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ABSTRACT

We analyze the offering, asking, and granting of help or other benefits as a three-stage game with bilateral private information between a person in need of help and a potential help-giver. Asking entails the risk of rejection, which can be painful: since unawareness of the need can no longer be an excuse, a refusal reveals that the person in need, or the relationship, is not valued very much. We show that a failure to ask can occur even when most helpers would help if told about the need, and that even though a greater need makes help both more valuable and more likely to be granted, it can reduce the propensity to ask. When potential helpers concerned about the recipient's ask-shyness can make spontaneous offers, this can be a double-edged sword: offering reveals a more caring type and helps solve the failure-to-ask problem, but not offering reveals a not-so-caring one, and this itself deters asking. This discouragement effect can also generate a trap where those in need hope for an offer while willing helpers hope for an ask, resulting in significant inefficiencies.

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"While quite young,... Vronsky had experienced the humiliation of a refusal when, having got into debt, he had tried to borrow money, and since then he had never again allowed himself to get into such a position. " (L. Tolstoi, *Anna Karenina*).

"You are mistaken, Mr. Darcy, if you suppose that the mode of your declaration affected me in any other way, than as it spared the concern which I might have felt in refusing you, had you behaved in a more gentlemanlike manner." (J. Austin, *Pride and Prejudice*).

1 Introduction

Helping is of key importance for interpersonal and workplace relationships. In both settings, it is often required to achieve efficiency (public-goods provision, cooperation), and can be a powerful source of good will (when help is provided) or bad feelings (when it is not). Substantial evidence shows that many people are indeed willing to help others, especially when asked explicitly, and when the request is public this "power of the ask" is further amplified by the image motions it sets into play.

So if someone has a need, why not ask? As the popular expressions go, "It doesn't hurt to ask," and "all they can say is no." The ubiquity of these admonitions shows, however, that in practice people are often very reluctant or shy to ask for help—a favor or job recommendation, a raise or promotion (particularly women), a loan from a friend, etc. The same holds for asking someone for a date, declaring one's feelings, or conversely asking someone to stop something unpleasant or unwelcome (bad manners, harassment). Instead, people in need will often refrain from asking, thereby foregoing the potential benefits of help; try to use an intermediary who could make the request for them—a weaker, noisier form of help—or wait for a spontaneous offer that may not be forthcoming.

Asking can in fact "hurt" for several reasons. First, it may create an implicit *obligation* to repay the favor in some yet-unspecified manner in the future, triggering a form of debt aversion. Second, and very common, is *shame or embarrassment*: asking reveals a need, dependence, or lack of ability. Third, there may be a reluctance to put one's own needs first, or just a desire not to appear *inconsiderate* by "imposing" on the helper, putting them on the spot, etc. Finally, and our focus in this paper, there is the *risk of rejection,* which can be psychologically painful or even humiliating: it reveals that the potential helper cares little about the person in need, or does not value the relationship very much. This is is the main channel we explore and expand upon here, in line with a psychology literature that documents rejection-sensitivity as an important personal trait in both behavior and mental health (e.g., Downey and Feldman 1996; Berenson et al. 2009; Maiolatesi et al. 2022). Unlike the preceding two signaling problems, this one places at the heart of the interaction what the person in need learns about the potential helper, rather than (or besides) what the potential helper learns about them. Fundamentally, asking for help *takes away the excuse* that one did not know about the existence or extent of the other person's need. By making the need common knowledge, asking (or even just that prospect) raises the informational stakes for both sides, altering players' feelings and behaviors in important ways.

That such situations entail a form of inefficiency is strongly suggested by the common exhortation of "Don't be afraid to ask for help" proffered by parents, teachers, managers, and organizations.[1] But this in itself is a puzzle, suggesting that people are generally not asking enough for their own good. Is it paternalism, a view that fear of embarrassment or rejection should not enter into decisions no matter how painful those experiences may be, or that people do not properly assess their own risk-benefit tradeoff in the asking-helping interaction? If not, what problem are such messages aiming to solve, and in any case how could such pure exhortations solve it?

If potential helpers think that those in need do not ask enough, they generally have the option of volunteering help without waiting for a specific ask. In the "embarrassed to ask" case this can backfire, revealing to the person in need that something they would have preferred to keep private is already known (Bénabou and Tirole 2003). In the "afraid to ask" case on which we focus, the possibility of spontaneous offers also turns out to be a double-edged sword. To be credible, such offers cannot be pure cheap talk or fully state-contingent, which is equivalent to waiting for a specific ask. They must entail a form of costly, non-renegotiable commitment, as revealed by the typical language: "Anything you need, I will help no matter what, my door is always open, I am always there for you," etc. Offering then reveals a more caring type and indeed solves the failure-to-ask problem; but then, and most importantly, not offering reveals a

[1]This is even, *verbatim,* the message to students appearing on posters plastered by the London School of Economics all over its campus. The prevalence of the "failure to ask" problem is also attested by influential career- and management-advice books such as "Women Don't Ask" (Babcock and Laschever 2009) and "All You Have To Do Is Ask" (Baker 2020).

not-so-caring type, and this *itself* can discourage asking.

Motivated by these questions and intuitions, we develop a flexible framework to analyze the *offering-asking-helping* interactions between a person in need of help (the "Receiver") and one who is in a position to provide that help (the "Sender"). While acknowledging the existence of a range of different impediments to asking for help, our focus is on the more novel "afraid to ask" mechanism and its interplay with spontaneous offers.[2] Although the model ingredients are each quite simple, their combination into a three-stage game with private information on both sides leads to a surprisingly rich set of effects, which we first briefly preview.

1.1 Main Questions and Results

Fear of asking and (non)monotonicity. A person may fail to ask for help for fear of rejection even when his need is such that the other person would very likely *want to help* if she knew about it. Furthermore, although a higher level of need makes help more valuable to receive *and* more likely to be granted if requested, it can reduce the propensity to ask. Intuitively, being turned down when in dire need is significantly worse news about the relationship than when the need is a modest one.[3] When this "greater fear" effect dominates the direct-value and the granting-likelihood effects, such paradoxical, non-monotonic asking behavior will occur. When it is dominated, conversely, help will be requested when the need for it is above some cutoff.

Generosity, rejection-sensitivity, and offering. More generous Senders will be more likely to offer help without waiting for an ask. Indeed, they are more concerned about needs going unmet due to a failure to ask, and less concerned about wasting their effort and "regretting" their pledge, should the extent of need turn out to be low. Therefore, a Sender will offer help without waiting for an ask if her level of caring for the Receiver is above some cutoff. Intuition also suggests that the more sensitive to rejection a Receiver is, the less likely he is to ask, and therefore the more likely the Sender, knowing this, should be to offer. As we shall see, the asking part of that intuition is generally true, but Senders driven by image concerns more than a genuine desire to help may in fact

[2]The framework can easily be extended to incorporate the "embarrassed to ask" and the "don't want to impose" mechanisms as well.

[3]The cost of helping is kept constant in this comparison, but the point holds as long as it rises less than one-for-one with the need being alleviated.

take advantage of greater ask-shyness to *reduce* their offering.

Discouragement and the waiting trap. Failure to ask may occur specifically due to the bad news conveyed by the Sender *not offering* first, without waiting for an ask. Absent the opportunity for such a pledge, the Receiver would have asked, but when that option is present yet not chosen, he will not, and the need will go unmet. This discouragement effect can also generate an inefficient equilibrium in which the Receiver waits for an offer but is too afraid to ask if it did not come, while the Sender waits for an ask, regretting that it will not always come at levels of need at which they would like to help, but unwilling to take the risk of offering unconditionally. Alongside this inefficient equilibrium, is another, efficient one replicating the full-information outcome, in which the person in need always asks, and help is delivered in all and only those states of need where the helper wants to do so.

Helper's beliefs and offering. Before deciding whether or not to pledge help to someone, Senders will often have access to some imperfect private signals about that Receiver's situation. Learning of greater needs (in the sense of stochastic dominance) can make the Sender more likely to offer help, as they are now more concerned about meeting legitimate needs that would remain unexpressed, and/or less concerned about wasting their help on trivial ones. It can also make the Sender *less* likely to offer, however, if she becomes more confident that, if the Receiver has a legitimate need, it probably a high enough one that he will ask.

Cost of helping. When help becomes more costly to provide, requests for it are less likely to be accepted (it takes a more generous Sender to help with any given need), yet the person in need can become more likely to ask (since being turned down for more costly help is less severe of a negative signal) – a non-monotonicity similar to that arising for levels of need. And, when a higher helping cost does reduce the likelihood of asking, this generates an increased concern among generous Senders about unmet needs in states where they would still like to help, which can lead to more offering even though the cost of such pledges has unambiguously risen.

1.2 Related Literature

The pervasiveness of helping and other prosocial behaviors has given rise to a large literature seeking to understand the motives underlying such actions.[4] The two most broadly recognized ones are altruism and image concerns, each of which comes in two main varieties.

Pure altruism stems from an empathic desire to alleviate another person's pain or otherwise make them better off (Batson et al. 1981, 2002), whereas "impure" or "warm glow" altruism corresponds to a satisfaction derived from the mere act of giving, independently of the impact on others' well-being (Andreoni 1989, 1990).[5] While the two are not always easy to disentangle empirically (Ottoni-Wilhelm et al. 2017; Brown et al. 2019), there is by now solid evidence for both. In our model, pure or at least clearly "consequentialist" altruism (Roth and Kagel 1995; Goeree et al. 2002; Andreoni et al. 2010; Brock et al. 2013; Gneezy et al. 2014) is represented by the potential helper's utility increasing in the needy person's material well-being, and possibly also in his psychological or emotional well-being. Warm-glow motives (e.g., DellaVigna et al. 2012), meanwhile, arise endogenously in the form of feelings of pride or shame of the potential helper in light of her own actions.

Indeed, the second main motive identified in the literature on prosocial behaviors is the quest for a positive moral image, whether in the eyes of others or in one's own. Helping signals caring and generosity, whereas not helping signals disinterest and selfishness, thereby creating reputational incentives to behave well (Camerer 1988; Carmichael and MacLeod 1997; Bénabou and Tirole 2006, 2011b; Ellingsen and Johannesson 2011; Golman 2016). Prior work has thus demonstrated that people are more likely to behave prosocially: (i) when their choices are more visible to others (Harbaugh 1998a,b; Bursztyn et al. 2020); and (ii) when the self-benefiting choice would be transparently selfish rather than veiled by uncertainty that can serve as an excuse, such as ignorance about the consequences of the act (Bénabou and Tirole 2006; Dana et al. 2007; Andreoni and Bernheim 2009; Gino et al. 2016; Gneezy et al. 2020). Eliminating excuses can, for this reason, be an effective way of increasing helping and giving behavior (Linardi and

[4]For surveys in psychology see, e.g., Penner et al. (2005) and Oppenheimer and Olivola (2011).

[5]While the term "impure" altruism suggests that it is at some level selfish (indeed the term "selfish altruism" is used interchangeably), Barasch et al. (2014) find that people who behave prosocially because they receive emotional benefits from doing so are in fact judged as high in moral character.

McConnell 2011; Exley et al. 2020).

