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False Alarm? Terror Alerts and Reelection*

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Abstract

We study a game with asymmetric information to analyze whether an incumbent can improve his reelection prospects using distorted terror alerts. The voters' preferred candidate depends on the true terror threat level, and the voters are rational and therefore aware of the incumbent's incentive to distort alerts. In equilibrium, a moderately "Machiavellian" incumbent reports low and high threat levels truthfully, but issues the same distorted alert for a range of intermediate threat levels. He thereby ensures his reelection for some threat levels at which he would not be reelected under full information.

Keywords: Terror alerts; voting and elections; signalling; political economics

JEL classification: D72, C72, D82

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In January 2003, the newly created Department of Homeland Security began administering the so-called Homeland Security Advisory System, a five-level terrorism threat scale.[1] By far the longest lasting rise to "high risk" in the first term of President George W. Bush was issued on August 1, 2004, three days after John Kerry accepted his presidential nomination at the Democratic National Convention, and lasted until November 10, 2004, eight days after President Bush's reelection. After this high terror alert was issued, many observers argued that the Bush administration might have been motivated by strategic political considerations, as voters preferred Bush over Kerry for the fight against terrorism.[2] Conservative Fox News was one of these observers, writing that "the advantage of incumbency were in full display" when the Bush administration issued this high terror alert.[3] Clearly, President Bush and his administration could have used a distorted alert to improve reelection prospects if voters were naive enough to ignore the administration's incentives to exaggerate the true terror threat. This, however, seems unlikely given the widespread awareness that the President might have issued a high alert for strategic political reasons.[4]

This gives rise to the question whether an incumbent can improve his reelection prospects with distorted terror alerts when voters are fully rational and hence aware of the incumbent's incentive to misreport the true terror threat. A priori, one might think that voters should be able to discount the incumbent's claims sufficiently such that the incumbent cannot exploit his informational advantage.[5] To address this question, we

[1]The five threat levels (and the associated colors) are in ascending order: low (green), general (blue), elevated (yellow), high (orange), and severe (red) risk.

[2]Willer (2004) finds in his study, covering data up to May 2004, that new terror warnings significantly increased President Bush's approval ratings. Wolfers and Zitzewitz (2004) provide some evidence from pre-election betting markets that high terror alerts increase the probability of a Bush reelection.

[3]See Fox News, "Dems Question Timing of Terror Alert", August 4, 2004, http://www.foxnews.com.

[4]See, e.g., Financial Times, "Bush administration defends latest warning on terrorist threat: Americans' reaction to the government action has been sceptical", August 4, 2004; Fox News, "Dems Question Timing of Terror Alert", August 4, 2004; and the International Herald Tribune, "Across America, terror alert raises skepticism as well as fear", August 6, 2004.

[5]This would be consistent with Wittman's (1989: p. 1401) argument that he has "never met anyone who believes that the Defense Department does not exaggerate the need for defense procurement. But if everybody knows that the Defense Department will exaggerate the importance of its contributions to human welfare, then, on average, voters will sufficiently discount Defense Department claims."

present a game with asymmetric information between an incumbent and a median voter. The incumbent knows the true terror threat and issues a terror alert; the voter only observes the alert and elects either the incumbent or the opposition candidate. The incumbent gets an office-rent if he is reelected, but he has to bear moral costs if he lies, i.e., if he distorts the alert. The voter's preferences are such that she is better off with the incumbent in office when the threat is high, but with the incumbent's challenger otherwise.

There is a continuum of perfect Bayesian equilibria (PBE). All of them have the same structure: The incumbent reports low and high threats truthfully, but he issues the lowest alert that ensures his reelection for intermediate threats, i.e., for threat levels around the one at which, under full information, the voter would be indifferent between the two candidates. Because low and high threats are reported truthfully, the equilibrium is fully revealing for these threat levels and the voter faces no uncertainty. In contrast, the voter is uncertain about the true threat for intermediate threat levels. The incumbent however manipulates the voter's beliefs about the true threat in such a manner that her expected utility of reelecting him exceeds her expected utility of electing his challenger. The incumbent is therefore reelected for more threat levels than he would be under full information in all, but one PBE.[6]

Insofar as the incumbent is willing to deceive the voter for personal gain, his equilibrium behavior is quite Machiavellian. However, it is worth emphasizing that only a moderately Machiavellian incumbent can use terror alerts to his advantage. Obviously, a benevolent incumbent, whose office-rents are zero (or whose marginal disutility of lying is infinite), would never distort alerts. Somewhat less obviously, an incumbent whose office-rents are very large (or whose disutility from lying is very low) could never use alerts for reelection purposes. The reason is that such an incumbent would never issue an alert that does not lead to his reelection if some other alert led to his reelection. In

[6]Notice that an incumbent who is preferred by the voter when the threat is low would also misreport intermediate terror threats, but he would distort the alerts downwards.

equilibrium, the voter would thus disregard the alert and vote for either the incumbent or his challenger for any alert. Hence, there is a non-monotonic relationship between how Machiavellian the incumbent is and the extent to which he can (mis)use alerts to improve his reelection prospects.

