from traditional emergencies, see Scheuerman (2006) and Manin (2008).

constitutionalism and democracy do not fit together well. Democracy is a way of exercising political sovereignty: citizens, through their elected representatives, have control over governmental policy. On the other hand, constitutionalism requires that certain decisions are not policy options; that is, there are limits on the exercise of public authority, even if elected officials have the approval of a majority of citizens.

This tension most clearly comes to the fore in times of security crises. Carl Schmitt, perhaps more than any other scholar, had incisively argued for an irreconcilable opposition between constitutional limitations and democratic government in such situations. Schmitt's writings are particularly relevant here since scholarly and policy arguments that suggest allowing executive officials legal flexibility of action in the context of terrorism prevention implicitly or explicitly rely on Schmitt's analyses (Posner and Vermule 2010; Tushnet 2005).

From a Schmittian perspective, the executive should have unfettered powers to decide what measures are necessary to ward off potential crises because a security crisis is always a possibility and because no legal norm can foresee the policy measures required in an emergency situation. The explicit or implicit approval of citizens confers legitimacy to executive discretionary actions, and such legitimacy takes precedence over formal legality (Schmitt 1932). In this account, legal limits then are but devices for restricting legitimate and effective usage of executive power. However, the analysis presented here suggests that some limitations on the exercise of executive power do not necessarily weaken but actually strengthen democratic processes to produce better public policies. In short, even for the purpose of providing security, some legal checks on executive actions can have a positive impact.

The analysis also has some implications for current policy debates about fighting terrorism. The dominant paradigm that shapes how we think about antiterrorism policies posits a fundamental trade-off between civil liberties and security from terrorism. This paradigm presumes that executive discretion is effective in reducing terrorism, and the only remaining question is whether liberty interests outweigh security gains. Yet, starting the debate on these grounds places the burden of empirical proof on opponents of executive discretion who must show high liberty benefits of limiting the exercise of executive power.

Our analysis questions the efficiency rationale for executive discretion on its own terms by showing that some limitations on executive powers are beneficial for security alone. At minimum, our results suggest that the burden of empirical proof should be on executive officials who must show that discretionary powers achieve the intended security benefits and, perhaps, whether such benefits can

be achieved without setting aside fundamental liberal-democratic principles. Moreover, our analysis also indicates that even when citizens want a readjustment in the balance between security and liberty, it is not necessarily security-beneficial if the executive decides on the scope of government power.

Notwithstanding the normative value of limiting executive action, executive officials have positive incentives to undertake repressive policies even though such actions might be counterproductive.<sup>23</sup> An important future research avenue then pertains to studying the mechanisms through which limitations on executive action can be maintained.<sup>24</sup> On this topic, in the Federalist Papers, James Madison suggested that limits on the exercise of governmental power can be maintained by contriving the interior structure of the government in such a manner that the public interest must be safeguarded (Federalist No. 51). The Madisonian argument for setting institutional checks and balances might also be relevant in the context of designing the structure of liberal governments when the social goal is to prevent security crises.

## Appendix

In this section, we present the proofs of Propositions 2–5 and also provide a microfoundation for the reelection rule we used in the main analysis.

### Proofs of Propositions

*Proof of Proposition 2.* The effect of an increase in  $Q$  on the equilibrium probability of a terrorist attack is given by totally differentiating  $p$  with respect to  $Q$ . This yields

$$\begin{aligned} \frac{dp}{dQ} &= \frac{\partial p(s, i)}{\partial s} \frac{ds}{dQ} + \frac{\partial p(s, i)}{\partial i} \frac{di}{ds} \frac{ds}{dQ} \\ &= \left[ \frac{\partial p(s, i)}{\partial s} + \frac{\partial p(s, i)}{\partial i} \frac{\frac{\partial p(s, i)}{\partial i} \frac{\partial \Delta_c(s)}{\partial s}}{-\frac{\partial^2 p(s, i)}{\partial i^2} \Delta_c(s) - c_c''(i)} \right] \frac{ds}{dQ} \end{aligned}$$

Since  $\frac{ds}{dQ} > 0$  by (6), the sign is the same as the sign of the term in brackets, which simplifies to the expression given in the statement of the proposition.

<sup>23</sup>Our analysis shows that, in equilibrium of the discretionary executive game, the executive might choose an excessive level of (repressive) antiterrorism activities relative to what would be security-optimal; thus, the executive has incentives to erode limitations on its actions even if such limitations are beneficial.

<sup>24</sup>For an analysis of how legal limits can be self-enforcing, see Dragu and Polborn (2013).