In our model, the potential helper may be motivated by (social or self) image considerations, on top of true altruistic preferences. Even absent such direct reputational concerns, however, the recipient will read into the would-be helper's choices how much he is valued or respected, care about that, and act accordingly, with the plausibility of potential excuses playing a central role in these inferences.

Another strand of literature shows that receiving a request increases the chances of a person helping (Anderson and Williams 1996; Freeman 1997; Flynn and Lake 2008; Andreoni and Rao 2011; Bekkers and Wiepking 2011; Ratchford et al. 2019; Goette and Tripodi 2022). Potential helpers themselves recognize this "power of the ask," and sometimes shun situations in which they might face explicit tests of their generosity. For instance, people may avoid solicitations to give to charities (DellaVigna et al. 2012; Kamdar et al. 2015; Lin et al. 2016; Andreoni et al. 2017), or to peers (Dana et al. 2006; Broberg et al. 2007; Lazear et al. 2012). In our theory, the power of the ask arises *endogenously* from the fact that a request eliminates the excuse of ignorance about needs, and this is anticipated by both sides.

Despite the power of the ask, people in need often fail to solicit valuable help or benefits even when, if they asked, they would likely get them (Gross et al. 1979; Fisher et al. 1982; Nadler 2012). In the workplace, similarly, both male and especially female employees are often hesitant to ask for a raise or promotion to which they would have legitimate claims (Babcock and Laschever 2009; Roussile 2022). Extant work has discussed a number of factors that inhibit asking (Gross et al. 1979; Fisher et al. 1982; Jaroszewicz et al. 2021). One of the most commonly cited is shame or embarrassment (Goffman 1963; Tessler and Schwartz 1972) stemming from a fear of revealing that one is ignorant, incompetent, or in need.[6] More relevant to the present research is work in psychology arguing that people have a fundamental desire to be *accepted and valued* by others (Leary 1990; Baumeister and Leary 1995; Leary 2005)—and that they dislike and often deeply fear rejection (Downey and Feldman 1996; Eisenberger 2003; MacDonald and Leary 2005; Kross et al. 2007, 2011; Berenson et al. 2009; Romero-Canyas et al. 2010). In our model, this fear arises because rejection constitutes a negative signal of how little the (would-be) helper values the person in need, or cares about the relation-

[6]See Chandrasekhar et al. (2018) for a formalization based on the model of Bénabou and Tirole (2006), together with a field experiment.

ship. This feature, and the resulting information aversion, also ties the paper to the literature on self-esteem management and the preservation of ego utility (Bénabou and Tirole 2002, 2011a; Köszegi 2006; Köszegi et al. 2022). Many novel insights and results arise here, however, from the two-way interactions between the *asking-granting* stages of the game and a prior *offering stage* in which potential helpers concerned about needs going unmet can proactively offer help without waiting for an ask—or not.

Relatedly, some psychology literature has argued that rejection is painful not only when it is active (being excluded due to another person's actions), but also when it is passive (being excluded due to another person's inaction) (Leary 1990; Williams 2007; Molden et al. 2009; Hartgerink et al. 2015). Being left out of an activity or ignored decreases mood and self-esteem (Zadro et al. 2004; Blackhart et al. 2009; Lustenberger and Jagacinski 2010), and can have negative effects on interpersonal feelings, such as increasing anger towards the excluder (Leary 2006). This damage to the relationship by acts of omission, rather than commission, is captured very naturally in our model by the negative inferences that a person in need draws from the lack of an offer.

Finally, our framework captures the key role of *respect* in social interactions. A large literature in personal and organizational psychology demonstrates that "how worthy and recognized one feels" (Cremer and Tyler 2005) by partners, peers, and hierarchical superiors, and more generally the "feeling of being appreciated in importance and worth as a person" (treated with proper dignity irrespective of one's specific abilities; van Quaquebeke and Eckloff 2010) has major impacts on morale, engagement, and performance; see Grover (2014) for a survey. "Respectful leadership" is considered key to effective management, whereas disrespect and contempt are highly destructive of both personal relationships and work environments. In our model, the Sender shows respect (or not) for the Receiver's worth by recognizing and attending to important needs he may have, and the Receiver cares deeply about feeling treated with appropriate respect.

2 General Framework

Players. There are two actors, a potential help Sender S (she) and a potential help Receiver R (he). Help-sending is a costly action for S and a benefit to R. This benefit may be direct (time, money, effort) or indirect (employer engaging in environmentally responsible practices, which her employees care about).

Initially, there is private information about: (i) the value w of the help to R, known to him only; (ii) the generosity g of S toward R, meaning how much she cares about alleviating R's needs, or about R's total utility. This altruism, which is known to S but not to R, may be relation-specific, or have a broader scope (e.g., S's attitude towards R's ethnic group).

In the benchmark case, the cost of helping c is fixed and independent of w, but later we extend the results to cost functions such that $c(w)/w$ is decreasing.[7]

The variables g and w have supports G and W respectively, which can be discrete or continuous. The prior distribution on g has cdf $P(g)$, density $p(g)$, and mean $\bar{g}$, while that on w has cdf $Q(w)$, density $q(w)$, and mean $\bar{w}$. For further results we may allow S to receive, at the start of the game, some imperfect signal σ about R's need, which then indexes her prior $Q_\sigma(w)$.

Timing. The interactions take place in three stages, as described in Figure 1.

1. Nature determines the signal σ, which can be observed privately by S, or publicly, in which case it becomes common knowledge.

2. S spontaneously *offers* help to R, or does not, $o = 0, 1$. If she does offer, S is then committed to the helping action, $h \equiv 1$, irrespective of what its benefit w to R will turn out to be. For instance, S cancels some trip or project to make herself available to R. Equivalently, she just takes the costly action outright before fully knowing how valuable it is to him.[8] The game then ends with help being provided and R's (and/or other observers') beliefs about S's generosity updated from the initial prior $P(g)$ to some higher posterior $P_O(g)$. If there has been no offer by S, the posterior falls to some lower $P_N(g)$.

3. When no offer has been received, R may *ask* for help, or not, $a(w) = 0, 1$. If he does, then in the process of justifying and explaining his need, the value of w, initially known only to R, becomes observable to S as well.

4. Following an ask, S decides whether to grant the request, $h(w, g) = 0, 1$. This choice also determines the final beliefs $F(g|w, h)$, or $F(g)$ for short. Thus $F(g) =$

[7]See Section 4. Another extension would be to allow uncertainty over c, with S possibly holding some initial private information over it.

[8]What matters more generally is that an offer commits the Sender to helping in *some* state(s) of the world where, had she known the level of need (or, in a variant of the model, the cost of helping), she would have preferred not to help.

$P_O(g)$ if help has been unconditionally offered, while $F(g) = F(g|w, 1)$ if it was granted only after an explicit ask for need w, etc.

To the prior distribution P over the Sender's type, we associate the reputational functions:

$$M^-(g) = E\left[g'|g' < g\right], \ M^+(g) = E\left[g'|g' \geq g\right], \quad \Delta(g) \equiv (M^+ - M^-)(g), \quad \forall g \in G.$$

For the interim belief distribution P_N following no offer (but prior to the asking stage), we use the same notations with a subscript N on each of the three functions.

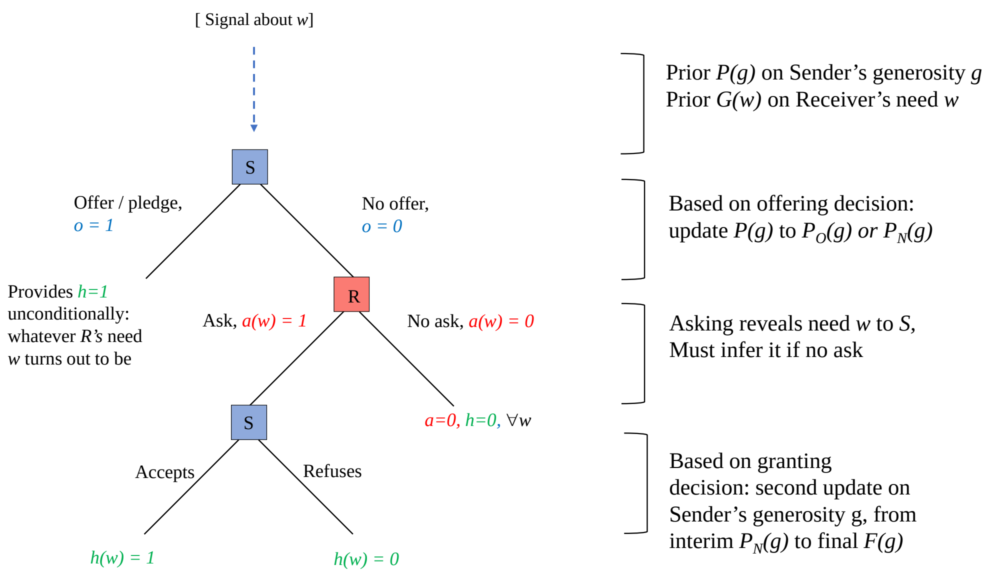

Figure 1: Timing of moves and information structure. P is for "prior," F for "final," w for material "welfare" or need, g for "generosity."

Payoffs. With the above notations, final utilities are

$$U_R(h, F) = wh + \psi(F), \tag{1}$$

$$U_S(h; g, w) = (gw - c)\, h + \mu\varphi(F), \tag{2}$$

where again F denotes final beliefs over S's generosity, and the functionals ψ, φ capture the followings ideas. First, and most importantly, ψ is concave, meaning that R suffers more from revising downward his perception of *how much S cares about him*

, or equivalently *respects* him or his group, than he enjoys revising it upward by the same amount.[9] The psychology literature on rejection sensitivity (e.g., Downey and Feldman 1996; Berenson et al. 2009) measures it as a combination of high "concern and anxiety" about being rejected (which corresponds to concavity) and pessimistic expectations about its likelihood (Flynn and Lake 2008; Roussile 2022), which could be captured with probability weighting and would result in similar effects. Prior work also provides some evidence of group differences in this trait, with women showing greater sensitivity to rejection in personal relationships than men (Maiolatesi et al. 2022), and African-Americans greater sensitivity to race-based rejection in institutional relationships than other ethnic groups (Mendoza-Denton et al. 2002).[10]

Second, when $\mu > 0$ the Sender cares about her image, whether in the eyes of the Receiver or those of others. While not needed for the core results, this will capture the effects of public observability on the whole equilibrium. For simplicity we will focus on the linear benchmark $\varphi(F) = E_F[g]$, meaning that S is risk neutral with respect to her reputation, but other cases could be analyzed.[11]

Without loss of generality, we focus on pure-strategy equilibria and break any ties that arise in the direction of "good feelings," by assuming that: (i) the Receiver will not make an ask that is certain to be rejected; (ii) the Sender will offer help when she is indifferent between doing so and waiting for an ask. Where relevant, off-path beliefs are restricted using the D1 refinement criterion.

2.1 Remarks

(1) Helping. When the Sender has no image motive, her decision to accept or reject an ask of w is straightforward: she grants it if $g \geq c/w$, and otherwise not. When $\mu > 0$, even this last stage of the social interaction becomes a signaling game. Because it is of a familiar type (e.g., Bénabou and Tirole 2006) and our interest is with new effects

[9] One could endogenize such informational preferences from instrumental or strategic concerns. R's psychological utility ψ may also depend on his interim beliefs $P_N(g)$, if he suffers disappointment from explicit rejection of an ask ($h = 0$) rather than from the lack of an initial offer ($o = 0$), or in addition to it: see Section 4.