The general picture that emerges from our model is consistent with what happened in the US presidential elections in 2004: The Bush administration issued a high, yet not the highest, terror alert before the elections. This caused some uncertainty about the true terror threat and was followed by President Bush's reelection. The uncertainty arose because many observers and voters were aware that the Bush administration *may* have distorted the terror alert while the true threat was relatively low, but that they *may* also have reported a high terror alert while the threat was indeed relatively high.[7] Our model suggests that the voters finally reelected President Bush because they really wanted him in office should the latter be true.[8] It is noteworthy that if President Bush did distort the terror alert to ensure his reelection at a threat level at which the voters would have elected Kerry under full information, he can only have done so, according to our model, because the voters (correctly) believed that he would not issue a high alert if the real threat were very low.

Apart from the terror alerts - reelection example, the model we explore has other interesting applications. One of them is expert lobbying. Suppose there is a decision-maker that must make a binary choice whether to realize a certain infrastructure project (or to pass a new law), and who would approve this project if and only if its construction costs did not exceed a certain threshold. While she has no idea how expensive the project will be, there is an expert who knows it, but who has a personal interest in the project's

[7]Statements made by Homeland Security Secretary Tom Ridge after his resignation in February 2005 suggest that the former could have been the case indeed. He "often disagreed with administration officials who wanted to elevate the threat level to orange, or "high" risk of terrorist attack, but was overruled." See USA Today, "Ridge reveals clashes on alerts", May 10, 2005, http://www.usatoday.com.

[8]The 2004 exit poll of the National Election Pool, a consortium of news organizations, suggests that "terrorism" was the most important issue for 19 per cent of the voters and that 86 per cent of these voters supported Bush. Hillygus and Shields (2005) even find that 45.4 per cent of the voters considered terrorism extremely important, which is a much higher proportion than for any other issue.

realization, e.g., because he works in the construction industry. Given that it is costly for this expert to lie, e.g., because this induces moral costs or because it harms his reputation as an expert, our model suggests that he will report the project's costs truthfully if they are far above or below the decision-maker's threshold, while he provides a distorted cost estimate that ensures the project's realization if costs are intermediate. He can thereby ensure the project's realization at some cost levels above the decision-maker's threshold.[9] In a similar vein, the model also explains how a moderately self-seeking CEO may be able to manipulate information about the company's financial situation in such a way that the imperfectly informed board does not lay him off in financial situations in which the board would actually want to lay him off.

A related contribution is Glaeser's (2005) analysis of the political economy of hatred. He investigates when politicians send misleading signals about the threat from a minority group to increase popular support for their policies and when voters pay some costs to investigate the truth. Our paper is also related to the contributions of Rogoff and Siebert (1988), Alesina and Cukierman (1990), Rogoff (1990), Hess and Orphanides (1995, 2001), Cukierman and Tommasi (1998), and Hodler, Loertscher and Rohner (2007) in which voters are imperfectly informed about either the incumbent's skills, the incumbent's preferences or the state of the world and in which the incumbent distorts his policy choice – often in a socially harmful way – in an attempt to improve his reelection prospects.

More generally, the paper contributes to the signalling literature (see, e.g., Kreps and Sobel (1994) for an overview) with the analysis of a game between an informed sender who signals the state of the world with costs increasing in the signal's distortion, and an uninformed receiver who makes a binary choice that affects the payoffs of both players.

The remainder of the paper is structured as follows: Section 1 presents the model, section 2 derives and discusses the equilibria, and section 3 concludes.

[9] See Potters and van Winden (1992) for a related model of expert lobbying. In their model, all signals are equally costly, and the informed expert can decide whether to send a signal or not.

1 The model

There are two strategic players, the incumbent and the median voter. The incumbent is either of type R or L, and there is an opposition candidate of the other type. There is asymmetric information about the state of the world, i.e., about the threat from terrorism z, which is randomly drawn from the distribution $F(z)$ with continuous density $f(z) > 0$ for all $z \in [a, b]$.[10] While $F(z)$ is common knowledge, only the incumbent knows z. The timing is as follows: First, the incumbent issues a signal about z, the terror alert $x \in [a, b]$.[11] Second, the voter observes x (but not z) and elects either the incumbent or his challenger.

The incumbent gets a rent $\Phi > 0$ from being in office if he is reelected, which may give him an incentive to misreport the threat z. However, the incumbent has to bear moral costs c if he lies, i.e., if he distorts the alert. The misreporting costs c could also follow from the suboptimal level of precautionary measures that distorted alerts trigger: too low alerts increase the costs should terrorists launch an attack, and too high alerts result in a high presence of security personnel at high-profile targets, which is costly because these policemen and other security personnel cannot accomplish their usual law enforcing tasks. We assume that the misreporting costs increase in the alert's distortion $d(z) \equiv |x(z) - z|$. That is, $c = c(d)$, where $c(d)$ is continuous, $c(0) = 0$ and the derivative $c_d(d) > 0$.[12] The incumbent's utility is therefore $\Phi - c(d(z))$ if he is reelected, and $-c(d(z))$ otherwise.

