At the Helm, Kirk or Spock? The Pros and Cons of Charismatic Leadership*

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Abstract

Charisma is seen as a generally positive attribute for a leader to possess, yet many studies give it a "mixed report card": finding it can have little or no effect, or worse a negative effect. This paper develops a model to explain why. The key insight is that presenting the cold hard truth is often incompatible with simultaneously firing up followers—a tradeoff exists between information and inspiration. In particular, a temptation exists to hide bad news behind upbeat rhetoric. Rational followers understand such appeals conceal bad news. But as long as any followers are swayed by such appeals—respond to the leader's charisma—rational followers' pessimism is tempered, and more so the more charismatic the leader. Hence, a more charismatic leader can generate better responses from *all* followers with an emotional appeal than can a less charismatic leader. This is a benefit to charisma. But this power has a dark side: a highly charismatic leader is tempted to substitute charm for action—she is less likely to learn relevant information and, on certain margins, works less hard herself—all to her followers' detriment.

Keywords: leadership, charisma

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1 Introduction

In the classic TV show *Star Trek*, command of the Starship Enterprise was given not to the smartest and most knowledgeable character, Spock, but to a more emotionally aware and charismatic character, Kirk. In real life, as in fiction, charisma is rewarded; in particular, successful leaders appear able to connect with and inspire their followers at an emotional level.[1]

Although prevalent and apparently effective, appealing to emotions is somewhat puzzling. For instance, to reference another classic TV series, shouldn't followers want "just the facts"? Indeed, a rational follower should be suspicious of an appeal full of upbeat rhetoric but lacking in details: if the leader's case is truly strong, why doesn't she just present the facts? Yet, as I demonstrate below, even wholly rational actors can respond positively to charismatic leaders and their emotional appeals;[2] in particular, work harder in response to an emotional appeal from a more charismatic leader than in response to such an appeal from a less charismatic leader.

Does this mean that charisma is an unalloyed good? The answer proves to be no: there are circumstances in which a less charismatic leader is preferable to a more charismatic one—Spock can be better than Kirk. Further there are situations in which charisma is irrelevant: outcomes are the same whether a more or less charismatic leader is at the helm. As such, the results derived here provide a theoretical justification for the "mixed report card" charisma has received in empirical and case studies: while many scholars provide evidence of charisma's benefit (see footnote 3 *infra*), there are those that argue too much emphasis is given to charisma when selecting leaders (see, in particular, Meindl, 1990 & 1995, and Khurana, 2002a,b) or too much attributed to leadership skills (*e.g.,* Weber et al., 2001, and Wasserman et al., 2010).

The model I develop and its conclusions rest on two pillars: first, although the vast majority of followers can be wholly rational and *directly* immune to the leader's charisma, charisma is assumed to resonate in some intrinsic way with at least a tiny fraction of followers—referred to here as "emotional responders." To wit, an emotional appeal from a sufficiently charismatic leader engenders a positive response from emotional responders *ceteris paribus*.[3] In fact, if no follower is an emotional responder, then charisma is wholly irrelevant (see, in particular,

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[1]For instance, the ability to connect emotionally can be crucial to presidential success: as the political scientist Thomas Cronin put it, "A president or would-be president must be ... warm and accessible" (quoted in Rockman, 1984, p. 175). Also see Greenstein (2004).

[2]The leadership literature offers many, largely complementary, definitions of "charismatic leader" (see, *e.g.,* discussions in House et al., 1991, p. 366, or Awamleh and Gardner, 1999, p. 347). For purposes here, a good definition is charismatic leaders are those who "by the force of their personal abilities are capable of having profound and extraordinary effects on followers" (House and Baetz, 1979, p. 339).

[3]Shamir et al. (1993), Chatman and Kennedy (2010), Wang et al. (2011), and van Vugt and Ronay (2014) survey the vast social-psychological evidence on positive responses among (some) followers to charismatic leadership. In economics, Dal Bó and Dal Bó (2013) and Kvaløy et al. (2013) find evidence that emotional appeals (albeit not made by a leader in their experiments) act as incentives.

Proposition 6 below). Section 2.3 considers a number of social-psychological reasons why charisma could have an intrinsic effect on some (*i.e.,* why there are emotional responders) and how, in turn, that affects their behavior.

The second pillar is that getting the cold hard facts across clearly to followers reduces an appeal's emotional effect. There are a number of reasons, detailed in Section 2.4, for why this could be (*e.g.,* it is hard to inculcate optimism while simultaneously providing objective evidence that the situation is bad). Hence, the leader faces a tradeoff between information and inspiration. Indeed, for convenience, I limit attention to a world in which the leader can make either an emotional appeal, which is inspirational but devoid of facts; or a *rational appeal*, which credibly conveys the relevant facts but is emotionally cold. Although such a stark tradeoff is not necessary for the results that follow—see the generalizations in Appendix C—it serves to streamline the analysis considerably.

That an emotional appeal comes at the cost of providing followers information would seem to offer one explanation for charisma's mixed report card. As Hermalin (1998) notes, under fairly general conditions, followers can expect to do better if they know, when choosing their actions, the return to them (the productivity state) than if ignorant. Hence, an emotional appeal, which conceals the productive state, imposes a cost on the followers. So if the followers are mostly rational actors—those not directly susceptible to emotional appeals—or the emotional responders only slightly susceptible or both, then it would seem an obvious prediction that the followers do better without a charismatic leader (to have, *e.g.,* Spock at the helm rather than Kirk).

That prediction proves, however, naïve: it overlooks that the leader could be "savvy"; that is, able to tailor her appeal to the circumstances. As shown below, a savvy leader makes an emotional appeal when "just the facts" provide followers too little incentive and, conversely, makes a rational appeal when the facts "speak for themselves." Followers (at least rational ones) will, of course, understand this is how she behaves. In particular, the rational ones—called "sober responders"—will form pessimistic beliefs about the productivity state upon hearing an emotional appeal. But how pessimistic depends on how charismatic the leader is. Because a more charismatic leader is more inclined to make an emotional appeal *ceteris paribus*, sober responders are less pessimistic about the state when a more charismatic leader makes an emotional appeal than when a less charismatic leader does. So, even though not directly influenced by emotional appeals, sober (rational) responders work harder in equilibrium in response to an emotional appeal from a more charismatic leader than in response to such an appeal from a less charismatic leader.

If leaders are savvy, then, as just suggested, the informational loss due to an emotional appeal is less when it comes from a more rather than less charismatic leader. Further, more charismatic leaders' emotional appeals induce better actions from *all* followers than do their less charismatic counterparts' (this reflects the direct effect of charisma on emotional responders as well as the indirect effect outlined in the previous paragraph). Finally, the followers' expected production—including over states in which rational appeals are made—is greater with a more charismatic leader than a less charismatic one (Proposition 4). As a consequence, sober responders—those *not* intrinsically susceptible to charisma—will prefer more charismatic leaders to less charismatic ones.

What about emotional responders? In some circumstances, an emotional appeal can lead them to act at odds with their own self interest; hence, a key to understanding their preferences over leaders is whether they are aware of their susceptibility to emotional appeals. If unaware—they falsely believe they are sober responders—then their leadership preferences mimic sober responders'. But if aware, then they can possibly prefer a less charismatic leader to a more charismatic one. An irony, therefore, is that the followers not directly responsive to charisma want a more charismatic leader, while those who are responsive can want a less charismatic one.[4] If the number of followers is great enough, however, then even aware emotional responders will prefer more charismatic leaders to less: the better actions such leaders induce from *all other* followers compensates from any direct loss they individually might suffer. See Section 5 for details.

Although, as just discussed, charisma is (principally) a desirable leadership characteristic in the basic model, even that analysis sheds some light on charisma's mixed report card: to the myriad definitions of charisma in the social science literature, that analysis adds, "charisma is the ability to get away with concealing bad news" (to be somewhat tongue in cheek). In other words, when the situation is good, charisma is irrelevant; it matters only when the situation is bad. Hence, someone looking at the data might see that when entities (organizations, movements, etc.) do well, there is little evidence that the leader's charisma mattered. Conversely, it can help explain why leaders famous for their charisma tend to have been leaders in dire situations (*e.g.,* Jeanne d'Arc at the siege of Orléans or Winston Churchill during the Battle of Britain).

Via various extensions of the basic model, the paper offers additional explanations for the mixed views of charisma's value. For instance, rather than being savvy, it could be that leaders are knowledgeable (know the productivity state) but lack charisma (a type called "professors" below) or they are ignorant, but charismatic ("demagogues"). Now there is a tradeoff between the incentive benefits of charisma and the loss due to followers' ignorance of the productivity state. As discussed in Section 4, it is ambiguous whether the followers do better with a professor or a demagogue at the helm; a finding that could also help explain the ambiguity in the empirical results. Section 6 briefly examines a setting in which the followers are uncertain as to whether the leader knows the state or not; as long as the probability the leader knows the state is uncorrelated with her charisma, more charisma again proves to be desirable.

An explanation for the ambiguous views of charisma also arises if the leader, rather than being endowed with knowledge of the productivity state (as in the basic model), must incur a cost to learn it. Because a more charismatic leader is more likely to make an emotional appeal (*i.e.,* not reveal the state) than a less charismatic one, she values knowing the state less than a less charismatic

[4] Or, in *Star Trek* terms, on a mixed ship of humans (emotional responders) and Vulcans (sober responders), the Vulcans could prefer a human captain (*e.g.,* Kirk, a charismatic leader) and the humans a Vulcan captain (*e.g.,* Spock, an uncharismatic leader).

one. Highly charismatic leaders, therefore, choose *not* to learn the state; that is, they endogenously choose to be demagogues. Consequently, in contrast to Proposition 4, the followers can actually do better with a less charismatic leader than a more charismatic leader. See Section 7 for details.

Yet another alternative is the return to the followers' actions depends on prior actions by the leader herself (*e.g.,* how much planning she does). When the leader determines the return, her motivation to work hard (take a costlier action) is boosted either if the followers will see what she did and, so, directly respond to it; or if she has a lot influence over emotional responders. The first channel will apply only if she will subsequently make a rational appeal; the second if it will be an emotional appeal. The nature of these two effects are such that the followers' payoffs prove non-monotonic in charisma: for "middle levels" of charisma, they are worse off than if they had had either a far less charismatic leader or a far more charismatic one. See Section 8 for details.

The Section 7 and 8 results reveal that a potential downside to charisma is it tempts a leader to "rely on her charms," to substitute charisma for action (learning information or working hard herself). These sections, thus, offer further explanations for the literatures' mixed assessment of charisma's value.

Within the social sciences, an immense body of research on leadership exists (the Nohria and Khurana, 2010, volume provides a broad survey). Within economics, the amount of scholarship is more modest (for surveys, see Bolton et al., 2010; Zupan, 2010; or Hermalin, 2013). Economic modeling of leadership tends to follow one of two approaches: in the first, the leader is better informed about a payoff-relevant state than her followers and the issue is how she credibly conveys her information to them;[5] in the second, the leader has a bias (vision, strong beliefs, or leadership style) that effectively commits her to take *ex ante* desirable actions that would be *ex post* incredible were she lacking that bias.[6,7]

This paper has ties to both those strains of the literature. In common with the first is the question of how the leader informs her followers. At the same time, this paper departs from that literature in two ways. In the existing literature, while the leader would like to conceal bad news, to do so would generate such pessimistic beliefs in her followers that she is compelled to reveal her information; indeed, a central finding of that literature is that she would, if possible, wish to establish a reputation for honestly reporting her information always (see, in particular, Hermalin, 2007). In contrast, here, a sufficiently charismatic leader can conceal bad news without triggering such pessimistic beliefs; indeed, the more charismatic she is, the less pessimism there is in response to her concealing information. A second departure point is that the leader's information

[5]Papers following this approach include Hermalin (1998, 2007), Kobayashi and Suehiro (2005), Andreoni (2006), Komai et al. (2007), Komai and Stegeman (2010), and Zhou (2011).

[6]Papers following this approach include Rotemberg and Saloner (1993, 1994, 2000), Van den Steen (2005), Blanes i Vidal and Möller (2007), and Bolton et al. (2013).

[7]A small empirical literature in economics also exists; see Choudhury and Khanna (2013) as an example and for a partial survey of the literature. Hermalin (2013, §2.3.2.3) reviews some of the experimental work testing models of leadership.

is *hard*—she can conceal it, but, if she chooses to reveal it, she must do so truthfully. In contrast, the earlier literature focused on soft information—not only could she conceal what she knew, but she could also misrepresent it.

Like the second strain, this paper is premised on the leader's possessing a personality characteristic, here charisma. Also similar is that (some) followers respond rationally to that characteristic (*i.e.,* sober responders understand how charisma affects the leader's play and they strategize accordingly). A key difference, however, is that, in the earlier literature, it is the leader who is irrational—her biases mean she behaves differently than would a wholly rational actor—while the followers are rational. Here, instead, the leader is wholly rational (savvy) and it is some fraction of her followers who are, at least in part, irrational. Focusing on rational leaders is important insofar as there are reasons to believe the most successful leaders are in control of their passions.[8]

Two papers outside this two-strain taxonomy warrant comment. Kvaløy and Schöttner (2014) model a leader seeking to motivate a single follower. There are, though, critical differences between their work and this paper: in Kvaløy and Schöttner, the efficacy of the leader's motivational efforts has nothing to do with her charisma; in Kvaløy and Schöttner, the leader has no private information, whereas here asymmetric information is central; and, in Kvaløy and Schöttner, the follower is somewhat irrational, whereas here a key issue is how a charismatic leader (indirectly) influences wholly rational followers.

The other paper outside the taxonomy is Huck and Rey-Biel (2006). Their single follower is biased toward making his action conform to the leader's example. This is similar to identity, one explanation offered below for why emotional responders are receptive to emotional appeals. On the other hand, this paper has no leading by example, thus no scope for conformity *per se*.

With the exception of lemmas, proofs are in the text (some, though, precede the statement of the result in question); the proofs of lemmas are in Appendix A.

2 Basic Model

2.1 Assumptions

An entity (organization, social movement, polity, spaceship, etc.) has a leader and two kinds of followers: emotional responders (subscript E) and sober—alternatively, skeptical—responders (subscript S). There are n_E emotional responders and n_S sober responders. Let $N = n_E + n_S$.

A follower, m, takes an action $a_m \in \mathbb{R}_+$ at personal cost $c(a_m)$. Assume $c : \mathbb{R}_+ \to \mathbb{R}_+$ is the same for all followers. To ensure followers have unique best responses and to avoid corner solutions, assume this disutility-of-action function is thrice continuously differentiable; $c(0) = c'(0) = 0$; and marginal disutility,

[8] Max Weber called this "the firm taming of the soul" (quoted in Greenstein, 2004, p. 6). Greenstein cites Weber in making the argument that a successful president has the "the ability to manage his emotions and turn them to constructive purposes, rather than being dominated by them" (p. 6). Also see House et al. (1991) on this point. Experimental evidence (Bruttel and Fischbacher, 2013) indicates leaders have better internal loci of control than non-leaders.

$c'(\cdot)$, is strictly increasing and unbounded.

The followers' actions determine the value, V, of a non-rivalrous public good:[9]

$$V = \theta \sum_{m=1}^{N} a_m \,. \tag{1}$$

The parameter $\theta \in (\underline{\theta}, \overline{\theta}) \subset \mathbb{R}_+$ is the marginal return to action (the "productivity state"). As examples:

- Follower m donates a_m in currency to a cause (*e.g.,* the leader's election campaign, a humanitarian crisis, a charitable institution, etc.), $c(a_m)$ is his forgone utility from consumption, and θ the return to donations in terms of the cause's objective (*e.g.,* probability of electoral victory, lives saved, quality of the institution, etc.).
- Follower m devotes a_m hours to a cause or project (*e.g.,* canvassing for the leader's campaign, a civic activity, helping the needy, etc.), $c(a_m)$ is his forgone benefit from other activity, and θ the rate at which time translates into some goal (*e.g.,* campaign funds raised, civic improvement, the welfare of the assisted population, etc.).
- The quantity a_m is some other measure of m's effort (*e.g.,* bravery, attentiveness, speed of action, etc.), $c(a_m)$ his disutility of effort, and θ the return to that effort.

An advantage of assuming an additive production function is it avoids the serious analytic difficulties that arise when the followers' actions are strategic substitutes or complements.[10] This is not to suggest the results below fail to extend to other production functions: as Appendix B shows, the results of the basic model can be extended to substitutable actions, albeit via models characterized by considerably less generality in other aspects than the model developed in this section.[11] Furthermore, for many of the examples above (*e.g.,* donating to a good cause or door-to-door canvassing), (1) seems an accurate reflection of reality; for others, a reasonable approximation of it (*cf.* footnote 10 *supra*).

The timing of the game is as follows:

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[9] Alternatively, V could be some divisible output. If division is equal, the ensuing analysis continues to apply. It could, thus, be worth noting that the second-best division rule in the teams problem, given the usual assumptions, is equal division (see, *e.g.,* Hermalin, 1998).

[10] Having assumed (1), no greater generality is achieved assuming

$$V = \theta \sum_{m=1}^{N} g(a_m)\,, \tag{$\heartsuit$}$$

$g(\cdot)$ an increasing function exhibiting diminishing marginal returns, with $g(0) = 0$. The reason is that, as will be seen, followers solve programs of the form $\max_a \zeta g(a) - c(a)$, $\zeta > 0$. Making the change of variables $e = g(a)$, they are equivalent to $\max_e \zeta e - c\big(g^{-1}(e)\big)$. The composite cost function, $c\big(g^{-1}(\cdot)\big)$, satisfies the requisite properties given $c(\cdot)$ does. In other words, think of the production function (1) as the "more general" function ($\heartsuit$) after a change of variables.

[11] Complementary actions are more problematic: the results in games of team production

1. Nature draws θ according to some distribution function, which has a positive derivative (density) everywhere. That function is common knowledge.
2. The leader learns the realization of θ; this is her private information.
3. The leader decides whether to make a rational or emotional appeal.
4. Based on the appeal given and the inferences (if any) they draw from it, followers choose their actions.
5. Payoffs are realized and the game ends.

By making a rational appeal, the leader provides *hard* information that perfectly reveals the productive state, θ, to her followers. An emotional appeal is one in which the leader suppresses information about θ and simply exhorts her followers to work hard. Sober responders can distinguish rational from emotional appeals. As discussed below, emotional responders may also be able to do that. Further details about appeals are given and justified in Section 2.4.

In the basic model, the leader's objective is assumed to be maximize V.

A follower's objective depends on whether he is an emotional or sober responder, and then only if the leader makes an emotional appeal. Given a *rational* appeal, follower m's utility is

$$V - c(a_m)\,. \tag{2}$$

Critically, (2) remains a *sober* responder's utility function if the leader makes an emotional appeal.

If the leader makes an emotional appeal, then an *emotional* responder—label him j—behaves as if his utility is

$$R(\chi, \widehat{\theta}\,)a_j - c(a_j) + U(\mathbf{a}_{-j}, \chi, \widehat{\theta}\,)\,, \tag{3}$$

where $\chi \in \mathbb{R}_+$ is the leader's charisma, $\widehat{\theta}$ is what wholly rational actors would infer θ was upon hearing an emotional appeal (details on how they do so are given in Section 3), and U is an additional component of utility *not* dependent on the responder's own action ($\mathbf{a}_{-j}$ are the actions of the *other* followers). For much of what follows, U is irrelevant. Assume the following about the function $R : \mathbb{R}^2_+ \to \mathbb{R}_+$, an emotional responder's perceived return to his action.

