Terrorist backlash, terrorism mitigation, and policy delegation

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Abstract

This paper presents a three-stage proactive game involving terrorists, elected policymakers, and voters. In each of two targeted countries, a representative voter chooses an elected policymaker, charged with deciding proactive countermeasures to ameliorate a transnational terrorist threat. Two primary considerations drive the voters' strategic choice: free riding on the other countries' countermeasures and limiting a reprisal terrorist attack. The resulting low proactive countermeasures benefit the terrorists, whose attacks successfully exploit voters' strategic actions. This finding stems from a delegation problem where leadership by voters has a detrimental consequence on the well-being of targeted countries. Domestic politics add another layer of concern when addressing a common terrorist threat.

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1. Introduction

The unprecedented and destructive terrorist attacks on September 11, 2001 (hereafter 9/11) not only had economic ramifications but also political consequences, felt across the globe. Estimates of economic losses run from $80 to $90 billion, not including increased expenditures on homeland security and other indirect costs that followed in the wake of these attacks (Kunreuther and Michel-Kerjan, 2004; Kunreuther et al., 2003). To maintain political support from the American public, the Bush administration had to demonstrate its ability to take decisive actions to protect US people and property from future attacks. These measures took two tracks: defensive responses in the form of greatly expanded homeland security and offensive responses in the form of the Afghan invasion on October 7, 2001. The latter was intended to destroy al-Qaida's assets and send a clear message that such terrorist attacks will elicit a massive and prolonged retaliatory blow against the terrorists, their associates (i.e., Abu Sayyaf in the Philippines), and their supporters (i.e., the Taliban who had provided a safe haven).

As a targeted government takes stringent proactive measures against terrorists and their sponsors, the government must also worry about a potential backlash that these efforts might trigger at home by *another* terrorist group that objects to Draconian countermeasures. For example, Spain's support of the US-led "war on terror," including its participation in Afghanistan and Iraq, resulted in the March 11, 2004 (hereafter 3/11) Madrid commuter train bombings, which killed 191 and injured 1,200. Spanish voter's viewed the ruling Partido Popular party's strong stance against al-Qaida as having brought this backlash attack to the homeland – a belief bolstered by the statements by the perpetrators. The government's culpability was exacerbated by its false accusation of Euskadi ta Askatasuna (ETA). Similarly, Britain's close alliance with US post-9/11 proactive efforts likely resulted in the London subway and bus bombings on July 7, 2005 and a subsequent failed attack four weeks later. As with Spain, proactive measures against al-Qaida caused another sympathetic group to retaliate on the retaliator's home turf. A series of terrorist attacks in Saudi Arabia during 2004-2005 appears motivated by its cooperation in US-led antiterrorism efforts against al-Qaida. After 9/11, Abu Sayyaf's attacks in the Philippines followed a similar backlash motivation.

Thus, a strong proactive response presents a dilemma for politicians and the electorate in a liberal democracy. If a targeted government pursues rigorous antiterrorist policies that curtail the general threat at home and abroad, these efforts may trigger a backlash that leads to a direct attack at home.[1] This is illustrated by Osama bin Laden threatened attacks on American soil in retaliation for US actions in early 2006 to kill al-Qaida leaders (e.g., Ayman al Zawahiri). However, a failure to address the general threat of terrorism also leaves the country vulnerable to attacks at home and abroad. Hence, any response – retaliation or inaction – has negative consequences that must be balanced. This dilemma is further complicated in the case of a common transnational terrorist threat confronting *two* or more countries, insofar as each country's action has strategic implications on the other countries' response.

The purpose of this article is to investigate proactive counterterrorism measures when voters delegate such policy choices to elected officials in two countries facing a common terrorist threat.[2] The underlying game involves terrorists, elected officials, and voters. Unlike the literature, our representation accounts for the strategic aspects of domestic politics, associated with offensive countermeasures against a transnational terrorist threat. Previous analyses focused on just two-player games with the targeted countries' policymakers as the strategic players.[3] The inclusion of voters allows us not only to investigate the delegation problem, where voters rely on elected officials to represent their preferences, but also to account for the grievance aspect of proactive policies.[4] We establish that voters are inclined to restrict offensive operations. In particular, voters may strategically elect a government that places a low priority on meeting the general terrorism threat so as to minimize backlash attacks while obtaining a free ride on the efforts of another targeted nation. This strategizing on the part of voters results in a Pareto-inferior level of proactive countermeasures than in the absence of delegation. Thus, terrorist attacks can make targeted countries work against one another by inducing constituencies to elect candidates who are soft on terrorism. If, however, the terrorists were only to target a single country, then this adverse delegation problem is absent, because there is no other target to provide a terrorist counteroffensive or to draw an attack. Our analysis shows that confronting a common transnational terrorist threat is especially difficult in democracies.

The remainder of the paper contains four sections. Section 2 provides background and a justification for the game's structure. In Section 3, stage 2 and 3 of the three-stage game are analyzed. Section 4 solves the all-important first stage where farsighted voters assume a leadership role over the officials whom they elect. Section 5 indicates concluding remarks and policy implications.

2. The underlying game: background and justification

To capture domestic politics and policy choice, we focus on the problem of delegation where voters choose elected officials or policymakers in two terrorism-threatened democratic countries. These policymakers must then decide proactive measures to mitigate future attacks from a common terrorist threat from group *A*. Today, group *A* could be al-Qaida, while, in the 1980s, it would have been the Abu Nidal Organization (ANO) or Islamic Jihad. Proactive responses – e.g., infiltrating a terrorist group, attacking terrorist training camps, or assassinating or capturing terrorists – represent a privately provided pure public good problem, because such actions come at a private cost to the provider nation and generate nonexcludable and nonrival benefits to all at-risk countries. We also recognize that enhanced offensive actions also increase the likelihood of being attacked by another group, denoted by group *B*, that objects to the counteroffensive. For example, Israeli retaliatory actions against the Palestine Liberation Organization (PLO) and Black September at home and abroad led to more militant groups – e.g., the Popular Front for the Liberation of Palestine (PFLP) and ANO – that frequently staged attacks to protest Israeli actions. Hamas is a particularly apropos example of group *B*, since it retaliates against Israeli responses and does so within Israel. Recent Israeli crackdowns on Fatah and Hezbollah incited Hamas attacks.

Since 9/11, countries in the US-led coalition (e.g., Great Britain, Spain, Australia, the Philippines, and Turkey) endured attacks at home from terrorists aligned or sympathetic to al-Qaida. The loosely tied al-Qaida network nicely fits the scenario of our model where pressures on al-Qaida can erupt in another group launching an attack on the country's home soil. The country that draws the attack is often the one that is perceived to have acted more heavy-handedly than other countries,[5] which fits the London bombings in the summer of 2005. Our game representation captures several aspects of the proactive dilemma associated with transnational terrorism: namely, the free-riding incentive, the backlash risk, and the delegation problem. The latter arises because voters have an incentive to strategically elect a government that puts *less* weight on the general terrorism threat in the hopes of shifting abroad more of the offensive response, thereby putting more backlash risk on the other country. As such, an electorate can influence the game subsequently played by the countries' policymakers as they enact counterterrorism measures. If, for example, voters are more concerned about the retaliatory attacks than about the general threat, then they will choose a dovish policymaker. This strategic vote can result in less action by both countries and a greater general terrorism threat.[6] Consequently, voters may be worse off than had they not acted strategically.