[10] A convex ψ would instead represent a Receiver's curiosity to find out his social standing, or a decision value of knowing who his true friends are, to invest more in those relationships. While this could be an interesting variant of the model to explore, our focus is here on the "fear of asking."

[11] Being altruistic, S may also internalize R's psychological or emotional utility from his beliefs (feelings of being valued or not by S); in this case, $\varphi(F)$ is replaced by $g\psi(F)$.

occurring mostly at earlier stages, we will always take μ to be small enough that the equilibrium in this last subgame is unique.[12]

(2) Asking. Requesting help involves a gamble: if S accepts, R gets a valuable benefit, plus learns that he is valued; if S refuses, R not only remains with an unmet need, but he also learns painful news about how little S cares about him. The *fear of rejection* may lead R to abstain from asking in some states, even when most Senders would accept the request. The first question we will examine is whether a greater need w raises or lowers the chance that R will ask.

(3) Offering. If S is concerned that R will not ask in some states where she would really like to help, why does she not simply offer without waiting for an ask? Recall that she also faces a risky tradeoff: pledging (or unconditionally providing) help commits her to incurring the cost c no matter how low R's level of need may turn out to be be. As a result, only Senders with sufficient generosity g, or who received appropriate signals σ about needs, will find the risk of "regretting" an offer worth taking to ensure help in states where R would fail to ask.

(4) Learning. Intuition suggest that accepting an ask is better news about g than turning it down, and the lower the need alleviated at a given cost the more so; but also, that offering unconditional help yields a better reputation than could be gained by not offering and later accepting any equilibrium ask.[13] We will examine whether these three natural properties indeed hold in equilibrium.

(5) Final or continuation payoffs. We assume for simplicity that an explicit request for help by R fully reveals w, but all that really matters for our results is that S know more about it after an ask than before. Our model also makes clear that even when there is no ask, S learns something about the level of need, namely that it is not one of those for which R is willing to speak up. The assumption that S can only pledge help at the outset is, nonetheless, not really restrictive. First, in any equilibrium such that asking occurs above some threshold (Sections 3.2 and 4), the lack of an ask truncates possible needs from above. If S was not willing to help unconditionally before the truncation,

[12] Sufficient conditions will be provided. Uniqueness then also extends to the two-stage subgame that starts with R's asking decision, so multiplicity can only arise from the paper's novel offering-asking coordination effects; see Section 3.5.

[13] In contrast, where $a(w) = 0$, it may be that accepting such an ask (off the equilibrium path) would reveal even higher types of g than those who offer unconditional help. Indeed, the latter are only committing to $h = 1$ when facing the ex-ante distribution of w's (equivalently, given risk-neutrality, they are willing to help at $\bar{w}$).

she is even less willing afterwards, so nothing changes. In a non-monotonic equilibrium (Section 3.3) where it is when the Receiver is in greatest need that he fails to ask, his silence may lead the Sender to become more willing to pledge help than she initially was. The ensuing outcome is then different from that in Figure 1, but in a way that further increases the Receiver's incentive to abstain from asking at high needs, thus strengthening the most interesting feature of such an equilibrium.

More broadly, the *"No Ask, No Help,"* and *"Ask, No Help"* branches of the game tree can stand for continuation subgames in which help might ultimately be forthcoming but is *delayed.* Such delay is typically inefficient—a fortiori if it raises S's cost of helping (acting at the last minute, without adequate preparations), or worsens R's situation (e.g., his need rises, possibly beyond what S may be able to fully alleviate), so the model's main insights remain unchanged.

3 Discrete Version

We study two main variants of the general framework. In this section we use a few discrete types and a flexible specification of the Receiver's utility from beliefs, to demonstrate most simply the main forces at work and the full array of phenomena that can emerge from their interactions, including non-monotonicities and a new source of equilibrium multiplicity. We do not carry out a systematic analysis of the equilibrium set as a function of parameters, as this would be quite tedious. For this, we will turn in Section 4 to a version with continuous types and more restrictive Sender preferences, which allows a complete analysis including existence, uniqueness and full comparative statics of the equilibrium.

Let the Sender's type take here values $g_L < g_M < g_H$, with probabilities (p_L, p_M, p_H). The Receiver may have a "real need," either severe or moderate, or just a "trivial" one: help is worth w_H, w_L or ε to him, with probabilities q_H, q_L and q_ε respectively and

$$0 \lessapprox \varepsilon << w_L < w_H. \tag{3}$$

Absent a real need, the value of help ε is still positive (so it would be accepted), but so small that no Sender would find it worth her while to incur the cost of providing it. When there is a real need, g_H and perhaps g_M may be willing to help, but to cut down on the number of cases we will assume that the lowest type g_L never is (dominant strategy).[14]

The Receiver's psychological payoff is

$$\psi(F) \equiv u\left(E_F\left[g \mid a, h\right]\right), \tag{4}$$

where $u(\cdot)$ is a strictly increasing and concave function. In contrast (but mainly for simplicity), the Sender is risk-neutral with respect to her image, $\varphi(F) = E_F[g]$. We allow $\mu \geq 0$ to be either strict or an equality, as none of the results in this section depend on the Sender having image concerns.

3.1 Benchmark: Always Ask, No Offer

We now turn to the analysis of the different types of equilibria that emerge from the model, starting with a natural benchmark that also serves to introduce the notation. In Table 1 and subsequently, for each $(g, w) \in \{g_L, g_M, g_H\} \times \{\varepsilon, w_L, w_H\}$, and whether on or off the equilibrium path: (i) in the first column, the entries for (g, o) are the probabilities that a Sender of type g offers help without waiting for an ask; (ii) in the top row, the entries for (a, w) are the probabilities that, following no offer, a Receiver of type w asks for help; (iii) the interior entries for each type (g, w) are the probabilities that a Sender with generosity g will accept an ask that reveals a level of need w.

$a \backslash o$	o	ε	w_L	w_H
a	-	0	1	1
g_L	0	0	0	0
g_M	0	0	s	t
g_H	0	0	1	1

,

Table 1: No-Offer Equilibrium $(0 \leq s \leq t \leq 1)$

When the Receiver has little concern for how much the Sender values him (u is constant, or linear) and the g_H type cares enough to help whenever there is a real need,

[14] Formally, $\max\{g_H\varepsilon, g_L w_H\} + \mu \max\{g_H - M_N^-(g_H), M_N^+(g_M) - g_L\} < c$, for which a simple sufficient condition is that $\max\{g_H\varepsilon, g_L w_H\} + \mu(g_H - g_L) < c$. It always holds, for instance, when ε, g_L, and μ are low enough.

there is only one type of equilibrium, depicted in Table 1: There is no ask at ε as it would be turned down for sure, always an ask when there is a real need ("it can't hurt"), and no Sender ever offers help before hearing an ask expressing such a need.[15]

3.2 Monotonic-Ask Equilibrium

To demonstrate a first type of inefficiency that can arise, we focus on the asking-and-granting subgame, or the simple case in which S has no initial opportunity to offer help, $o \equiv 0$. Subsequently we will add a condition such that no Sender wants to help, which similarly leads to $P_N = P$. In the type of equilibrium depicted in Table 2a (where $s \in \{0, 1\}$), R asks for help only when it is most valuable, namely at w_H but not at w_L. This is intuitive, since both the intensity of the need and the probability of acceptance are maximal there.

$a \backslash o$	o	ε	w_L	w_H
a	-	0	0	1
g_L	0	0	0	0
g_M	0	0	s	1
g_H	0	0	1	1

Table 2a: Monotonic-Ask Equilibrium

We can further distinguish two cases.

(1) Type g_M helps at w_L. If $s = 1$, the informational content of a rejection is the same at w_L or w_H, (in both cases indicating that $g = g_L$) so the proposed strategies are an equilibrium if

$$\begin{aligned}(p_H + p_M)\left[w_L + u(M^+(g_M))\right] + p_L u(g_L) &< u(\bar{g}),\\ (p_H + p_M)\left[w_H + u(M^+(g_M))\right] + p_L u(g_L) &> u(\bar{g})\end{aligned}$$

on the Receiver's side, while on the Sender's side

$$g_M w_L - c + \mu M^+(g_M) > \mu g_L.$$

[15] This outcome can also arise when R does care about S's generosity, but the equilibrium is uninformative in the region where he is sensitive to rejection e.g., $s = t = 0$ and R cares mostly whether $g = g_L$, but not so much whether $g = g_M$ or g_H.

Simplifying the first two yields

$$w_L < \frac{u(\bar{g}) - p_L u(g_L)}{p_H + p_M} - u(M^+(g_M)) < w_H,$$

where the middle term is positive due to the concavity of u. Hence, this equilibrium requires w_L to be sufficiently low and w_H to be sufficiently high, given everything else. From the third condition, it is then sufficient for existence that $g_M w_L > c$ and μ not be too large.

(2) Type g_M helps only at w_H. Now, let $s = 0$. The likelihood of w_L being granted is lower, but the bad news if it is not granted is not as bad as in the previous situation (g may be g_M or g_L), and thus not as damaging as the news from being turned down at w_H (g can still only be g_L). The proposed strategies constitute an equilibrium if, on the Receiver's side,

$$\begin{aligned} p_H \left[w_L + u(g_H) \right] + (p_M + p_L) u(M^-(g_H)) &< u(\bar{g}), \\ (p_H + p_M) \left[w_H + u(M^+(g_M)) \right] + p_L u(g_L) &> u(\bar{g}), \end{aligned}$$

while on the Sender's side

$$\begin{aligned} g_M w_L - c + \mu g_H &< \mu M^-(g_H) < g_H w_L - c + \mu g_H, \\ g_M w_H - c + \mu M^+(g_M) &> \mu g_L. \end{aligned}$$

The first two conditions can be rewritten as

$$\begin{aligned} w_L &< \frac{u(\bar{g}) - (p_M + p_L) u(M^-(g_H))}{p_H} - u(g_H), \\ w_H &> \frac{u(\bar{g}) - p_L u(g_L)}{p_H + p_M} - u(M^+(g_M)), \end{aligned}$$

which again holds when w_L is sufficiently low (the upper bound is positive, due as before to concavity) and w_H sufficiently high. If $g_M w_H > c$, $g_H w_L > c$ and $g_M w_L < c$, these conditions ensure existence of the equilibrium, provided that μ is small enough.

These results extend to incorporating an *offering stage* in which even the most generous type does not offer, preferring to first learn of a real need. Since R asks only when $w = w_H$, it does not matter here whether $s = 0$ or $s = 1$: in both cases, we have $o(g_H) = 0$ (and a fortiori $o(g_M) = 0$) if

$$g_H\bar{w} - c + \mu g_H < q_H\left[g_H w_H - c + \mu M^+(g_M)\right] + (1-q_H)\mu\bar{g},$$

where we recall that $\bar{w} = E[w]$. The condition holds, for instance, if μ is relatively small and $g_H E\left[w|w < w_H\right] < c$, for which it suffices that q_ε/q_L be high enough.