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with such actions are often perverse. For example, if

$$V = \theta \prod_{m=1}^{N} a_m \text{ and } c(a_m) = \frac{1}{2}a_m^2$$

with $\theta > 0$ and $N > 2$, then it is readily seen that the unique symmetric equilibrium when team members simultaneously choose actions and their payoffs are given by (2) *infra* is $a_1 = \cdots = a_N = \theta^{1/(2-N)}$—hence, members do less in equilibrium the greater is the return to their actions (*i.e.,* θ)—and equilibrium $V = \theta^{2/(2-N)}$—so total output (value) falls as the return increases. As the issue of study here is, in part, how a leader induces followers to do more when conditions are good (*i.e.,* θ is high), it follows that assuming complementary production would be ill-suited to the purposes of this paper.

Assumption 1. *Properties of perceived return, R:*

(i) *Perceived return following an emotional appeal is greater the more charismatic the leader; that is, for all* $\theta \in (\underline{\theta}, \overline{\theta})$, $R(\chi, \theta) > R(\chi', \theta)$ *if* $\chi > \chi'$.

(ii) *Perceived return is nondecreasing in the return a rational actor would estimate; that is, for all* χ, $R(\chi, \theta) \geq R(\chi, \theta')$ *if* $\theta > \theta'$.

(iii) *If perceived return exceeds rationally estimated return, it does so for all smaller estimates; that is, if* $\theta > \theta'$ *and* $R(\chi, \theta) > \theta$, *then* $R(\chi, \theta') > \theta'$ *for all such* θ *and* $\theta' \in (\underline{\theta}, \overline{\theta})$ *and all* χ.

(iv) *The function* $R(\cdot, \cdot)$ *is continuous in both arguments.*

Section 2.3 *infra* provides a detailed justification of properties (i)–(iii). Note the monotonicity assumptions imply continuity almost everywhere; the extension to continuity everywhere (*i.e.,* property (iv)) is thus only slightly more restrictive. Although not necessary for the results that follow, it will speed the analysis at points to treat R as differentiable (it will be clear in context when differentiability is being invoked). A subtle issue is whether (3) *is* an emotional responder's utility or he just behaves as if it is. I defer that issue to Section 5.

I assume throughout that followers participate. This is a wholly innocuous assumption if one normalizes their reservation utility to zero: because a follower could choose $a = 0$, at cost 0, he must enjoy a non-negative expected utility in any equilibrium.[12] Likewise, the leader can guarantee herself a non-negative expected utility, so her participation is also a non-issue. It is assumed throughout that followers cannot write a contract with the leader—an assumption consistent with many of the examples given above, as well as the usual focus on leadership as an informal aspect of organization (see, *e.g.,* Hermalin, 2013, for a discussion). In this regard, note that contracting can't eliminate all tensions: the players are asymmetrically informed, there are countervailing incentives (*e.g.,* if the followers promised the leader pay that increases in V, this will undermine their own incentives to take action), and, in Sections 7 and 8, hidden actions.

2.2 Followers' Actions

For an arbitrary constant $\zeta > 0$, the properties of $c(\cdot)$ imply the program $\max_a \zeta a - c(a)$ has a unique interior solution, call it $a^*(\zeta)$, and that $a^*(\cdot)$ is strictly increasing. By the implicit function theorem, $a^*(\cdot)$ is differentiable.

Because other followers' actions do not affect a given follower's utility-maximization program, each follower responds to a rational appeal by supplying action $a^*(\theta)$. If they receive an emotional appeal, the followers form some expectation, $\widehat{\theta}$, about the productive state. A sober responder will, then, maximize

[12] A minor caveat: under one of the possible specifications for R considered in Section 2.3—namely (7)—it is conceivable that an emotional responder's utility is negative. This would be relevant only if such a responder were sophisticated about his preferences and anticipated that V would be especially low. That case seems too remote to warrant further attention.

his expected utility, which is equivalent to maximizing $\widehat{\theta}a - c(a)$. By assumption, an emotional responder maximizes (3). Their respective actions in response to an emotional appeal will, thus, be $a^*(\widehat{\theta}\,)$ and $a^*\big(R(\chi,\widehat{\theta}\,)\big)$.

2.3 Modeling Charisma

The social-science literature on charisma offers no single explanation for how it affects followers. On the other hand, there is considerable evidence within psychology, sociology, and political science that it has an effect.[13] This subsection considers, *inter alia*, a number of possible mechanisms through which charisma and analogous attributes might operate, all of which serve to justify the properties of the function R assumed above.[14]

Charisma as Reinforcing Followers' Desires: There has long been evidence in psychology that people form their beliefs, in part, through what might be called wishful thinking (consider, *e.g.,* Ditto and Lopez, 1992, and Dunning et al., 1995, on self-serving biases). Recently, this idea has come to economics (see, *e.g.,* Kőszegi, 2006; Bénabou, 2013; Möbius et al., 2013; and Augenblick et al., 2014). Much of this work concerns people's desire to believe things are better than they are or they are better at tasks than they truly are. Another idea, dating back at least to the 14th century (Ibn Khaldûn, 2004), is that a successful leader is one who can identify and tap into her followers' desires; in particular, who reinforces desired beliefs.[15] Combining these ideas, a charismatic leader can build on (some) followers' desire to be optimistic about their situation or to see themselves as talented and capable by effectively convincing them that the return to their actions or efforts are greater than they truly are. Hence, whereas a wholly rational actor would infer the return is $\widehat{\theta}$, emotional responders are led to see it as $\widehat{\theta}$ plus something. The "plus something" increases in the leader's charisma, so $R(\chi,\widehat{\theta}\,) = P(\chi) + \widehat{\theta}$, $P : \mathbb{R}_+ \to \mathbb{R}_+$ an increasing function. Given that there is no natural metric for charisma, there is no loss of generality in specifying $P(\chi) = \mu\chi$, where the parameter μ can be seen as a measure of follower "μanipulability."[16,17]

[13] See, *e.g.,* Awamleh and Gardner (1999), Chatman and Kennedy (2010), Conger and Kanungo (1994), Greenstein (2004), House et al. (1991), Howell and Shamir (2005), Nye (2008), Shamir et al. (1993), van Vugt and Ronay (2014), and Wang et al. (2011).

[14] Because verifying that the formulæ for R derived below satisfy Assumption 1 is straightforward, I do not explicitly demonstrate this in what follows.

[15] As Napoleon said, "A leader is a dealer in hope." See Howell and Shamir (2005) on the relation between charismatic leadership and followers' "self-concepts." Nye (2008, pp. 57–58) reviews historical cases in which charismatic leaders' successes are attributable to their having reflected back their followers' desire to be optimistic about the future.

[16] If $\widetilde{\chi}$ is "true" charisma (whatever that might mean), then rescale to get $\chi = P(\widetilde{\chi})/\mu$.

[17] While emotional responders could believe the return to to be better than a rational actor would, they might never believe it to be better than $\overline{\theta}$, the supremum of the distribution. Most of the ensuing analysis does not require that $\overline{\theta}$ be finite (*i.e.,* it could be $\overline{\theta} = \infty$), so this is a moot issue in many contexts. Alternatively, if $\overline{\theta} < \infty$, any number of specifications (*e.g.,*

Charisma as Persuasiveness: Awamleh and Gardner (1999) and Greenstein (2004), among others, offer, as one definition of charisma, the ability to persuade. Some followers (the emotional responders) respond to the leader's charm, rhetoric, or ability to tell a persuasive story. They do so because the leader's message is what they want to believe (see previous justification); or they are naïve and fail to recognize the emptiness of the rhetoric; or, anticipating the next justification, the leader's speech causes them to identify more with the leader or the entity as a whole. Some leaders are more persuasive than others because they seem more honest;[18] or have greater emotional intelligence, so are better to connect at an emotional level with followers (see, *e.g.,* Wong and Law, 2002). Nye (2008, p. 39) notes that *appearing* powerful can induce others to follow; hence, to the extent an emotional appeal makes the leader appear commanding, she will influence (some) responders to follow (from this perspective, charisma is the ability to project an *image* of power and authority).[19]

In terms of R, at least two possible specifications correspond to these ideas:[20]

$$R(\chi, \widehat{\theta}\,) = \chi\overline{\theta} + (1-\chi)\widehat{\theta} = \widehat{\theta} + \chi\big(\overline{\theta} - \widehat{\theta}\big)\,; \tag{4}$$

that is, χ is the extent to which the leader can convince emotional responders the state is truly excellent (the supremum of the distribution, $\bar{\theta}$). Note, because any belief about the state must be less than that, R is increasing in χ. A related specification is

$$R(\chi, \widehat{\theta}\,) = \mu\chi + (1-\mu)\widehat{\theta}\,; \tag{5}$$

that is, charisma corresponds to how good a state the leader could conceivably convince an emotional responder of (so $\chi \in (\underline{\theta}, \overline{\theta})$). The manipulability parameter, $\mu \in (0, 1]$, reflects the weights such a responder assigns to what the leader is telling him and what he can rationally infer.[21]

(5) *infra*) would serve to keep the emotional responders' beliefs from "going out of bounds."

[18]There is a large literature on dishonesty and its detection. See, *e.g.,* DePaulo et al. (1980), for a partial survey. The literature provides evidence that some individuals are better than others at appearing honest. Also that there is variation in people's ability to detect deception; from this perspective, sober responders could be seen as skilled in detecting deception—the leader's concealment of the facts—and emotional responders as less skilled.

[19]See Hermalin (2013, p. 435) for a brief discussion of psychological predispositions to follow those with attributes (*e.g.,* height) associated with power or authority.

[20]Expression (4) builds on a comment from Prithwiraj Choudhury on an earlier draft.

[21]If the disutility-of-action function were $c(a) = a^2/2$, then $a^*(\cdot)$ is linear and one could thus interpret (5) as an emotional responder believing the state is χ with probability μ and $\widehat{\theta}$ with probability $1-\mu$; so, in expectation, $\mu \times 100\%$ of emotional responders take action $a^*(\chi)$ and the rest $a^*(\widehat{\theta})$. Linearity means those actions are, respectively, χ and $\widehat{\theta}$, so the expected action of an emotional responder is $\mu\chi + (1-\mu)\widehat{\theta}$, which also equals $a^*\big(\mu\chi + (1-\mu)\widehat{\theta}\big)$. If the disutility-of-action function were different, then this equivalence would no longer hold.

Charisma and Identity: Studies in psychology find that charisma induces followers to identify with the leader, the organization, or both.[22] Building on ideas in Akerlof and Kranton (2000) about modeling identity, a variety of plausible specifications for R arise. For instance, because the public good is enjoyed by $N+1$ individuals (the followers plus leader), the welfare-maximizing choice of action solves

$$\max_a (N+1)\widehat{\theta}a - c(a)\,.$$

Suppose the leader's charisma induces an emotional responder to put weight χ on that social objective and weight $1-\chi$ on his private objective (*i.e.,* (2)), then he wishes to maximize (3) with

$$R(\chi, \widehat{\theta}\,) = (\chi N + 1)\widehat{\theta}\,.$$

If, instead, he identifies with the leader only, his choice of a would maximize

$$\underbrace{(\chi + 1)\widehat{\theta}}_{=R(\chi,\widehat{\theta}\,)} a - c(a)\,. \tag{6}$$

Alternatively, there is a socially idealized action, a^{**}. The utility of an emotional responder, j, is reduced if he falls short of the ideal and by how much dependent on his identification with the leader or entity. To wit, his utility is

$$V - c(a_j) - (a^{**} - a_j)\chi = \underbrace{(\widehat{\theta} + \chi)}_{=R(\chi,\widehat{\theta}\,)} a_j - \chi a^{**} - c(a_j) + \widehat{\theta} \sum_{m \neq j} a_m\,. \tag{7}$$

Note if the follower put weight μ on his loss from falling short of the ideal action and weight $1-\mu$ on V, then his perceived return, R, would be equivalent to (5).

A related idea is that an emotional appeal changes emotional responders' preferences: for instance, making them want to please the leader, to gain or maintain her approval.[23] The value they place on doing so is captured by χ. Expressions (4), (5), and (6) are all specifications consistent with this notion.

Charisma as Affect Manipulation: There is a large psychological literature on the positive effects of boosting actors' affect (mood) with respect to

[22] "Charismatic leadership works in part by influencing followers to identify with a collective enterprise and internalize group aspirations" (van Vugt and Ronay, 2014, summarizing a number of studies in social psychology). Also see Shamir et al. (1993) and Howell and Shamir (2005) for evidence. In a non-leadership setting, Coffman and Niehaus (2014) find experimental evidence that sellers able to induce buyers to identify with them (exhibit "other regard") do better than sellers unable to do so.

[23] Many personality cults in dictatorships portray the dictator as a father figure, perhaps to tap into people's desire for parental approval. See, *e.g.,* Wedeen (1998) on such a portrayal of the late Syrian dictator Hafez al-Assad; or Armstrong (2005) concerning the late North Korean dictator Kim Il Sung. Nye (2008, p. 56) makes a similar point to explain the power of cult leaders, such as Jim Jones.

their actions (see, *e.g.,* Isen, 2000, for a survey). In particular, there is considerable evidence that improving affect leads to more socially desirable behavior (*e.g.,* helping others).[24] An upbeat emotional appeal, delivered by a charming and witty individual, improves the mood of those listening to it, increasing their propensity to act in a socially desirable manner. The increased propensity can be captured as boosting an emotional responder's perceived return from his action. If more charisma corresponds to a greater ability to deliver inspirational messages (similar to the charisma-as-persuasion justification), then the corresponding R will exhibit the properties assumed earlier. Possible specifications include $R(\chi, \widehat{\theta}\,) = \widehat{\theta} + \mu\chi$, as well as (4), (5), and (6).

Emotional Responders are Naïve: As an alternative to charisma, one could simply assume that the followers labeled emotional responders are just naïve—they do not fully grasp the leader's incentive to mislead them about the state. There is experimental evidence (see, *e.g.,* Cain et al., 2005, and Coffman and Niehaus, 2014) that people frequently do a poor job accounting for the incentives their advisors have to give biased advice and, thus, put more weight on such advice than they should. Followers labeled sober responders are skeptical and not fooled by misleading statements. For the "emotional responders," suppose they believe any claim about the state up to χ, but recognize any claim beyond it to be ludicrous; that is, χ is the limit of their gullibility. Letting σ denote the leader's "unσubstantiated" claim about the state, emotional responders behave as if the state is $\theta^\dagger$, where

$$\theta^\dagger = \begin{cases} \sigma\,, & \text{if } \sigma \leq \chi \\ \theta_0\,, & \text{if } \sigma > \chi \end{cases} \tag{8}$$

and $\theta_0 < \chi$ (θ_0 could, *e.g.,* be the unconditional prior mean of θ). Given (8), if the leader chooses not make a rational appeal (*i.e.,* chooses not to reveal her information truthfully), then clearly she does best to announce $\sigma = \chi$. Hence, $R(\chi, \widehat{\theta}\,) = \chi$, which satisfies the assumed properties for R. Under this variant, "greater (less) charisma" is to be understood to mean "greater (less) gullibility" on the part of the emotional responders.

An Additional Assumption about Charisma: In what follows, the leader's charisma, χ, is common knowledge among all parties.[25] This assumption could be justified by supposing an earlier, unmodeled, stage in which followers get to know the leader. The assumption that charisma is commonly understood has empirical validity: for instance, consensus is quickly reached on how charismatic politicians are.[26] That various measures of charisma in the social-psychology

[24] See Cunningham (1979), Isen and Levin (1972), and Isen and Reeve (2005).

[25] In the alternative specification in which emotional responders are simply gullible, their gullibility is common knowledge between at least the leader and her sober (skeptical) followers.

[26] Internet searches for "Clinton charisma" or "Reagan charisma" yield thousands of articles, both popular press and academic, attesting to these presidents' extraordinary charisma. As

literature have high cross-subject correlation (see, *e.g.,* Conger and Kanungo, 1994, and Awamleh and Gardner, 1999) is further evidence that people's assessment of a given leader's charisma are highly similar.

2.4 Modeling Appeals

As was implicit in the presentation so far, I am assuming that the leader can make an emotional appeal or a rational one, but not both. As shown in Appendix C, an either-or assumption is not critical: what is critical is that the leader face some communications tradeoff; specifically, the more fact-based her presentation or speech, the less emotional impact it has.

That the overall amount the leader can communicate is constrained reflects real-world "bandwidth" restrictions: followers have a limited attention spans and the leader—certain Latin American dictators of the past notwithstanding—has limited time to make her case. Of course, if the leader could impart the cold facts with the appropriate emotional intensity, then she would do better than the ensuing analysis would suggest (although, note, issues explored in Section 7 would still arise). But there are reasons to believe that leaders cannot do that.

First, there are the experiments of Awamleh and Gardner (1999), who manipulate the content of speeches and find that speeches characterized by visionary content elicit higher ratings of leader charisma and effectiveness from the audience than speeches with non-visionary content.[27]

Second and related, the political adage, which dates back to the late 1970s or early 1980s, "if you're explaining, you're losing" indicates that politicians believe it difficult to simultaneous provide facts and excite one's audience.[28] Both Greenstein (2004) and Nye (2008) make similar points with regard to what constitutes effective political speech. Indeed, if one looks at political speeches judged highly effective, one finds them relatively devoid of specifics.[29]

Furthermore, a number of the justifications given in the previous subsection for why people respond to charisma are effectively predicated on the leader concealing information: it is not possible to inculcate optimism about the state while at the same time providing clear evidence that it is poor or mediocre; or

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Nye (2008, p. 54) reports, even Tony Blair's severest critics agreed he was highly charismatic. Conversely, Clement Attlee was widely seen to lack charisma: "A modest man, but then he has so much to be modest about" (often attributed to Churchill, though he denied saying it).

[27]In their study, visionary content was thematic and inspirational, whereas non-visionary content was "direct and information oriented" (Awamleh and Gardner, 1999, p. 353).

[28]Some sources attribute the adage to Ronald Reagan, others to the pundit George Will.

[29]As an example, Franklin D. Roosevelt's first inaugural speech, which appears in many lists as one of the best speeches by an American politician (see, *e.g.,* http://www.americanrhetoric.com/top100speechesall.html) contains only three specifics: (i) in the middle of his 1,916-word speech, Roosevelt calls for "strict supervision of all banking and credits and investments"; (ii) two sentences later, he state his intention to "urge upon a new Congress in special session" legislation to impose such supervision; and (iii) toward the end of the speech he announces his intention to "ask the Congress for the one remaining instrument to meet the crisis—broad Executive power to wage a war against the emergency."

to boost followers' mood by presenting the cold truth that matters are not good.

Finally, if one adopts an interpretation of the model that eschews charisma but assumes emotional responders are simply gullible, then it is obvious that exploiting their gullibility means not revealing information truthfully: the leader either makes a truthful appeal (the equivalent of a rational appeal) or seeks to mislead (the equivalent of an emotional appeal), she cannot do both.

As was also implicit, I assume that the leader must make an appeal; she cannot be silent. Given that the leader incurs no cost to make an appeal and her information is hard, this assumption can be justified via a standard unraveling argument (*e.g.,* as in Grossman, 1981); that is, no appeal is seen by the followers as an admission that the state is $\underline{\theta}$, the minimal state. Hence, the leader finds no appeal dominated, at least weakly, by some sort of an appeal and, thus, there is no loss in assuming she must make an appeal.