2.1. The players and the timing of the game

The game involves three different sets of players: voters, policymakers, and terrorists. Although terrorists do not act strategically in our model and respond only to the actions taken by the two countries, each terrorist group represents a particular type of threat to each country. Terrorist group *A* poses a general threat to two countries whose people and properties can be targeted at home and abroad. In addition, terrorist group *B* hits a proactive country at home with a retaliatory attack, meant to display its displeasure and grievance at the county whose countermeasures are viewed as more stringent. In each targeted country, a second set of players consists of elected policymakers who decide countermeasures against group *A* in order to minimize the expected damages from possible terrorist attacks in addition to minimizing the cost of implementing the associated policy. The third set of players is the countries' voters who share the same objectives as elected policymakers. In each country, we assume that voters and policymakers only differ in the weight that they place on the threat of experiencing a backlash attack at home, stemming from their actions to curb the general terrorism threat. To simplify and abstract from the complex political process associated with two democratic countries, we focus on a representative voter from a majority group that dominates the process and is decisive in determining the election of political candidates and, thus, policy alternatives.

The timing of the game is as follows: In stage 1, the voters in each targeted country simultaneously elect a policymaker who then decides a proactive response to group *A* in stage 2. This response is decided in a noncooperative fashion even though both governments are confronted by a common threat. Given the reluctance of most governments to coordinate their security policies, this is an appropriate assumption. We assume that voters and governments know the terrorists' preferences but are unsure about their propensity to engage in terrorist acts.

In stage 3, terrorist group *A* decides the nature of its campaign against the two countries. As a potential reaction to government countermeasures, terrorist group *B* surfaces and attacks the heavier-handed country. We employ the subgame perfection solution concept and thus solve the game backwards starting with the terrorist campaigns in stage 3, moving to the choices of the policymakers in stage 2, and ending with the voters' election of the policymakers in stage 1.

3. Stage 2 and 3 of the game: counterterrorism and terrorism

As motivated by our discussion in Section 2, we first examine the general threat posed by group *A* in stage 3 as it decides whether to conduct its terror campaign against countries 1 and 2, based on the countermeasures $\left(\theta_i, i=1,2\right)$ taken by the two countries. To capture the public good nature of government actions at curbing the terrorist threat, we let $g\left(\theta_1+\theta_2\right)$ represent the probability of a terrorist campaign failure and $1-g\left(\theta_1+\theta_2\right)$ denote the probability of a terrorist campaign success. The probability of failure function is strictly increasing and concave in the cumulative countermeasures of the targeted governments, so that $g'>0$ and $g''<0$. The campaign can result in failure (a "miss") with payoff *m* or a success (a "hit") with payoff *h*. Any expected gains from *A*'s campaign must be at least as large as the benefit, *b*, of delaying the campaign and pursuing the best alternative nonterrorist activity. Thus, the terrorist group will engage in its campaign against both countries provided that the following inequality holds:

$$g\left(\Theta\right)m+\left[1-g\left(\Theta\right)\right]h+\gamma\geq b, \tag{1}$$

where $\Theta=\theta_1+\theta_2$, $h>m$, and γ represents *A*'s predisposition to waging its terror campaign. For simplicity, γ is assumed to be uniformly distributed on the interval $\left[-\alpha,\alpha\right]$. Because group *A*'s predisposition is unknown to voters and their elected officials, *A*'s campaign likelihood, *p*, is viewed as a random event. Given our assumptions, the voters' and officials' perceived probability of a terror campaign is given by,[7]

$$p(\theta_1,\theta_2)=\frac{1}{2}\left(1-\frac{1}{\alpha}\{b-g(\Theta)m-[1-g(\Theta)h]\}\right), \tag{2}$$

which is itself dependent on the two governments' countermeasures. Performing comparative statics on (2), we obtain,

$$\frac{\partial p}{\partial\theta_1}=\frac{\partial p}{\partial\theta_2}=\frac{g'}{2\alpha}(m-h)<0, \tag{3}$$

so that the probability that group *A* engages in a terror campaign decreases as either country exerts more antiterrorist efforts. These marginal probabilities are themselves increasing in the actions of either country:

$$\frac{\partial^2 p}{\partial\theta_1^{\,2}}=\frac{\partial^2 p}{\partial\theta_2^{\,2}}=\frac{\partial^2 p}{\partial\theta_1\partial\theta_2}=\frac{\partial^2 p}{\partial\theta_2\partial\theta_1}=\frac{g''}{2\alpha}(m-h)>0. \tag{4}$$

Next, we turn to group *B* which, as discussed earlier, attacks as a protest to the countermeasures levied by one of the countries on group *A*. The voters and policymakers evaluate the threat that their country could be attacked by *B* to be a function of the relative differences between the effort levels expended by the two countries in countering the general terrorist threat. Each government or its designated policymaker assumes that country 1 will be attacked if $\theta_1+\eta\geq\theta_2$, where $\eta>0$ represents *B*'s bias against government 1. This bias could be the result of *B*'s accumulated past grievances built up over the years. This random variable is assumed to be uniformly distributed on the interval $[-\psi,\psi]$. Given the timing of the game, η is unknown to the voters and policymakers in stage 1 and 2 when they make their decisions. We, thus, let the perceived probability, π_1, that *B* attacks country 1 to be given by:

$\pi_1(\theta_1,\theta_2)=\rho(\eta\geq\theta_2-\theta_1)$. Since the distribution of η is uniform, we have:[8]

$$\pi_1(\theta_1,\theta_2)=\frac{1}{2}\left[1-\frac{1}{\psi}(\theta_2-\theta_1)\right], \tag{5}$$

so that $\pi_2 = 1 - \pi_1$ is the probability that *B* retaliates against country 2. From (5), we have:

$$\frac{\partial \pi_1}{\partial \theta_1}=\frac{\partial \pi_2}{\partial \theta_2}=-\frac{\partial \pi_1}{\partial \theta_2}=-\frac{\partial \pi_2}{\partial \theta_1}=\frac{1}{2\psi}>0. \tag{6}$$

Thus, country *i*'s risk from a backlash attack increases with its own countermeasures and decreases with those of the other country. All second-order partials are zero since the first-order partials are independent of the θ_i s.

Terrorist group *B* may arise out of an ethnic, religious, or political community, common to both countries – e.g., the suicide bombers in London on July 7, 2005 were Islamic fundamentalists with beliefs aligned with al-Qaida. Russian offensives against terrorists and insurgents in Chechnya resulted in Chechen terrorists staging missions in Russia, including the bombings of two Moscow apartment buildings (September 9 and 13, 1999) and the barricade and hostage seizure of a Moscow theater (October 23, 2002). In addition, the terrorists behind the 3/11 Madrid train bombings shared religious and ethnic affinities with al-Qaida. Increases in security against terrorism are apt to be directed in part against those interests identified with a particular terrorist threat at home and abroad. This may then result in grievances among sympathetic elements at home that erupt into a new group demonstrating its displeasure, especially when the country's measures appear particularly harsh relative to the other targeted country.