The voter's utility is $u(i, z)$ when candidate $i \in \{L, R\}$ is elected and the threat is z. Hence, her net utility from electing R rather than L is $\Delta(z) \equiv u(R, z) - u(L, z)$ when the threat is z. We assume that $\Delta(z)$ is continuous and satisfies $\Delta_z(z) > 0$, $\Delta(a) < 0$ and

[10] Some restrictions on a and b will be introduced below.

[11] The case of discrete terror alerts will be briefly discussed towards the end of this section.

[12] Costly signal distortions are represented by a similar cost function in, e.g., Lacker and Weinberg (1989), Maggi and Rodriguez-Clare (1995), and Crocker and Morgan (1998). This simple cost function eases the exposition, but our results would also hold for a more general cost function $c = c(x, z)$ satisfying $c(z, z) = 0$, $c_x(.) > 0$ and $c_z(.) < 0$ if $x > z$, and $c_x(.) < 0$ and $c_z(.) > 0$ if $x < z$.

$\Delta(b) > 0$. Thus, the election outcome depends on z, and there is a unique $\tilde{z}$ satisfying $\Delta(\tilde{z}) = 0$. Under full information, the voter would thus prefer R if $z > \tilde{z}$ and L if $z < \tilde{z}$. But since the voter does not know z, she updates her beliefs $\mu(z|x)$ about z after observing x using Bayes' rule (where possible). She votes $v(x) = r$ if her beliefs are such that $E_\mu(\Delta(z)|x) > 0$, and $v(x) = l$ if $E_\mu(\Delta(z)|x) < 0$. For simplicity, we further assume that she reelects the incumbent if $E_\mu(\Delta(z)|x) = 0$. Payoffs Φ, $c(d)$ and $\Delta(z)$ are common knowledge.

This general characterization of the voter's preferences and the political process is consistent with different perceptions of political competition in democracies. First, suppose candidates set possibly multidimensional policy platforms before the elections and must stick to them thereafter. It may then depend on the state of the world in a single dimension which candidate the voter prefers. In particular, she may prefer the candidate that credibly announced to be tough on terrorism if the terror threat is high, but the opponent otherwise. Second, suppose candidates differ in their skills and that there are multiple tasks. It may then again depend on the state of the world in a single dimension which candidate the voter prefers. In particular, she may prefer the candidate that is better in fighting terrorism if the terror threat is high, and the opponent who is better in some other tasks otherwise. Third, suppose candidates differ in their preferences over policy outcomes while their policy platforms are non-binding. Then, the voter's preferences over candidates may again depend on the state of the world in a way consistent with the above model (see Hodler, Loertscher and Rohner, 2007).

The solution concept we employ is perfect Bayesian equilibrium (PBE), and we focus for simplicity on PBE in which the voter's strategy $v(x)$ is monotonic in x.[13]

[13] Monotonicity of $v(x)$ in x implies that when $v(x_1) = j$ and $v(x_2) = j$ with $x_1 < x_2$ and $j \in \{l, r\}$, then $v(x) = j$ for all $x \in [x_1, x_2]$ and for all $x_1, x_2 \in [a, b]$. We show in Appendix B that there are PBE in which $v(x)$ is non-monotonic. These PBE have however a structure very similar to those in which $v(x)$ is monotonic, as $v(x)$ remains monotonic in those x that are played on equilibrium. Moreover, we prove that the PBE in which $v(x)$ is non-monotonic do not satisfy the Intuitive Criterion (Cho and Kreps, 1987). Hence, assuming monotonicity of $v(x)$ has the same effect on our results as applying the Intuitive Criterion.

Before solving the model in the next section, we would like to highlight that it can serve to analyze any situation in which an uninformed receiver makes a binary choice based on his belief about the state z and an informed sender with a personal interest in that choice sends a signal x about z, yet suffers a cost from distorting the signal. One such application could be expert lobbying: In this case, the uninformed decision-maker would have the role of the voter, the informed, but biased expert the role of the incumbent, z would be the true costs of an infrastructure project (or the true net benefit from a new law), $x(z)$ the expert's signal about the costs, and $v(x)$ the decision-maker's choice whether to realize the project or not. Similarly, a moderately self-seeking CEO could be in the incumbent's role and the company's board in the voter's role, where z would be the company's true financial situation, $x(z)$ the CEO's report of this situation, and $v(x)$ the board's decision whether to lay the CEO off or not.

2 The equilibria

To derive and characterize all PBE of our game, we focus on the case in which the incumbent is of type R. The analogous case of an incumbent of type L will be briefly discussed at the end of this section.