Finally, the effect for changes in  $R$  is similar, only that  $\frac{ds}{dQ}$  needs to be replaced with  $\frac{ds}{dR}$ .  $\square$

*Proof of Proposition 3.* For fixed  $i$ , the executive's utility function is increasing in  $s$  for  $s \leq s^*$  and decreasing in  $s$  for  $s > s^*$ . This implies that  $s(s_{res}) = s_{res}$  for  $s_{res} \leq s^*$  (i.e., if the executive is constrained by the limit  $s_{res}$ ), and  $s(s_{res}) = s^*$  for  $s_{res} > s^*$  (i.e., if the executive is unconstrained by  $s_{res}$ ).

Choosing  $s_{res} \geq s^*$  therefore effectively implements the same equilibrium actions as in the discretionary executive game. If  $s_{res} < s^*$ , the community expects that  $s(s_{res}) = s_{res}$  and therefore maximizes  $u_c(0, s_{res}) - p(s_{res}, i)\Delta_c(s_{res}) - c_c(i)$  (i.e., 2 evaluated at  $s_{res}$ ). Differentiating the community's objective function leads to the first-order condition given by

$$-\frac{\partial p(s_{res}, i)}{\partial i} \Delta_c(s_{res}) - c'_c(i) = 0,$$

which implicitly defines a best response function  $i(s_{res})$ . Note that  $i(\cdot)$  is a decreasing function of  $s_{res}$  if  $s_{res} < s^*$  (for all  $s_{res} > s^*$ ,  $i(s_{res}) = i^*$ ).

Differentiating the executive's objective function,

$$u_g(0) + q_0 R - p(s_{res}, i(s_{res}))[\Delta_g + QR] - c_g(s_{res}),$$

with respect to  $s_{res}$  and evaluating it at  $s_{res} = s^*$  yields

$$-\frac{\partial p}{\partial s} [\Delta_g + QR] - c'_g(s^*) - \frac{\partial p}{\partial i} \frac{di}{ds} [\Delta_g + QR] < 0.$$

The first two terms are the same as those in (4) and are therefore equal to zero; they measure the direct effects of changing  $s_{res}$  at  $s^*$ . The last term (including the minus sign) is negative because  $\frac{\partial p}{\partial i} < 0$ ,  $\frac{di}{ds} < 0$ , and the term in brackets is positive. This implies that there exists an interval of values for  $s_{res}$  such that if  $s_{res} \in (\underline{\ell}, s^*)$ , then the executive's equilibrium utility increases relative to the discretionary executive game, as claimed.  $\square$

*Proof of Proposition 4.* Let  $(s^*, i^*)$  denote the equilibrium strategies in the discretionary executive game, and let  $(s_{res}, i_{res}(s_{res}))$  denote the equilibrium strategies in the constrained executive game such that  $s_{res} \in (\underline{\ell}, s^*)$ . Recall that the executive's objective function in (3) is denoted by  $U_G(s, i)$ .

By Proposition 3,  $U_G(s_{res}, i_{res}) > U_G(s^*, i^*)$  if  $s_{res} \in (\underline{\ell}, s^*)$ , which is equivalent to

$$[p(s_{res}, i_{res}) - p(s^*, i^*)][\Delta_g + QR] < c_g(s^*) - c(s_{res}).$$

Since  $i(\cdot)$  is a decreasing function of  $s_{res}$  if  $s_{res} < s^*$  (for all  $s_{res} > s^*$ ,  $i(s_{res}) = i^*$ ), it follows that  $i_{res} > i^*$ . Together with  $s_{res} < s^*$  (by Proposition 3), this implies that  $p(s_{res}, i_{res})$  can be larger or smaller than  $p(s^*, i^*)$ .

If  $p(s_{res}, i_{res}) > p(s^*, i^*)$ , then

$$[p(s_{res}, i_{res}) - p(s^*, i^*)]\Delta_g < [p(s_{res}, i_{res}) - p(s^*, i^*)][\Delta_g + QR] < c_g(s^*) - c(s_{res}),$$

which implies  $-p(s_{res}, i_{res})\Delta_g - c_g(s_{res}) > -p(s^*, i^*)\Delta_g - c_g(s^*)$ , as claimed.

If, instead,  $p(s_{res}, i_{res}) < p(s^*, i^*)$ , then the claim of the proposition that  $-p(s_{res}, i_{res})\Delta_g - c_g(s_{res}) > -p(s^*, i^*)\Delta_g - c_g(s^*)$  follows immediately from the fact that both terms on the left-hand side are larger than the corresponding terms on the right-hand side, because  $p(s_{res}, i_{res}) < p(s^*, i^*)$  and  $\Delta_g > 0$ , and  $c_g(s_{res}) < c_g(s^*)$  because  $s_{res} < s^*$  by Proposition 3.  $\square$