3.1. Elected policymakers' counterterrorism response: *stage 2*

We now fold the game back to stage 2 where an elected policymaker in each of the two targeted countries decides the proactive response, while taking its counterpart's response as given. To represent the policymakers' objective function, we must first indicate country *i*'s damage and likelihood in four scenarios, given the presence of a general terrorist threat from group *A* and localized threat from group *B*. D_{ii} represents the damage to country *i* when group *A* directs attacks at *i*'s interests at home and abroad, while group *B* stages protest attacks at home. The likelihood of this scenario is $p\pi_i$, where *p* and π_i have been previously defined. If, however, group *A* attacks *i*'s interests at home and abroad, but *B* retaliates against *j* (i.e., the other country), then D_{ij} denotes the damage to *i* and occurs with probability $p(1-\pi_i)$. Given that the first scenario involves additional attacks than the second scenario, it is reasonable to assume $D_{ii} > D_{ij}$. The third and fourth scenario involve no general threat from group *A* to country *i*. In the third scenario, country *i* endures attacks from group *B* at home, resulting in damage d_{ii} with probability $(1-p)\pi_i$. Clearly, $D_{ii} > d_{ii}$ since D_{ii} *also* involves losses from attacks by group *A* at home and abroad. Finally, the fourth case involves country *i* experiencing no attacks from either terrorist group so that damage, d_{ij}, is zero with a probability of $(1-p)(1-\pi_i)$.[9] Similarly, we can define four scenarios for country *j* where $D_{jj} > D_{ji}, D_{jj} > d_{jj}$, and $d_{ji} = 0$.

In each targeted country, the elected policymaker chooses its proactive response $(\theta_i,\ i=1,2)$, taking its counterpart's policy as given while anticipating the consequences of its choice on the probabilities that it is attacked by group *A* or *B* or both. The policymaker's objective is to minimize the sum of its expected damages from the four scenarios and the costs of its countermeasures, $C(\theta_i)$. The cost function is assumed to be strictly increasing and convex in θ_i. As a special feature of the expected damages from attacks, a weight of α^{ig} is applied by the elected policymaker to D_{ii}, which reflects damages from attacks by groups *A* and *B* on *i*'s soil.

The weight is also applied to d_{ii}. This weight captures a policymaker's aversion to policy-induced terrorist attacks on home soil. As such, the proactive choice in country *i* is also influenced by α^{ig}, which varies along the unit interval, $[0,1]$. An elected policymaker in stage 2 chooses θ_i, taking θ_j as given, to

$$\text{minimize}\, Z^{ig} = p\pi_i\alpha^{ig}D_{ii} + p\left(1-\pi_i\right)D_{ij} + \left(1-p\right)\pi_i\alpha^{ig}d_{ii} + C\left(\theta_i\right), \tag{7}$$

where the arguments of *p* and π_i are suppressed. The associated first-order condition, after rearrangement, is:

$$\frac{\partial p}{\partial \theta_i}\left[\pi_i\alpha^{ig}(D_{ii}-d_{ii})+(1-\pi_i)D_{ij}\right]+\frac{\partial \pi_i}{\partial \theta_i}\left[p(\alpha^{ig}D_{ii}-D_{ij})+(1-p)\alpha^{ig}d_{ii}\right]+C'=0. \tag{8}$$

The second-order condition associated with (7) is assumed to hold.[10]

Given that the sign of the first expression in brackets in (8) is positive, the first composite expression in (8) is negative (recall that $\partial p/\partial\theta_i < 0$) and captures *i*'s added benefits from reducing the likelihood that group *A* will initiate its terror campaign owing to greater proactive measures. The sign of the second expression in (8) is ambiguous and hinges, in large parts, on α^{ig} or the potential distaste placed by the policymaker on a backlash attack launched by group *B* to protest actions taken against group *A*. If this weight is close to zero so that backlash losses are greatly discounted, then the second expression in (8) may be negative and represents an additional marginal benefit from proactive measures. In this scenario, the policymaker places more weight on shifting the retaliatory attack abroad than on the damage sustained at home. Of course, C' denotes the marginal provision cost of the proactive measure. A second relevant scenario involves α^{ig} with values near one. When this occurs, the sign of the second bracketed expression will be unequivocally positive if $\alpha^{ig}D_{ii} > D_{ij}$, since the d_{ii} term is positive.[11] This scenario means that the second expression in (8) represents an additional (proactive) marginal cost coming from the backlash consequence. Scenario 1 with two marginal benefit terms and single marginal cost expression implies greater offensive action than scenario 2 with its single marginal benefit term and two marginal cost expressions. Sufficient weight placed on backlash curtails a proactive response beyond the standard free-rider response associated with a transnational terrorism threat (Sandler and Siqueira, 2006). In either scenario, marginal benefits are equated to marginal costs for an interior solution to (8).

3.2. Nash equilibrium at stage 2

We now turn to the mathematical and geometrical representation of the Nash equilibrium for the elected policymaker of the two targeted countries that confront the same general terrorism threat and potential backlash consequences. The simultaneous solution of (8) for each policymaker denotes the equilibrium counterterrorism policies of elected officials in stage 2. This solution and comparative statics are described shortly, but first we display the solution graphically. Equation (8) implicitly defines the best-response functions $\left(BR_i\right)$ for policymaker *i* $\left(i=1,2;\ i\neq j\right)$ where $\theta_i = BR_i\left(\theta_j, \alpha^{ig}\right)$. This function relates *i*'s optimal choice of θ_i to alternative choices of θ_j by country *j*, along with the weight attached to backlash damage. Other parameters of the best-response function are suppressed for simplicity. Using the implicit function theorem, we derive the slope of *i*'s best-response function to be:

$$\frac{\partial BR_i}{\partial \theta_j} = \frac{-\dfrac{\partial^2 p}{\partial \theta_i \partial \theta_j}\left[\pi_i \alpha^{ig}\left(D_{ii}-d_{ii}\right)+\left(1-\pi_i\right)D_{ij}\right]}{\dfrac{\partial^2 Z^{ig}}{\partial \theta_i^2}} < 0. \tag{9}$$

The sign of (9) is unequivocal because the cross-partial derivative and the bracketed expression are both positive, so that the numerator must be negative. Moreover, the second-order condition ensures that the denominator is positive. By (9), the reaction path of policymaker *i* is thus negatively sloped: as he or she expends less counterterrorism effort, his or her counterpart in *j* expends more effort. This negative slope can be traced to free riding and an intent to draw fewer retaliatory attacks. By analogous reasoning, *j*'s reaction path is also negatively sloped. Hence, proactive countermeasures are viewed as strategic substitutes.

[Figure 1 near here]

In Figure 1, the reaction paths (ignore the dashed reaction path) are displayed with θ_1 on the horizontal axis and θ_2 on the vertical axis. The Nash equilibrium is at *N*, where the reaction paths intersect. BR_1 is steeper than a downward-sloping line with slope −1, while BR_2 is flatter than a downward-sloping line with slope −1 in order to ensure stability and uniqueness (Cornes et al., 1999; Cornes and Sandler, 1996). In Figure 1, a line with slope −1 through *N* will intersect the horizontal axis at the *aggregate* Nash equilibrium level of proactive measures for the two policymakers combined; i.e., $\Theta^* = \theta_1^N + \theta_2^N$.