3 Equilibrium of the Basic Model

Denote the expectation of θ conditional on it not exceeding ζ by $\Theta^{\mathbb{E}}(\zeta)$; that is, $\Theta^{\mathbb{E}}(\zeta) = \mathbb{E}\{\theta \big| \theta \leq \zeta\}$. Observe $\Theta^{\mathbb{E}}(\underline{\theta}) = \underline{\theta}$ and $\Theta^{\mathbb{E}}(\overline{\theta})$ is the unconditional mean, $\mathbb{E}\theta$. Because the distribution of θ has an everywhere positive density, $\Theta^{\mathbb{E}}(\cdot)$ is increasing and $\Theta^{\mathbb{E}}(\theta) < \theta$ if $\theta > \underline{\theta}$.

The leader wishes to make an emotional appeal when the state is θ if and only if that will yield a larger V than a rational appeal; that is, if and only if

$$\Big(n_S a^*(\widehat{\theta}\,) + n_E a^*\big(R(\chi, \widehat{\theta}\,)\big)\Big)\theta \geq N a^*(\theta)\theta\,, \tag{9}$$

where, recall, $\widehat{\theta}$ is the followers' expectation of the state given an emotional appeal and $a^*(\zeta)$ a follower's best response when he knows or perceives the marginal return to his action to be ζ. Because $a^*(\cdot)$ is strictly increasing, it is invertible; hence, condition (9) can be restated as the leader will prefer an emotional appeal if and only if

$$a^{*-1}\left(\frac{n_S}{N} a^*(\widehat{\theta}\,) + \frac{n_E}{N} a^*\big(R(\chi, \widehat{\theta}\,)\big)\right) \geq \theta\,. \tag{10}$$

It follows that the leader's best response to the followers' beliefs is a cutoff strategy: an emotional appeal if $\theta \leq \theta_C$ and a rational appeal if $\theta > \theta_C$, where the cutoff, θ_C, equals the lefthand side of (10). If the lefthand side of (10) exceeds the maximum possible state, $\overline{\theta}$, the "cutoff" is $\overline{\theta}$. In equilibrium, followers' beliefs must be consistent with the cutoff strategy; that is, $\widehat{\theta} = \Theta^{\mathbb{E}}(\theta_C)$.

Proposition 1. *If the leader is sufficiently uncharismatic—specifically, if $R(\chi, \underline{\theta}) \leq \underline{\theta}$—then the only perfect Bayesian equilibrium is one in which she makes a rational appeal only. Otherwise, the only perfect Bayesian equilibria are those in which the leader makes an emotional appeal given states below a cutoff level and at least one such equilibrium exists.*[30]

[30] Observe no claim is made about uniqueness. There is an equilibrium with cutoff $\theta < \overline{\theta}$ if

$$\Lambda(\theta) \equiv n_S a^*\big(\Theta^{\mathbb{E}}(\theta)\big) + n_E a^*\Big(R\big(\chi, \Theta^{\mathbb{E}}(\theta)\big)\Big) - (n_S + n_E)a^*(\theta) = 0 \tag{$\clubsuit$}$$

Proof: Suppose $R(\chi, \underline{\theta}) \leq \underline{\theta}$ but there were an equilibrium in which the leader made an emotional appeal in at least some states (*i.e.,* $\theta_C > \underline{\theta}$). Rationality of beliefs implies $\widehat{\theta} = \Theta^{\mathbb{E}}(\theta_C) < \theta_C$. Hence,

$$n_S a^*\big(\Theta^{\mathbb{E}}(\theta_C)\big) + n_E a^*\Big(R\big(\chi, \Theta^{\mathbb{E}}(\theta_C)\big)\Big) \leq n_S a^*\big(\Theta^{\mathbb{E}}(\theta_C)\big) + n_E a^*\big(\Theta^{\mathbb{E}}(\theta_C)\big) < (n_S + n_E) a^*(\theta_C)\,, \quad (11)$$

where the first inequality is implied by Assumption 1(iii) and the fact that $a^*(\cdot)$ is strictly increasing; the latter fact also yields the second inequality. Payoffs are continuous, hence (11) contradicts the leader's wishing to make an emotional appeal for *all* $\theta < \theta_C$, as required by a cutoff strategy. *Reductio ad absurdum*, there is no equilibrium in which a leader of such limited charisma makes an emotional appeal. In this case, the equilibrium is followers believe an emotional appeal means $\theta = \underline{\theta}$ and the leader thus makes rational appeals only.

Suppose $R(\chi, \underline{\theta}) > \underline{\theta}$. There is no equilibrium in which the leader never makes an emotional appeal: even if followers believed such an appeal meant $\theta = \underline{\theta}$, continuity and the fact that

$$n_S a^*(\underline{\theta}) + n_E a^*\big(R(\chi, \underline{\theta})\big) > (n_S + n_E) a^*(\underline{\theta}) \quad (12)$$

mean there are states in which the leader does better to make an emotional rather than rational appeal even if her followers hold such pessimistic beliefs.

As already noted, consistency of beliefs requires $\widehat{\theta} = \Theta^{\mathbb{E}}(\theta_C)$. If

$$n_S a^*(\mathbb{E}\theta) + n_E a^*\big(R(\chi, \mathbb{E}\theta)\big) < (n_S + n_E) a^*(\overline{\theta})\,, \quad (13)$$

then expressions (12), (13), and continuity imply a $\theta_C \in (\underline{\theta}, \overline{\theta})$ exists such that[31]

$$n_S a^*\big(\Theta^{\mathbb{E}}(\theta_C)\big) + n_E a^*\Big(R\big(\chi, \Theta^{\mathbb{E}}(\theta_C)\big)\Big) = (n_S + n_E) a^*(\theta_C)\,, \quad (14)$$

which establishes that there is an equilibrium in which an emotional appeal is made if $\theta \leq \theta_C$ and a rational appeal made otherwise. If (13) doesn't hold, then

$$n_S a^*(\mathbb{E}\theta) + n_E a^*\big(R(\chi, \mathbb{E}\theta)\big) \geq (n_S + n_E) a^*(\overline{\theta})\,;$$

(see expression (14) *infra*). Without additional assumptions it cannot be shown that $\Lambda(\cdot)$ has a single zero or $\Lambda(\theta) > 0$ for all θ; either of which would ensure a unique equilibrium. Uniqueness can be established given additional assumptions: for example, suppose $c(a) = a^2/2$ or $c(a) = a^3/3$; R is given by (5); and states are distributed uniformly on the unit interval. It can be shown—details available from author upon request—that the corresponding (♣) has either a unique zero or is everywhere positive. In particular, the unique cutoffs are

$$\theta_C = \min\left\{\frac{2n_E\mu\chi}{(1+\mu)n_E + n_S}, 1\right\} \text{ if } c(a) = a^2/2\,;$$

and

$$\theta_C = \min\left\{\frac{2n_E^2\mu\chi}{(1+\mu)n_E^2 + (4-2\sqrt{2})n_E n_S + (3-2\sqrt{2})n_S^2}, 1\right\} \text{ if } c(a) = a^3/3\,.$$

[31] Recall $\underline{\theta} = \Theta^{\mathbb{E}}(\underline{\theta})$ and $\mathbb{E}\theta = \Theta^{\mathbb{E}}(\overline{\theta})$.

hence, there is an equilibrium in which the leader makes an emotional appeal regardless of the state and the followers' expectation of the state is therefore the unconditional mean. ■

More charismatic leaders are more likely to make emotional appeals:

Proposition 2. *Consider two leaders with levels of charisma χ' and χ, $\chi' < \chi$. Consider a perfect Bayesian equilibrium in which the χ' leader makes an emotional appeal whenever $\theta \leq \theta'_C$. Then there exists a $\theta_C \geq \theta'_C$ such that there is a perfect Bayesian equilibrium in which the χ leader makes an emotional appeal whenever $\theta \leq \theta_C$. Moreover, if $R(\chi, \underline{\theta}) > \underline{\theta}$ and $\theta'_C < \overline{\theta}$, then $\theta_C > \theta'_C$.*

Proof: Ignoring the "moreover" part, the result is immediate from Proposition 1 given Assumption 1(i) if $R(\chi, \underline{\theta}) \leq \underline{\theta}$. Hence, assume $R(\chi, \underline{\theta}) > \underline{\theta}$. If $R(\chi', \underline{\theta}) \leq \underline{\theta}$, both parts of the proposition follow from Proposition 1. Hence, suppose $R(\chi', \underline{\theta}) > \underline{\theta}$. If $\theta'_C = \overline{\theta}$, then

$$(n_S + n_E)a^*(\overline{\theta}) \leq n_S a^*(\mathbb{E}\theta) + n_E a^*\big(R(\chi', \mathbb{E}\theta)\big) < n_S a^*(\mathbb{E}\theta) + n_E a^*\big(R(\chi, \mathbb{E}\theta)\big),$$

in which case there is an equilibrium in which θ_C also equals $\overline{\theta}$. Finally, suppose $\theta'_C < \overline{\theta}$. It follows that

$$(n_S + n_E)a^*(\theta'_C) = n_S a^*\big(\Theta^{\mathbb{E}}(\theta'_C)\big) + n_E a^*\Big(R\big(\chi', \Theta^{\mathbb{E}}(\theta'_C)\big)\Big).$$

Hence,

$$(n_S + n_E)a^*(\theta'_C) < n_S a^*\big(\Theta^{\mathbb{E}}(\theta'_C)\big) + n_E a^*\Big(R\big(\chi, \Theta^{\mathbb{E}}(\theta'_C)\big)\Big). \tag{15}$$

If

$$(n_S + n_E)a^*(\overline{\theta}) \leq n_S a^*(\mathbb{E}\theta) + n_E a^*\big(R(\chi, \mathbb{E}\theta)\big), \tag{16}$$

then there is an equilibrium in which $\theta_C = \overline{\theta}$, and both parts follow. If (16) doesn't hold, then that fact, (15), and continuity imply a $\theta_C \in (\theta'_C, \overline{\theta})$ exists such that

$$(n_S + n_E)a^*(\theta_C) = n_S a^*\big(\Theta^{\mathbb{E}}(\theta_C)\big) + n_E a^*\Big(R\big(\chi, \Theta^{\mathbb{E}}(\theta_C)\big)\Big);$$

hence, there's an equilibrium in which the cutoff is θ_C and both parts follow. ■

Situations in which a leader makes the same kind of appeal regardless of the state are of limited interest, so it is worth eliminating them from consideration going forward. To this end, define $\underline{\chi}$ as the solution to $R(\chi, \underline{\theta}) = \underline{\theta}$. It is unique given Assumption 1(i).[32] If $a^*(\overline{\theta})$ is finite, define $\overline{\chi}$ as the χ that solves

$$n_S a^*(\mathbb{E}\theta) + n_E a^*\big(R(\chi, \mathbb{E}\theta)\big) = (n_S + n_E)a^*(\overline{\theta}); \tag{17}$$

[32]Observe a solution exists for all specifications of R considered in Section 2.3. Similarly, $\overline{\chi}$, shortly to be introduced, exists for all specifications in Section 2.3.

if $a^*(\theta) \to \infty$ as $\theta \to \overline{\theta} = \infty$, then fix $\overline{\chi}$ at some value greater than $\underline{\chi}$. If $\overline{\chi}$ is defined by (17), then it is unique given Assumption 1(i) and the fact that $a^*(\cdot)$ is an increasing function. Provided $\chi \in (\underline{\chi}, \overline{\chi})$, it follows from Proposition 1 that there must exist states for which the leader's equilibrium response is an emotional appeal. It is also true that there exist states for which her equilibrium response is a rational appeal. To see this last point, suppose not; it must then be that $\widehat{\theta} = \mathbb{E}\theta$ if she makes emotional appeals only. The lefthand side of (17) is finite, so if $a^*(\cdot)$ is unbounded, then there must exist θ such that

$$n_S a^*(\mathbb{E}\theta) + n_E a^*\big(R(\chi, \mathbb{E}\theta)\big) < (n_s + n_E) a^*(\theta)\,; \tag{18}$$

hence, the leader would do better to deviate by making a rational appeal given such a θ. If $a^*(\cdot)$ is bounded, then (17), which recall holds only if $\chi = \overline{\chi}$, and continuity entail there exists, for all $\chi < \overline{\chi}$, a $\theta \in (\underline{\theta}, \overline{\theta})$ such that (18) holds: again, the leader would do better to deviate by making a rational appeal. Finally, observe this analysis implies that the antecedent in the last sentence of Proposition 2 always holds. To summarize:

Corollary 1. *If the leader's charisma lies in the interval $(\underline{\chi}, \overline{\chi})$, where $\underline{\chi}$ solves $R(\chi, \underline{\theta}) = \underline{\theta}$ and $\overline{\chi}$ either solves* (17) *if $a^*(\cdot)$ bounded on $(\underline{\theta}, \overline{\theta})$ or it is some fixed constant greater than $\underline{\chi}$ if $a^*(\cdot)$ is unbounded, then there exist some states such that leader makes an emotional appeal in equilibrium and some states such that she makes a rational appeal. Moreover, comparing two leaders of different charisma, for any equilibrium cutoff of the less charismatic leader, there is an equilibrium in which the more charismatic leader has a strictly greater cutoff.*

Henceforth, assume

Assumption 2. *A leader's charisma lies in the interval $(\underline{\chi}, \overline{\chi})$, with the end points defined in Corollary 1.*

Because charisma lies in the interval $(\underline{\chi}, \overline{\chi})$, the leader is indifferent between the two kinds of appeal if the state exactly equals her cutoff, θ_C; that is,

$$n_S a^*\big(\Theta^{\mathbb{E}}(\theta_C)\big) + n_E a^*\Big(R\big(\chi, \Theta^{\mathbb{E}}(\theta_C)\big)\Big) = N a^*(\theta_C)\,. \tag{19}$$

Next, a leader with more charisma induces better actions from *both* kinds of followers using an emotional appeal than does a less charismatic leader:

Proposition 3. *For any perfect Bayesian equilibrium of the game with a less charismatic leader, there is a perfect Bayesian equilibrium of the game with a more charismatic leader such that, comparing the equilibria,* both *emotional and sober responders' actions are higher in response to an emotional appeal from the more charismatic leader than they are in response to such an appeal from the less charismatic leader.*

Proof: Consider two charisma levels, $\chi > \chi'$. From Corollary 1, if θ'_C is the equilibrium cutoff with a leader of charisma χ', then there is an equilibrium with cutoff $\theta_C > \theta'_C$ in the game with the more charismatic leader. Because $\Theta^{\mathbb{E}}(\cdot)$ is increasing, it follows that

$$a^*\left(\Theta^{\mathbb{E}}(\theta_C)\right) > a^*\left(\Theta^{\mathbb{E}}(\theta'_C)\right) \text{ and } a^*\Big(R\big(\chi, \Theta^{\mathbb{E}}(\theta_C)\big)\Big) > a^*\Big(R\big(\chi', \Theta^{\mathbb{E}}(\theta'_C)\big)\Big),$$

which establishes the claim for sober and emotional responders, respectively. ■

The effect of greater charisma on emotional responders is not surprising. What is more interesting is that sober responders—those not inherently receptive to emotional appeals—respond more to such appeals in equilibrium when they come from more charismatic leaders than when they come from less charismatic leaders. The reason is that more charismatic leaders know they have a greater influence on emotional responders than less charismatic leaders; hence, more charismatic leaders are willing to make emotional appeals for a wider range of states than less charismatic leaders. Consequently, sober responders rationally infer that the state is likely to be greater when they receive an emotional appeal from a more charismatic leader than when they receive such an appeal from a less charismatic leader, which causes them to take a better (higher) action.

Of arguably greater importance is the effect of the leaders' charisma on actions in all states and the expected value of the public good.

Proposition 4. *Consider leaders with charisma χ' and χ, $\chi' < \chi$. For any perfect Bayesian equilibrium of the game with the less charismatic leader, there is a perfect Bayesian equilibrium of the game with the more charismatic leader in which, comparing the two equilibria,*

(i) in any state, the total of the actions (i.e., $\sum_{m=1}^{N} a_m$) is never less with the more charismatic leader and it is strictly greater for a set of states of positive measure;

(ii) in any state, the value of the public good (i.e., V) is never less with the more charismatic leader and it is strictly greater for a set of states of positive measure; and

(iii) in expectation, the value of the public good is greater if the leader is the more charismatic of the two.

Proof: Consider any equilibrium with the less charismatic leader and corresponding cutoff θ'_C. From Corollary 1, there is an equilibrium of the game with the more charismatic leader such that her cutoff, θ_C, is strictly greater. Because the distribution over states is strictly increasing (has an everywhere positive density), the interval $[\theta'_C, \theta_C)$ has positive measure. Likewise, because $\chi' > \underline{\chi}$, $\theta'_C > \underline{\theta}$, so the interval $(\underline{\theta}, \theta'_C)$ has positive measure.

Consider the intervals $(\underline{\theta}, \theta'_C)$, $[\theta'_C, \theta_C)$, and $(\theta_C, \overline{\theta})$. For θ in the first interval, total actions under the less and more charismatic leaders are, respectively, the left and righthand sides of the following:

$$n_E a^*\Big(R\big(\chi', \Theta^{\mathbb{E}}(\theta'_C)\big)\Big) + n_S a^*\left(\Theta^{\mathbb{E}}(\theta'_C)\right) < n_E a^*\Big(R\big(\chi, \Theta^{\mathbb{E}}(\theta_C)\big)\Big) + n_S a^*\left(\Theta^{\mathbb{E}}(\theta_C)\right),$$

where the inequality follows by Assumption 1 and because $\Theta^{\mathbb{E}}(\cdot)$ and $a^*(\cdot)$ are increasing. For θ in the second interval, total actions under the less and more charismatic leaders are, respectively, the left and righthand sides of

$$Na^*(\theta) < n_E a^*\Big(R\big(\chi, \Theta^{\mathbb{E}}(\theta_C)\big)\Big) + n_S a^*\big(\Theta^{\mathbb{E}}(\theta_C)\big)\,,$$

where the inequality follows because the more charismatic leader strictly prefers an emotional appeal for all $\theta \in [\theta'_C, \theta_C)$ (recall (19)). Finally, this comparison for θ in the third interval is $Na^*(\theta) = Na^*(\theta)$ as both leaders make rational appeals. This proves part (i).

Part (ii) follows because V is θ times total action. Part (iii) because there are intervals of positive measure in which the more charismatic leader everywhere generates greater value and none in which she generates less. ■

Proposition 4 hints at why entities could prefer a more charismatic leader to a less charismatic leader: provided an entity has *any* emotional responders (*i.e.,* provided $n_E > 0$), a more charismatic leader will generate better (higher) actions and greater value in expectation than a less charismatic leader.

As the proof of Proposition 4 makes clear, charisma is valuable when the state is low (*i.e.,* less than θ_C) but not necessarily when it is high. This could explain why charisma appears especially valuable in dire times (*e.g.,* Churchill, whose inspirational leadership after the fall of France and during the Battle of Britain is considered, by many, to have been critical to Britain's survival, was voted out of office at the end of the war once victory had been achieved). It could also explain the phenomenon, documented by Khurana (2002b), of why poorly performing companies—those for which the distribution of θs, in the short run at least, is left shifted—seek to recruit charismatic CEOs.[33]

The analysis has so far accommodated the possibility of multiple equilibria. Although, going forward, uniqueness is not required, the analysis is more concise if equilibria are unique. To that end, assume the following henceforth:

Assumption 3. *The function* $\Lambda : \mathbb{R}_+ \to \mathbb{R}_+$ *defined by*

$$\Lambda(\theta) = n_S a^*\big(\Theta^{\mathbb{E}}(\theta)\big) + n_E a^*\Big(R\big(\chi, \Theta^{\mathbb{E}}(\theta)\big)\Big) - Na^*(\theta)\,,$$

has a unique zero for each $\chi \in (\underline{\chi}, \overline{\chi})$.