3.3 Non-Monotonic Ask Equilibrium

Building on the previous intuition that when $s = 0$, being turned down at a high level of need w_H is worse news than at a moderate level w_L, consider now the equilibrium described in Table 2b.

$a \backslash o$	o	ε	w_L	w_H
a	-	0	1	0
g_L	0	0	0	0
g_M	0	0	0	1
g_H	0	0	1	1

Table 2b: Non-Monotonic-Ask Equilibrium

It is now when his need is most *dire* that R fails to ask, afraid of what such a rejection would mean: only the least caring person would refuse to help in such circumstances. These strategies are an equilibrium if, on the Receiver's side

$$\begin{aligned} p_H\left[w_L + u(g_H)\right] + (p_M + p_L)u(M^-(g_H)) &> u(\bar{g}), \\ (p_H + p_M)\left[w_H + u(M^+(g_M))\right] + p_L u(g_L) &< u(\bar{g}), \end{aligned}$$

while on the Sender's side

$$\begin{aligned} g_M w_L - c + \mu g_H &< \mu M^-(g_H) < g_H w_L - c + \mu g_H, \\ g_M w_H - c + \mu M^+(g_M) &> \mu g_L. \end{aligned}$$

The last two conditions are the same as in the previous case, whereas the first two are reversed. If w_L is not too low and w_H not too high, together with the previous configuration for the other parameters, this equilibrium will exist (see the appendix).

If we add an initial offering stage, finally, the condition for no Sender to avail herself of it (waiting instead for an ask, which will occur only if $w = w_L$) is now

$$g_H\bar{w} - c + \mu g_H \quad < \quad q_L\left[g_H w_L - c + \mu g_H\right] + (1-q_L)\mu\bar{g} \iff$$
$$g_H\left(q_L w_L + q_\varepsilon \varepsilon\right) \quad < \quad c\left(q_L + q_\varepsilon\right) - \mu\left[g_H - q_L g_L - (1-q_L)\bar{g}\right],$$

which holds under similar conditions to those of the previous case.

3.4 Discouragement

We next construct an equilibrium such that:

(i) Sender g_H offers unconditional help, whereas neither g_M nor g_L do.

(ii) At the asking stage, having learned that he faces one of the two lower types, R refrains from asking in at least one state w_L or w_H.

(iii) Had his beliefs about g not declined due to the lack of an offer (e.g., absent an offer stage), he would have asked in both states (implying that at least the g_H Sender, and possibly g_M as well, would then have accepted).

$a\backslash o$	o	ε	w_L	w_H
a	-	0	0	1
g_L	0	0	0	0
g_M	0	0	1	1
g_H	1	0	1	1

Table 3a: Discouragement Effect Prevents Asking at Moderate Need

$a\backslash o$	ε	w_L	w_H
a	0	1	1
g_L	0	0	0
g_M	0	1	1
g_H	0	1	1

Table 3b: No Discouragement Effect When Offers Are Infeasible

In what follows we first show how this discouragement effect can deter asking at need w_L; then, enriching the support of g slightly, how it can induce an even more severe failure to ask, at need w_H.

1. Discouragement induces failure to ask at moderate need. Consider first Table 3a, where the lack of an initial offer leads to a subgame with monotonic asking. If no offer is extended, type g_H is ruled out from there on, leading to a conditional mean of $\bar{g}_N = M^-(g_H) = (p_M g_M + p_L g_L)/(p_M + p_L)$. The above strategies thus constitute an equilibrium if the following conditions hold.

First, at the ask-granting stage, a Sender with generosity g_M, and a fortiori g_H, always helps with real needs

$$g_M w_L - c + \mu g_M > g_L.$$

Second, at the asking stage, a Receiver with need w_L knows that asking will reveal whether $g = g_M$ or g_L, and the latter outcome is sufficiently aversive that he abstains. When his need is w_H, on the other hand, the value to be gained dominates the fear of rejection, so he does ask. Formally,

$$p_M^N(w_L + u(g_M)) + p_L^N u(g_L) < u(\bar{g}_N) < p_M^N(w_H + u(g_M)) + p_L^N u(g_L).$$

Third, at the initial stage, offering reveals type g_H, whereas not offering will lead to beliefs g_M or g_L if an ask at w_H occurs, and to no update otherwise (unchanged belief $\bar{g}_N$). It must therefore be that:[16]

$$\begin{aligned} g_H\bar{w} - c + \mu g_H &> q_H(g_H w_H - c + \mu g_M) + (1 - q_H)\mu\bar{g}_N, \\ g_M\bar{w} - c + \mu g_H &< q_H(g_M w_H - c + \mu g_M) + (1 - q_H)\mu\bar{g}_N. \end{aligned}$$

Now, suppose that the Sender's possibility of offering unconditional (or not fully state-contingent) help is simply removed: $o(g) \equiv 0$. At the asking stage, since nothing has yet been learned, the probability that an ask of w_L will be accepted is $p_H + p_M$ rather than p_M. If p_H is high enough and w_L not too low (see the appendix), the Receiver will ask whenever he has a real need, and this need will be met. By the same token, no help will ever be wasted on a trivial need, $w = \varepsilon$. The outcome, depicted in Table 3b, is the same as under symmetric information, and from the point of view of material payoffs (but not necessarily that of agents' welfare, as we discuss below), it is more efficient.

2. Discouragement induces failure to ask at high need. Can not receiving an offer deter the Receiver from asking at high need w_H, but not at w_L? This combination of discouragement and non-monotonic asking does not arise with three Sender types, but is easily obtained by splitting the intermediate g_M into nearby "middle-high" and "middle-low" types, respectively denoted $g_{\bar{M}}$ and $g_{\underline{M}}$. This equilibrium is depicted in Table 3c, and constructed very similarly to that of Table 3a.

[16] The appendix provides sufficient conditions for all inequalities to hold simultaneously.

$a\backslash o$	o	ε	w_L	w_H
a	-	0	1	0
g_L	0	0	0	0
$g_{\underline{M}}$	0	0	0	1
$g_{\bar{M}}$	0	0	1	1
g_H	1	0	1	1

Table 3c: Discouragement Effect Prevents Asking at High Need

Intuitively, asking at w_L is now justified because there remains the hope that the Sender is of type $g_{\bar{M}}$, who will accept, and even if she refuses she could still not be the worst possible type g_L, but instead $g_{\underline{M}}$. Asking at need w_H entails much higher informational stakes, however, because a refusal reveals g_L for sure. A Receiver who is sufficiently averse to this worst-case scenario ($u(g_L)$ low enough) will therefore refrain from asking at w_H, even though two of the three remaining Sender types would accept such an important request.[17]

3.5 The Waiting Trap

Perhaps most interestingly, in the full game in which offers are made endogenously, the "discouragement" equilibrium can coexist (for the same set of parameters) with an "always ask, no offer" equilibrium that replicates the no-offers-possible outcome, and thus achieves trading efficiency, as depicted in Tables 4a-4b.[18]

$a\backslash o$	o	ε	w_L	w_H
a	-	0	0	1
g_L	0	0	0	0
g_M	0	0	1	1
g_H	1	0	1	1

Table 4a: The Waiting Trap

$a\backslash o$	o	ε	w_L	w_H
a	-	0	1	1
g_L	0	0	0	0
g_M	0	0	1	1
g_H	0	0	1	1

Table 4b: No-Waiting Equilibrium

[17] Here again, absent the offer stage, the Receiver may (for appropriate parameters) have felt sufficiently confident to ask. Note also that with a convex-concave (S-shaped) $u(\cdot)$, not receiving an offer can lead to a reverse "encouragement" to ask and force resolution (a form of gambling for resurrection).

[18] This requires just one more inequality condition on top those for that make Table 4a an equilibrium and Table 4b the outcome when offers are infeasible. See the appendix for details.

Indeed, if the expectation is that even Sender g_H will wait for an ask, the lack of an offer is uninformative. The likelihood that an ask at w_L would be accepted thus rises from p_M to $p_M + p_H$, making the Receiver willing to take his chance on expressing such a need. This, in turn, validates waiting for an ask as the optimal decision for Sender g_H, and all others a fortiori.[19]

The waiting-for-an-offer equilibrium Table 4a is then an *inefficient trap.* Senders g_M and g_H would both want to help whenever there is a real need. However, given the risk that there may be only a trivial one, only g_H is willing to pledge unconditionally, whereas g_M will wait for an ask. For the Receiver who has not heard an offer, however, the fear of a rejection that would reveal that $g = g_L$ is enough to dissuade him from asking at $w = w_L$. Thus, sometimes help fails to be provided when it should $(g = g_M, w = w_L)$, and sometimes it is provided when it should not $(g = g_H, w = \varepsilon)$.

This is also a case where, from an *ex-ante* welfare point of view, the no-offer equilibrium (alternatively, removing the possibility of offers) makes the Sender better off: she gains $p_H q_\varepsilon (c - g_H \varepsilon) + p_M q_L (g_M w_L - c) > 0$ in expected utility from helping when she will want to, while reputational payoffs average to zero over her three types, since image is a zero-sum game. For the Receiver, a similar ranking generally holds in terms of ex-ante material payoffs, but *not* total welfare: the help gained from g_M (by asking) when $w = w_L$ is typically worth more than that lost from g_H when $w = \varepsilon$, but on the other hand when the Sender is $g = g_L$, R will more often find this out (by being turned down), and suffer a lot as a result.[20]

In terms of equilibrium selection, relatedly, the waiting-trap equilibrium can easily be *risk-dominant* for the two relevant player types, namely Sender g_H and Receiver w_L. Such is the case (as shown in the appendix) if R is sufficiently averse to finding out (from being rejected) that $g = g_L$ for sure, and/or the Sender of type g_H is sufficiently more concerned about letting a need w_L go unmet (by not offering) than about wasting her help on a trivial need ε.

The "waiting trap" result and *ex-ante* ranking of the two outcomes by Senders provide

[19] This multiplicity arises from the fact that, even when the Sender has no image concern *per se,* $\mu = 0$, endogenous (non)offers constitute signals about her type. These affect the Receiver's interim beliefs P_N and therefore her asking behavior, which in turn is internalized by the Sender's offering strategy. One can construct a similar "waiting-for-an-offer" trap coordination failure with unmet needs at w_H rather than w_L.

[20] In contrast to *ex-ante* rankings, different (*ex-post*) types of Senders, and also Receivers, clearly have conflicting preferences over how to rank the outcomes in the two panels of Table 4.

a natural explanation for the ubiquitous exhortation of *"Don't be afraid to ask!"* Even without any mistaken priors or failures of rationality by the Receiver or Sender, such a message can serve as a valuable *coordination device* helping both parties achieve the more allocatively efficient equilibrium.

3.6 Signal of Need and Likelihood of an Offer

Consider now private signals that the Sender may have received or noticed, such as non-verbal cues from R, or reports from others about R's need for help. To analyze this situation, we can simply reinterpret the $\{g_L, g_M, g_H\}$ generosity types as different "varieties" of types $\{g_L, g_H\}$ who received different private signals about the Receiver's needs. We highlight two cases, which together reveal another interesting non-monotonicity.