Next we display the influence of the policymaker's weight α^{ig}, attached to retaliatory attacks, on his choice of θ_i. Differentiating (8) with respect to this weight gives:

$$\frac{\partial BR_i}{\partial \alpha^{ig}} = \frac{\left[\varepsilon_{\pi_i\theta_i} - \varepsilon_{p\theta_i}\right]\left(\frac{(D_{ii} - d_{ii})\, p\pi_i}{\theta_i}\right) + \frac{\partial \pi_i}{\partial \theta_i} d_{ii}}{-\frac{\partial^2 Z^{ig}}{\partial \theta_i^2}}, \tag{10}$$

where $\varepsilon_{\pi_i\theta_i} \equiv (\partial \pi_i / \partial \theta_i)(\theta_i / \pi_i)$ and $\varepsilon_{p\theta_i} \equiv -(\partial p / \partial \theta_i)(\theta_i / p)$ are elasticity expressions. In particular, $\varepsilon_{\pi_i\theta_i}$ captures *i*'s probability elasticity of suffering a backlash attack in response to its countermeasures, while $\varepsilon_{p\theta_i}$ indicates the probability elasticity of preventing group *A*'s attacks at home or abroad. Henceforth, the first elasticity is called the backlash elasticity, and the second elasticity is termed the prevention elasticity. If $\varepsilon_{\pi_i\theta_i} \geq \varepsilon_{p\theta_i}$, then the expression in (10) is negative owing to the numerator being positive and the denominator being negative. Thus, a greater backlash elasticity relative to the prevention elasticity means that the best-response curve shifts down and to the left in response to a large backlash weight (see dashed curve BR_1' in Figure 1). As a result, there is less total expended proactive measures at the new Nash equilibrium, N', even though policymaker 2 increases such efforts in response to policymaker 1's reduced efforts – i.e., $\Theta' < \Theta^*$ in Figure 1. If, however, $\varepsilon_{\pi_i\theta_i} < \varepsilon_{p\theta_i}$, then the sign of (10) can be negative, zero, or positive depending on whether the left-hand multiplicative expression in the numerator is less than, equal to, or greater than (in absolute value) the right-hand expression. When the latter holds, which we henceforth assume,[12] the policymaker's best-response curve shifts up in Figure 1 (not shown) and more total counterterrorism effort results. This case follows when the damage from solely retaliatory attacks at home, d_{ii}, is small and the backlash elasticity is also small, so that *i*'s policymaker is not intimidated by group *B*.

3.3 Stage 2: *further implications*

To determine the equilibrium responses to changes in α^{1g} and α^{2g} at stage 2, we implicitly solve the elected policymaker's first-order conditions and obtain $\theta_i = \theta_i^*(\alpha^{ig}, \alpha^{jg})$, *i*, *j* = 1, 2 and $i \neq j$. Next, we incorporate these expressions into the two first-order conditions in (8) and totally differentiate the resulting equation with respect to the two alphas to display the comparative static reactions to changes in the weights given by the policymakers. We rearrange the differentiated expressions and apply Cramer's Rule to obtain the following proposition:

Proposition 1:

(i) *If* $\varepsilon_{\pi_i\theta_i} \geq \varepsilon_{p\theta_i}$ *, then* $d\theta_i^* / d\alpha^{ig} < 0$ *and* $d\theta_j^* / d\alpha^{ig} > 0$.

(ii) *If* $\varepsilon_{\pi_i\theta_i} < \varepsilon_{p\theta_i}$ *and if* $\varepsilon_{\pi_i\theta_i}$ *or* d_{ii} *is small enough, then* $d\theta_i^* / d\alpha^{ig} > 0$ *and* $d\theta_j^* / d\alpha^{ig} < 0$.

Proof: See Appendix 1.

Case (*i*) indicates that if the backlash elasticity is at least as great as the prevention elasticity, then policymaker *i*'s countermeasures will fall as he puts more weight on the retaliatory threat. As such, the shift displayed with curve BR_1' in Figure 1 applies. Policymaker *i* places a heavier burden on country *j* (i.e., $d\theta_j^* / d\alpha^{ig} > 0$), and *both countries are more vulnerable* to the general threat as overall proactive measures drops. Proactive efforts are undersupplied owing to free-riding and backlash concerns. When, however, case (*ii*) applies, policymakers' proactive responses move in opposite directions as α^{ig} changes. If, for example, less weight is placed on backlash damages, then policymaker *i* exerts less countermeasures at combating the general terrorism threat while policymaker *j* expends more effort.

4. Strategic voting in stage 1

We now fold the game back to stage 1 where each country's voters can act strategically and elect a policymaker, who can conceivably improve the voters' well-being, perhaps at the expense of the voters in the other targeted country. Two basic concerns are at play: the desire to free ride on the proactive response of others and the wish not to draw a retaliatory attack by avenging group *B*.[13] Strategic voting can result in a worse outcome than without such voting.

Given some specified electoral process, voters in each country are viewed as electing a policymaker (or government), while taking the election results in the other country as given. Although the set of voters can differ over the single-dimensional parameter, α^{iv} , representing voter *iv*'s weight on damages from a retaliatory attack by terrorists, we assume that one group of voters is decisive in each country. Moreover, the group's preferences can be characterized by a representative voter in each country.[14] Since voters move first and are assumed to be forward looking, voters must address a strategic delegation problem insofar as the elected policymaker, not the voter, picks the proactive response according to his or her own preferences. If the electorate looks ahead and takes this factor into account, they may choose a policymaker whose α^{ig} will likely differ from the voter's own weight. We now investigate the implication of this difference.

Given our assumptions, the policymaker elected in each country is the one most preferred by the representative voter from the majority group. Let this voter's preference be characterized by the backlash weight α^{im}. In stage 1, the representative voter in country *i* chooses α^{ig} of the elected policymaker to

$$\text{minimize } Z^{im} = p\pi_i\alpha^{im}D_{ii} + p(1-\pi_i)D_{ij} + (1-p)\pi_i\alpha^{im}d_{ii} + C(\theta_i^*), \tag{11}$$

where p, π_i, and θ_i^* are all functions of α^{ig} and α^{jg}. Analogous to the policymaker objective, the objective in (11) is a sum of the damages in the various scenarios and the cost of proactive measures. The sole difference is the weight that the representative voter (and its majority group) attaches to the possibility of enduring a backlash attack. When determining which policymaker to elect, each representative voter takes into account the impact of his choice on the policy that will be played in the subsequent stage of the game. In so doing, each representative voter acts as a *Stackelberg leader* vis-à-vis the elected policymaker (the follower) of both countries, who displays Nash-Cournot behavior toward one another. Minimizing (11) with respect to α^{ig}, and using policymaker *i*'s first-order condition from (8) and the equilibrium best responses to changes in α^{ig}, we obtain the following expression (see Appendix 2 for details):

$$\left\{\left[\varepsilon_{\pi_i\theta_i} - \varepsilon_{p\theta_i}\right]\frac{(D_{ii} - d_{ii})\, p\pi_i}{\theta_i} + \frac{\partial \pi_i}{\partial \theta_i} d_{ii}\right\}\Phi_{jj}\left(\alpha^{im} - \alpha^{ig}\right) =$$

$$\left\{\frac{\partial p}{\partial \theta_j}\left[\pi_i \alpha^{im}(D_{ii} - d_{ii}) + (1-\pi_i)D_{ij}\right] + \frac{\partial \pi_i}{\partial \theta_j}\left[p\left(\alpha^{im}D_{ii} - D_{ij}\right) + (1-p)\alpha^{im}d_{ii}\right]\right\}\Phi_{ji}, \qquad (12)$$

where $\Phi_{jj} > 0$ and $\Phi_{ji} > 0$ are defined in Appendix 1. The remaining terms in (12) have been defined previously, where $\partial p / \partial \theta_j < 0$ and $\partial \pi_i / \partial \theta_j < 0$.