In other words, there is unique cutoff θ_C for any level of charisma.[34] Observe this defines θ_C as an implicit function of χ. Assuming R is differentiable, the

[33]That such CEOs do not necessarily do well (as documented by Khurana, 2002b) does not invalidate this observation: recall they are hired precisely when anticipated conditions are poor; bringing in an outsider is often difficult; and, finally, as discussed in Section 7 and 8 *infra*, charisma can be a two-edged sword.

[34]Footnote 30 *supra* gave two sets of primitive assumptions that imply Assumption 3. A third example: $c(a) = a^2/2$, θ distributed exponentially, and $R(\chi, \theta) = \theta + \chi$. It is readily shown that $a^*(\zeta) = \zeta$ and $\Theta^{\mathbb{E}}(\theta) = \mathbb{E}\theta - \theta/(\exp(\theta/\mathbb{E}\theta) - 1)$. It follows that

$$\Lambda(\theta) = n_E\chi + N\big(\Theta^{\mathbb{E}}(\theta) - \theta\big)\,.$$

implicit function theorem then implies $d\theta_C/d\chi$ exists for all $\chi \in (\underline{\chi}, \overline{\chi})$. By Corollary 1 that derivative is positive everywhere.

4 Savvy Leaders, Demagogues, and Professors

So far, the assumption has been the leader knows the state, θ, and is able to tailor her appeal to maximize the public good given how her followers respond to different appeals. Call such a leader *savvy*. In this section, two alternative kinds of leaders, "demagogues" and "professors," will be considered.

In contrast to a savvy leader, consider a leader either with no charisma ($\chi = \underline{\chi}$) or, equivalently, known to be unwilling to ever make an emotional appeal. Call such a leader a *professor*. In terms of actions induced and creating value, a professor is inferior to a savvy leader (Proposition 4).

At the other extreme, suppose the leader does not know θ. Such a leader—call her a *demagogue*—can make emotional appeals only.[35] Consequently, her followers can infer nothing about the state from her "decision" to make an emotional appeal and, thus, their inferences about the state are independent of her charisma. In particular, a sober responder's action is always $a^*(\mathbb{E}\theta)$.

How professors and demagogues vary in terms of outcomes has to do with the value of information. The following lemma is critical in that regard.

Lemma 1. *Consider the functions defined by $\theta \mapsto \theta a^*(\theta) - c\big(a^*(\theta)\big)$ and $\theta \mapsto \theta a^*(\theta)$.*

(i) The first function is strictly convex.

(ii) If, for all $a \in \mathbb{R}_+$, marginal *disutility of action is log concave (i.e., $\log\big(c'(\cdot)\big)$ is concave), then the second function is strictly convex.*

As but one example, the log-concavity condition holds if $c(a) = a^\gamma$, where, consistent with prior assumptions, $\gamma > 1$.[36] *Assume, henceforth, that* marginal *disutility is log concave* (does not accelerate too quickly). Note: only when Lemma 1 is invoked below is this assumption relevant; in particular, it is irrelevant for the prior propositions (as well as many subsequent ones).

Given the lemma, Jensen's inequality implies that

$$\mathbb{E}\big\{\theta a^*(\theta)\big\} > \mathbb{E}\theta \times a^*(\mathbb{E}\theta) = \mathbb{E}\big\{\theta a^*(\mathbb{E}\theta)\big\}\,;$$

hence, information about the state is valuable: an informed follower produces more in expectation than an uninformed follower (a follower who knows only the

Noting that $\Lambda(0) = n_E\chi > 0$, $\Lambda'(\theta) < 0$ (because $\Theta^{\mathbb{E}\prime}(\theta) < 1$), and $\Lambda(\theta) \to -\infty$ as $\theta \to \infty$, it follows Assumption 3 is satisfied.

[35] Plausibly, she could choose to remain silent. If followers respond to silence by playing their best response to their prior estimate of the state (*i.e.,* play $a^*(\mathbb{E}\theta)$) and if her charisma is such that $R(\chi, \mathbb{E}\theta) < \mathbb{E}\theta$, then she would, in fact, wish to remain silent. The analysis that follows holds independently of whether a demagogue can remain silent.

[36] Proof: $\log\big(c'(a)\big) = (\gamma - 1)\log(a) + \log(\gamma)$, which is clearly concave in a.

prior). Consequently, a professor generates greater expected value from sober responders than a demagogue. Hence, if a demagogue's charisma is low enough, or emotional responders a small enough minority of followers, or both, then a professor will generate greater expected value in total. On the other hand, when $a^*(\overline{\theta}) < \infty$, a maximally charismatic *savvy* leader (*i.e.,* for whom $\chi = \overline{\chi}$) only makes emotional appeals and, thus, is equivalent to a maximally charismatic demagogue. From Proposition 4, a maximally charismatic savvy leader generates greater expected value than a minimally charismatic one (the equivalent of a professor). By continuity, then, a sufficiently charismatic demagogue must outperform a professor (at least when $a^*(\overline{\theta}) < \infty$). To conclude:

Proposition 5. *It is ambiguous as to whether a professor generates more or less value in expectation than a demagogue. Specifically, a demagogue with little charisma generates less value in expectation than a professor, but a highly charismatic demagogue generates more.*

5 Welfare and Followers' Preferences Over Leaders

As an entree to issues of welfare and who the followers want as leader, suppose that all responders are sober (*i.e.,* $n_E = 0$). Because $\Theta^{\mathbb{E}}(\theta_C) < \theta_C$, unless $\theta_C = \underline{\theta}$, expression (10) implies that a savvy leader facing only sober responders will never make an emotional appeal. Hence, her charisma is irrelevant.

Given Lemma 1, the function

$$\theta \mapsto (n_S - 1)\theta a^*(\theta) + \theta a^*(\theta) - c\big(a^*(\theta)\big)$$

is strictly convex. Jensen's inequality thus implies

$$\mathbb{E}\Big\{n_S\theta a^*(\theta) - c\big(a^*(\theta)\big)\Big\} > n_S \times \mathbb{E}\theta \times a^*(\mathbb{E}\theta) - c\big(a^*(\mathbb{E}\theta)\big)\,.$$

Hence, if all followers are sober, each strictly prefers a professor or savvy leader to a demagogue; if all followers are sober, then their expected welfare is greater with a professor or savvy leader than with a demagogue. To summarize:

Proposition 6. *If all followers are sober responders, then each follower prefers a professor or savvy leader to a demagogue and their expected welfare is greater with such a leader than with a demagogue. When choosing between two leaders, charisma is irrelevant when all followers are sober responders.*

Now suppose that there are both sober and emotional responders. The presence of emotional responders causes sober responders to care about the charisma of leaders; in particular, sober responders will strictly prefer savvy leaders to professors and, in addition, more charismatic savvy leaders to less charismatic savvy leaders:

Proposition 7. *Assume there are sober and emotional responders and leaders are savvy, then sober responders prefer a more charismatic leader to a less charismatic leader.*

Proof: Let $F : (\underline{\theta}, \overline{\theta}) \to (0,1)$ denote the distribution function over states.

The expected payoff to a sober responder is

$$F(\theta_C)\Theta^{\mathbb{E}}(\theta_C)\left(n_S a^*\big(\Theta^{\mathbb{E}}(\theta_C)\big) + n_E a^*\Big(R\big(\chi, \Theta^{\mathbb{E}}(\theta_C)\big)\Big)\right) - F(\theta_C)c\Big(a^*\big(\Theta^{\mathbb{E}}(\theta_C)\big)\Big)$$
$$+ \int_{\theta_C}^{\overline{\theta}} \Big(\theta(n_S + n_E)a^*(\theta) - c\big(a^*(\theta)\big)\Big) dF(\theta) \,.$$

Given (i) $d\big(F(\theta)\Theta^{\mathbb{E}}(\theta)\big)/d\theta = \theta F'(\theta)$, (ii) expression (19), and (iii) the envelope theorem, the derivative of that expression with respect to χ proves to be

$$\Bigg(F'(\theta_C)\left(c\big(a^*(\theta_C)\big) - c\Big(a^*\big(\Theta^{\mathbb{E}}(\theta_C)\big)\Big)\right)$$
$$+ n_E a^{*\prime}\Big(R\big(\chi, \Theta^{\mathbb{E}}(\theta_C)\big)\Big)\frac{\partial R}{\partial \theta}\Theta^{\mathbb{E}\,\prime}(\theta_C)\Theta^{\mathbb{E}}(\theta_C)F(\theta_C)$$
$$+(n_S - 1)a^{*\prime}\big(\Theta^{\mathbb{E}}(\theta_C)\big)\Theta^{\mathbb{E}\,\prime}(\theta_C)\Theta^{\mathbb{E}}(\theta_C)F(\theta_C)\Bigg)\frac{d\theta_C}{d\chi}$$
$$+ n_E a^{*\prime}\Big(R\big(\chi, \Theta^{\mathbb{E}}(\theta_C)\big)\Big)\frac{\partial R}{\partial \chi}\Theta^{\mathbb{E}}(\theta_C)F(\theta_C) > 0 \quad (20)$$

(the sign follows because $\theta_C > \Theta^{\mathbb{E}}(\theta_C)$, $d\theta_C/d\chi > 0$, and $a^{*\prime}(\cdot) > 0$). ■

As the proof (particularly expression (20)) makes clear, sober responders benefit from charisma's direct effect on emotional responders (the last line of (20)). That is not surprising. More interesting is that a sober responder also benefits because *all* his fellow followers are indirectly induced to work harder (choose a higher action)—an effect captured by the middle two lines of (20)—this is due to the higher expectation of the state that an emotional appeal from a more versus less charismatic leader generates.

Corollary 2. *Suppose $a^*(\overline{\theta})$ finite and both kinds of responders exist, then sober responders prefer a sufficiently charismatic demagogue to a professor.*

Proof: Consider a savvy leader with charisma $\overline{\chi}$: she always makes an emotional appeal and is, thus, equivalent to a demagogue of equal charisma. A professor is a savvy leader who lacks charisma. The result follows from Proposition 7 and the continuity of payoffs. ■

Although sober responders prefer a sufficiently charismatic demagogue to a professor, a professor is preferable to a demagogue with little charisma:

Proposition 8. *Assume there are sober and emotional responders, then sober responders will prefer a professor to an insufficiently charismatic demagogue.*

Proof: Observe

$$\mathbb{E}\Big\{(n_S+n_E)\theta a^*(\theta)-c\big(a^*(\theta)\big)\Big\} > (n_S+n_E)\times\mathbb{E}\theta\times a^*(\mathbb{E}\theta)-c\big(a^*(\mathbb{E}\theta)\big)$$

$$\geq \mathbb{E}\theta\times\Big(n_S a^*(\mathbb{E}\theta)+n_E a^*\big(R(\underline{\chi},\mathbb{E}\theta)\big)\Big)-c\big(a^*(\mathbb{E}\theta)\big)\,, \quad (21)$$

where the first inequality follows from Lemma 1 and the second because $\mathbb{E}\theta \geq R(\underline{\chi},\mathbb{E}\theta)$ given the definition of $\underline{\chi}$ and Assumption 1(iii). The first expression in (21) is a sober responder's expected payoff under a professor, the last his expected payoff under a demagogue with charisma $\underline{\chi}$. The result follows given continuity of payoffs.[37] ■

What about emotional responders' preferences over leaders? The issue is complicated and depends on the following: are the true payoffs of emotional responders given by expression (3) or do those responders merely behave as if that is their payoff? If the former, what is U? If the latter, what are their true payoffs? Also, if the latter, how aware are they that their behavior is or will be at odds with their true payoffs? Among the many possible cases these questions engender, the following seem particularly relevant:

1. Unaware, inconsistent emotional responders, whose true payoff is given by (2), but who behave as if it is (3). In this case, an emotional responder falsely believes himself to be sober, but may or may not believe other followers are emotional responders.

2. Aware, inconsistent emotional responders, whose true payoff is given by (2), but who behave as if it is (3). These followers know they are emotional responders and so will behave inconsistently with their true preferences in response to an emotional appeal.

3. Aware, sophisticated emotional responders. Such an individual, m, has a true payoff of
$$R(\chi,\widehat{\theta})a_m - c(a_m) + \widehat{\theta}\sum_{j\neq m} a_j\,, \quad (22)$$
given an emotional appeal and a true payoff of (2) given a rational appeal. These individuals understand their preferences.[38]

In case #1, emotional responders' preferences over leaders weakly mimic sober responders': if they believe all responders are sober, then they are indifferent to charisma when choosing a leader and prefer professors to demagogues

[37] If a sufficiently uncharismatic demagogue can remain silent and $R(\underline{\chi},\mathbb{E}\theta)<\mathbb{E}\theta$, then the middle expression in (21) is a sober responder's expected payoff under a demagogue. Clearly, the result still holds.

[38] Given (22), an emotional responder's utility is directly increasing in the leader's charisma *ceteris paribus*. This, it should be noted, is not necessarily a universal property: consider, *e.g.,* expression (7) *supra*. Because $U=-\chi a^{**}+\widehat{\theta}\sum_{m\neq j}a_m$ and $a^{**}>a_j$, it follows utility decreases in charisma *ceteris paribus*—a sterner father figure is more obeyed, but less loved.

(Proposition 6); but if they believe that *other* followers are emotional, then they will favor a more charismatic savvy leader to a less charismatic savvy leader (Proposition 7). In terms of such a follower's expected utility, it is

$$\int_{\underline{\theta}}^{\theta_C} \left(\theta\Big(n_S a^*\big(\Theta^{\mathbb{E}}(\theta_C)\big) + n_E a^*\big(R(\chi, \Theta^{\mathbb{E}}(\theta_C))\big)\Big) - c\Big(a^*\big(R(\chi, \Theta^{\mathbb{E}}(\theta_C))\big)\Big)\right) dF(\theta) \\ + \int_{\theta_C}^{\overline{\theta}} \Big(\theta(n_S + n_E)a^*(\theta) - c\big(a^*(\theta)\big)\Big) dF(\theta)\,. \quad (23)$$

Differentiating (23) with respect to χ, utilizing (19) and the envelope theorem, yields

$$\begin{aligned} & -\overbrace{F'(\theta_C)\Big(c\big(a^*(R)\big) - c\big(a^*(\theta_C)\big)\Big)\frac{d\theta_C}{d\chi}}^{\mathsf{X}} \\ & -\overbrace{F(\theta_C)\Big(c'\big(a^*(R)\big) - c'\big(a^*\big(\Theta^{\mathbb{E}}(\theta_C)\big)\big)\Big)a^{*\prime}(R)\left(\frac{\partial R}{\partial \theta}\Theta^{\mathbb{E}\,\prime}(\theta_C)\frac{d\theta_C}{d\chi} + \frac{\partial R}{\partial \chi}\right)}^{\mathsf{I}} \\ & + \underbrace{n_S a^{*\prime}\big(\Theta^{\mathbb{E}}(\theta_C)\big)\Theta^{\mathbb{E}\,\prime}(\theta_C)\frac{d\theta_C}{d\chi}\Theta^{\mathbb{E}}(\theta_C)F(\theta_C)}_{\mathsf{A}_S} \\ & + \underbrace{(n_E - 1)a^{*\prime}(R)\left(\frac{\partial R}{\partial \theta}\Theta^{\mathbb{E}\,\prime}(\theta_C)\frac{d\theta_C}{d\chi} + \frac{\partial R}{\partial \chi}\right)\Theta^{\mathbb{E}}(\theta_C)F(\theta_C)}_{\mathsf{A}_E}\,. \end{aligned} \quad (24)$$

The X term reflects such a follower's extra effort (necessarily $R\big(\chi, \Theta^{\mathbb{E}}(\theta_C)\big) > \theta_C$ because otherwise a savvy leader would do better to make a rational appeal); it is a loss to an emotional responder. The I term is the penalty paid for being inconsistent. The A_S term is the additional production that a more charismatic leader generates indirectly from sober responders. Similarly the term A_E is the additional production directly and indirectly generated from the *other* emotional responders. Both the last two terms are positive. If n_E and n_S are sufficiently large, then $\mathsf{A}_S + \mathsf{A}_E - \mathsf{X} - \mathsf{I} > 0$: even an inconsistent emotional responder is better off with a more charismatic leader than a less charismatic leader. Given (24) equals $-\mathsf{X} - \mathsf{I}$ if $n_E = 1$ and $n_S = 0$, conditions also exist such that an emotional responder would be better off with a less charismatic leader. Figure 1 illustrates this ambiguity.

In case #2, emotional responders are aware of their vulnerability to charisma. Whether they desire a charismatic leader depends on the sign of (24). If the sign is negative, then, ironically, it is the sober responders—those not directly affected by charisma—who favor a more charismatic leader, while emotional responders—those directly affected by charisma—favor a less charismatic leader.

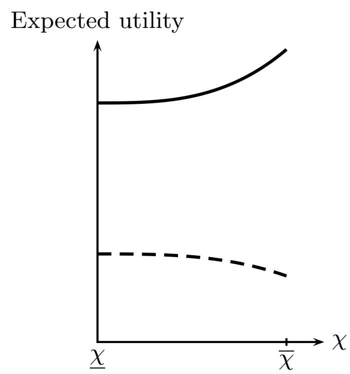

Figure 1: Expected utility of an inconsistent emotional responder as a function of the leader's charisma under two conditions. Common to both is $c(a) = a^2/2$, θ distributed uniformly on $(0,1)$, and $R(\chi,\theta) = \chi/2 + \theta/2$. Solid curve assumes $n_E = n_S = 5$. Dashed curve assumes $n_E = n_S = 2$.

In case #3, the expected value of (22), an emotional responder's payoff, is

$$F(\theta_C)\Theta^{\mathbb{E}}(\theta_C)\Big(n_S a^*\big(\Theta^{\mathbb{E}}(\theta_C)\big)\Big) + (n_E - 1)a^*\Big(R\big(\chi, \Theta^{\mathbb{E}}(\theta_C)\big)\Big)\Big)$$
$$+ F(\theta_C)\left(R\big(\chi, \Theta^{\mathbb{E}}(\theta_C)\big)a^*\Big(R\big(\chi, \Theta^{\mathbb{E}}(\theta_C)\big)\Big) - c\Big(a^*\Big(R\big(\chi, \Theta^{\mathbb{E}}(\theta_C)\big)\Big)\Big)\right)$$
$$+ \int_{\theta_C}^{\overline{\theta}} \Big(\theta(n_S + n_E)a^*(\theta) - c\big(a^*(\theta)\big)\Big) dF(\theta) .$$

Differentiating with respect to χ, using (19) and the envelope theorem, yields

$$-\mathsf{X} + \mathsf{A}_S + \mathsf{A}_E + \underbrace{(R - \theta_C)a^*(R)F'(\theta_C)\frac{d\theta_C}{d\chi} + F(\theta_C)a^*(R)\frac{\partial R}{\partial \chi}}_{\mathsf{G}}, \qquad (25)$$

where G reflects the direct gain such an emotional responder gets from an emotional appeal. As with (24), the sign of (25) is, in general, ambiguous; although obviously positive if (24) is. It also must be positive given a sufficiently large team: the additional value terms (the As) will come to outweigh all the other terms. It can also be shown to be positive if $c(a) = a^2/2$.[39]

[39]Observe a sufficient condition for $\mathsf{G} > \mathsf{X}$ is $(R - \theta_C)a^*(R) > c\big(a^*(R)\big) - c\big(a^*(\theta_C)\big)$. If $c(a) = a^2/2$, this condition becomes $(R - \theta_C)R > R^2/2 - \theta_C^2/2$, which holds because, dividing both sides by $R - \theta_C$, $R > (R + \theta_C)/2$.