We start by describing some general properties that the incumbent's choice of the alert $x(z)$ must satisfy. First, the incumbent never distorts the alert so much that $c(d) > \Phi$.[14] That is, he always chooses an $x(z) \in [z - \overline{d}, z + \overline{d}]$, where $\overline{d} \equiv c^{-1}(\Phi) > 0$. Second, he never distorts the alert if he is not reelected, i.e., if he does not get the rent Φ. Third, he never distorts the alert more than necessary to ensure his reelection. It follows from these observations:

Lemma 1 *When the incumbent is reelected for some alerts $x(z) \in [z - \overline{d}, z + \overline{d}]$, he issues the alert $x(z)$ with the lowest distortion $d(z)$ that ensures his reelection. When he*

[14] We assume the incumbent is willing to distort $x(z)$ so much that $c(d) = \Phi$ to ensure his reelection. That is, the incumbent distorts $x(z)$ if he is indifferent.

is not reelected for any $x(z) \in [z - \overline{d}, z + \overline{d}]$*, he issues the undistorted alert* $x(z) = z$*.*

The voter therefore knows that an observed alert x is inconsistent with any threat $z \notin [x-\overline{d}, x+\overline{d}]$ and, consequently, that $z \geq \tilde{z}$ if $x \geq \tilde{x}+\overline{d} \equiv x_H$, and $z < \tilde{z}$ if $x < \tilde{x}-\overline{d} \equiv x_L$, where $\tilde{x} \equiv \tilde{z}$. We subsequently assume $a \leq z_L$ and $b \geq z_H$, where $z_H \equiv x_H$ and $z_L \equiv x_L$.[15] It follows:

Lemma 2 *The voter reelects* R *for* $x \geq x_H$ *and elects* L *for* $x < x_L$*.*

It follows from Lemma 2 and the monotonicity of the voter's strategy $v(x)$ that there must exist a unique threshold $x^* \in [x_L, x_H]$ such that the voter plays $v(x) = r$ if $x \geq x^*$, and $v(x) = l$ otherwise. Lemma 1 then implies that incumbent R distorts alerts if and only if $z \in [z^* - \overline{d}, z^*)$, where $z^* \equiv x^*$. In particular, it implies that all PBE must share the following structure:

Lemma 3 *Incumbent* R *issues the distorted alert* $x(z) = x^*$ *if* $z \in [z^* - \overline{d}, z^*)$*, and the undistorted alert* $x(z) = z$ *otherwise. The voter reelects* R *if and only if* $x \geq x^*$*, where* $x^* \in [x_L, x_H]$*.*

In all PBE, the incumbent's strategy is therefore separating for low and high threats z, but involves pooling for intermediate threats $z \in [z^* - \overline{d}, z^*]$.

When observing x^*, the voter is uncertain about the true threat as x^* is consistent with the continuum of threats $z \in [z^* - \overline{d}, z^*]$. Her updated belief, using Bayes' rule, is $\mu(z|x^*) = \frac{1}{F(z^*)-F(z^*-\overline{d})} \int_{z^*-\overline{d}}^{z^*} f(z)dz$. Consequently, her expected net utility from (re)electing R rather than L is

$$E_\mu(\Delta(z)|x^*) = \frac{1}{F(z^*) - F(z^* - \overline{d})} \int_{z^*-\overline{d}}^{z^*} \Delta(z) f(z) dz, \tag{1}$$

which increases in z^* as $\Delta(z)$ increases in z. Since $x^* = z^*$, $E_\mu(\Delta(z)|x^*)$ must increase in x^* as well. Define z' by $\int_{z'-\overline{d}}^{z'} \Delta(z) f(z) dz = 0$ and $x' \equiv z'$. Note that $z' \in (\tilde{z}, z_H)$ and,

[15] For our main results to hold, it would be sufficient to assume $a < \tilde{z}$, which follows from $\Delta(a) < 0$, and $b \geq z'$, where $z' < z_H$ is defined below. However, assuming $a \leq z_L$ and $b \geq z_H$ eases the exposition.