A sufficient condition for the right-hand expression within $\{\bullet\}$ of (12) to be negative is that $\alpha^{im}D_{ii} \geq D_{ij}$, so that the representative voter's weighted damages from attacks by groups *A and B* on *i*'s interests exceed the damages from just attacks by group *A* on *i*'s interests. Although stronger than needed, this assumption is likely to hold provided that the representative voter views retaliatory attacks at home with sufficient disdain not to reverse the $D_{ii} \geq D_{ij}$ inequality. We are left with the following proposition:

Proposition 2: Assuming $\alpha^{im}D_{ii} \geq D_{ij}$, there are two scenarios depending on the relative elasticities to the alternative threats:

(i) *If* $\varepsilon_{\pi_i\theta_i} \geq \varepsilon_{p\theta_i}$, *then* $\alpha^{ig} > \alpha^{im}$.
(ii) *If* $\varepsilon_{\pi_i\theta_i} < \varepsilon_{p\theta_i}$ *and if* $\varepsilon_{\pi_i\theta_i}$ *or* d_{ii} are sufficiently small, then $\alpha^{im} > \alpha^{ig}$.

Proof: See Appendix 3.

If the elasticity to experiencing a backlash attack is greater or equal to the elasticity to the general threat of terrorism, then the representative voter will elect a government that puts more weight on the threat of a backlash than he or she does. This results in each government exerting less effort to combat the terrorist threat than had voters' not acted strategically. Country *i*'s voters are motivated by free riding on the proactive response of *j* and a desire not to draw a retaliatory response from group *B*. This agrees with Spain's election following 3/11 and the withdrawal of forces by some other countries with troops in Iraq and Afghanistan once the threat of a backlash attack grew. If both countries' representative voters satisfy case (i), then a Prisoners' Dilemma delegation game follows with both countries reducing proactive efforts beyond the suboptimal level implied by stage 2.[15] In Figure 2, this shows up with the policymakers' best-reaction paths shifting down from the continuous paths to the dashed paths. As such, the Nash equilibrium goes from *N* to $\bar{N}$, where individual *and* aggregate proactive levels fall. Unfortunately, the representative voters' strategic actions result in reduced welfare levels to both – i.e., the iso-utility curves associated with $\bar{N}$ (not displayed) imply lower welfare levels than those through *N* as the general threat of terrorism increases at home and abroad.

[Figure 2 near here]

In case (ii), it still remains possible that less effort toward combating the general threat of terrorism will follow when the representative voter tries strategically to gain a greater free ride from the other country's proactive response by choosing a policymaker who downplays the backlash concern. That is, the representative voter chooses a policymaker whose backlash weight is less than α^{im}. In case (ii), the representative voter knows that the elasticity of prevention exceeds the backlash elasticity, where $\varepsilon_{\pi_i\theta_i}$ or d_{ii} is small. Because of the lack of responsiveness to backlash or the small damages associated with d_{ii}, a policymaker has a greater inclination to address the general terrorism threat without fear of reprisal. As such, a policymaker that puts more weight on backlash damages will expend more proactive effort in this case. By choosing a policymaker who cares little about the backlash, the representative voter installs a policymaker less inclined to act in the hopes of getting a larger free ride from the other targeted country. This kind of strategic thinking on the part of both countries' voters will again result in the downward shifts of the reaction paths in Figure 2. The attempt to profit on the other country's efforts yields an undersupply of proactive measures that jeopardizes both countries and reduces welfare in a Prisoners' Dilemma type of scenario. For both cases, voters' strategic action results in the Nash equilibrium shifting in the southwestern direction where the aggregate proactive response falls.

5. Concluding remarks and policy implications

This paper presents a three-stage game with three sets of participants: terrorists, elected policymakers, and voters. The model accounts for the strategic interaction between voters and their delegated policymakers, charged with deciding proactive countermeasures to limit a transnational terrorist threat confronting two countries. As such, this paper is the first to investigate domestic politics in a strategic framework as it applies to counterterrorism. The analysis shows that strategic foresight by the voter leads to an undersupply of proactive measures. This reduced effort is motivated by two desires: free riding on the other country's countermeasures and limiting any reprisal terrorist attacks. The voter elects a policymaker who will subsequently exploit his or her counterpart by curbing proactive measures. Similar actions abroad will result in an equilibrium where welfare is reduced – i.e., the strategic move is self-defeating.

This result indicates that the need for international cooperation when addressing a common terrorist threat (e.g., al-Qaida, Jemaah Islamiyah, and Abu Nidal Organization) could be even more important than shown in past studies, which do not consider domestic politics (Sandler and Siqueira, 2006). This extra difficulty stems from a delegation problem, associated with the voters' reliance on an elected policymaker. This then provides yet another factor why liberal democracies confront a real dilemma when addressing terrorism (Wilkinson, 1986). Nations must devise some mechanism for orchestrating an international proactive response to a common terrorism threat. To date, the best example of this is the Afghanistan response. But even there, most of the effort fell on the US and UK shoulders with token help by Canada, Australia, and Denmark (*The Economist*, 2006). Reprisal attacks on British, Australian, South Korean, and Spanish interests were intended by terrorists to limit or eliminate these countries' participation – a strategy that worked in the case of Spain and South Korea. Terrorists remain better than governments in acting as a united force.

As a future direction, the influence of strategic voting on cooperative solutions can be investigated. The delegation problem may still work against cooperation if voters elect policymakers with greater backlash concerns or free-riding interests. The analysis here can also be applied to defensive measures deployed by commonly targeted nations. Even without cooperation, strategic voting may ameliorate the oversupply of defensive actions in an attempt to transfer the attack to a softer target abroad. Since such measures are strategic complements, strategic voting, and the leadership that it implies, may elect officials who are *less* concerned with transferring the attack, particularly when the country has interests at home and abroad.