6 Stochastic Demagogues

To this point, it has been assumed that whether the leader knows the state is common knowledge. This section briefly considers the situation in which followers are uncertain about whether the leader knows the state or not.

Suppose that, after the state is drawn, the leader is either told it, with probability ϕ, or left ignorant, with probability $1-\phi$. Assume ϕ is common knowledge, but whether the leader knows the state is her private information. As before, the leader then decides what kind of appeal to make. If ignorant of θ, she has no choice but to make an emotional appeal.[40] If she knows the state, then—following the logic of Section 3—she will make an emotional appeal if (9) holds and a rational appeal if it doesn't. Hence, an informed leader uses a cutoff strategy. As before, denote the cutoff value by θ_C. For the sake of brevity, limit attention to $\theta_C \in (\underline{\theta}, \overline{\theta})$; that is, a version of Assumption 2 holds with appropriately defined limits on charisma.

As earlier, rational expectations of the state must be consistent with the leader's cutoff strategy in equilibrium. Hence,

$$\widehat{\theta} = \phi\Theta^{\mathbb{E}}(\theta_C) + (1-\phi)\mathbb{E}\theta \equiv \Omega(\theta_C)\ : \tag{26}$$

a rational expectation of the state given an emotional appeal puts weight ϕ on its having been drawn on $(\underline{\theta}, \theta_C]$ according to the distribution $F(\theta)/F(\theta_C)$—the leader knows θ but isn't revealing it—and weight $1-\phi$ on its having been drawn on $(\underline{\theta}, \overline{\theta})$ according to the distribution $F(\theta)$—the leader is ignorant.

It is straightforward to verify that the analysis in Section 3 continues to apply, except the $\Omega(\cdot)$ function defined in (26) plays the role that $\Theta^{\mathbb{E}}(\cdot)$ did before. In other words, the conclusions reached there are robust to making the leader stochastically informed. The same point applies to those portions of Section 5 pertaining to savvy leaders.

An additional question to ask is what is the tradeoff between greater charisma and greater knowledge? Specifically, suppose a leader is described by a vector consisting of her charisma and how knowledgeable she is: when is (χ, ϕ) preferable to (χ', ϕ')? Unfortunately, a definitive answer is impossible at the level of generality being pursued here. Beyond the ambiguities associated with the emotional responders' preferences, it cannot even be shown that the expected value of the public good is monotonic in the leader's knowledgeability (*i.e.,* in ϕ).[41] If additional assumptions about the functional forms of R and c, the distribution of θ, and the domain of ϕ are made, one can show that quantities such as $\mathbb{E}V$

[40] Because she might know the state, an unraveling argument can be invoked to rule out her remaining silent.

[41] Example: all followers are sober responders, $c(a) = a^2/2$, and θ distributed uniformly on $(0,1)$. It can be shown that $\theta_C = (1-\phi)/(2-\phi)$ and that, therefore,

$$\mathbb{E}V = \frac{12 - 3\phi^3 + 12\phi^2 - 19\phi}{6(2-\phi)^3} N\,,$$

which is decreasing in ϕ for $\phi \in \big(0, (5-\sqrt{13}\,)/6\big)$, but increasing for ϕ greater than $(5-\sqrt{13}\,)/6$. Details on these calculations available from author upon request.

and sober responders' expected utility increase with ϕ. Given those quantities also increase with χ (Propositions 4 and 7, respectively), it follows that, in such cases, the relevant isoquants are downward sloping in charisma-knowledgeability space: charisma can be traded for knowledge and *vice versa*.

7 Endogenous Demagogues

So far, if the leader knows the state, it is because she was endowed with that knowledge. This section explores the alternative that she must incur a cost, κ, to learn it. Whether or not she incurs this cost (learns) is a hidden action.

Because θ affects payoffs in an affine manner, there is little to gain by assuming the leader acquires a signal of θ rather than learning θ itself. Additionally, while one could conceive of her efforts revealing θ with less than certainty, that generalization complicates the analysis without yielding particularly useful insights. In sum, then, assume that the leader learns θ with certainty if she spends κ, but learns nothing if she doesn't. Her payoffs are $V - \kappa$ and V, respectively.

In what follows, assume that a leader with information is savvy. If she fails to obtain information, then she has no choice but to act as a demagogue.

While not necessary for the results that follow, it simplifies matters if the state is bounded above (*i.e.,* $\overline{\theta} < \infty$); assume, for this section, it is.

To determine the equilibrium, first suppose the followers expect the leader to learn the state. Her expected payoff (gross of her cost) if she indeed does is

$$\mathbb{E}V_\kappa \equiv \int_{\underline{\theta}}^{\theta_C} \theta N a^*(\theta_C) dF(\theta) + \int_{\theta_C}^{\overline{\theta}} \theta N a^*(\theta) dF(\theta)$$

(note the use of (19)). If she deviates by not learning, her expected payoff is

$$\mathbb{E}V_{\neg\kappa} \equiv \int_{\underline{\theta}}^{\overline{\theta}} \theta N a^*(\theta_C) dF(\theta)\,.$$

The difference is

$$\Delta(\theta_C) \equiv \mathbb{E}V_\kappa - \mathbb{E}V_{\neg\kappa} = \int_{\theta_C}^{\overline{\theta}} \theta N\big(a^*(\theta) - a^*(\theta_C)\big) dF(\theta)\,. \tag{27}$$

If $\theta_C = \overline{\theta}$, then $\Delta(\theta_C) = 0$; if $\theta_C < \overline{\theta}$, then $\Delta(\theta_C) > 0$. Because no leader would learn the state otherwise, assume $\Delta(\underline{\theta}) > \kappa$.

By continuity, there exists a $\theta_D \in (\underline{\theta}, \overline{\theta})$ such that $\Delta(\theta_D) = \kappa$. From (27), $\Delta(\cdot)$ is decreasing, so θ_D is unique. Moreover, because (i) $\theta_C = \underline{\theta}$ for a leader with charisma $\underline{\chi}$; (ii) $\theta_C = \overline{\theta}$ for a leader with charisma $\overline{\chi}$; and (iii) θ_C is continuous and increasing in charisma (Assumption 3 and Corollary 1), there exists a unique charisma level χ_D, $\chi_D \in (\underline{\chi}, \overline{\chi})$, such that there is no equilibrium in which a leader with charisma greater that χ_D learns the state.

Suppose, instead, the followers expect the leader *not* to learn the state. In other words, they expect her to behave as a demagogue; hence, a sober responder will choose action $a^*(\mathbb{E}\theta)$ in response to the expected emotional appeal and an emotional responder $a^*\big(R(\chi,\mathbb{E}\theta)\big)$.[42] Because $\chi < \overline{\chi}$, there exists a $\widetilde{\theta} \in (\underline{\theta},\overline{\theta})$ such that

$$Na^*(\widetilde{\theta}) = n_S a^*(\mathbb{E}\theta) + n_E a^*\big(R(\chi,\mathbb{E}\theta)\big)\,.$$

Consequently, the leader's expected payoff if she indeed does not learn is

$$\mathbb{E}\widetilde{V}_{\neg\kappa} \equiv \int_{\underline{\theta}}^{\overline{\theta}} \theta N a^*(\widetilde{\theta}) dF(\theta)\,.$$

If she deviates by learning, her expected payoff (gross of her cost) is

$$\mathbb{E}\widetilde{V}_{\kappa} \equiv \int_{\underline{\theta}}^{\widetilde{\theta}} \theta N a^*(\widetilde{\theta}) dF(\theta) + \int_{\widetilde{\theta}}^{\overline{\theta}} \theta N a^*(\theta) dF(\theta)\,.$$

The difference is $\Delta(\widetilde{\theta})$.

Because $\chi < \overline{\chi}$, $\theta_C < \overline{\theta}$; hence, $\Theta^{\mathbb{E}}(\theta_C) < \mathbb{E}\theta$. It follows, therefore, that $\widetilde{\theta} > \theta_C$ and, thus, that $\Delta(\widetilde{\theta}) < \Delta(\theta_C)$. Consequently, if a leader of a given charisma would deviate from learning when expected to learn, then she would *not* deviate from remaining ignorant when expected to remain ignorant. To summarize the preceding analysis:

Proposition 9. *There is a pure-strategy perfect Bayesian equilibrium of the game in which the leader decides whether to learn the payoff-relevant state, θ, such that a leader with charisma not exceeding a threshold χ_D, $\chi_D \in (\underline{\chi},\overline{\chi})$, will learn, but a leader with charisma above that threshold will not.*

Another way to state Proposition 9 is

Corollary 3. *When the leader can decide whether to become informed, a sufficiently charismatic leader will choose to be a demagogue in equilibrium.*

Because $\widetilde{\theta} > \theta_C$ for any level of charisma, the equilibrium of Proposition 9 is not unique: there is a lower threshold, $\widetilde{\chi}_D$, such that, if the followers expect a leader with charisma $\chi \in (\widetilde{\chi}_D,\overline{\chi})$ to remain ignorant, it is indeed a best response for her to do so. In other words, for any $\widehat{\chi} \in [\widetilde{\chi}_D,\chi_D]$ there is a pure-strategy equilibrium such that leaders with charisma less than $\widehat{\chi}$ learn and those with greater charisma don't. For the sake of brevity, however, attention will be limited to the Proposition 9 equilibrium.

In the Proposition 9 equilibrium, the public good's expected value, $\mathbb{E}V$, is

$$\mathbb{E}V = \begin{cases} \int_{\underline{\theta}}^{\theta_C} \theta N a^*(\theta_C) dF(\theta) + \int_{\theta_C}^{\overline{\theta}} \theta N a^*(\theta) dF(\theta)\,, & \text{if } \chi \leq \chi_D \\ \Big(n_S a^*(\mathbb{E}\theta) + n_E a^*\big(R(\chi,\mathbb{E}\theta)\big)\Big)\mathbb{E}\theta\,, & \text{if } \chi > \chi_D \end{cases}. \tag{28}$$

[42]The presumption is the leader *must* make an appeal (cannot be silent). The results, though, are not dependent on this: if silence meant both kinds of responders played $a^*(\mathbb{E}\theta)$, then the quantity $\widetilde{\theta}$, shortly to be introduced, would only be greater. It would thus continue to be true that $\Delta(\widetilde{\theta}) < \Delta(\theta_C)$, which is all that is required to establish Proposition 9 *infra*.

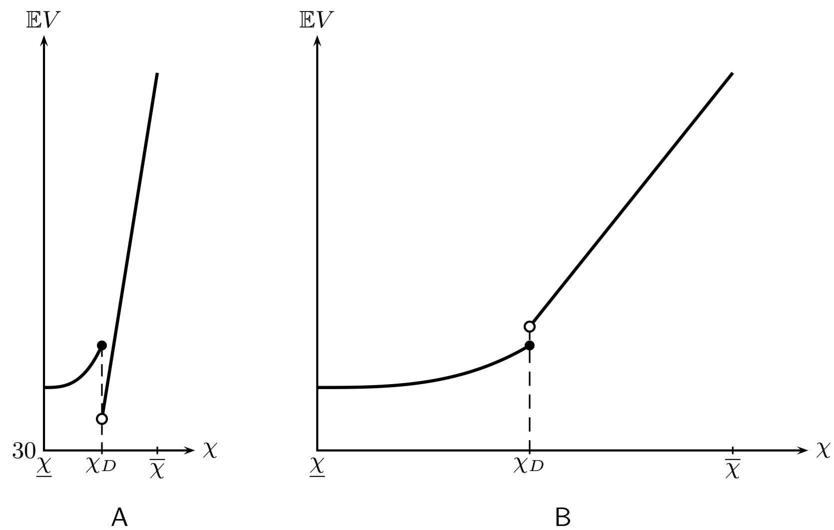

Figure 2: Expected value (expression (28)) as a function of the leader's charisma when the leader's decision to learn the state is endogenous. Horizontal & vertical axes not on the same scale. See text for the parameter values and functional forms being assumed. In panel A, the number of sober and emotional responders is equal; in panel B, 90% are sober responders.

Unlike Proposition 4, in which $\mathbb{E}V$ was strictly increasing in the leader's charisma, $\mathbb{E}V$ may not be monotone in charisma when the leader can decide whether to learn the state. Figure 2 plots expression (28) under two different scenarios. Common to both: $c(a) = a^2/2$, θ distributed uniformly on the unit interval, $R(\chi, \theta) = \chi$, and $N/\kappa = 10$. In panel A of the figure, it is assumed that the number of sober and emotional responders is the same. In panel B, 90% of the followers are sober responders. In the first scenario, this entails $\overline{\chi} = 3/2$ and $\chi_D \approx .767$. In the second, $\overline{\chi} = 11/2$ and $\chi_D \approx 2.81$.

The ambiguity shown in the figure arises from two offsetting effects. On one hand, if the leader remains uninformed in equilibrium, then the organization is without valuable information (Lemma 1(ii) means sober responders yield greater value in expectation when informed than when not). On the other, because the leader can effectively commit to be ignorant, the followers' inference about the state given an emotional appeal is less pessimistic than it would be if the leader could strategically reveal or conceal information (necessarily, $\mathbb{E}\theta > \Theta^{\mathbb{E}}(\theta_C)$). When there are relatively many emotional responders, the leader is more inclined to make an emotional appeal than when there are relatively few (see, *e.g.,* the formulæ for θ_C in footnote 30). Hence, followers will already have less cause to be pessimistic upon receiving an emotional appeal, which means the loss-of-information effect dominates the reduced-pessimism effect, as seen in Panel A of Figure 2. The reverse is true when emotional responders are relatively rare, as seen in Panel B of Figure 2.

Sober responders' preferences for leaders with different *intermediate* levels of charisma are thus ambiguous. As an example, a sober responder's expected utility under the conditions of Panel A when $N = 10$ and $\kappa = 1$ would be approximately 3.34 if a leader of charisma χ_D chose to become informed and 3.04 if she chose not to become informed. By continuity, a sober responder must prefer leaders whose charisma is in some interval to the left of χ_D to any leader whose charisma is an interval to the right. In general, when the team is large enough, the effect endogenous demagoguery has on $\mathbb{E}V$ is more important to a sober responder than the possible reduction in excepted disutility of action he might enjoy with an endogenous demagogue. Hence, if, as in Panel A, $\mathbb{E}V$ drops at χ_D, sober responders in large teams will have *non*-monotonic preferences over their leader's charisma.

What is unambiguous, though, is that sober responders still prefer sufficiently charismatic leaders: as $\chi \to \overline{\chi}$, the endogeneity of the information becomes irrelevant—even if informed, such a leader will almost surely make an emotional appeal and Proposition 7 already tells us that sober responders most prefer a *maximally* charismatic leader despite her never revealing the state.

Given the discussion at the end of the previous section, as well as here, it is clear that the preferences of emotional responders with respect to their leaders' charisma are ambiguous when information acquisition is endogenous. Hence, so too must the effect of greater charisma on any overall measure of welfare be ambiguous. To summarize:

Proposition 10. *When the leader must incur a cost to learn the payoff-relevant state, θ, it is ambiguous as to whether her being more charismatic would enhance the wellbeing of sober responders, emotional responders, and overall welfare. In particular, circumstances exist in which all three measures are* decreasing *in the leader's charisma. At high enough levels of charisma, however, greater charisma is preferred by* sober *responders to less charisma.*

8 Charisma and a Leader's Direct Work Incentives

So far the return to action, θ, has been determined exogenously. This section assumes, instead, it is determined by the leader's prior actions. As examples:

- The return to followers' donations in response to a humanitarian crisis or similar campaign depends on how efficient the organization is and such efficiency depends on the leader's prior actions.

- The return to followers' effort or time depends on the preparation and ground-work done by the leader.

Assume the leader chooses θ from $[\underline{\theta}, \infty)$, where, to ensure interior solutions, $\underline{\theta} > 0$ (*i.e.,* even absent action by the leader, there is some return to the followers' actions). Choosing θ causes the leader disutility $\delta(\theta)$. Hence, her utility is

$$\theta N a^*(\theta) - \delta(\theta) \tag{29}$$

if she makes a rational appeal and

$$\theta\Big(n_S a^*(\widehat{\theta}) + n_E a^*\big(R(\chi,\widehat{\theta})\big)\Big) - \delta(\theta) \tag{30}$$

if she makes an emotional appeal, where $\widehat{\theta}$ denotes the θ the followers believe she chose. The leader's choice of θ is her private information unless she chooses to reveal it via a rational appeal. As before, her knowledge of θ is hard: she can conceal it (make an emotional appeal), but cannot distort it. The timing is similar to before: the leader chooses θ; she then decides the kind of appeal; finally followers choose their actions in response.

For ease of analysis and to ensure interior optima and unique equilibria, assume that $\delta(\cdot)$ exhibits the following properties:[43] $\delta(\cdot)$ is twice continuously differentiable; $\delta(\underline{\theta}) = \delta'(\underline{\theta}) = 0$; $\delta'(\cdot)$ is strictly increasing (*i.e.*, $\delta(\cdot)$ is convex) and unbounded above; for all levels of charisma, χ, the function defined by

$$\theta \mapsto n_S a^*(\theta) + n_E a^*\big(R(\chi,\theta)\big)$$

intersects $\delta'(\cdot)$ once on $[\underline{\theta},\infty)$; and the function defined by

$$\theta \mapsto N a^*(\theta) + N\theta {a^*}'(\theta)$$

intersects $\delta'(\cdot)$ once on $[\underline{\theta},\infty)$. Because $\underline{\theta} > 0$, $a^*(\theta) > 0$; hence, the two functions just defined cross $\delta'(\cdot)$ from above.

If the leader plans on a rational appeal, she will choose θ to maximize (29). The assumptions just made ensure that program has a unique solution: θ^*_{RA}.

If she plans on an emotional appeal, she will choose θ to maximize (30). The first-order condition is

$$n_S a^*(\widehat{\theta}) + n_E a^*\big(R(\chi,\widehat{\theta})\big) = \delta'(\theta)\,.$$

Given the properties of $\delta(\cdot)$, there is a unique solution and it defines a maximum. In equilibrium, the followers' expectations must be correct; that is, the solution must be $\widehat{\theta}$—mathematically, in equilibrium,

$$n_S a^*(\widehat{\theta}) + n_E a^*\big(R(\chi,\widehat{\theta})\big) = \delta'(\widehat{\theta})\,. \tag{31}$$

By assumption, there is a unique $\widehat{\theta}$ that solves (31) for each level of charisma; call it $\widehat{\theta}(\chi)$. Because an increase in charisma, holding $\widehat{\theta}$ constant, shifts the lefthand side of (31) up and that curve intersects $\delta'(\cdot)$ from above, $\widehat{\theta}(\cdot)$ must be an increasing function. Hence:

Proposition 11. Conditional on her ultimately making an emotional appeal, *a leader works harder—generates a higher productivity parameter—the more charismatic she is.*

[43] These properties are satisfied, *e.g.*, if $c(a) = \omega a^2$ and $\delta(\theta) = \psi(\theta - \underline{\theta})^3/3$, ω and ψ positive constants.