1. Learning of greater needs leads to more offering. Suppose that, whenever the Receiver does have a real need ($w \neq \varepsilon$), the Sender privately learns of it with probability π at the start of the game; with probability $1 - \pi$ she observes no such signal, but still updates using Bayes' rule. In both cases, the relative probabilities of w_H and w_L remain unchanged. It is not difficult to construct an equilibrium with the same strategies as in Table 3a, except that: (i) type g_M is replaced by the uninformed type g_H (who did not receive a signal); thus, as before, no offer is bad but not damning news, as only rejecting an ask can reveal the least generous type; (ii) type g_H is now a high type who has learned that there is real need, making her sufficiently concerned that it could be w_L—in which case the Receiver will fail to ask—that she becomes willing to offer.

2. Learning of greater needs leads to less offering. Consider instead a signal that, when received, says nothing about ε, but increases the relative likelihood of w_H relative to w_L. If we combine this information structure with a monotonic-ask equilibrium configuration (in which Sender g_H offers because she knows that R will ask if $w = w_H$ but not if $w = w_L$), receiving the signal clearly *reduces* S's propensity to offer and risk ending up helping at ε. She can rightly tell herself, *"If he really needs it, he will ask."*

If the same signal structure is instead combined with parameters leading to a non-monotonic-ask equilibrium, receiving a signal of higher needs will now increase S's propensity to offer: she becomes even more concerned that *"He may be desperate, yet afraid to ask."*

4 Continuous Version with Disappointment

The previous section demonstrated the rich set of phenomena that arise in our simple model, including non-monotonic asking, the discouragement effect, and coordination failures between hoping for an offer and hoping for an ask. We now turn to a version with continuous type distributions (where such results are generally harder to show) and, most importantly, a less "permissive" Receiver's utility from beliefs, governed by a single parameter. Cutting down on degrees of freedom will preclude some of the more intriguing outcomes listed above, but yield in return a very clean equilibrium structure, with uniqueness and a full set of comparative-statics predictions.

Let the Sender's generosity and the Receiver's need take values in $[0, g^{\max}]$ and $[w^{\min}, w^{\max}]$ respectively, with strictly positive densities on the interior of these supports. The Sender's preferences remain unchanged: imperfectly altruistic and risk-neutral with respect to her image, $\varphi(F) = E_F[g]$. As for the Receiver, since he may observe two consecutive events (S's offering or not, then her response if an ask is made), we consider two specifications for his utility from beliefs, both of them linear but for a single kink. The first one is

$$\psi(F) = \alpha \int_{\bar{g}} (g - \bar{g}) dF(g) - (1 + \lambda)\alpha \int^{\bar{g}} (\bar{g} - g) dF(g), \;\; \lambda > 0, \tag{5}$$

where $\lambda > 0$ captures the "letdown" feeling from learning that the Sender cares about the relationship less than initially expected, i.e. less than $\bar{g} = E_P[g]$.

The alternative one involves a slight departure from (2), in that disappointment occurs when an explicit ask is *rejected*, whereas R is risk neutral (or even indifferent) with respect to the first round of news conveyed by an offer being made or not:

$$\psi(F, P_N) = \alpha \int_{\bar{g}_N} (g - \bar{g}_N) dF(g) - (1 + \lambda)\alpha \int^{\bar{g}_N} (\bar{g} - g_N) dF(g), \;\; \lambda > 0. \tag{6}$$

The only difference between these specifications is that the reference point for the psychological loss aversion is now the *interim* $\bar{g}_N \equiv E_{P_N}[g]$ following no offer, rather than the initial $\bar{g}$. Because it leads to simpler expressions, we analyze (6) here, and (5) in the appendix. One could combine the two sets of preferences, at the cost of greater complexity.[21]

The equilibrium is solved from the last period backward. Section 4.1 shows that an ask at w is accepted by Senders with generosity above a threshold $\hat{g}(w)$, which decreases with w. This also means that a given Sender g will agree to help only with needs that exceed $\hat{w}(g) \equiv \hat{g}^{-1}(g)$. Section 4.2 shows that Receivers ask when their need is above some critical level w^*, and not below. Section 4.3 shows that offering is also monotonic: Senders with generosity above some threshold $\tilde{g}$ pledge help spontaneously, those below it wait for an ask. The key results are gathered in Propositions 1-3.

4.1 Granting an Ask

At the asking stage, since no offer occurred, R's belief about g is $P_N(g)$ on $[0, g_N^{\max}] \subset [0, g^{\max}]$, with mean $\bar{g}_{N.}$ The Sender therefore accepts a request w if and only if

$$gw + \mu\left(E_N[g|h(w) = 1] - E_N[g|h(w) = 0]\right) \geq c, \tag{7}$$

which defines a unique threshold $\hat{g}(w)$, and verifies the first "learning" conjecture from Section 2.1 that accepting a request is always good news.[22]

We will focus on interior solutions, so that[23]

$$w\hat{g}(w) + \mu\Delta_N(\hat{g}(w)) \equiv w\hat{g}(w) + \mu\left[M_N^+(\hat{g}(w)) - M_N^-(\hat{g}(w))\right] = c. \tag{8}$$

Intuition suggest that this acceptance threshold should be *decreasing in* w, but in general it could be non-monotonic (or there may even be multiple equilibria), due to the signaling content of the acceptance decision. Two important cases where $\hat{g}$ is indeed decreasing are when:

(a) The Sender's reputation concern μ is small enough, so that $\hat{g}(w) \approx c/w$. As we shall see, this also simplifies many other aspects of the overall game.[24]

[21] In either case, the presence of the reference point can also be interpreted as representing the Receiver's aspirations or goals (Hsiaw 2013; Genicot and Ray 2020; Azmat et al. 2020) for how valued they hope to be in the relationship.

[22] In the sense of first-order stochastic dominance: for any $w, F(\cdot|w, 0) \preceq P_N(\cdot) \preceq F(\cdot|w, 1)$.

[23] The solution is interior when $0 + \mu(\bar{g}_N - 0) < c < wg_N^{\max} + \mu(g_N^{\max} - \bar{g}_N)$, which holds for all w provided that $\mu\bar{g}_N < c < w^{\min}g_N^{\max}$. Otherwise: (i) $\hat{g}(w) = g_N^{\max}$, if $c \geq wg_N^{\max} + \mu(g_N^{\max} - \bar{g}_N)$; there is then no Sender who accepts a request w, and therefore no ask at w; or (ii) $\hat{g}(w) = 0$ if $c < \mu\bar{g}_N$; all Senders then accept w, implying also that if there has been no offer, there will be an ask at w.

[24] We also see here why results remain similar when c is a function of w, as long as $c(w)/w$ is decreasing.

(b) The function $\Delta_N(g)$ is increasing in g, which is ensured if its density $p_N(g)$ is decreasing or not too increasing.[25] Indeed,

$$\hat{g}'(w) = -\frac{\hat{g}(w)}{w + \mu\Delta'_N(\hat{g}(w))}, \quad \hat{w}'(g) = -\frac{\hat{w}(g) + \mu\Delta'_N(g)}{g}. \tag{9}$$

where we define $\hat{w} = \hat{g}^{-1}$ in the well-behaved case where $\hat{g}$ is decreasing, on which we will focus throughout. Note that the second "learning" conjecture from Section 2.1, namely that the lower the need for which the Sender agrees to pay the helping cost, the better the news conveyed about her generosity, is then verified.[26]

A Sender of type g (and above) thus accepts a request w if and only if $w \geq \hat{w}(g)$, as illustrated by the downward-sloping *green locus* in Figure 2.

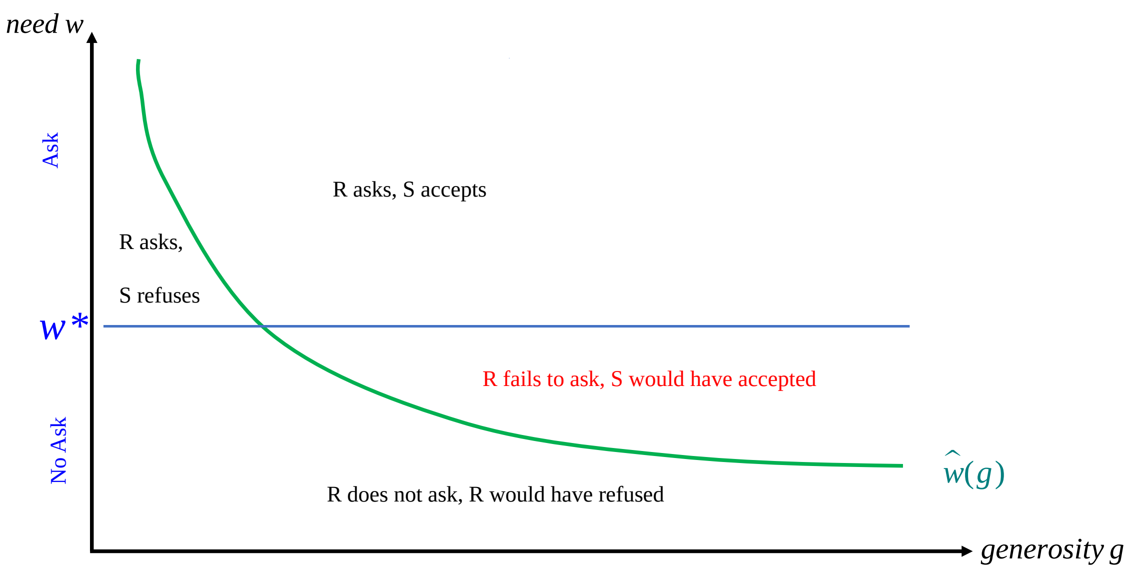

Figure 2: Asking (or Not) and Receiving (or Not).

[25]See Bénabou and Tirole (2006, 2011b). In equilibrium, moreover, offering types will be those above some cutoff $g_N^{\max}$ (see below), implying that $p_N(g) = p(g)/[1 - P(g_N^{\max})]$ for $g \leq g_N^{\max}$. The above condition on p_N thus reduces to a similar one on the *exogenous* unconditional density $p(g)$.

[26]Formally, for all $w \leq w'$, $F(\cdot|w', 0) \preceq F(\cdot|w, 1)$.

4.2 Asking

Since the Receiver's actual need becomes common knowledge in the process of asking, he can only request his actual w. The expected value of doing so is

$$\begin{aligned} A(w) &= [1 - P_N(\hat{g}(w))] \left[w + \alpha \left(M_N^+(\hat{g}(w)) - \bar{g}_N\right)\right] \\ &\quad + P_N(\hat{g}(w))(1+\lambda)\alpha \left[M_N^-(\hat{g}(w)) - \bar{g}_N\right], \end{aligned}$$

where the first line corresponds to the case where the ask is granted, and the second to that where it is not. By Bayes' rule, $[1 - P_N(g)]M_N^+(g) + P_N(g)M_N^-(g) = \bar{g}_N$, allowing us to rewrite

$$A(w) = [1 - P_N(\hat{g}(w))] \left[w - \lambda\alpha \left(M_N^+(\hat{g}(w)) - \bar{g}_N\right)\right], \tag{10}$$

Therefore, $a(w) = 1$ if and only if $\hat{g}(w) < g_N^{\max}$ and $w > \lambda\alpha \left[M_N^+(\hat{g}(w)) - \bar{g}_N\right]$.[27] Given that $\hat{g}(w)$ is decreasing, there is a unique threshold such that R asks if and only if $w > w^*$, illustrated by the *blue horizontal locus* in Figure 2. It is defined by

$$w^* = \lambda\alpha \left[M_N^+(\hat{g}(w^*)) - \bar{g}_N\right] \tag{11}$$

when $\hat{w}(g_N^{\max}) > \lambda\alpha(g_N^{\max} - \bar{g}_N)$, and by $w^* = \hat{w}(g_N^{\max})$ otherwise.