Appendix 1: Derivation of Proposition 1

Following the procedures outlined in the text, we obtain:

$$\frac{d\theta_i^*}{d\alpha^{ig}} = \frac{-\Omega_i \Phi_{jj}}{|\Delta|}, \quad i, j = 1, 2, \ i \neq j, \tag{A1}$$

$$\frac{d\theta_j^*}{d\alpha^{ig}} = \frac{\Omega_i \Phi_{ji}}{|\Delta|}, \quad i, j = 1, 2, \ i \neq j, \tag{A2}$$

where

$$|\Delta| \equiv \begin{vmatrix} \Phi_{11} & \Phi_{12} \\ \Phi_{21} & \Phi_{22} \end{vmatrix},$$

$$\Omega_i \equiv \left[\varepsilon_{\pi_i \theta_i} - \varepsilon_{p\theta_i} \right] \frac{(D_{ii} - d_{ii})\, p\pi_i}{\theta_i} + \frac{\partial \pi_i}{\partial \theta_i} d_{ii}, \quad i = 1, 2,$$

$$\Phi_{jj} \equiv \frac{\partial^2 p}{\partial \theta_j^{\,2}} \left[\pi_j \alpha^{jg} \left(D_{jj} - d_{jj} \right) + \left(1 - \pi_j \right) D_{ji} \right] + 2 \frac{\partial p}{\partial \theta_j} \frac{\partial \pi_j}{\partial \theta_j} \left[\alpha^{jg} \left(D_{jj} - d_{jj} \right) - D_{ji} \right] + C'', \ i, j = 1, 2, \ i \neq j,$$

$$\Phi_{ji} \equiv \frac{\partial^2 p}{\partial \theta_j \partial \theta_i} \left[\pi_j \alpha^{jg} \left(D_{jj} - d_{jj} \right) + \left(1 - \pi_j \right) D_{ji} \right], \quad i, j = 1, 2, \ i \neq j.$$

Given $\Phi_{jj} > 0$, $\Phi_{ji} > 0$, and the fact that stability requires $|\Delta| \equiv \Phi_{11}\Phi_{22} - \Phi_{12}\Phi_{21} > 0$, the signs of (A1) and (A2) depend on the sign of Ω_i.

Thus if $\varepsilon_{\pi_i \theta_i} \geq \varepsilon_{p\theta_i}$, then $\Omega_i > 0$ so that $d\theta_i^* / d\alpha^{ig} < 0$ and $d\theta_j^* / d\alpha^{ig} > 0$. For the remaining case, Ω_i can be rewritten as

$$\Omega_i \equiv \left[\left(\varepsilon_{\pi_i \theta_i} - \varepsilon_{p\theta_i} \right) p \left(D_{ii} - d_{ii} \right) + \varepsilon_{\pi_i \theta_i} d_{ii} \right] \frac{\pi_i}{\theta_i},$$

owing to the definition of $\varepsilon_{\pi_i \theta_i}$. If , therefore $\varepsilon_{\pi_i \theta_i} < \varepsilon_{p\theta_i}$ and $\varepsilon_{\pi_i \theta_i}$ or d_{ii} is sufficiently small, then $\Omega_i < 0$ and we obtain: $d\theta_i^* / d\alpha^{ig} > 0$ and $d\theta_j^* / d\alpha^{ig} < 0$.

Appendix 2: Derivation of equation (12)

Minimizing (11) with respect to α^{ig}, we obtain:

$$\frac{\partial p}{\partial \theta_i}\frac{\partial \theta_i^*}{\partial \alpha^{ig}}\pi_i\alpha^{im}D_{ii}+\frac{\partial p}{\partial \theta_j}\frac{\partial \theta_j^*}{\partial \alpha^{ig}}\pi_i\alpha^{im}D_{ii}+p\frac{\partial \pi_i}{\partial \theta_i}\frac{\partial \theta_i^*}{\partial \alpha^{ig}}\alpha^{im}D_{ii}+p\frac{\partial \pi_i}{\partial \theta_j}\frac{\partial \theta_j^*}{\partial \alpha^{ig}}\alpha^{im}D_{ii}$$
$$+\frac{\partial p}{\partial \theta_i}\frac{\partial \theta_i^*}{\partial \alpha^{ig}}(1-\pi_i)D_{ij}+\frac{\partial p}{\partial \theta_j}\frac{\partial \theta_j^*}{\partial \alpha^{ig}}(1-\pi_i)D_{ij}-p\frac{\partial \pi_i}{\partial \theta_i}\frac{\partial \theta_i^*}{\partial \alpha^{ig}}D_{ij}-p\frac{\partial \pi_i}{\partial \theta_j}\frac{\partial \theta_j^*}{\partial \alpha^{ig}}D_{ij}$$
$$-\frac{\partial p}{\partial \theta_i}\frac{\partial \theta_i^*}{\partial \alpha^{ig}}\pi_i\alpha^{im}d_{ii}-\frac{\partial p}{\partial \theta_j}\frac{\partial \theta_j^*}{\partial \alpha^{ig}}\pi_i\alpha^{im}d_{ii}+(1-p)\frac{\partial \pi_i}{\partial \theta_i}\frac{\partial \theta_i^*}{\partial \alpha^{ig}}\alpha^{im}d_{ii}+(1-p)\frac{\partial \pi_i}{\partial \theta_j}\frac{\partial \theta_j^*}{\partial \alpha^{ig}}\alpha^{im}d_{ii}$$
$$+C'\frac{\partial \theta_i^*}{\partial \alpha^{ig}}=0\,. \qquad \text{(A3)}$$

Rearranging, we obtain:

$$\left\{\frac{\partial p}{\partial \theta_i}\pi_i\alpha^{im}D_{ii}+\frac{\partial p}{\partial \theta_i}(1-\pi_i)D_{ij}-\frac{\partial p}{\partial \theta_i}\pi_i\alpha^{im}d_{ii}+p\frac{\partial \pi_i}{\partial \theta_i}\alpha^{im}D_{ii}-p\frac{\partial \pi_i}{\partial \theta_i}D_{ij}\right.$$
$$\left.+(1-p)\frac{\partial \pi_i}{\partial \theta_i}\alpha^{im}d_{ii}+C'\right\}\frac{\partial \theta_i^*}{\partial \alpha^{ig}}=$$
$$-\left\{\frac{\partial p}{\partial \theta_j}\pi_i\alpha^{im}D_{ii}+\frac{\partial p}{\partial \theta_j}(1-\pi_i)D_{ij}-\frac{\partial p}{\partial \theta_j}\pi_i\alpha^{im}d_{ii}+p\frac{\partial \pi_i}{\partial \theta_j}\alpha^{im}D_{ii}-p\frac{\partial \pi_i}{\partial \theta_j}D_{ij}\right.$$
$$\left.+(1-p)\frac{\partial \pi_i}{\partial \theta_j}\alpha^{im}d_{ii}\right\}\frac{\partial \theta_j^*}{\partial \alpha^{ig}}\,. \qquad \text{(A4)}$$

Using the policymaker's first-order condition in (8) to substitute out for C' in (A4) and rearranging slightly, we have:

$$\left\{\frac{\partial p}{\partial \theta_i}\pi_i\alpha^{im}D_{ii}+\frac{\partial p}{\partial \theta_i}(1-\pi_i)D_{ij}-\frac{\partial p}{\partial \theta_i}\pi_i\alpha^{im}d_{ii}+p\frac{\partial \pi_i}{\partial \theta_i}\alpha^{im}D_{ii}-p\frac{\partial \pi_i}{\partial \theta_i}D_{ij}+(1-p)\frac{\partial \pi_i}{\partial \theta_i}\alpha^{im}d_{ii}\right.$$
$$\left.-\frac{\partial p}{\partial \theta_i}\pi_i\alpha^{ig}D_{ii}-\frac{\partial p}{\partial \theta_i}(1-\pi_i)D_{ij}+\frac{\partial p}{\partial \theta_i}\pi_i\alpha^{ig}d_{ii}-p\frac{\partial \pi_i}{\partial \theta_i}\alpha^{ig}D_{ii}+p\frac{\partial \pi_i}{\partial \theta_i}D_{ij}-(1-p)\frac{\partial \pi_i}{\partial \theta_i}\alpha^{ig}d_{ii}\right\}\frac{\partial \theta_i^*}{\partial \alpha^{ig}}$$
$$=-\left\{\frac{\partial p}{\partial \theta_j}\left[\pi_i\left(\alpha^{im}D_{ii}-D_{ij}-\alpha^{im}d_{ii}\right)+D_{ij}\right]+\frac{\partial \pi_i}{\partial \theta_j}\left[p\left(\alpha^{im}D_{ii}-D_{ij}-\alpha^{im}d_{ii}\right)+\alpha^{im}d_{ii}\right]\right\}\frac{\partial \theta_j^*}{\partial \alpha^{ig}}\,. \qquad \text{(A5)}$$