*Proof of Proposition 5.* The executive maximizes

$$u_g(0) + q_0 R - p(s_{res}, i(s_{res}))[\Delta_g + QR] - c_g(s_{res}),$$

where  $i(\cdot)$  is the community's best response function. We now use a revealed preference argument to prove the claim of the proposition. Suppose that  $Q^1 < Q^2$ , i.e., the electoral incentives are stronger in case 2 than in case 1. Denote the solution of the executive's problem in case  $k$  by  $s^k$ , and denote the corresponding equilibrium probability by  $p^k$ ; for example,  $p^1 = p(s^1, i(s^1))$ . Optimality in case 1 requires that

$$-p^1[\Delta_g + Q^1 R] - c_g(s^1) \geq -p^2[\Delta_g + Q^1 R] - c_g(s^2), \tag{8}$$

as  $s^2$  is a feasible choice and cannot get the executive a higher payoff than the optimal action  $s^1$ . Similarly, optimality in case 2 requires that

$$-p^2[\Delta_g + Q^2 R] - c_g(s^2) \geq -p^1[\Delta_g + Q^2 R] - c_g(s^1). \tag{9}$$

Adding (8) and (9) and rearranging yields

$$R(p^1 - p^2)(Q^2 - Q^1) \geq 0.$$

By assumption,  $Q^2 > Q^1$ , so that it must be true that  $p^1 \geq p^2$ , as claimed.  $\square$

### Microfoundation for the Voting Rule

Here, we provide a microfoundation for the representative citizen's reelection voting rule we used in the main analysis.

Let the probability of a terrorist attack be  $P(\theta_k, s, i) = \theta_k + p(s, i)$ , where  $\theta_k$  represents a candidate's type (where the type can be thought of as ability to prevent terrorist attacks) for  $k \in \{I, C\}$ , and where  $I$  denotes the incumbent and  $C$  denotes the challenger.

From an ex ante perspective, there is symmetric uncertainty about  $\theta_k$ ;<sup>25</sup> that is, none of the players knows the value of  $\theta_k$ . Let the ex ante expectation of  $\theta_k$  be  $E(\theta_k) = 0$ . Also, from an ex ante perspective,  $\theta_k$  is equally probable to be high,  $\theta_k^h > 0$  (meaning that the candidate is less competent than expected so that the probability of a successful attack is higher than the average), or low,  $\theta_k^l < 0$  (meaning that the candidate is more competent than expected so that the probability of a terrorist attack is lower than the average).<sup>26</sup>

In any period of the game, let the representative citizen's utility be defined as follows:

$$U_V = u_g(0) - P(\theta_k, s, i)\Delta_g - c_g(s) + W_k,$$

where  $W_k$  represents the utility from a candidate  $k$ 's non-policy attributes (a valence parameter).<sup>27</sup>

The representative citizen, the incumbent executive, and the challenger all have the same utility from terrorism prevention,  $u_g(0) - P(\theta_k, s, i)\Delta_g - c_g(s)$ , given that candidate  $k$  is in office.

Suppose a candidate  $k$  can only be in office for two periods. After observing the outcome  $T = j$  in the current period, the representative citizen reelects the incumbent executive if and only if having the incumbent executive in office gives her a higher utility in the next period than having the challenger in office. Thus, the representative citizen reelects the incumbent executive if

$$\begin{aligned} E\{[u_g(0) - P(\theta_I, s_I^n, i_I^n)\Delta_g - c_g(s_I^n) + W_I] \\ | T = j\} \geq E\{[u_g(0) - P(\theta_C, s_C^n, i_C^n)\Delta_g - c_g(s_C^n) \\ + W_C] | T = j\}, \end{aligned}$$

where the expectation is over  $\theta_k$  given the observed outcome  $T = j$  in the current period and where  $(s_k^n, i_k^n)$  represents the next period equilibrium given that candidate  $k$  is in office in the next period. Because  $E(\theta_C | T = j) = 0$  and because  $(s_k^n, i_k^n)$  does not depend on  $\theta_I | T = j$  regardless of which candidate  $k$  is in office in the next period,<sup>28</sup>

<sup>25</sup>A variety of models in the literature on electoral accountability assume symmetric uncertainty.

<sup>26</sup>Note that we can set up the function  $p(s, i)$  and the distribution of  $\theta_k$  such that  $0 \leq P(\theta_k, s, i) \leq 1$ .

<sup>27</sup> $W_k$  could also be interpreted as the utility from a candidate  $k$ 's fixed characteristics in policy areas other than terrorism, for example from fixed policy positions or the candidate's competence as in a probabilistic voting model or a differentiated candidates model (see, e.g., Krasa and Polborn 2012; Lindbeck and Weibull 1993).