Properties.

(1) Level of need. In Section 3 the Receiver's utility from beliefs $\psi(F)$ could have varying curvature over its range, and when this information aversion was stronger between "very bad " and "moderately bad" news than between the latter and "good news," this could lead to non-monotonic asking strategies. With the single-kink specification (5), or similarly (6), this is no longer possible: a greater need *always* leads to more asking.

(2) Rejection-sensitivity. When offers are known to be infeasible or impossible, it is clear that a Receiver who fears bad news more is less prone to ask: $M_N^+ = M^+$ and $\bar{g}_N = \bar{g}$, so (11) implies that $\partial w^*/\partial(\lambda\alpha) > 0$. When (not) offering is chosen by S, however, this is generally non-obvious: the interim expectations M_N^+ and $\bar{g}_N$ are themselves functions of $\lambda\alpha$, as the Sender's offer strategy internalizes the Receiver's asking behavior, and

[27] Recall that when $A(w) = 0$, we break indifference by assuming that the Receiver does not make an ask that is sure to be rejected.

vice versa. We show, as part of Proposition 1 below, that the intuitive property of greater rejection sensitivity leading to more reluctance to ask remains true in equilibrium, provided that $\lambda\alpha$ is not too large.

4.3 Offering

Following a signal σ, S has prior distribution $Q_\sigma(w)$ on w in $[w_\sigma^{\min}, w_\sigma^{\max}] \subset [w^{\min}, w^{\max}]$. Offering implies helping at any level of w that may realize, so it has expected value:

$$V_\sigma^1(g) = -c + g \int w dQ_\sigma(w) + \mu \bar{g}_O, \tag{12}$$

where $\bar{g}_O \equiv E[g|o=1]$. Not offering, on the other hand, has expected value:

$$\begin{aligned} V_\sigma^0(g) = \mu \bar{g}_N &+ \int_{\max\{w^*, \hat{w}(g)\}} \left[gw - c + \mu \left(M_N^+(\hat{g}(w)) - \bar{g}_N \right) \right] dQ_\sigma(w) \\ &+ \int_{w^*}^{\max\{w^*, \hat{w}(g)\}} \left[\mu \left(M_N^-(\hat{g}(w)) - \bar{g}_N \right) \right] dQ_\sigma(w), \end{aligned} \tag{13}$$

where the first term corresponds to no offer and no ask, the second to no offer and an ask that is accepted, and the third to no offer and an ask that is turned down.

The net return to offering, $O_\sigma(g) \equiv V_\sigma^1(g) - V_\sigma^0(g)$ is comprised of: (i) a pure "helping more" term, $\int^{\max\{w^*, \hat{w}(g)\}} (gw - c)\, dQ_\sigma(w)$, the sign of which depends on the Sender's generosity g and what she expects the Receiver's needs to be; (ii) a reputational return (beyond what can be achieved by responding to asks) proportional to μ, which is complex but we will show to be positive in equilibrium.

Properties.

(1) Sender's generosity. Differentiating (12)-(13), we have, quite intuitively,

$$\frac{\partial O_\sigma}{\partial g} = E_\sigma[w] - \int_{\max\{w^*, \hat{w}(g)\}} w dQ_\sigma(w) = \int^{\max\{w^*, \hat{w}(g)\}} w dQ_\sigma(w) > 0.$$

The result is immediate when $w^* \geq \hat{w}(g)$. In the reverse case, it is due to $\partial V_\sigma^0 / \partial \hat{w}(g) = g\hat{w}(g) - c + \mu \Delta_N^-(\hat{g}(\hat{w}(g))) = 0$, reflecting the envelope theorem: a Sender who does not offer knows that her later responses to any ask will be chosen optimally.

For any given signal σ, more generous Senders are thus always more likely to offer, and the decision is governed by a cutoff $\tilde{g}_\sigma$.[28] In the case where $w^* \geq \hat{w}(g)$ and reputation concerns are absent or weak, moreover, it has a very simple expression (or approximation) as a function of the Receiver's asking strategy:

$$\tilde{g}_\sigma = \frac{c}{E\left[w|w < w^*, \sigma\right]} \equiv \frac{c}{N_\sigma^-(w^*)}. \tag{14}$$

This is intuitive: the Sender becomes more likely to offer, the higher is, in light of her signal, the average level of need among Receivers who will *not* ask. When $\tilde{g}_\sigma < g_N^{\max}$, Senders with $g \geq \tilde{g}_\sigma$ offer, otherwise none does.[29]

(2) Receiver's asking propensity. Intuition also suggests that $\partial O_\sigma / \partial w^* \geq 0$, meaning that the less likely it is that R will ask, the more likely S is to offer; but things are actually more subtle. First, recall that w^* is endogenous, jointly determined with $P_N(g)$ and the distribution of $\tilde{g}_\sigma$. Suppose, however, that we treat w^* as parametric and just ask what is the Sender's best response to it, or that we do know how w^* varies with some exogenous parameter, such as $\lambda\alpha$ (see above). It turns out that Senders who are motivated by *genuine concerns* for the Receiver, and those who are primarily concerned about *image,* will respond in exactly *opposite* directions to greater ask-shyness.

(a) Case $\boldsymbol{w^* \geq \hat{w}(g)}$, i.e. $\boldsymbol{g \geq \hat{g}(w^*)}$. Such a Sender would accept any request $w > w^*$ that R would dare to make, so her primary motive for offering is to make sure that R gets help for $w \in [\hat{w}(g), w^*]$, when he will be afraid to ask. Equation (14) then shows that, indeed, $\partial \tilde{g}_\sigma / \partial w^* < 0$ provided the Sender's reputational concern μ is low enough. More generally, however,

$$\frac{\partial O_\sigma}{\partial w^*} \propto gw^* - c + \mu\left[\bar{g}_O - \bar{g}_N - \bar{g}_O + M_N^+(\hat{g}(w^*))\right] = gw^* - c + \mu\left[M_N^+(\hat{g}(w^*)) - \bar{g}_N\right],$$

where $\propto$ denotes "having the same sign as." For g high enough (e.g., $g \geq c/w^*$), the sign is clearly positive: a *sufficiently generous* Sender is indeed more prone to offer when she knows that the Receiver is more reluctant to ask, because she becomes even more concerned about unmet needs.

For a *not-so-generous* Sender, on the other hand, reputational considerations are the

[28] Recall that when $O_\sigma = 0$, we break the Sender's indifference in the direction of offering.

[29] More generally, if the cost of alleviating a need w is some function $c(w)$, then $\tilde{g}_\sigma = E\left[c(w)|w < w^*, \sigma\right]/E\left[w|w < w^*, \sigma\right]$. See Corollary 2 in Section 4.5. In the case where $w^* < \hat{w}(g)$, w^* is replaced by $\hat{w}(g)$ in this equation (and in 14), which remains intuitive but is now implicit.

critical motive ($\mu > 0$ is required for $O_\sigma(g)$ to be positive), and can make her offering response go the other way: as g declines toward $g = \hat{g}(w^*)$, the expression above falls to

$$\hat{g}(w^*)w^* - c + \mu M_N^+(\hat{g}(w^*)) - \mu \bar{g}_N = \mu \left[M_N^-(\hat{g}(w^*)) - \bar{g}_N \right] < 0. \tag{15}$$

Thus, for a Sender just indifferent between accepting and refusing an ask of w^*, the relative value of *not* offering increases when the Receiver becomes a bit more ask-shy: $\partial \tilde{g}_\sigma / \partial w^* > 0$, revealing a new form of non-monotonicity. Intuitively, for realizations of w slightly above w^*, S will no longer be asked, and thus keep reputation $\bar{g}_N$. Previously she would have been asked, and her generosity $\hat{g}(w^*)$ is low enough that an optimal response would have been to refuse, leading to the worse reputation $M_N^-(\hat{g}(w^*))$.

(b) Case $w^* < \hat{w}(g)$, i.e. $g < \hat{g}(w^*)$. For an even less generous Sender, who would decline to help at w^*, the result is even clearer. Such a Sender is not at all concerned about unmet needs due to R's shyness in asking, and the *only* reason she may offer without waiting for an ask is reputational: it allows her to pool with higher g's who are genuinely worried about a possible failure to ask. From (12)-(13), the net value of offering is easily seen to be strictly negative for μ close to zero, but potentially positive for μ large enough. Most interestingly, such a Sender is *unambiguously* less likely to offer when knowing that the Receiver is more ask-shy:

$$\begin{aligned} \frac{\partial O_\sigma}{\partial w^*} &\propto gw^* - c + \mu(\bar{g}_O - \bar{g}_N) - gw^* + c - \mu \left[\bar{g}_O - \mu M_N^-(\hat{g}(w^*)) \right] \\ &= \mu \left[M_N^-(\hat{g}(w^*)) - \bar{g}_N \right] < 0. \end{aligned}$$

This last expression is the same as in (15), and so is the intuition: a key part of the benefit of offering for a Sender with $g < \hat{g}(w^*)$ is that she *avoids being confronted with an ask* in $(w^*, \hat{w}(g))$ that she would (here, strictly) turn down. As w^* rises, this very reputation-damaging scenario becomes less likely, so the net incentive to offer declines.

(3) Sender's signal about Receiver's needs. Suppose that S initially receives a *private* signal σ about R's need, shifting her prior $Q_\sigma(w)$, with a higher σ indicating greater needs in the sense of first-order stochastic dominance, $\partial Q_\sigma / \partial \sigma < 0$. Importantly, w^* is independent of σ, since that signal is known to the Sender only, and so is $\hat{w}(g)$, as it reflects her decision when fully informed of the Receiver's need.[30] Variations in σ

[30] Note that: (i) offering, $o = 1$, signals something about both σ and g to R, but that is irrelevant to

can thus be analyzed as simply reallocating density between the different integrals in (13), without changing their bounds. As in the discrete version (but in a richer manner, especially when image is important), the effects on the likelihood of an offer critically depend on where from and to, in the range of possible needs, the probability shift(s) occur.

(i) If mass is reallocated toward higher values of w within the range $w \geq w^*$ where the Receiver would ask, this increases the relative reputational value of offering, since not doing so is now likely to lead to an ask at a high level of w, which accepting is not particularly glorious, and refusing particularly shameful.

(ii) If mass is reallocated upward within low values $w < \hat{w}(g)$ at which the Sender would "regret" having committed to help, or within intermediate ones $w \in [\hat{w}(g), w^*]$ for which she is concerned about a failure to ask, or between these two ranges, this again increases the propensity to offer. All S's who would grant an ask, and even some who would turn it down, but would prefer the glory of offering over the ignominy of rejecting an ask, will offer.

(iii) If mass is reallocated from $[\hat{w}(g), w^*]$ to above w^*, however, this *reduces* the value of offering, since taking the risk of helping at $w < \hat{w}(g)$ is less necessary to avoid needs remaining unmet.