Focusing only on the left-hand side (A5), we cancel and arrange terms to yield:

$$\left\{\frac{\partial p}{\partial \theta_i}\pi_i D_{ii}\left(\alpha^{im}-\alpha^{ig}\right)-\frac{\partial p}{\partial \theta_i}\pi_i d_{ii}(\alpha^{im}-\alpha^{ig})+p\frac{\partial \pi_i}{\partial \theta_i}D_{ii}\left(\alpha^{im}-\alpha^{ig}\right)+(1-p)\frac{\partial \pi_i}{\partial \theta_i}d_{ii}\left(\alpha^{im}-\alpha^{ig}\right)\right\}\frac{\partial \theta_i^*}{\partial \alpha^{ig}}.$$

Further rearranging slightly gives:

$$\left\{\frac{\partial p}{\partial \theta_i}\pi_i\left(D_{ii}-d_{ii}\right)+p\frac{\partial \pi_i}{\partial \theta_i}\left(D_{ii}-d_{ii}\right)+\frac{\partial \pi_i}{\partial \theta_i}d_{ii}\right\}\frac{\partial \theta_i^*}{\partial \alpha^{ig}}\left(\alpha^{im}-\alpha^{ig}\right).$$

After some slight manipulations, the above expression becomes:

$$\left\{\left[\frac{\partial p}{\partial \theta_i}\frac{\theta_i}{p}+\frac{\partial \pi_i}{\partial \theta_i}\frac{\theta_i}{\pi_i}\right]\frac{\left(D_{ii}-d_{ii}\right)p\pi_i}{\theta_i}+\frac{\partial \pi_i}{\partial \theta_i}d_{ii}\right\}\frac{\partial \theta_i^*}{\partial \alpha^{ig}}\left(\alpha^{im}-\alpha^{ig}\right).$$

Using the two definitions for elasticity and putting the above expression together with the right-hand side of equation (A5), we have:

$$\left\{\left[\varepsilon_{\pi_i\theta_i}-\varepsilon_{p\theta_i}\right]\frac{\left(D_{ii}-d_{ii}\right)p\pi_i}{\theta_i}+\frac{\partial \pi_i}{\partial \theta_i}d_{ii}\right\}\frac{\partial \theta_i^*}{\partial \alpha^{ig}}\left(\alpha^{im}-\alpha^{ig}\right)=$$

$$-\left\{\frac{\partial p}{\partial \theta_j}\left[\pi_i\alpha^{im}\left(D_{ii}-d_{ii}\right)+\left(1-\pi_i\right)D_{ij}\right]+\frac{\partial \pi_i}{\partial \theta_j}\left[p\left(\alpha^{im}D_{ii}-D_{ij}\right)+\left(1-p\right)\alpha^{im}d_{ii}\right]\right\}\frac{\partial \theta_j}{\partial \alpha^{ig}}. \quad \text{(A6)}$$

Using (A1) and (A2), and canceling terms, the above expression becomes (12) in the text.

Appendix 3: Derivation of Proposition 2

By assumption, $\alpha^{im}D_{ii}\geq D_{ij}$. From our results in Appendix 1, we know that $\Phi_{jj}>0$ and $\Phi_{ji}>0$. Furthermore, given $\varepsilon_{\pi_i\theta_i}\geq\varepsilon_{p\theta_i}$ for case (i), we can sign (12) in the following way:

$$\{+\}(+)\left(\alpha^{im}-\alpha^{ig}\right)=\{-\}(+).$$

The parenthesis terms in the above expression represent the terms Φ_{jj} and Φ_{ji} in (12). From the above equation, we can conclude that $\alpha^{im}<\alpha^{ig}$. Alternatively, for case (ii) where $\varepsilon_{\pi_i\theta_i}<\varepsilon_{p\theta_i}$ and $\varepsilon_{\pi_i\theta_i}$ or d_{ii} is small, we can sign (12) as follows:

$$\{-\}(+)\left(\alpha^{im} - \alpha^{ig}\right) = \{-\}(+),$$

from which we can conclude that $\alpha^{im} > \alpha^{ig}$.

Footnotes

1. To simplify the analysis and discussion, we only allow for such attacks at home. We can, however, extend the analysis to permit backlash incidents at home and abroad. For example, Israeli actions against the Palestine Liberation Organization led, in part, to a more militant breakaway Abu Nidal Organization that attacked "Zionist" targets at home and abroad. The Jemaah Islamiyah car bombing of the Australian embassy in Jakarta, Indonesia, however, fits the assumption of the model, because a country's embassy is considered to be home soil. Australia was targeted in the bombing that killed 9 and injured over 150, owing to its support of US-led operations against al-Qaida.

2. From 1968 until the early 1980s, this common threat either came from the Palestinian groups or the leftists. Since 1979, this threat came increasingly from Islamic fundamentalist terrorists. The model can be expanded to allow there to be more than two threatened countries. This extension would greatly increase the notation without additional insight.

3. For example, see Arce and Sandler (2005), Sandler and Lapan (1988), and Sandler and Siqueira (2006). For domestic terrorism, the two active players are the terrorists and the policymaker (Anderton and Carter, 2005; Frey and Leuchinger, 2003).

4. Only Rosendorff and Sandler (2004) in a recruitment context examined grievances stemming from proactive measures. These authors did not include voters.

5. The risk of a counterattack may be tied to vulnerability – soft-target status. Our analysis implicitly assumes equal *defensive* measures, so that relative vulnerability is not a consideration. Earlier papers have investigated soft-target vulnerability (Heal and Kunreuther, 2005).

6. Because voters choose policymakers that later implement policy, strategic voting is analogous to strategic delegation. In a related paper, Persson and Tabellini (1992) considered strategic delegation in the context of tax competition and European integration. In a

noncooperative game, these authors showed that voters possessed incentives to delegate fiscal `policy to policymakers who were different than them in terms of endowments. In the symmetric political equilibrium, voters of both countries delegated policymaking to a government that was more prone to taxation than both median voters. Also, see Besley and Coate (2003) and Dur and Roelfsema (2005) on different delegation problems.

7. Equation (2) follows from writing the probability density function as $p = p\left(\gamma \geq \Gamma\right)$, where $\Gamma = b - g\left(\Theta\right)m - \left[1 - g\left(\Theta\right)h\right]$ is based on (1). Thus $p = 1 - P\left(\gamma \leq \Gamma\right)$, where the cumulative density function $P\left(\bullet\right)$ equals: $\int_{-\alpha}^{\Gamma} \frac{ds}{\alpha - \left(-\alpha\right)} = \frac{1}{2} + \frac{\Gamma}{2\alpha}$.