Intuitively, a more charismatic leader knows she will generate better actions from emotional responders *ceteris paribus*; hence, her return to increasing θ is greater. Followers understand this, so expect a higher θ, which means *all* their actions will be higher, which reinforces her incentives to choose a higher θ.

If, contrary to the maintained assumption, leaders were *unable* to make rational appeals,[44] then a corollary to Proposition 11 would be

Corollary 4. *If leaders are unable to make rational appeals and leaders determine the productivity parameter, θ, then more charismatic leaders work harder in equilibrium than less charismatic leaders.*

Consider a savvy leader capable of making a rational appeal. If the range of possible charisma levels is $(\underline{\chi}, \infty)$, where $\underline{\chi}$ solves $R(\chi, \underline{\theta}) = \underline{\theta}$, then a sufficiently uncharismatic leader will prefer to make a rational appeal rather than an emotional one. The reason is as follows. Necessarily, $\widehat{\theta} \geq \underline{\theta}$. In fact, because $\delta'(\underline{\theta}) = 0$ and $a^*(\underline{\theta}) > 0$,

$$n_S a^*(\underline{\theta}) + n_E a^*\big(R(\underline{\chi}, \underline{\theta})\big) > 0 = \delta'(\underline{\theta})\,;$$

hence, it must be that $\widehat{\theta}(\underline{\chi}) > \underline{\theta}$ were there an equilibrium in which such an uncharismatic leader made an emotional appeal. Given Assumption 1(iii),

$$\widehat{\theta}(\underline{\chi}) N a^*\big(\widehat{\theta}(\underline{\chi})\big) \geq \widehat{\theta}(\underline{\chi})\Big(n_S a^*(\widehat{\theta}(\underline{\chi})) + n_E a^*\big(R(\underline{\chi}, \widehat{\theta}(\underline{\chi}))\big)\Big)\,; \tag{32}$$

which means that a leader of minimum charisma (*i.e.,* $\chi = \underline{\chi}$), if she chose productivity level $\widehat{\theta}(\underline{\chi})$, would do at least as well by making a rational appeal (a deviation) than making an emotional appeal. If the inequality in (32) is strict, then she would certainly deviate. If (32) is an equality, then

$$\delta'\big(\widehat{\theta}(\underline{\chi})\big) = N a^*\big(\widehat{\theta}(\underline{\chi})\big) < N a^*\big(\widehat{\theta}(\underline{\chi})\big) + N\widehat{\theta}(\underline{\chi}) a^{*\prime}\big(\widehat{\theta}(\underline{\chi})\big)\,,$$

where the equality follows, in part, from (31). Because θ^*_{RA} uniquely maximizes (29), it thus cannot be that $\widehat{\theta}(\underline{\chi}) = \theta^*_{\text{RA}}$. Hence, the leader would do *strictly* better to deviate by choosing θ^*_{RA} and making a rational appeal. Because, in either case, a leader with charisma $\underline{\chi}$ does *strictly* better to deviate, continuity entails there is an interval of charisma types who would do better choosing θ^*_{RA} and making a rational appeal than choosing $\widehat{\theta}(\chi)$ and making an emotional appeal. To conclude:

Proposition 12. *In any perfect Bayesian equilibrium, leaders with sufficiently low charisma will choose productivity parameter θ^*_{RA} and make rational appeals. The set of charisma levels for which this is true is non-empty.*

Consider the other extreme. By the implicit function theorem, $\widehat{\theta}(\cdot)$ is differentiable. Invoking the envelope theorem, the derivative, with respect to

[44] This could be if θ were *soft* information and the leader had no means to signal its value.

charisma, of the equilibrium payoff enjoyed by a leader who makes an emotional appeal is

$$\widehat{\theta}(\chi)\left(n_S a^{*\prime}\big(\widehat{\theta}(\chi)\big)\widehat{\theta}'(\chi) + n_E a^{*\prime}\Big(R\big(\chi,\widehat{\theta}(\chi)\big)\Big)\frac{dR}{d\chi}\right),$$

which is positive and bounded away from zero. Consequently, for sufficiently high levels of charisma, the equilibrium payoff enjoyed by a leader who will make an emotional appeal must exceed the maximized value of (29). This and the previous analysis establish:

Proposition 13. *If the levels of charisma are $[\underline{\chi},\infty)$, $\underline{\chi}$ the solution to $R(\chi,\underline{\theta}) = \underline{\theta}$, then there exists a finite $\widehat{\chi} > \underline{\chi}$ such that there is a perfect Bayesian equilibrium in which leaders with charisma below $\widehat{\chi}$ choose θ^*_{RA} and make rational appeals and leaders with charisma above $\widehat{\chi}$ choose $\widehat{\theta}(\chi)$ and make emotional appeals. The beliefs of the followers on hearing an emotional appeal from a leader of charisma χ is that she chose action $\widehat{\theta}(\chi)$.*

Because Bayes Rule pins down beliefs on the equilibrium path only, one could construct other perfect Bayesian equilibria in which the followers "threaten" to hold very pessimistic beliefs about θ if a leader with charisma below χ^+, $\chi^+ > \widehat{\chi}$, makes an emotional appeal (*e.g.,* to believe $\theta = \underline{\theta}$). These other equilibria are, however, not robust to certain forward-induction arguments.[45] For that reason, as well as brevity, attention will be limited to the Proposition 13 equilibrium.

Consider a leader indifferent between rational-appeal and emotional-appeal strategies (*i.e.,* her charisma is precisely $\widehat{\chi}$, as defined in Proposition 13). Would she choose a greater θ if she plans on subsequently making a rational appeal or would it be greater if she plans on an emotional appeal (*i.e.,* is θ^*_{RA} greater or less than $\widehat{\theta}(\widehat{\chi})$)? Further, which strategy will yield the greater value, V, of the public good? Given the monotonicity of $\delta(\cdot)$, the answer to the second question follows immediately from the answer to the first: given her indifference,

$$\underbrace{\theta^*_{\text{RA}} N a^*(\theta^*_{\text{RA}})}_{V_{\text{RA}}} - \delta(\theta^*_{\text{RA}}) = \underbrace{\widehat{\theta}(\widehat{\chi})\Big(n_S a^*\big(\widehat{\theta}(\widehat{\chi})\big) + n_E a^*\big(R(\widehat{\chi},\widehat{\theta}(\widehat{\chi}))\big)\Big)}_{V_{\text{EA}}(\widehat{\chi})} - \delta\big(\widehat{\theta}(\widehat{\chi})\big). \quad (33)$$

[45] For instance, suppose the equilibrium were that all charisma types less than χ^+, $\chi^+ > \widehat{\chi}$, made rational appeals and followers believed an emotional appeal from such a leader meant $\theta = \underline{\theta}$. Consider the Cho and Kreps (1987)-like speech a leader with charisma $\chi \in (\widehat{\chi}, \chi^+)$ might make if she deviates by making an emotional appeal: "I have deviated, but you should not believe I chose $\underline{\theta}$, because to have done so would make me worse off than had I chosen θ^*_{RA} and made a rational appeal. Moreover, given

$$\theta^*_{\text{RA}} N a^*(\theta^*_{\text{RA}}) - \delta(\theta^*_{\text{RA}}) = \widehat{\theta}(\widehat{\chi})\Big(n_S a^*\big(\widehat{\theta}(\widehat{\chi})\big) + n_E a^*\big(R(\widehat{\chi},\widehat{\theta}(\widehat{\chi}))\big)\Big) - \delta\big(\widehat{\theta}(\widehat{\chi})\big)$$
$$< \widehat{\theta}(\widehat{\chi})\Big(n_S a^*\big(\widehat{\theta}(\widehat{\chi})\big) + n_E a^*\big(R(\chi,\widehat{\theta}(\widehat{\chi}))\big)\Big) - \delta\big(\widehat{\theta}(\widehat{\chi})\big),$$

you can see that I would be better off if I convince you I at least chose $\widehat{\theta}(\widehat{\chi})$. Moreover, if I will so convince you, it is indeed optimal for me to choose a $\theta \geq \widehat{\theta}(\widehat{\chi})$." In this light, the followers' beliefs are unreasonable and the equilibrium they support likewise unreasonable.

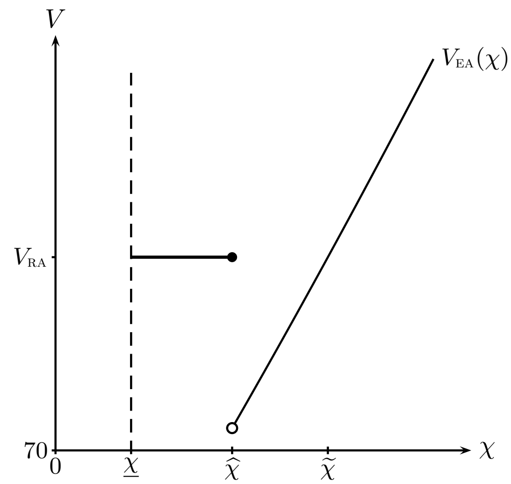

Figure 3: Equilibrium value of public good, V, as a function of the leader's charisma. Horizontal and vertical axes on different scales. Figure assumes $\underline{\theta} = 1$, $c(a) = a^2/2$, $n_S = n_E = 10$, $R(\chi, \theta) = 3\chi/4 + \theta/4$, and $\delta(\theta) = 20(\theta - \underline{\theta})^3$.

Hence, $\theta^*_{\text{RA}} > \widehat{\theta}(\widehat{\chi})$ if and only if $V_{\text{RA}} > V_{\text{EA}}(\widehat{\chi})$.

Lemma 2. *For $\widehat{\chi}$ defined in Proposition 13, $\theta^*_{\text{RA}} > \widehat{\theta}(\widehat{\chi})$.*

All functions, including $\widehat{\theta}(\cdot)$, are continuous, so Lemma 2 implies

Proposition 14. *There exist charisma levels $\widehat{\chi}$ and $\widetilde{\chi}$, with $\underline{\chi} < \widehat{\chi} < \widetilde{\chi}$, such that the public good is greater if the leader's charisma is less than $\widehat{\chi}$ than if it falls in the interval $(\widehat{\chi}, \widetilde{\chi})$; that is, the value of the public good is* not *monotone in the leader's charisma.*

Because $V_{\text{EA}}(\cdot)$ is unbounded above, the cutoff $\widetilde{\chi}$ in Proposition 14 is finite: for sufficiently high levels of charisma, a charismatic leader is better than an uncharismatic leader and, in addition, at those high levels of charisma more charisma is better than less (Proposition 11). Figure 3 illustrates.

Intuitively, the leader can substitute charisma for observable action and *vice versa*: if she opts for an emotional appeal, she gets more from emotional responders than she would from a rational appeal; if, instead, she opts for a rational appeal, then all followers will see her choice of θ and *directly* respond to it. The leader, however, does not view this margin from the perspective of maximizing V because she bears 100% of the cost of her action. Consequently, she will be more inclined to rely on charisma than would be optimal. It further follows that a leader indifferent between the two kind of appeals must, therefore, generate a smaller value of the public good if she opts for an emotional appeal than were she to opt for the rational one. Proposition 14 and Figure 3 follow from this given the continuity of payoffs.

In light of Figure 3, it is not surprising that, as in the previous section, sober responders' preferences for leaders with different *intermediate* levels of charisma are ambiguous. As an example, taking the parameters and assumptions of Figure 3, if a leader with charisma $\widehat{\chi}$ chooses θ^*_{RA} and makes a rational appeal, the payoff to a sober responder is approximately 95.7. If that same leader chooses $\widehat{\theta}(\widehat{\chi})$ and makes an emotional appeal, a sober responder's payoff is approximately 71.6. By continuity, a sober responder must prefer leaders whose charisma is less than $\widehat{\chi}$ to any leader whose charisma is in some bounded interval to the right of $\widehat{\chi}$. Eventually, however, if the leader's charisma is sufficiently great, sober responders prefer that leader to any leader whose charisma is $\widehat{\chi}$ or less.

Given the discussion at the end of Section 5, as well as the analysis above, it is clear that emotional responders' preferences over their leaders' charisma are ambiguous as well. Hence, so too must the effect of greater charisma on any overall measure of welfare be ambiguous. To summarize:

Proposition 15. *When the leader's action fixes the return, θ, to the followers' actions, it is ambiguous as to whether her being more charismatic would enhance the wellbeing of sober responders, emotional responders, and overall welfare. In particular, circumstances exist in which all three measures are* decreasing *in the leader's charisma. At high enough levels of charisma, however, greater charisma is preferred by* sober *responders to less charisma.*

9 Conclusions and Directions for Future Work

This paper offers insights into why an entity can—but need not always—benefit from having a charismatic leader, even if it consists primarily (but not exclusively) of rational actors immune to any direct effect of charisma.

For charisma to matter, there must be a few followers—*emotional responders*—directly affected by the leader's charisma. At the same time, if the only effect of charisma was it induced better actions from such followers, then the benefits of a charismatic leader would hardly be surprising. But if that were all to the story, it would be impossible to explain why various studies have failed to find charisma to be an unalloyed good (its "mixed report card"). Nor does that insight yield much by way of insight into the situations in which charisma would be most valuable (or costly). Further, were this the only effect, then unless emotional responders were a sizable majority of the followers, charisma would be an attribute of little importance (*i.e.,* there isn't much value in motivating just a small subset of followers).

To have a more complete picture of charisma, this paper adds to the mix the insight that it is difficult for leaders to fire up followers and connect with them at an emotional level while simultaneously dousing them with cold hard facts—the unvarnished truth is often less than inspiring. A leader, therefore, faces a tradeoff between being informative and being inspirational. Put slightly differently, rational followers—*sober responders*—want "just the facts" and so are *under*incentivized by an emotional appeal (an appeal heavy on inspirational rhetoric but light on facts). Ironically, this effect is less with a more charismatic leader, who is more inclined to make inspirational—*emotional*—appeals: precisely because she is more inclined to make emotional appeals, an emotional appeal from her is a less negative signal to the sober responders about the underlying situation than such an appeal would be from a less charismatic leader. As a consequence, a more charismatic leader gets better actions from *all* followers—sober or emotional—in bad states than does a less charismatic leader. Provided leaders are *savvy*—know to reveal the facts when the situation is good—all leaders induce good actions in good states. In expectation, more charismatic leaders therefore generate better outcomes than less charismatic ones.

In addition, this explains why charismatic leadership appears most valuable when situations are bad. Indeed, in good states of the world, charisma is irrelevant. As such, this helps explains charisma's mixed report card.

Further insights into the mixed assessment of charisma arises if the leader must do more than just make appeals: if she must also act—learn information or take steps to raise the value of her followers' actions—then there is a danger she will substitute charm for action. As Sections 7 and 8 demonstrate, a more charismatic leader is less inclined to gather valuable information or expend as much effort as a less charismatic counterpart.

Despite the various extensions already considered, work remains. In the analysis above, how responsive emotional responders are to emotional appeals is fixed exogenously and all emotional responders are assumed to be equally responsive. Both assumptions could be profitably relaxed. For instance, suppose that the messages that resonate emotionally with followers varies across followers. Some, for example, could be more receptive to identity-inducing messages and less to rosy forecasts (induced optimism), while others could have opposite reactions. This suggests various possible tradeoffs, such as does the leader want to get all emotional responders slightly fired up or does she do better to whip a subset into a frenzy, while leaving the remainder in an emotionally cool state? And what, if anything, would sober responders (some of whom might be potential emotional responders left cold) infer from the leader's choice?

A somewhat related set of extensions arise from recognizing it is impossible for a leader to make an emotional connection with her followers without knowing what makes them tick.[46] This suggests that charismatic leadership works best when the leader knows her followers, which (related to the previous issue) is easier the more homogenous they are. To an extent, Ibn Khaldûn made this point over 600 years ago: how, he asked, could relatively small and primitive tribes topple large and sophisticated empires? His answer was the former had stronger *asabîyah* (usually translated as social cohesion), which permitted them to "box above their weight." Relative to this paper, his argument corresponds

[46] A fact long recognized; see, *e.g.,* the 14th-century *Muqaddimah* by Ibn Khaldûn. For a more contemporary discussion, see Howell and Shamir (2005). Hermalin (2013) also discusses this point in the context of the connections between leadership and corporate culture.

to one in which the relative heterogeneity of an empire and the social isolation of rulers from subjects foreclosed charismatic leadership in empires, but the closeness of tribal leaders to their followers and the followers to each other allowed for charismatic leadership in tribes. Using the models above, it is easily shown that an entity led by a highly charismatic leader or with a greater proportion of emotional responders can outproduce, in expectation, a larger entity led by an uncharismatic leader with a smaller proportion of emotional responders. Fleshing these ideas out fully, as well as tying them more to *asabîyah* and corporate culture, remain, though, topics for future research.

Finally, although the primary intent of this paper is to help make sense of existing evidence and studies concerning charismatic leadership, one could test many of the paper's implications experimentally. Information-transmission models of leadership have enjoyed considerable success in laboratory settings (see, *e.g.,* Hermalin, 2013, §2.3.2.3, for a partial survey). Further there are many assessments in the social psychology literature, with good validity, for measuring both charisma and followers' receptivity to it (see, *e.g.,* Conger and Kanungo, 1994; Awamleh and Gardner, 1999; and Wong and Law, 2002). Using these assessments to distinguish sober from emotional responders, many of this paper's propositions would seem amenable to testing.

Appendix A: Proofs of Lemmas

Proof of Lemma 1: To prove part (i): fix θ and θ', $\theta \neq \theta'$. Let $\lambda \in (0,1)$ and define $\theta_\lambda = \lambda\theta + (1-\lambda)\theta'$. Because $a^*(\zeta)$ is the unique solution to

$$\max_a \zeta a - c(a) \tag{34}$$

and $a^*(\zeta) \neq a^*(\zeta')$ if $\zeta \neq \zeta'$, it follows that

$$\lambda\Big(\theta a^*(\theta) - c\big(a^*(\theta)\big)\Big) > \lambda\Big(\theta a^*(\theta_\lambda) - c\big(a^*(\theta_\lambda)\big)\Big) \text{ and}$$
$$(1-\lambda)\Big(\theta' a^*(\theta') - c\big(a^*(\theta')\big)\Big) > (1-\lambda)\Big(\theta' a^*(\theta_\lambda) - c\big(a^*(\theta_\lambda)\big)\Big)\,.$$

Summing, those two expressions imply

$$\lambda\Big(\theta a^*(\theta) - c\big(a^*(\theta)\big)\Big) + (1-\lambda)\Big(\theta' a^*(\theta') - c\big(a^*(\theta')\big)\Big) > \theta_\lambda a^*(\theta_\lambda) - c\big(a^*(\theta_\lambda)\big)\,,$$

which establishes convexity.