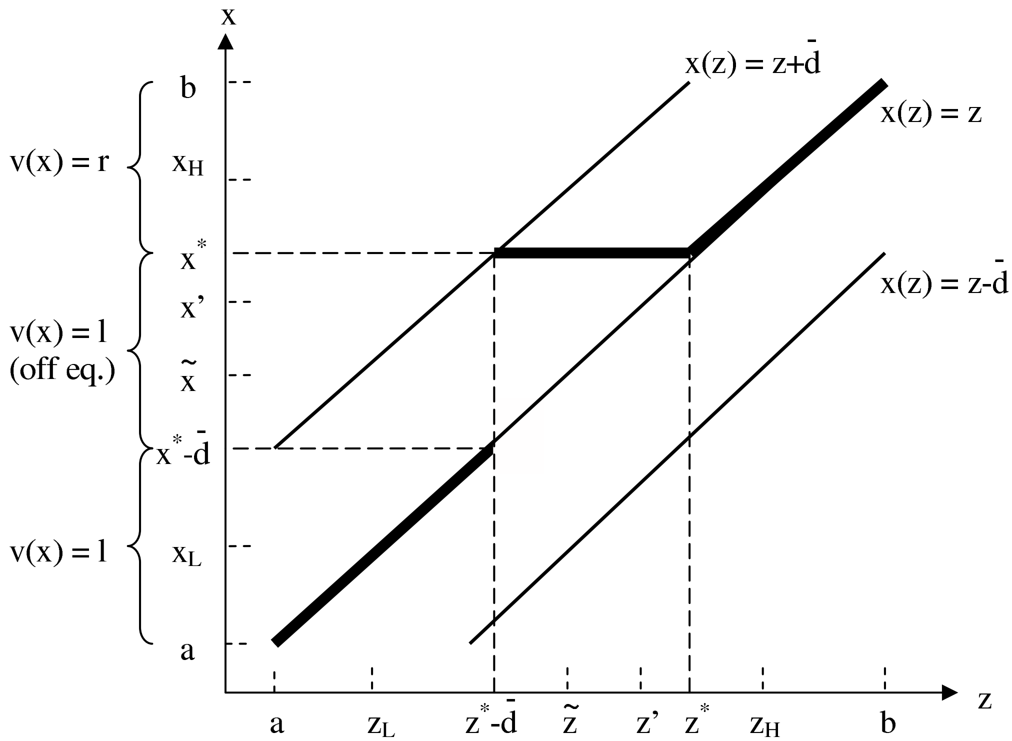

Figure 1: The equilibrium structure

consequently, $z' - \overline{d} \in (z_L, \tilde{z})$, which will be useful below. It follows from the definition of x' and from the result that $E_\mu(\Delta(z)|x^*)$ increases in x^* that reelecting R when observing x^* and knowing that $z \in [z^* - \overline{d}, z^*]$ maximizes the voter's expected utility if and only if $x^* \geq x'$. We can now state our main result:

Proposition 1 *The game with incumbent R has a continuum of PBE with the same structure, and no other PBE. Each PBE is characterized by a $x^* \in [x', x_H]$ such that R issues the distorted alert $x(z) = x^*$ if $z \in [z^* - \overline{d}, z^*)$, and the undistorted alert $x(z) = z$ otherwise; the voter's beliefs are such that $E_\mu(\Delta(z)|x) \geq 0$ if $x \geq x^*$, in which case she reelects R, but such that $E_\mu(\Delta(z)|x) < 0$ otherwise, in which case she elects L.*

The proof is in Appendix A.

Figure 1 illustrates Proposition 1 for an arbitrary $x^* \in [x', x_H]$. Thick lines depict the alerts $x(z)$ that incumbent R issues. The voter's strategy $v(x)$ is shown along the vertical axis. The figure illustrates why incumbent R has no incentive to deviate at any

z. When $z < z^* - \overline{d}$ he cannot change the election outcome to his benefit with a distortion $d(z) \le \overline{d}$, and when $z \ge z^* - \overline{d}$ he cannot ensure his reelection with a lower $d(z)$. Observe that the voter can easily infer z if $x < x^* - \overline{d}$ or $x > x^*$, and that her voting behavior is optimal in these cases. Moreover, it holds by definition of x' that when observing x^* the voter has a weakly higher expected utility when reelecting R than when electing L because $x^* \ge x'$.

For the strategies described in Proposition 1 to constitute a PBE, the voter must elect L for $x \in [x^* - \overline{d}, x^*)$. Therefore, her off-equilibrium beliefs $\mu(z|x)$ must be such that $E_\mu(\Delta(z)|x) < 0$ for $x \in [x^* - \overline{d}, x^*)$. Such off-equilibrium beliefs are consistent with the Intuitive Criterion (Cho and Kreps, 1987). To see this for the PBE shown in Figure 1, observe that for all possible off-equilibrium alerts $\hat{x} \in [x^* - \overline{d}, x^*)$ incumbent R would be better off for some $z < \tilde{z}$ by issuing this alert $\hat{x}$ than by playing his equilibrium strategy if the voter played $v(\hat{x}) = r$ (instead of her equilibrium strategy $v(\hat{x}) = l$). The same argument applies to any other PBE described in Proposition 1.[16]

Proposition 1 implies that in equilibrium incumbent R is reelected for all threats $z \ge z^* - \overline{d}$ while he would only be reelected for threats $z \ge \tilde{z}$ under full information. Since $z^* - \overline{d} < \tilde{z}$ if $z^* < z_H$, incumbent R is reelected for more threats z than under full information in the whole continuum of PBE, except at the endpoint when $x^* = x_H$. With ex ante probability $F(\tilde{z}) - F(z^* - \overline{d})$, the incumbent is thus reelected due to his possibility to distort alerts while he would not be reelected under full information or, equivalently, when alerts were issued by an equally well informed, but apolitical agency. When observing x^* and reelecting incumbent R, the voter is aware that she might be better off with candidate L with probability $\frac{F(\tilde{z}) - F(z^* - \overline{d})}{F(z^*) - F(z^* - \overline{d})} > 0$. But the voter reelects incumbent R nevertheless because the threat might be high indeed, as he also signals

[16] To be more precise, note that for all $\hat{z} \in [z^* - \overline{d}, z^*)$ and all $z^* \in [z', z_H]$, incumbent R would be weakly better off by issuing $\hat{x} \equiv \hat{z}$ than by playing his equilibrium strategy for $z \in [\hat{z} - \overline{d}, \frac{z^* + \hat{z}}{2}]$ if the voter played $v(\hat{x}) = r$ (instead of her equilibrium strategy $v(\hat{x}) = l$). Since $\hat{z} - \overline{d} < \tilde{z}$ holds for all possible $\hat{z}$ and z^*, off-equilibrium beliefs implying $E_\mu(\Delta(z)|x) < 0$ are compatible with the Intuitive Criterion for all $x \in [x^* - \overline{d}, x^*)$ and all $x^* \in [x', x_H]$. Hence, all PBE satisfy the Intuitive Criterion.