8. To derive (5), we note that $\pi_1 = 1 - P\left(\eta \leq \theta_2 - \theta_1\right)$, where $P\left(\bullet\right)$ equals:

$$\int_{-\psi}^{\theta_2 - \theta_1} \frac{ds}{\psi - \left(-\psi\right)} = \frac{1}{2} + \frac{\theta_2 - \theta_1}{2\psi}.$$

9. For simplicity, we assume that the backlash attack by group *B* must be in country *i* to cause losses to *i*. We can easily allow *B*'s attacks to harm *i*'s interests at home and abroad. The model will be the same provided that the *D*s and *d*s are ordered as in the text. This will hold if there is a "host country disadvantage" – i.e., losses to *i* are greater from *B* hitting *i*'s interests at home than abroad.

10. The second-order condition is given by

$$\frac{\partial^2 Z^{ig}}{\partial \theta_i^2} = \frac{\partial^2 p}{\partial \theta_i^2}\left[\pi_i \alpha^{ig}\left(D_{ii} - d_{ii}\right) + \left(1 - \pi_i\right)D_{ij}\right] + 2\frac{\partial \pi_i}{\partial \theta_i}\frac{\partial p}{\partial \theta_i}\left[\alpha^{ig}\left(D_{ii} - d_{ii}\right) - D_{ij}\right] + C'' > 0.$$

11. Even if $\alpha^{ig} D_{ii} < D_{ij}$, the expression can still be positive if the d_{ii} expression is sufficiently large.

12. We employ this assumption on two grounds. First, it provides a more distinct case to

earlier situations where reaction paths shift down. Second, this assumption allows us later to utilize a direct connection between voter preferences over damages and government policy for particular scenarios that simplifies discussion without unduly sacrificing generality by maintaining two alternative scenarios.

13. A good example of this reaction is the terrorists' response to the US retaliatory raid on Libya on April 15, 1986 for its alleged involvement in the La Belle discotheque bombing in Berlin earlier in April. Following the US raid, terrorism directed at US interests at home and abroad increased greatly (Enders and Sandler, 1993, 2006).

14. Such a group may prove decisive, given its skills at organizing and mobilizing its members. Historical and demographic factors may also play a role in maintaining this group's predominant electoral role. For more specific models concerning voting and elections, see Persson and Tabellini (2000).

15. Free-riding incentives in stage 2 lead to suboptimal offensive countermeasures, since neither policymaker accounts for reduced damages to the other country from his or her efforts (Sandler and Siqueira, 2006).

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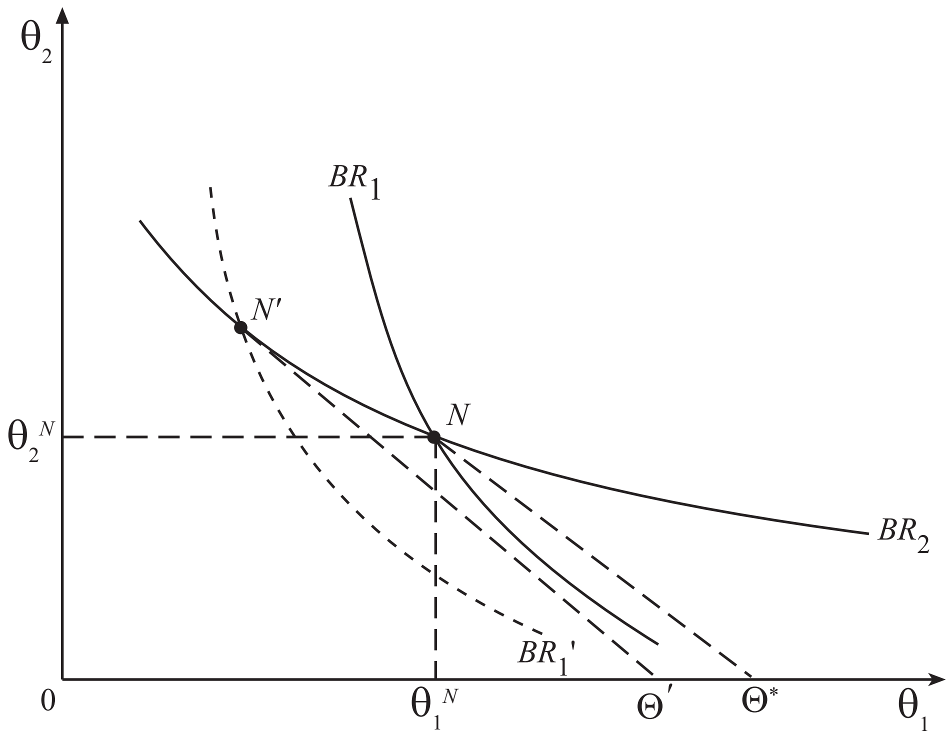

Fig. 1. Elected Policymakers' Reaction Paths in Stage 2

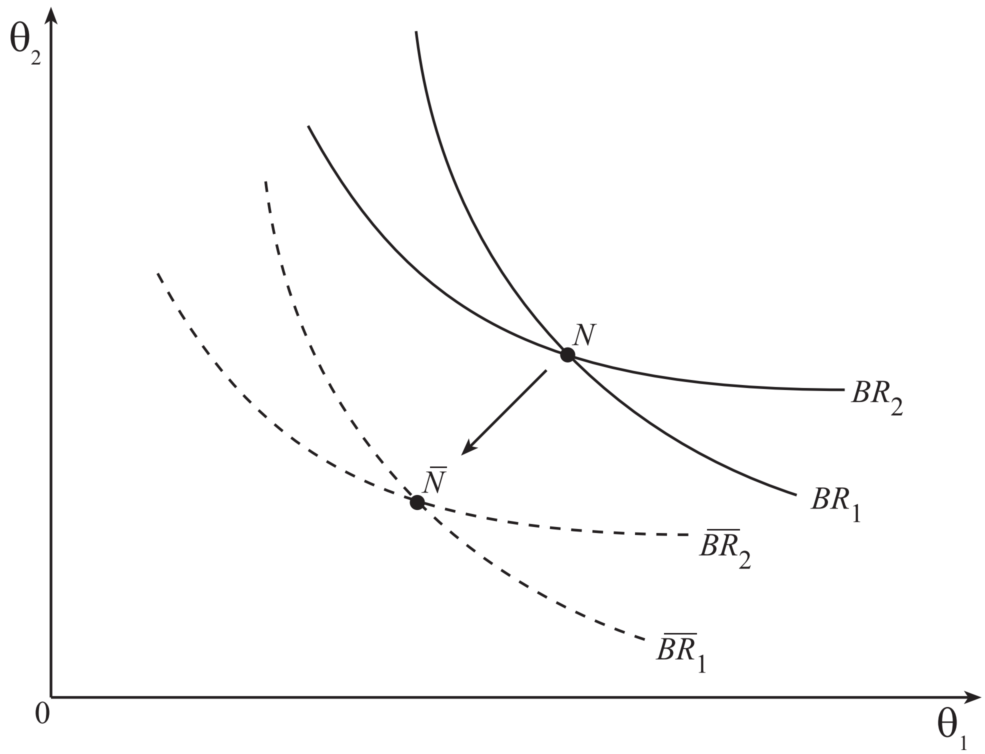

Fig 2. Influence of Voters' Strategic Choice on Proactive Measures