To prove part (ii): the function $\theta \mapsto \theta a^*(\theta)$ is the sum of the functions $\theta a^*(\theta) - c\big(a^*(\theta)\big)$ and $c\big(a^*(\theta)\big)$. Part (i) established the first function is strictly convex, so part (ii) follows if the second is convex. From the first-order condition for (34), $\theta \equiv c'\big(a^*(\theta)\big)$. Hence,

$$1 \equiv c''\big(a^*(\theta)\big)a^{*\prime}(\theta) \Longrightarrow a^{*\prime}(\theta) \equiv \frac{1}{c''\big(a^*(\theta)\big)}\,. \tag{35}$$

It further follows that

$$a^{*\prime\prime}(\theta) = -\frac{c'''\big(a^*(\theta)\big)a^{*\prime}(\theta)}{c''\big(a^*(\theta)\big)^2} = -\frac{c'''\big(a^*(\theta)\big)}{c''\big(a^*(\theta)\big)^3}\,, \tag{36}$$

using (35). The second derivative of $c\big(a^*(\theta)\big)$ with respect to θ is

$$c''\big(a^*(\theta)\big)a^{*\prime}(\theta)^2 + c'\big(a^*(\theta)\big)a^{*\prime\prime}(\theta) = \frac{1}{c''\big(a^*(\theta)\big)} - \frac{c'\big(a^*(\theta)\big)c'''\big(a^*(\theta)\big)}{c''\big(a^*(\theta)\big)^3}\,, \tag{37}$$

where the equality follows from (35) and (36). The function $c\big(a^*(\cdot)\big)$ is convex if (37) is non-negative. To see it is non-negative, observe that $d\log\big(c'(a)\big)/da = c''(a)/c'(a)$ and the derivative of that, which is

$$\frac{c'''(a)c'(a) - c''(a)^2}{c'(a)^2}\,, \tag{38}$$

is non-positive by the assumption of log concavity. It is readily seen that (38) being non-positive implies (37) is non-negative. ■

Proof of Lemma 2: As a preliminary, recall that a leader pursuing an emotional-appeal strategy chooses θ to maximize (30). Hence, the marginal return, M_{EA}, to her choice of θ is a constant given the followers' beliefs; to wit,

$$M_{\text{EA}}(\chi) = n_S a^*\big(\widehat{\theta}(\chi)\big) + n_E a^*\Big(R\big(\chi, \widehat{\theta}(\chi)\big)\Big)\,.$$

Her payoff is thus

$$V_{\text{EA}}(\chi) - \delta\big(\widehat{\theta}(\chi)\big) = \underline{\theta} M_{\text{EA}}(\chi) + \int_{\underline{\theta}}^{\widehat{\theta}(\chi)} \big(M_{\text{EA}}(\chi) - \delta'(\theta)\big)d\theta\,. \tag{39}$$

If she will pursue a rational-appeal strategy, her marginal return, M_{RA}, is

$$M_{\text{RA}}(\theta) = \frac{d}{d\theta}N\theta a^*(\theta) = Na^*(\theta) + N\theta a^{*\prime}(\theta)\,.$$

Lemma 1(ii) implies that $M_{\text{RA}}(\cdot)$ is an increasing function. Hence,

$$\begin{aligned} V_{\text{RA}} - \delta(\theta^*_{\text{RA}}) &= \underline{\theta} N a^*(\underline{\theta}) + \int_{\underline{\theta}}^{\theta^*_{\text{RA}}} \big(M_{\text{RA}}(\theta) - \delta'(\theta)\big)d\theta \\ &< \underline{\theta} N a^*(\underline{\theta}) + \int_{\underline{\theta}}^{\theta^*_{\text{RA}}} \big(M_{\text{RA}}(\theta^*_{\text{RA}}) - \delta'(\theta)\big)d\theta\,. \end{aligned} \tag{40}$$

Because necessarily $\widehat{\theta}(\widehat{\chi}) \geq \underline{\theta}$ and, as shown in the text, $R\big(\widehat{\chi}, \widehat{\theta}(\widehat{\chi})\big) \geq \widehat{\theta}(\widehat{\chi})$ (because otherwise the leader does better to make a rational appeal), it must be that $M_{\text{EA}}(\widehat{\chi}) \geq Na^*(\underline{\theta})$. Note the first-order conditions imply $M_{\text{RA}}(\theta^*_{\text{RA}}) = \delta'(\theta^*_{\text{RA}})$ and $M_{\text{EA}}(\widehat{\chi}) = \delta'\big(\widehat{\theta}(\widehat{\chi})\big)$.

Suppose, contrary to the lemma's claim, that $\widehat{\theta}(\widehat{\chi}) \geq \theta^*_{\text{RA}}$. It follows from (39) and (40) that:

$$\Big(V_{\text{EA}}(\widehat{\chi}) - \delta\big(\widehat{\theta}(\widehat{\chi})\big)\Big) - \Big(V_{\text{RA}} - \delta(\theta^*_{\text{RA}})\Big) > \underline{\theta}\big(M_{\text{EA}}(\widehat{\chi}) - Na^*(\underline{\theta})\big)$$
$$+ \int_{\underline{\theta}}^{\theta^*_{\text{RA}}} (\delta'(\widehat{\theta}(\widehat{\chi}) - \delta'(\theta^*_{\text{RA}}))d\theta + \int_{\theta^*_{\text{RA}}}^{\widehat{\theta}(\widehat{\chi})} (\delta'(\widehat{\theta}(\widehat{\chi}) - \delta'(\theta))d\theta \geq 0\,, \quad (41)$$

where the last inequality follows because $\delta'(\cdot)$ is an increasing function. But (41) contradicts the indifference condition, $V_{\text{EA}}(\widehat{\chi}) - \delta\big(\widehat{\theta}(\widehat{\chi})\big) = V_{\text{RA}} - \delta(\theta^*_{\text{RA}})$. The result follows *reductio ad absurdum.* ■

Appendix B: Non-additive Production Functions

This appendix demonstrates that an additive production function is not necessary for the principal results of Sections 3–5 to hold.

In the two models considered below,

$$V = \theta G\left(\sum_{m=1}^{N} a_m\right),$$

where $G(\cdot)$ is a strictly concave twice differentiable function. Observe

$$\frac{\partial^2 V}{\partial a_i \partial a_j} = \theta G''\left(\sum_{m=1}^{N} a_m\right) < 0\,;$$

hence, the followers' actions are substitutes.

As in the text, a follower's action solves $\max_a V - c(a)$ given a rational appeal. Similarly, a sober responder's action maximizes expected utility—equivalently, $\widehat{\theta}G(\sum a_m) - c(a)$—in response to an emotional appeal. In keeping with (3), assume an emotional responder's action maximizes $R(\chi, \widehat{\theta})G(\sum a_m) - c(a)$.

As will be seen, tractability requires functional form assumptions. It is particularly convenient to assume $c(a) = a^2/2$. Although more general perceived-return functions could be considered with similar results, it speeds the analysis to set $R(\chi, \theta) = \chi$. For the sake of brevity, assume a version of Assumption 2 holds so that, for all charisma levels, there will be states that induce a rational appeal and others that induce an emotional appeal.

In what follows, let a_E denote the action of an emotional responder, a_S the action of a sober responder, and t an arbitrary element of $\{E, S\}$.

For both models, the following lemma will prove useful.

Lemma B.1. *If the distribution of states is weakly concave (has a non-increasing density) or is a power distribution on the unit interval, then* $\Theta^{\mathbb{E}\prime}(\theta) < 1$.

Proof: The derivative of $\Theta^{\mathbb{E}}(\cdot)$ is

$$\Theta^{\mathbb{E}\prime}(\theta) = \frac{d}{d\theta}\left(\frac{1}{F(\theta)}\int_{\underline{\theta}}^{\theta} zf(z)dz\right) = \frac{f(\theta)}{F(\theta)}\big(\theta - \Theta^{\mathbb{E}}(\theta)\big)\,, \tag{42}$$

where $f(\cdot)$ is the density function. If $F(\cdot)$ is weakly concave, then the function lies below its first-order Taylor series approximation:

$$F(\theta) + f(\theta)\big(\Theta^{\mathbb{E}}(\theta) - \theta\big) \geq F\big(\Theta^{\mathbb{E}}(\theta)\big) > 0\,;$$

hence, (42) is less than one.

If $F(\theta) = \theta^\eta$, $\eta > 0$, then it is readily calculated that $\Theta^{\mathbb{E}}(\theta) = \frac{\eta}{1+\eta}\theta$, the derivative of which with respect to θ is clearly less than one. ■

Note the first half of Lemma B.1 implies that $\Theta^{\mathbb{E}\prime}(\theta_C) < 1$ if θ has a uniform or exponential distribution (among other possibilities).

B.1 Production Model

Assume $G(\cdot) = \log(\cdot)$.

Follower m of type t chooses a_m to maximize

$$\zeta_t \log\Big(a_m + \underbrace{\sum_{j\neq m} a_j}_{\Sigma_{-m}}\Big) - \frac{1}{2}a_m^2\,,$$

where, given a rational appeal, $\zeta_t = \theta$ both t, and, given an emotional appeal, $\zeta_E = \chi$ and $\zeta_S = \widehat{\theta}$. This follower's best response has the form

$$a^*(\zeta_t, \mathbf{a}_{-m}) = \frac{1}{2}\left(\sqrt{\Sigma_{-m}^2 + 4\zeta_t} - \Sigma_{-m}\right)\,.$$

Limiting attention to equilibria that are symmetric within responder type, equilibrium values of a_E and a_S thus solve the system of equations:

$$a_E = \frac{1}{2}\left(\sqrt{\big((n_E-1)a_E + n_S a_S\big)^2 + 4\zeta_E} - \big((n_E-1)a_E + n_S a_S\big)\right)$$
$$\text{and } a_S = \frac{1}{2}\left(\sqrt{\big(n_E a_E + (n_S-1)a_S\big)^2 + 4\zeta_S} - \big(n_E a_E + (n_S-1)a_S\big)\right)$$

Solving yields

$$a_E = \frac{\zeta_E}{\sqrt{n_E\zeta_E + n_S\zeta_S}} \text{ and } a_S = \frac{\zeta_S}{\sqrt{n_E\zeta_E + n_S\zeta_S}}\,. \tag{43}$$

Using (43), equilibrium V given a rational appeal is

$$V_{\text{RA}} = \theta \log\left(\sqrt{N\theta}\right) = \frac{\theta}{2}\log(N\theta)\,.$$

Similarly, equilibrium V given an emotional appeal is

$$V_{\text{EA}} = \theta \log\left(\sqrt{n_E\chi + n_S\widehat{\theta}}\right) = \frac{\theta}{2}\log(n_E\chi + n_S\widehat{\theta})\,.$$

Comparing V_{RA} to V_{EA}, the leader's best response to followers' beliefs is a cutoff strategy: a rational appeal if $\theta \geq \theta_C$, an emotional appeal otherwise, where

$$\theta_C = \frac{n_E}{N}\chi + \frac{n_S}{N}\widehat{\theta}\,. \tag{44}$$

Because beliefs must be consistent—$\widehat{\theta} = \Theta^{\mathbb{E}}(\theta_C)$—expression (44) can be equivalently written

$$\theta_C + \frac{n_S}{n_E}\big(\theta_C - \Theta^{\mathbb{E}}(\theta_C)\big) = \chi\,. \tag{45}$$

If the lefthand side of (45) is increasing in θ_C, then (i) the cutoff is unique and, thus, so too is the equilibrium; and (ii) the cutoff is increasing in charisma. That expression is increasing in θ_C if the assumptions of Lemma B.1 hold. To summarize:

Proposition B.1. *The following hold given the assumptions of this appendix and assuming the distribution of states satisfies the conditions of Lemma B.1:*

(i) for any level of charisma, there is a unique equilibrium, with the leader making a rational appeal if the state exceeds the θ_C defined by (45) *and an emotional appeal otherwise; and*

(ii) a more charismatic leader makes an emotional appeal for a larger set of states than a less charismatic one (specifically, the former has a greater cutoff than the latter).

What about how the leader's charisma affects the actions of the followers given an emotional appeal? Using (45) to substitute out χ and recognizing that $d\theta_C/d\chi > 0$ given Proposition B.1(ii), the derivatives of the followers' actions with respect to charisma will have the same signs as

$$\frac{d}{d\theta_C}\underbrace{\frac{N\theta_C/n_S - \Theta^{\mathbb{E}}(\theta_C)}{\sqrt{N\theta_C}}}_{n_E a_E/n_S} \text{ and } \frac{d}{d\theta_C}\underbrace{\frac{\Theta^{\mathbb{E}}(\theta_C)}{\sqrt{N\theta_C}}}_{a_S}\,. \tag{46}$$

The signs of those two derivatives are, respectively, the same as the signs of

$$\frac{N}{n_S}\theta_C + \Theta^{\mathbb{E}}(\theta_C) - 2\theta_C{\Theta^{\mathbb{E}}}'(\theta_C) \text{ and } 2\theta_C{\Theta^{\mathbb{E}}}'(\theta_C) - \Theta^{\mathbb{E}}(\theta_C)\,.$$

Observe the first is positive by Lemma B.1 if the majority of followers are emotional responders. Observe, too, that both expressions are positive if θ is distributed uniformly on $[0,\overline{\theta}]$. They are also both positive if θ is distributed according to a power distribution on $(0,1)$. To summarize:

Proposition B.2. *Maintain the assumptions of this appendix. If either*

(i) the distribution of states satisfies the conditions of Lemma B.1 and, for all relevant θ_C,

$$\frac{N}{n_S}\theta_C + \Theta^{\mathbb{E}}(\theta_C) > 2\theta\Theta^{\mathbb{E}\prime}(\theta) > \Theta^{\mathbb{E}}(\theta)\,; \tag{47}$$

(ii) or θ is distributed uniformly on $(0, \overline{\theta})$ or according to a power distribution on $(0, 1)$,

then both emotional and sober responders work harder in equilibrium (choose a higher a) in response to an emotional appeal from a more charismatic leader than in response to such an appeal from a less charismatic leader.

Conclusions are, it must be noted, slightly different if θ is distributed exponentially with (unconditional) mean $\mathbb{E}\theta$. In this case,

$$\Theta^{\mathbb{E}}(\theta) = \mathbb{E}\theta - \frac{\theta}{\exp(\theta/\mathbb{E}\theta) - 1} \text{ and } \Theta^{\mathbb{E}\prime}(\theta) = \frac{1 + \left(\frac{\theta}{\mathbb{E}\theta} - 1\right)\exp(\theta/\mathbb{E}\theta)}{\left(\exp(\theta/\mathbb{E}\theta) - 1\right)^2}\,. \tag{48}$$

It can be shown that $\lim_{\theta\to\infty} \theta\Theta^{\mathbb{E}\prime}(\theta) = 0$; hence, given $\Theta^{\mathbb{E}}(\theta) \to \mathbb{E}\theta$ as $\theta \to \infty$, expression (47) can't hold for θ_C too large. On the other hand, it does hold for modest-sized θ_C: *e.g.*, if $\mathbb{E}\theta = 1$ and $n_E = n_S = 1$, then (47) holds for $\theta_C \in (0, 2.48)$ (equivalently, $\chi \in (0, 4.19)$). In other words, for modest levels of charisma, sober responders' actions are increasing in the leader's charisma given an emotional appeal. At high levels of charisma, emotional responders' responses to an emotional appeal are so great that the substitutability of actions comes to dominate the greater optimism about the state that a more charismatic leader's emotional appeal engenders. At such high levels of charisma, sober responders' actions in response to an emotional appeal are falling in the leader's charisma.

Analogues of Propositions 4 and 7 hold:

Proposition 4′. *Maintain the assumptions of this appendix and assume the distribution of states satisfies the conditions of Lemma B.1. Consider two leaders, one with greater charisma than the other. Comparing equilibria:*

(i) in any state, the sum of the actions (i.e., $a_E + a_S$) is never less with the the more charismatic leader and it is strictly greater for a set of states of positive measure;

(ii) in any state, the value of the public good (i.e., V) is never less with the more charismatic leader and it is strictly greater for a set of states of positive measure; and

(iii) in expectation, the value of the public good is greater if the leader is the more charismatic of the two.

Proof: As with Proposition 4, parts (ii) and (iii) follow immediately from (i). As in the proof of that early proposition, let $\chi > \chi'$ denote the charisma levels of the more and less charismatic leaders, respectively. Let θ_C and θ'_C denote their cutoff values, respectively. Given Proposition B.1(ii), $\theta_C > \theta'_C$. As before, the intervals $(\underline{\theta}, \theta'_C)$ and $[\theta'_C, \theta_C)$ have positive measure. For θ in the first interval, the sum of actions for less and more charismatic leaders are, respectively, the left and righthand sides of

$$\sqrt{n_E\chi' + n_S\Theta^{\mathbb{E}}(\theta'_C)} < \sqrt{n_E\chi + n_S\Theta^{\mathbb{E}}(\theta_C)}\,, \tag{49}$$

where the inequality follows because $\chi' < \chi$ and $\theta'_C < \theta_C$. For $\theta \in [\theta'_C, \theta_C)$, the respective sums are the left and righthand sides of

$$\sqrt{N\theta} < \sqrt{n_E\chi + n_S\Theta^{\mathbb{E}}(\theta_C)}\,, \tag{50}$$

where the inequality follows because $N\theta < N\theta_C = n_E\chi + n_S\Theta^{\mathbb{E}}(\theta_C)$ (recall (44)). Finally, for $\theta \in [\theta_C, \overline{\theta})$, both leaders generate the sum $\sqrt{N\theta}$. ■

Proposition 7′. *Maintain the assumptions of this appendix and assume the distribution of states satisfies the conditions of Lemma B.1, then the sober responder prefers a more charismatic leader to a less charismatic one.*

Proof: The expected payoff to the sober responder is

$$F(\theta_C)\Theta^{\mathbb{E}}(\theta_C)\frac{1}{2}\log\left(n_E\chi + n_S\Theta^{\mathbb{E}}(\theta_C)\right) - F(\theta_C)\frac{1}{2}\frac{\Theta^{\mathbb{E}}(\theta)^2}{n_E\chi + n_S\Theta^{\mathbb{E}}(\theta_C)} + \int_{\theta_C}^{\overline{\theta}}\left(\frac{\theta}{2}\log(N\theta) - \frac{\theta}{4}\right)dF(\theta)\,.$$

The derivative of that with respect to χ, using expression (44) and the envelope theorem, is

$$\frac{1}{2}F(\theta_C)\Theta^{\mathbb{E}}(\theta_C)\frac{1}{\theta_C} + F'(\theta_C)\left(\frac{\theta_C}{4} - \frac{1}{2}\frac{\Theta^{\mathbb{E}}(\theta_C)^2}{N\theta_C}\right)\frac{d\theta_C}{d\chi} > 0\,.$$

That the derivative is positive follows because the term in the big parentheses is positive given $\theta_C > \Theta^{\mathbb{E}}(\theta_C)$ and $N \geq 2$. ■

B.2 Achieving a Target

Let

$$G\left(\sum_{m=1}^{N} a_m\right) = K - \frac{1}{2}\left(T - \sum_{m=1}^{N} a_m\right)^2;$$

the interpretation is that the entity has a desired target, T (*e.g.,* a total amount of donations). The constant K is irrelevant to the analysis that follows (its only possible purpose being to ensure participation constraints are met); hence, for convenience, it will be set to 0 in what follows.