(iv) If mass is reallocated upward from $w < \hat{w}(g)$ *to* $w > w^*$, the effect is ambiguous: offering is now less risky, but also reputationally less valuable, since waiting may lead to an ask at a high w, which again is not good from a signaling point of view.

4.4 Equilibrium

We showed that a more generous Sender is always more likely to offer: $\partial O_\sigma / \partial g \geq 0$, with strict inequality when $Q_\sigma(w^*) < 1$. Therefore, for any σ, the offering set is an interval $[g_N^{\min}, g_N^{\max}] = [\tilde{g}_\sigma, g^{\max}]$ and the non-offering set is $[0, \tilde{g}_\sigma)$, with $O(\tilde{g}_\sigma) \equiv 0$ when both intervals are non-empty. Thus, not offering is indeed (at least weakly) *bad news* about

his behavior since the game then ends, with help being provided unconditionally; (ii) not offering, $o = 0$, signals something about σ and g as well, but all that matters for the choice of w^* is the conditional distribution $P_N(g) = \Pr[g' \leq g | O_\sigma(g') = 0]$, which does not depend on the particular realization of (σ, g) that led to $o = 0$.

g, and in particular

$$\bar{g}_N = E_\sigma\left[M^-(\tilde{g}_\sigma)\right] \leq E_\sigma\left[g\right] = \bar{g} \leq E_\sigma\left[M^+(\tilde{g}_\sigma)\right] = \bar{g}_O, \tag{16}$$

using the fact that g and σ are independent. Gathering all the results so far into two propositions, we have first:

Proposition 1 (structure of equilbrium) *In any equilibrium,*

1. *A more generous Sender is more likely to offer unconditionally* ($g \geq \tilde{g}_\sigma$), *and when faced with an ask, more likely to accept it* ($g \geq \hat{g}(w)$). *Offering leads to a higher interim reputation* $\bar{g}_O$, *and not offering to a lower one* $\bar{g}_N$, *relative to the initial prior* $\bar{g}$.

2. *Absent an offer, the Receiver asks if and only if his need* w *exceeds a fixed threshold* w^*. *The higher the need, the more likely the request is to be accepted by the Sender* ($\hat{w}'(g) < 0$, *since* $\hat{g}'(w) < 0$).

3. *A Receiver who is more rejection-averse (larger* $\lambda\alpha$*) refrains more from asking (higher* w^**), as long as* $\lambda\alpha$ *is not too large.*

4. *When the Receiver is more reluctant to ask (higher* w^**), sufficiently generous Senders (in particular,* $g \geq c/w^*$*) become more prone to offer unconditionally. If* μ *is small this is true of all Senders, so* $\partial\tilde{g}_\sigma/\partial w^* < 0$. *Otherwise, mediocre Senders (in particular,* $g < \hat{g}(w^*)$*), who offer primarily for the reputational benefits involved, become less likely to offer, so* $\tilde{g}_\sigma$ *may increase.*

Implications. If one takes on board the findings that women are, on average, more rejection sensitive than men in personal relationships (Maiolatesi et al. 2022), and Blacks than Whites in anonymous, institutional interactions where racial bias could be at play (Mendoza-Denton et al. 2002), this means that these groups have higher situation-specific values of λ than their respective counterparts. An immediate implication is, of course, that they are more hesitant to ask for help, accommodations, and other benefits (e.g., Babcock and Laschever 2009). A more subtle and unexpected prediction follows from the fourth result above: even absent any discriminatory preferences, Senders (friends, employers, teachers, etc.) with different motivations will *respond in* *opposite ways to these group differences.* Those with genuinely high levels of concern will be more prone to spontaneously help (say) women than men, so as to compensate for the greater ask-shyness. Less caring Senders, who mostly want to avoid looking bad by explicitly turning down a request, will on the contrary be less prone to spontaneously help women, feeling more confident that such an ask is less likely than for a man.

Further results. We can derive yet sharper results about equilibrium behaviors by abstracting from private signals received by the Sender prior to the offering stage: assume there is no such signal, or equivalently it is publicly observed, so varying σ just means varying S's prior Q_σ while maintaining common knowledge of it by both parties (the subscript σ can then remain implicit, to lighten the notation). This yields the important simplification that there is a *single cutoff* $\tilde{g}$ for the Sender's offering behavior, and that it is *known to the Receiver* in equilibrium. From the absence of an offer, R can then infer that S is *at best* type $g_N^{\max} = \tilde{g}$, who would accept no request below $\hat{w}(\tilde{g})$. Therefore, we must be in Case (a) above, namely $w^* \geq \hat{w}(\tilde{g})$, as illustrated by the *red vertical locus* in Figure 3.

Furthermore, for any $w > w^*$, $M_N^+(\hat{g}(w)) < M_N^+(\hat{g}(w^*)) < M_N^+(\tilde{g}) = \bar{g}_O$, and more generally $F(\cdot|w, 1) \preceq P_O(\cdot)$, since $P_N(\cdot)$ and $P_O(\cdot)$ are truncations of the prior $P(\cdot)$ from below and above, respectively. Thus, validating the fourth "learning" conjecture in Section 2.1, offering earns the Sender a final reputation higher than *any* she may end up with if she waits and takes her chances on w.

The nature of the equilibrium is illustrated in Figure 3, which also provides insights into the efficiency consequences. Focusing on the case $\mu = 0$ to abstract from standard signaling distortions in Senders' acceptance decisions at the final stage, let us evaluate outcomes relative to the natural *full-information benchmark.*[31] From this "gains from trade" point of view, the higher shaded region is where help should be provided (S is willing to alleviate R's need) but it is not (S does not offer, and R does not ask). The lower shaded region, in contrast, is where help should not be provided, but it is: S has offered unconditional assistance and is bound by her pledge, even though R's realized need is not one that she would have found worth alleviating, had she known what it was. The other regions are those where help is delivered if and only if doing so is "appropriate": when R's level of need is such that S is willing to help, she does end up

[31] As usual, when $\mu > 0$ image concerns induce excessive helping (granting asks and possibly offering unconditionally) for social or self-signaling purposes.

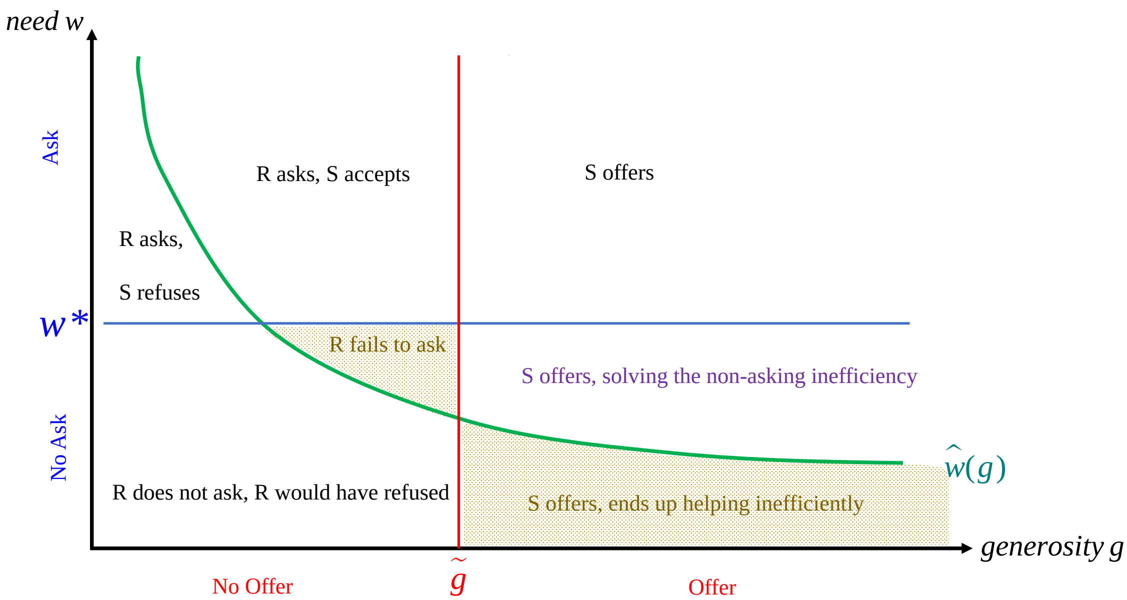

Figure 3: Equilibrium.

doing so, through either an unconditional pledge or after the need is revealed by an ask. Conversely, there is no help at levels of need where S would not want to help: either R does not ask, or he does but S turns him down.[32]

The second proposition gathers the results on how the Sender's prior affects important aspects of the equilibrium.

Proposition 2 (Sender's prior beliefs)

1. *If the Sender's initial prior about the Receiver's need is common knowledge, offering leads to a higher final reputation than any that can be achieved after not offering ($\bar{g}_O \geq M^+(\hat{g}(w))$, for all $w \geq w^*$).*

2. *When the Sender's belief about the Receiver's need privately rises (in the sense of FOSD), she can become more likely to offer help, or less likely, depending on where from, and where to, probability mass over w is redistributed upward.*

[32] Other efficiency criteria can also be considered, as in Section 3, though none is unambiguously "the right one" in this context. Computing ex-ante aggregate utility, for instance, would "double count" the help provided as $(1+g)w$, and conversely positively value the extent to which the Receiver's not asking protects him from learning information that he fears. Reputational payoffs, on the other hand, are a zero-sum game, given linearity.

From here on, we will focus on the case where the Sender's prior is common knowledge, and drop the subscript σ. The tradeoffs faced by R in choosing w^* and by S in choosing $\tilde{g}$ are easily visualized by the changing area of each region in Figure 3, as one or the other cutoff is increased or decreased. Of course, in equilibrium $(\tilde{g}, w^*)$ and the acceptance function $\hat{g}(w)$ also plotted in the figure are co-determined, as solutions to the system:

$$
\begin{aligned}
c &= w\hat{g}(w) + \mu \left[M_N^+(\hat{g}(w)) - M_N^-(\hat{g}(w))\right], && (17)\\
w^* &= \lambda\alpha \left[M_N^+(\hat{g}(w^*)) - M^-(\tilde{g})\right], && (18)\\
0 &= \int_{w^*} \mu \left[M^+(\tilde{g}) - M_N^+(\hat{g}(w))\right] dQ(w) \\
&\quad + \int^{w^*} [\tilde{g}w - c + \mu \left(M^+ - M^-)(\tilde{g}\right)] dQ(w), && (19)
\end{aligned}
$$

in which the second equation requires that $\hat{g}(w^*) \geq \tilde{g}$. Moreover, the function M_N^+ itself (but not M_N^-) depends on the offering cutoff $\tilde{g}$:

$$
M_N^+(g) = \frac{\int_g^{\tilde{g}} g' dP(g')}{P(\tilde{g}) - P(g)}, \;\; M_N^-(g) = \frac{\int^g g' dP(g')}{P(g)}, \quad \text{for all } g < \tilde{g}. \qquad (20)
$$