<sup>28</sup>This is the case because if the incumbent executive is reelected, the incumbent executive will have no reelection concern in the next period given that she can only be in office for two periods. As a result, the optimal  $s$  in the next period is the solution to

the representative citizen's reelection rule reduces to

$$\begin{aligned} E(\theta_I | T = j) \leq \frac{W}{\Delta_g} + p(s_C^n, i_C^n) \\ - p(s_I^n, i_I^n) + \frac{c_g(s_C^n) - c_g(s_I^n)}{\Delta_g}, \end{aligned} \quad (10)$$

where  $W = W_I - W_C$ . When choosing the current period  $s$ , the incumbent executive is unlikely to know with certainty the identity of the challenger she will face. As a result, we can think of  $W$  as being a random variable from the incumbent executive's perspective at the time of choosing  $s$ .<sup>29</sup>

Given this reelection rule, we next show that the probability that the incumbent executive is reelected is higher if the observed outcome in the current period is  $T = 0$  rather than  $T = 1$ .

The representative citizen uses her observation about  $T = j$  in the current period to update her expectation about  $\theta_I$ . If there is no terrorist attack, then by Bayes' rule,  $Prob(\theta_I^l | T = 0) = \frac{\frac{1}{2}(1-\theta_I^l-p^*)}{\frac{1}{2}(1-\theta_I^l-p^*) + \frac{1}{2}(1-\theta_I^h-p^*)}$ , where  $p^*$  is evaluated at the current period equilibrium values  $(s^*, i^*)$ . Similarly,  $Prob(\theta_I^h | T = 0) = \frac{\frac{1}{2}(1-\theta_I^h-p^*)}{\frac{1}{2}(1-\theta_I^h-p^*) + \frac{1}{2}(1-\theta_I^l-p^*)}$ . Also, if there is a terrorist attack, then by Bayes' rule,  $Prob(\theta_I^l | T = 1) = \frac{\frac{1}{2}(\theta_I^l+p^*)}{\frac{1}{2}(\theta_I^l+p^*) + \frac{1}{2}(\theta_I^h+p^*)}$ . Similarly,  $Prob(\theta_I^h | T = 1) = \frac{\frac{1}{2}(\theta_I^h+p^*)}{\frac{1}{2}(\theta_I^h+p^*) + \frac{1}{2}(\theta_I^l+p^*)}$ .

As a result, the updated representative citizen's expectation about the incumbent executive's ability to prevent terrorist attacks, given the observed outcome  $T = j$  in the current period, is as follows:

$$\begin{aligned} E(\theta_I | T = 0) &= \theta_I^l \frac{1 - \theta_I^l - p^*}{2 - \theta_I^h - \theta_I^l - 2p^*} \\ &\quad + \theta_I^h \frac{1 - \theta_I^h - p^*}{2 - \theta_I^h - \theta_I^l - 2p^*} \end{aligned}$$

and

$$E(\theta_I | T = 1) = \theta_I^l \frac{\theta_I^l + p^*}{\theta_I^l + \theta_I^h + 2p^*} + \theta_I^h \frac{\theta_I^h + p^*}{\theta_I^l + \theta_I^h + 2p^*}.$$

the following FOC:  $-\frac{\partial p(s,i)}{\partial s} \cdot \Delta_g - c'_g(s) = 0$ , which implies that  $(s_I^n, i_I^n)$  does not depend on  $\theta_I | T = j$ . And if the challenger is elected, the next period equilibrium  $(s_C^n, i_C^n)$  does not depend on  $\theta_I | T = j$  as well.

<sup>29</sup>That is, if the executive is uncertain about the challenger she will face when choosing the current period  $s$ , the executive will be uncertain about the valence difference  $W = W_I - W_C$  at the time when choosing  $s$ .

Given the above expressions, we have the following:

$$E(\theta_I|T=0) - E(\theta_I|T=1) = \frac{(\theta_I^h - \theta_I^l)^2}{(2 - \theta_I^h - \theta_I^l - 2p^*)(\theta_I^l + \theta_I^h + 2p^*)} < 0.$$

Using this result in (10) implies that the incumbent executive's winning probability is higher if there is no terrorist attack in the current period, which is similar to the reelection voting rule we used in our main analysis (i.e., the reelection threshold  $w_j$  is higher if the policy outcome is  $T = 1$  rather than  $T = 0$ , which implies that the reelection probability  $q_0$  is higher than  $q_1$ ). Furthermore, since uncertainty is symmetric, the expected probability of a terrorist attack is  $p(s, i)$  (taking expectations over  $\theta_I$ ), and thus all equations in the subsequent analysis are the same as in the main text.

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## Supporting Information

Additional Supporting Information may be found in the online version of this article at the publisher's website:

- Complementarity or substitutability between the executive's and community's actions
- A terrorist organization as a player
- Imperfect observability of counterterrorism activity
- Imperfect observability of the legal limit