Regardless of appeal type, each follower j's objective is of the form

$$\max_{a_j} -\zeta\frac{1}{2}\left(T-\sum_{m=1}^{N}a_m\right)^2-\frac{1}{2}a_j^2\,.$$

Hence, his best response has the form

$$a_j=\frac{\zeta}{1+\zeta}\left(T-\sum_{m\neq j}a_m\right)\,.$$

Limiting attention to equilibria that are symmetric within responder type, equilibrium values of a_E and a_S solve the system of equations:

$$a_E=\frac{\zeta_E}{1+\zeta_E}\big(T-(n_E-1)a_E-n_Sa_S\big)\text{ and }a_S=\frac{\zeta_S}{1+\zeta_S}\big(T-n_Ea_E-(n_S-1)a_S\big)\,,$$

where $(\zeta_E,\zeta_S)=(\theta,\theta)$ given a rational appeal and $(\zeta_E,\zeta_S)=(\chi,\widehat{\theta}\,)$ given an emotional appeal. Solving that system yields the relevant equilibrium actions:

$$a_E=\frac{T\zeta_E}{1+n_E\zeta_E+n_S\zeta_S}\text{ and }a_S=\frac{T\zeta_S}{1+n_E\zeta_E+n_S\zeta_S}\,. \tag{51}$$

Comparing the corresponding values of the public good (*i.e.,* V), it is readily seen that the leader prefers an emotional appeal if and only if the sum of the actions given an emotional appeal is not less than that sum given a rational appeal; that is, if and only if

$$\frac{T(n_E\chi+n_S\widehat{\theta}\,)}{1+n_E\chi+n_S\widehat{\theta}}\geq\frac{T(n_E+n_S)\theta}{1+(n_E+n_S)\theta}\,. \tag{52}$$

Expression (52) holds if and only if

$$n_E\chi+n_S\widehat{\theta}\geq(n_E+n_S)\theta\,. \tag{53}$$

Hence, the leader's best response to the followers' beliefs is, again, a cutoff strategy. Beliefs must be consistent; so, $\widehat{\theta}=\Theta^{\mathbb{E}}(\theta_C)$. Using (53), it follows that

$$\chi=\left(1+\frac{n_S}{n_E}\right)\theta_C-\frac{n_S}{n_E}\Theta^{\mathbb{E}}(\theta_C)\,. \tag{54}$$

Given the assumptions of Lemma B.1, the righthand side of (54) is increasing in θ_C, which entails (i) the cutoff and, thus, the equilibrium is unique (at least when responders of a given type behave symmetrically); and (ii) the cutoff increases with the leader's charisma. To summarize:

Proposition B.3. *Maintain the assumptions of this appendix and assume the distribution of states satisfies the conditions of Lemma B.1. Limit attention to equilibria that are symmetric within responder type. Then*

(i) for any level of charisma, there is a unique equilibrium, with the leader making a rational appeal if the state exceeds the θ_C defined by (54) *and an emotional appeal otherwise; and*

(ii) a more charismatic leader makes an emotional appeal for a larger set of states than a less charismatic one (specifically, the former has a greater cutoff than the latter).

What about how the leader's charisma affects the actions of the followers given an emotional appeal? Using (54) to substitute out χ in (51) and using Proposition B.3(ii), the signs of the derivatives with respect to charisma of an emotional and sober responder's actions given an emotional appeal have the same signs, respectively, as the following expressions:

$$\underbrace{(n_E + n_S) - n_S \Theta^{\mathbb{E}\prime}(\theta_C)}_{>0 \text{ by Lemma B.1}} - n_S(n_E + n_S)\big(\theta_C \Theta^{\mathbb{E}\prime}(\theta_C) - \Theta^{\mathbb{E}}(\theta_C)\big) \tag{55}$$

and

$$\underbrace{\Theta^{\mathbb{E}\prime}(\theta_C)}_{>0} + (n_E + n_S)\big(\theta_C \Theta^{\mathbb{E}\prime}(\theta_C) - \Theta^{\mathbb{E}}(\theta_C)\big)\,. \tag{56}$$

It is immediate that at least one of the two must be positive. Moreover, it is readily shown for specific distributions that both are positive; for example, if θ is distributed uniformly, then $\theta\Theta^{\mathbb{E}\prime}(\theta) \equiv \Theta^{\mathbb{E}}(\theta)$ and both are positive. In sum, conditions exist such that a more charismatic leader induces greater action from both types of responders when she makes an emotional appeal than does a less charismatic leader.

Analogues of Propositions 4 and 7 also hold for this model:

Proposition 4″. *Maintain the assumptions of this appendix and assume the distribution of states satisfies the conditions of Lemma B.1. Limit attention to equilibria that are symmetric within responder type. Consider two leaders, one with greater charisma than the other. Comparing equilibria:*

(i) in any state, the sum of actions (i.e., $\sum_m a_m$) is never farther from the target with the more charismatic leader and it is strictly closer for a set of states of positive measure;

(ii) in any state, the value of the public good (i.e., V) is never less with the more charismatic leader and it is strictly greater for a set of states of positive measure; and

(iii) in expectation, the value of the public good is greater if the leader is the more charismatic of the two.

Proof: Following the logic of the proofs of Propositions 4 and 4′, it is sufficient merely to establish (i). Let $\chi > \chi'$ denote the charisma levels of the more and less charismatic leaders, respectively. Let θ_C and θ'_C denote their cutoff values, respectively. Given Proposition B.3(ii), $\theta_C > \theta'_C$. As before, the intervals $(\underline{\theta}, \theta'_C)$ and $[\theta'_C, \theta_C)$ have positive measure.

From (51),

$$\sum_{m=1}^{N} a_m = T\frac{n_E\chi + n_S\Theta^{\mathbb{E}}(\theta_C)}{1 + n_E\chi + n_S\Theta^{\mathbb{E}}(\theta_C)} < T$$

given an emotional appeal and

$$\sum_{m=1}^{N} a_m = T\frac{n_E\theta + n_S\theta}{1 + n_E\theta + n_S\theta} < T$$

given a rational appeal. Hence, the sum of efforts is always less than T. Establishing (i) thus requires showing only that sum is everywhere greater on sets of positive measure with the more charismatic leader and never less.

For $\theta \in (\underline{\theta}, \theta'_C)$, the sums of efforts for the less and more charismatic leader are, respectively, the left and righthand sides of

$$T\frac{n_E\chi' + n_S\Theta^{\mathbb{E}}(\theta'_C)}{1 + n_E\chi' + n_S\Theta^{\mathbb{E}}(\theta'_C)} < T\frac{n_E\chi + n_S\Theta^{\mathbb{E}}(\theta_C)}{1 + n_E\chi + n_S\Theta^{\mathbb{E}}(\theta_C)}\,,$$

where the inequality follows because $x/(1 + x)$ is an increasing function and

$$n_E\chi' + n_S\Theta^{\mathbb{E}}(\theta'_C) < n_E\chi + n_S\Theta^{\mathbb{E}}(\theta_C)$$

given $\chi' < \chi$, $\theta'_C < \theta_C$, and the fact that $\Theta^{\mathbb{E}}(\cdot)$ is an increasing function. For $\theta \in [\theta'_C, \theta_C)$, the sums of efforts for the less and more charismatic leader are, respectively, the left and righthand sides of

$$T\frac{n_E\theta + n_S\theta}{1 + n_E\theta + n_S\theta} < T\frac{n_E\chi + n_S\Theta^{\mathbb{E}}(\theta_C)}{1 + n_E\chi + n_S\Theta^{\mathbb{E}}(\theta_C)}\,,$$

where the inequality follows because the more charismatic leader is playing a cutoff strategy and strictly prefers an emotional appeal to a rational appeal for $\theta < \theta_C$. Finally, if $\theta \in [\theta_C, \overline{\theta})$, both leaders make rational appeals, which yield the same sum of efforts. ■

Proposition 7″. *Maintain the assumptions of this appendix and assume the distribution of states satisfies the conditions of Lemma B.1. Limit attention to equilibria that are symmetric within responder type. If*

$$N - 1 \geq N(\overline{\theta} - \mathbb{E}\theta)\,, \tag{57}$$

then sober responders prefer leaders with more rather than less charisma.

Proof: The expected payoff to a sober responder is

$$-\frac{F(\theta_C)\Theta^{\mathbb{E}}(\theta_C)}{2}\left(\frac{T}{1+n_E\chi+n_S\Theta^{\mathbb{E}}(\theta_C)}\right)^2 - F(\theta_C)\frac{1}{2}\left(\frac{T\Theta^{\mathbb{E}}(\theta_C)}{1+n_E\chi+n_S\Theta^{\mathbb{E}}(\theta_C)}\right)^2$$
$$-\frac{1}{2}\int_{\theta_C}^{\overline{\theta}}\left(\theta\left(\frac{T}{1+(n_E+n_S)\theta}\right)^2+\left(\frac{T\theta}{1+(n_E+n_S)\theta}\right)^2\right)dF(\theta)$$

Because a T^2 can be factored out, the value of T is irrelevant to the sign of the derivative of that expression with respect to χ. Hence, it is without loss of generality to set $T = 1$. Because $d\big(F(\theta)\Theta^{\mathbb{E}}(\theta)\big)/d\theta = F'(\theta)\theta$ and given (54), it follows that derivative is $d\theta_C/d\chi$—a positive quantity given Proposition B.3(ii)—times

$$\frac{1}{2}F'(\theta_C)\left(\left(\frac{\theta_C}{1+N\theta_C}\right)^2-\left(\frac{\Theta^{\mathbb{E}}(\theta_C)}{1+N\theta_C}\right)^2\right)$$
$$+F(\theta_C)\Theta^{\mathbb{E}}(\theta_C)\left(\frac{N}{(1+N\theta_C)^3}-\frac{\Theta^{\mathbb{E}\prime}(\theta_C)(1+N\theta_C)-N\Theta^{\mathbb{E}}(\theta_C)}{(1+N\theta_C)^3}\right) \quad (58)$$

Because $\theta_C > \Theta^{\mathbb{E}}(\theta_C)$, the first line of expression (58) is positive. The second line is positive if $N\big(\Theta^{\mathbb{E}}(\theta_C)+1\big) - \Theta^{\mathbb{E}\prime}(\theta_C)(1+N\theta_C)$ is. Observe

$$N\big(\Theta^{\mathbb{E}}(\theta_C)+1\big)-\Theta^{\mathbb{E}\prime}(\theta_C)(1+N\theta_C) > N\big(\Theta^{\mathbb{E}}(\theta_C)+1\big)-(1+N\theta_C)$$
$$= N-1-N\big(\theta_C-\Theta^{\mathbb{E}}(\theta_C)\big) > N-1-N(\overline{\theta}-\mathbb{E}\theta) \geq 0\,, \quad (59)$$

where the first two inequalities follow because $\Theta^{\mathbb{E}\prime}(\theta) < 1$ for all θ and the last from assumption (57). ■

As the proof of Proposition 7″ makes clear, condition (57) is a far more stringent condition than necessary; that is, the same conclusion obtains under less stringent conditions. The corresponding proofs, though, are more involved, which is why, for the sake of brevity, condition (57) was assumed (recall the purpose of this appendix is merely to show that the results of the main text can be extended to non-additive production functions). Note that (57) holds whenever $\overline{\theta} - \mathbb{E}\theta < 1$ and the number of followers is great enough (*e.g.*, if $N \geq 2$ and θ is distributed uniformly on the unit interval).

Appendix C: Relaxing the Either-Or Assumption on Appeals

Two extensions of the basic model are considered to demonstrate its robustness with regard to the assumption the leader is limited to making either a wholly rational appeal, one devoid of emotional impact, or an emotional appeal, one devoid of any hard information.

For both extensions, let $\tau \in [0,1]$ denote the emotional "inτensity" of the leader's appeal. The role of intensity differs between the two extensions.

In the first extension, suppose that emotional intensity varies depending on whether the appeal is rational or emotional; specifically, $\tau \in \{\tau_{\text{RA}}, 1\}$. Assume $\tau = 1$ if the appeal is emotional and it equals $\tau_{\text{RA}} < 1$ if the appeal is rational. Reasons why rational appeals are less emotionally intense (*i.e.,* why $\tau_{\text{RA}} < 1$) were given in Section 2.4 *supra*. Assume, *regardless* of appeal type, an emotional responder's perceived return is $R(\tau\chi, \widetilde{\theta}\,)$, where, if the leader makes a rational appeal, $\widetilde{\theta} = \theta$ (the true state); and, if she makes an emotional appeal, $\widetilde{\theta} = \widehat{\theta}$ (rational expectation of the true state conditional on an emotional appeal). The sober responder's return is, as in the main text, θ and $\widehat{\theta}$, under the two appeals, respectively. Additionally, assume $R(0, \widetilde{\theta}\,) \equiv \widetilde{\theta}$.[47] For R meeting that last assumption, the model of the main text can be seen as a special case of the model being considered here (*i.e.,* the main text assumes $\tau_{\text{RA}} = 0$).

As before, the actions of emotional and sober responders are, respectively, $a^*\big(R(\chi, \widehat{\theta}\,)\big)$ and $a^*(\widehat{\theta}\,)$ in response to an emotional appeal. Similar logic implies their actions are, respectively, $a^*\big(R(\tau_{\text{RA}}\chi, \theta)\big)$ and $a^*(\theta)$ in response to a rational appeal.

As in Section 3, the leader makes an emotional appeal if and only if

$$n_S a^*(\widehat{\theta}\,) + n_E a^*\big(R(\chi, \widehat{\theta}\,)\big) \geq n_S a^*(\theta) + n_E a^*\big(R(\tau_{\text{RA}}\chi, \theta)\big)\,. \tag{60}$$

The righthand side of (60) is increasing in θ; so, the leader's best response to the followers' beliefs, $\widehat{\theta}$, remains a cutoff strategy. Let θ_C again denote the cutoff. Given $\Theta^{\mathbb{E}}(\theta_C) < \theta_C$ if $\theta_C > \underline{\theta}$ and setting $\chi = 0$, it is immediate from (60) that, if $\chi = 0$, the leader never makes an emotional appeal. At the same time,

$$n_S a^*(\underline{\theta}) + n_E a^*\big(R(\chi, \underline{\theta})\big) \geq n_S a^*(\underline{\theta}) + n_E a^*\big(R(\tau_{\text{RA}}\chi, \underline{\theta})\big)$$

if $\chi > 0$ given Assumption 1(i). Hence, any leader whose charisma exceeds 0 will make an emotional appeal in some states; thus $\underline{\chi} = 0$ here. Because

$$n_S a^*(\mathbb{E}\theta) + n_E a^*\big(R(0, \mathbb{E}\theta)\big) < n_S a^*(\overline{\theta}) + n_E a^*\big(R(\tau_{\text{RA}} \times 0, \overline{\theta})\big)$$

and all functions are continuous, there must exist positive charisma levels and states for which the leader prefers a rational appeal. Consequently, a $\overline{\chi}$ can be defined such that, for all $\chi \in (0, \overline{\chi})$, there are states in which the leader makes an emotional appeal and other states in which she makes a rational appeal.

For the analysis of the main text to hold, all that remains is to establish that Proposition 2 (equivalently, Corollary 1) holds:

Proposition 2′. *Assume*

$$c'''(a) \leq 0 \;\; \textit{and} \;\; R(\chi, \theta) = \mu\chi + \theta\,, \;\; \textit{where} \;\; \mu > 0\,. \tag{61}$$

[47] Many specifications of R given in Section 2.3 satisfy that condition (*e.g.,* $R(\chi, \theta) = \mu\chi + \theta$, specifications (4), (6), and (7).

Consider two leaders with charisma levels χ and χ', $\chi' < \chi$ and both in $(0, \overline{\chi})$. Consider a perfect Bayesian equilibrium in which the χ' leader makes an emotional appeal whenever $\theta < \theta'_C$. Then there exists a $\theta_C > \theta'_C$ such that there is a perfect Bayesian equilibrium in which the χ leader makes an emotional appeal whenever $\theta \leq \theta_C$.

Proof: As preliminaries, observe $\partial R/\partial \chi = \mu$ and, from (36), $a^*(\cdot)$ is weakly convex. Because $\chi' \in (0, \overline{\chi})$,

$$n_S a^*\big(\Theta^{\mathbb{E}}(\theta'_C)\big) + n_E a^*\Big(R\big(\chi', \Theta^{\mathbb{E}}(\theta'_C)\big)\Big) = n_S a^*(\theta'_C) + n_E a^*\big(R(\tau_{\text{RA}}\chi', \theta'_C)\big)\,. \tag{62}$$

Because $\Theta^{\mathbb{E}}(\theta'_C) < \theta'_C$, it must be that

$$R\big(\chi', \Theta^{\mathbb{E}}(\theta'_C)\big) > R(\tau_{\text{RA}}\chi', \theta'_C)\,. \tag{63}$$

Differentiating both sides of (62) with respect to χ holding θ'_C fixed yields

$$n_E a^{*\prime}\Big(R\big(\chi', \Theta^{\mathbb{E}}(\theta'_C)\big)\Big)\mu > n_E a^{*\prime}\big(R(\tau_{\text{RA}}\chi', \theta'_C)\big)\mu\tau_{\text{RA}}\,, \tag{64}$$

where the inequality follows from (63) given $a^{*\prime}(\cdot)$ is a non-decreasing function and $\tau_{\text{RA}} < 1$. Hence,

$$n_S a^*\big(\Theta^{\mathbb{E}}(\theta'_C)\big) + n_E a^*\Big(R\big(\chi, \Theta^{\mathbb{E}}(\theta'_C)\big)\Big) > n_S a^*(\theta'_C) + n_E a^*\big(R(\tau_{\text{RA}}\chi, \theta'_C)\big)\,.$$

Because $\chi \in (0, \overline{\chi})$,

$$n_S a^*(\mathbb{E}\theta) + n_E a^*\big(R(\chi, \mathbb{E}\theta)\big) < n_S a^*(\overline{\theta}) + n_E a^*\big(R(\tau_{\text{RA}}\chi, \overline{\theta})\big)\,.$$

By continuity, there must exist a $\theta_C \in (\theta'_C, \overline{\theta})$ such that

$$n_S a^*\big(\Theta^{\mathbb{E}}(\theta_C)\big) + n_E a^*\Big(R\big(\chi, \Theta^{\mathbb{E}}(\theta_C)\big)\Big) = n_S a^*(\theta_C) + n_E a^*\big(R(\tau_{\text{RA}}\chi, \theta_C)\big)\,.$$

■

Given Proposition 2′, it is readily seen that the remaining results of the main text continue to hold for this variant of the model.

Worth emphasizing is that condition (61) is merely sufficient, not necessary. In particular, because the function $a^{*\prime}\big(R(\cdot,\cdot)\big)\partial R/\partial\chi$ is bounded on $(\underline{\theta}, \overline{\theta}) \times (0, \overline{\chi})$, there must always exist τ_{RA} small enough (but positive) such that the equilibrium cutoff is increasing in the leader's charisma (such that (64) holds). In other words, the main text's results do *not* require the emotional intensity of a rational appeal be zero.

As a second, independent extension, suppose that the leader can send a message that mixes the inspirational with details. She is, though, still subject to limited bandwidth; hence, the more inspirational the leader is being, the less in-depth her review of the facts and *vice versa*. Reflecting this tradeoff, assume, now, that the leader *chooses* $\tau \in [0,1]$, the intensity of her appeal. What this means is that, with probability τ, a follower hears her exhortations, but does not understand what θ is; with probability $1-\tau$, he understands what θ is, but the inspirational aspects are lost (again see Section 2.4 for why this assumption might be justified). If the first event occurs, a follower understands that he has not heard or understood what θ is; instead, as before, he adopts a belief $\widehat{\theta}$ about θ. In this case, he supplies effort $a^*(\widehat{\theta})$ if a sober responder and $a^*\big(R(\chi,\widehat{\theta})\big)$ if an emotional responder. The expected value of the public good conditional on the true state being θ is, thus,

$$\theta \times \Big(N(1-\tau)a^*(\theta) + n_S\tau a^*(\widehat{\theta}) + n_E\tau a^*\big(R(\chi,\widehat{\theta})\big)\Big). \tag{65}$$

To maximize (65), the leader chooses $\tau = 1$ if condition (10) holds and $\tau = 0$ otherwise. Hence, even if able to send a mixed message, the leader would never do so in equilibrium: she would make a purely emotional appeal if the state is low enough, a purely rational appeal otherwise. In short, assuming she cannot send a mixed message need not entail a meaningful loss of generality.

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