$x(z) = x^*$ for $z \in [\tilde{z}, z^*]$, and because he manipulates her beliefs about the true threat in such a way that it is optimal for her to reelect him.

The above discussion implies that the incumbent derives the largest advantage from his possibility to (mis)use alerts in the PBE with $x^* = x'$. Interestingly, this PBE is the unique equilibrium that survives the following strengthened version of the Intuitive Criterion:[17] The voter should not only put zero probability on the possibility that the incumbent deviates at a z at which a deviation would lower his payoff for all possible strategies of the voter, but she should also put the same strictly positive (but potentially very small) probability on the possibility that the incumbent deviates at any other z.

The PBE described in Proposition 1 have been derived under the assumption that the incumbent's office-rent Φ and his misreporting costs $c(d)$ satisfy $c(0) < \Phi < c(b-a)$. Let us briefly discuss the cases in which this does not hold. The incumbent would always report the threat z truthfully and hence abstain from (mis)using alerts to improve his reelection prospects if $\Phi = 0$ or if misreporting were prohibitively costly for him. In contrast, if Φ were so high or misreporting so inexpensive that $c(b-a) \leq \Phi$, then the incumbent would be willing for any threat z to issue any alert $x(z)$ if this ensures his reelection. The voter would thus simply disregard the alerts and would reelect incumbent R if and only if she did so in the absence of any information and any signal about z, i.e., if and only if $E(\Delta) \equiv \int_a^b \Delta(z)f(z)dz \geq 0$. Hence, there is a non-monotonic relationship between how Machiavellian the incumbent is and the extent to which he can (mis)use alerts to improve his reelection prospects: The incumbent can and does (mis)use alerts to improve his reelection prospects if he is moderately Machiavellian, i.e., if his office-rent is strictly positive, but not excessively large (and if misreporting is costly, but not too costly for him), while he does not or cannot improve his reelection prospects with distorted alerts if he is either fully benevolent or very Machiavellian.

Since the terror alerts issued by the Homeland Security Advisory System are discrete,

[17] This is proven in Appendix C.

let us briefly discuss our model's main results if alert levels were discrete rather than continuous. A moderately Machiavellian incumbent would still distort alerts for some intermediate threats z, but not for low or high z. Depending on how the possible alert levels would relate to $F(z)$ and to the voter's net utility $\Delta(z)$ of reelecting R rather than electing L, these distortions would still ensure the incumbent's reelection for some z for which he would not be reelected under full information. Moreover, there would generally exist a unique PBE if the terror advisory scale had only few levels.

Finally, note that our model's results are analogous when the incumbent is of type L: There is a continuum of PBE in which incumbent L reports low and high threats truthfully, but he issues the highest alert that ensures his reelection, $x^{**} \in [x_L, x' - \overline{d}]$, for intermediate threats $z \in [z^{**}, z^{**} + \overline{d}]$, where $z^{**} \equiv x^{**}$. For similar reasons as above, the incumbent is reelected for more threats than he would be under full information in the whole continuum of PBE, except at the endpoint $x^{**} = x_L$. The main difference is that an incumbent of type L issues too low alerts for some intermediate threats while an incumbent of type R issues too high alerts for some intermediate threats.

3 Conclusions

In this paper, we have analyzed whether an incumbent can use distorted terror alerts to improve his reelection prospects even when voters are perfectly rational and therefore aware of the incumbent's incentive to misreport the true terror threat. Our model suggests that a moderately Machiavellian incumbent can indeed do so by manipulating the median voter's beliefs about intermediate terror threats in such a way that she wants to reelect him even though she is aware that she might be better off with the opposition candidate. Similarly, our model explains how an expert lobbyist who cares about his reputation can ensure the realization of some projects that the decision-maker would oppose under full information by providing distorted cost estimates, and how in some financial situations a moderately self-seeking CEO can avoid being laid off by misinforming the board about the company's true financial situation.

We conclude that, in principle, President Bush and his administration may have used a high terror alert to ensure his reelection in a situation in which the terror threat was relatively low such that under full information the voters would have preferred the Democratic candidate. But if President Bush did misuse the terror alerts to ensure his reelection, he can only have done so because the voters knew that he would have issued the same high terror alert for relatively high terror threats and, moreover, that he would not have issued a high alert if the true threat from terrorism had been very low.

Appendices

Appendix A

Proof of Proposition 1: We first show that the strategy profile and beliefs constitute PBE. We then prove that no other PBE in pure strategies exist.

It follows from Lemma 3 that R's strategy is optimal given the voter's strategy, and it is easy to see that the voter's strategy is optimal given her beliefs. Lemma 3 also implies that the voter's beliefs must be $\mu(z|x) = 1$ for $z = x$ if $x < x^* - \overline{d}$ and $x > x^*$. Hence, $E_\mu(\Delta(z)|x) < 0$ for $x < x^* - \overline{d} \leq \tilde{x}$ and $E_\mu(\Delta(z)|x) > 0$ for $x > x^* > \tilde{x}$. It further follows from Lemma 3, equation (1) and the definition of x' that the voter's beliefs are such that $E_\mu(\Delta(z)|x^*) \geq 0$ if $x^* \geq x'$. Thus, given R's strategy, the voter has correct and consistent beliefs on equilibrium.

To prove that no other PBE exist, it is sufficient to show that there can be no PBE with the structure described in Lemma 3 and with $x^* < x'$. To see this, suppose to the contrary that $x^* < x'$. Lemma 3 then requires the voter to play $v(x^*) = r$, but it follows from the definition of x' that $E_\mu(\Delta(z)|x^*) < 0$ and, hence, that the voter would want to play $v(x^*) = l$ for $x^* < x'$. This is a contradiction, and there can thus be no PBE with the structure described in Lemma 3 and with $x^* < x'$. ■

Appendix B

In this appendix, we present the solution to the game introduced in section 1 without assuming that the voter's strategy $v(x)$ is monotonic in x.

Denote by x^* the lowest x for which the voter plays $v(x) = r$, and let $z^* = x^*$. Lemmas 1 and 2, which also hold in the absence of any restriction on $v(x)$, then imply:

Lemma 4 *Incumbent R plays $x(z) = x^*$ for $z \in [z^* - \overline{d}, z^*]$ and $x(z) = z$ for $z < z^* - \overline{d}$, where $x^* \in [x_L, x_H]$.*

Unlike Lemma 3, Lemma 4 only describes the structure that all PBE must share for $z \leq z^*$ and $x \leq x^*$. It however allows for PBE in which the voter plays $v(x) = l$ for some $x \in (x^*, x_H)$. But if the threat z is equal to such an x, incumbent R can ensure his reelection with an $x(z)$ with $d(z) < \overline{d}$ since $x_H - x^* \leq 2\overline{d}$. Hence, incumbent R issues in these PBE the alert $x(z)$ with the lowest $d(z)$ that ensures his reelection. These PBE are thus very similar to those described in Proposition 1 as the voter's strategy remains monotonic in those x that are played in equilibrium, and as incumbent R is still reelected for all $z \geq z^*$. The following proposition shows that these PBE, in which $v(x)$ is non-monotonic, do not satisfy the Intuitive Criterion (Cho and Kreps, 1987):

Proposition 2 *The game with incumbent R has no PBE other than those described in Proposition 1 that satisfy the Intuitive Criterion, even in the absence of any restriction on the voter's strategy $v(x)$.*

Proof: It has been shown in the proof of Proposition 1 and in section 2 that the PBE described in Proposition 1 exist and satisfy the Intuitive Criterion. Further, the proof of Proposition 1 implies that there cannot be a PBE with $x^* \notin [x', x_H]$; Lemma 2 implies that there cannot be a PBE with equilibrium strategies other than those stated in Proposition 1 for $z \geq z_H$; and Lemma 4 implies that there cannot be a PBE with equilibrium strategies other than those stated in Proposition 1 for $z \leq z^*$. Hence, it only remains to show that no PBE with equilibrium strategies other than those stated in Proposition 1 satisfy the Intuitive Criterion for $z \in (z^*, z_H)$.

To sustain PBE in which the voter plays $v(\hat{x}) = l$ for some $\hat{x} \in (x^*, x_H)$ (and R plays the $x(\hat{z})$ with the lowest $d(\hat{z})$ that ensures his reelection for $\hat{z} \equiv \hat{x}$), the voter's off-equilibrium beliefs must satisfy $E_\mu(\Delta(z)|\hat{x}) < 0$. But note that R would be strictly worse off by playing $x(z) = \hat{x}$ (rather than his equilibrium strategy) for all $z < z^*$ and, hence, for all $z < \tilde{z}$, independently of $v(\hat{x})$, but better off by playing $x(z) = \hat{x}$ for some $z > z^* > \tilde{z}$, e.g., $z = \hat{z}$, if the voter played $v(\hat{x}) = r$ (rather than her equilibrium strategy $v(\hat{x}) = l$). The Intuitive Criterion thus requires that when observing an $\hat{x} \in (x^*, x_H)$, the voter should put zero probability on the possibility that R has deviated at any $z < \tilde{z}$. Hence, her off-equilibrium beliefs must be such that $E_\mu(\Delta(z)|\hat{x}) > 0$. PBE in which the voter plays $v(\hat{x}) = l$ for some $\hat{x} \in (x^*, x_H)$ are therefore not consistent with the Intuitive Criterion. ■

Proposition 2 implies that assuming monotonicity of $v(x)$ has the same effect on our results as applying the Intuitive Criterion.

Appendix C

We prove in this appendix that the PBE with $x^* = x'$ is the unique PBE that satisfies the following strengthened version of the Intuitive Criterion: The voter should not only put zero probability on the possibility that incumbent R deviates at a z at which a deviation would lower his payoff for all possible strategies of the voter, but she should also put the same (potentially very small) probability $\pi > 0$ on the possibility that R deviates at any other z.

Incumbent R would do weakly better with an off-equilibrium alert $\hat{x} \in [x^* - \overline{d}, x^*)$ than with his equilibrium strategy for all $z \in [\hat{z} - \overline{d}, \frac{\hat{z}+z^*}{2}]$, where $\hat{z} \equiv \hat{x}$, if the voter played $v(\hat{x}) = r$ (instead of her equilibrium strategy $v(\hat{x}) = l$). In Figure 2 the z-range for which the deviation $\hat{x}$ is potentially profitable is depicted as shaded area.

The above refinement now requires that when observing $\hat{x}$, the voter must assume that incumbent R played $x(z) = \hat{x}$ with probability $\pi > 0$ for all $z \in [\hat{z} - \overline{d}, \frac{\hat{z}+z^*}{2}]$, and with zero probability for all other z. Bayesian updating then leads to

$$E_\mu^{SIC}(\Delta(z)|\hat{x}) \equiv \frac{1}{F(\frac{\hat{z}+z^*}{2}) - F(\hat{z} - \overline{d})} \int_{\hat{z}-\overline{d}}^{\frac{\hat{z}+z^*}{2}} \Delta(z) f(z) dz, \qquad (2)$$

where SIC stands for "strengthened Intuitive Criterion".

Since $E_\mu^{SIC}(\Delta(z)|\hat{x})$ is continuously increasing in $\hat{x}$, $E_\mu^{SIC}(\Delta(z)|\hat{x}) < 0$ holds for all $\hat{x} \in [x^* - \overline{d}, x^*)$ if and only if $E_\mu^{SIC}(\Delta(z)|x^*) \leq 0$. Whenever $E_\mu^{SIC}(\Delta(z)|x^*) > 0$,

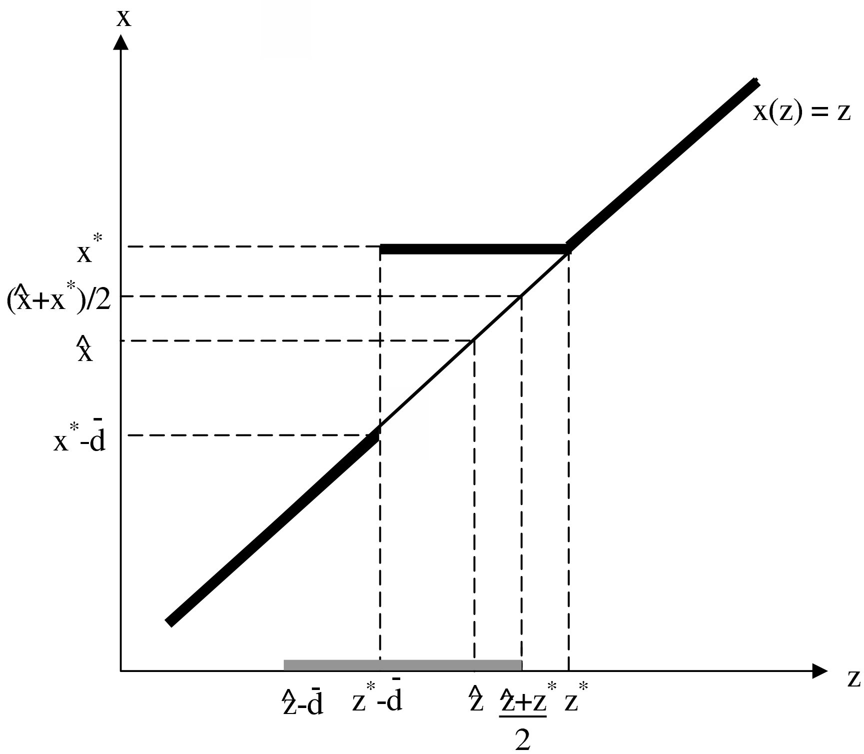

Figure 2: The strengthened Intuitive Criterion.

incumbent R has an incentive to deviate and to play an $\hat{x}$ arbitrarily close to, but below x^* rather than x^* for any threat $z \in [z^* - \overline{d}, z^*)$ because the voter will then reelect him under the strengthened Intuitive Criterion.

Now observe that $E_{\mu}^{SIC}(\Delta(z)|x^*) = E_{\mu}(\Delta(z)|x^*)$ (defined in equation (1)) and recall that $E_{\mu}(\Delta(z)|x^*) \gtreqless 0 \Leftrightarrow x^* \gtreqless x'$. Thus, whenever $x^* > x'$, incumbent R has an incentive to deviate under the strengthened Intuitive Criterion. The PBE with $x^* = x'$ is thus the unique PBE that satisfies this refinement.

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