This system is quite complex, leaving two possible routes to analyze the existence, uniqueness and comparative statics of equilibrium. One is that of numerical solutions. The other, which we pursue, is that of analytical results, by: (i) using specific distributional assumptions, detailed in the next section; (ii) focusing on the case where the Sender has no or only weak reputational concerns ($\mu \approx 0$), so that $\hat{g}(w)$ simply equals (or is close to) c/w, which is independent of $\tilde{g}$. Furthermore, condition (19) then simplifies to $\tilde{g} = c/E[w|w < w^*] \equiv c/N^-(w^*) > c/w^*$, ensuring an interior $\hat{w}(\tilde{g}) < w^*$, and (18)-(19) then become:

$$
w^* = \lambda\alpha \left\{E\left[g|c/w^* < g < c/N^-(w^*)\right] - E\left[g|g < c/N^-(w^*)\right]\right\}. \qquad (21)
$$

Proposition 3 (Sender with no reputational concern) *Let $\mu = 0$. An interior equilibrium corresponds to an asking threshold w^* that solves equation (21). Senders with $g \geq \tilde{g} = c/N^-(w^*)$ offer unconditional help. Those with $c/w^* \leq g < c/N^-(w^*)$ wait for an ask, which the Receiver will make only when his need exceeds w^*, and which they will accept if $g > c/w = \hat{g}(w)$.*

4.5 Uniqueness and Comparative Statics

To go further, let Senders' generosity be uniformly distributed on $[0, g^{\max}]$. The prior density is then $p(g) = 1/g^{\max}$, the truncation moments are $M^{+}(g) = (g + g^{\max})/2$ and $M^{-}(g) = g/2$, and the net reputational return a constant, $\Delta(g) = g^{\max}/2$. Similarly, following the absence of an offer, which reveals that $g \in [0, \tilde{g}]$, the interim density on that support is $p_N(g) = 1/\tilde{g}$, the moments are $M_N^{+}(g) = (\tilde{g}+g)/2$ and $M_N^{-}(g) = g/2$, and the reputational return $\Delta_N(g) = \tilde{g}/2$. The resulting equilibrium equations are given by (A.31)-(A.32)-(A.33) in the appendix.

We solve first the simpler case where the Sender has no reputational concerns.

Proposition 4 *Let Senders' generosity types be uniformly distributed on* $[0, g^{\max}]$, *and* $\mu = 0$. *Then:*

1. *There is a unique equilibrium, with Sender's acceptance threshold* $\hat{w}(g) = c/g$, *Receiver's asking threshold* $w^* = \sqrt{\lambda \alpha c/2}$, *and Sender's offering threshold* $\tilde{g} = c/E[w|w < w^*]$.

2. *Thus,* w^* *is increasing, and* $\tilde{g}$ *decreasing, in* $\lambda\alpha$. *Both* $\hat{w}(\cdot)$ *and* w^* *are increasing in* c, *and so is* $\tilde{g}$ *if and only if the distribution of* w *is such that* $w^2/E[w'|w' < w]$ *is increasing in* w.

Note that offers occur with positive probability if and only if $\tilde{g} < g^{\max}$. In this case, it must be that failures to ask also occur with positive probability, as $w^* > N^{-}(w^*) = \hat{w}(\tilde{g}) > \hat{w}(g^{\max})$. Intuitively, absent reputation concerns, potential failures to ask are the only motives for Senders to offer. When there are never any offers ($\tilde{g} \geq g^{\max}$), asks will occur with positive probability if $\hat{w}(g^{\max}) < w^{\max}$, and both parties will remain silent throughout otherwise.

We next extend the results of Proposition 4 in three interesting directions.

1. How the cost of helping affects offering behavior. Intuition would seem to suggest that, as helping becomes more costly, fewer Senders offer unconditionally, rather than waiting for an ask that they can choose to grant or decline. It can also happen, however, that higher costs lead to *more offering* —yet another surprising result. Expanding on Part 2 of Proposition 4, we thus show:

Corollary 1 *1. If needs are distributed as* $Q(w) = (1+\gamma)(w/w^{\max})^{\gamma}$ *on* $[0, w^{\max}]$ *with* $\gamma > -1$, *then* $\tilde{g} = \left(\frac{2+\gamma}{1+\gamma}\right)\sqrt{\frac{2c}{\lambda\alpha}}$, *which is always increasing in c.*

2. In contrast, if $Q(w) = \left(\left[1-\left(w^{\max}/w^{\min}\right)^{\theta-1}\right] / \left[1-\left(w/w^{\min}\right)^{\theta-1}\right]\right)^{\frac{\theta}{\theta-1}}$ *on* $[w^{\min}, w^{\max}]$ *with* $w^{\min} > 0$, *then* $\tilde{g} = (w^{\min})^{\theta-1}(\lambda\alpha)^{-\theta/2}c^{1-\theta/2}$, *which is decreasing in c when* $\theta > 2$.

In the latter case, *the higher the cost* of helping, *the more Senders offer* unconditionally, even though when faced with *any* ask $w > w^*$ that the Receiver would dare to make, more Senders would now refuse ($\hat{g}(w)$ increases). The explanation for this "paradox" is that, because of the latter effect, the Receiver becomes too afraid to ask (w^* increases) in the eyes of some of moderately generous Senders (just above the original $\tilde{g}$), who then become willing to offer, for fear of leaving too many needs unmet.

2. *Helping costs that depend on the extent of the need.* Alleviating greater needs often entails higher costs; as long as this rise is less than one-for-one, our main results easily extend. Thus, let the cost function be $cw^{1-\chi}$, $\chi > 0$. Replacing c by $cw^{1-\chi}$ in the formulas of Proposition 4 and solving, we show:

Corollary 2 *Let the cost of alleviating a need w be* $cw^{1-\chi}$, *and let needs be distributed as* $Q(w) = (1+\gamma)(w/w^{\max})^{\gamma}$ *on* $[0, w^{\max}]$, *with* , $\chi > 0$ *and* $\gamma > -1$. *There is a unique equilibrium with acceptance, asking and offering thresholds given by*

$$\hat{w}(g) = \left(\frac{c}{g}\right)^{\frac{1}{\chi}}, \quad w^* = \left(\frac{\lambda\alpha c}{2}\right)^{\frac{1}{1+\chi}}, \quad \tilde{g} = \left(\frac{2+\gamma}{2-\chi+\gamma}\right)\left(\frac{\lambda\alpha}{2}\right)^{-\frac{\chi}{1+\chi}} c^{\frac{1}{1+\chi}}. \tag{22}$$

Thus, the faster costs rise with the extent of need (smaller χ), the more *responsive* are the offering, asking and acceptance thresholds to changes in the baseline cost c, the Sender's generosity g, and the Receiver's rejection sensitivity $\lambda\alpha$.

3. Sender's reputational concerns. When $\mu > 0$, the system (A.31)-(A.32)-(A.33) remains complicated even with uniform $P(g)$. With simple distributional assumptions on w as well, however, we can obtain results for positive but relatively small values of μ, including how variations in this image concern affect equilibrium behavior.

Proposition 5 *Let* $P(g)$ *be uniform on* $[0, g^{\max}]$ *and* $Q(w) = w^2$ *on* $[0,1]$. *Then, there exists* $\bar{\mu} > 0$ *such that, for all* $\mu < \bar{\mu}$, *Proposition 4 remains unchanged, except that the* *equalities in Part (1) are now approximations. The comparative-statics monotonicities in Part (2) continue to hold, and furthermore:*

1. *The more important reputation is to the Sender, the more asks she accepts, and therefore the less hesitant the Receiver is to ask:* $\partial \hat{w}(\cdot)/\partial \mu < 0$ *and* $\partial w^\star/\partial \mu < 0$.

2. *Starting from* $\mu = 0$*, a marginal increase in the Sender's image concerns leaves her propensity to offer unchanged:* $\partial \tilde{g}^*/\partial \mu|_{\mu=0} = 0$.

The last result reflects two effects that offset each other, at the first order. As μ becomes positive, so does the Sender's reputation-seeking incentive to offer; on the other hand, she anticipates less ask-shyness by the Receiver (who knows that more asks will be granted, due to reputational pressure), and thus becomes less concerned about unmet needs.

5 Conclusion

Opportunities for helping are ubiquitous, spanning domains ranging from education, health, money, and the workplace to family, friendship, and romantic relationships. Despite their pervasiveness, these situations are often fraught with uncertainty over whether to ask or not, to offer or not, and who should take the first step. By studying the dynamics of actors' strategies and beliefs in resolving this uncertainty, our model helps shed light on the determinants of behavior in these economically and personally important interactions, the resulting inefficiencies, and how they might be ameliorated.

Our framework is quite flexible, and could be extended in a number of directions. First, other aspects of the relationship may be subject to uncertainty, or heterogenous priors. For instance, if the Receiver has incorrect beliefs $P(g)$ about the Sender's valuation of him, she will misperceive the likelihood that an ask would be granted (with pessimism acting like a more concave utility); and, more interestingly, misinterpret the meaning of not having received an offer. Alternatively, the Sender may underestimate the Receiver's rejection sensitivity $\lambda\alpha$, and as a result not only cause unexpected upset by declining requests, but also be less likely to offer, since she does not properly anticipate his fear of asking. Both mechanisms just described would tend to make the inefficient "waiting trap" equilibrium even more likely.

When a Receiver's rejection sensitivity level is not common knowledge, as is likely in practice, the Receiver may also try to convince the Sender that he would be devastated, "crushed"(child, partner) or deeply insulted (bargaining situation) by experiencing rejection. This may happen when the Sender internalizes the Receivers' feelings, or when the interaction is public and the Sender has strong reputational concerns. But even absent these factors, signaling rejection sensitivity communicates a fear of asking, which in turn can prompt the Sender to offer help from the outset.

Second, there are interesting sorting and selection issues: what is the optimal group of friends, partners, etc., which a person would seek as potential sources of help—and within it, whom would they ask for different levels or types of needs? In particular, a group or individual with a "safer" prior distribution of caring types $P(g)$ may sometimes be preferable to one with greater generosity on average but also higher variance, or one from whom experiencing rejection would be especially painful (higher $\lambda\alpha$), such as close relatives. On the other hand, while such matching can facilitate asking, it would reduce the likelihood of offering (directly if Senders are less generous, and always because of more asking itself).

A third application concerns the increasingly common use of intermediaries and platforms to convey both personal requests and responses to them: GoFundMe, social media campaigns to find an organ donor, even Tinder and the like.[33] Besides reducing transactions costs, these should also be understood as "behavioral information design" devices that facilitate big asks (in contexts in which ex-ante pledges are typically not feasible), by injecting noise into the reasons why the request may fail, and thus dampening the resulting hurt.

At a broader level, the idea that people constantly reassess, from the manner in which others treat them, their own *place in the world*, and that these feelings of worth or worthlessness in turn drive both sides' behaviors, remains a rich topic for further research.

[33] On looking for an organ donor, see National Kidney Foundation or American Transplant Foundation.

6 Appendix

6.1 Non-monotonic ask equilibrium

Let μ again be small and $\min\{g_M w_H, g_H w_L\} > c > g_M w_L$, which ensures that the last two conditions hold. The other two take the form

$$(p_H+p_M)\left[w_H + u(M^+(g_M))\right]+p_L u(g_L) \ < u(\bar{g}) < p_H\left[w_L + u(g_H)\right]+(p_M+p_L)u(M^-(g_H)). \tag{A.1}$$

To ensure the second inequality, let w_L be such that $p_H w_L > u(\bar{g}) - [p_H u(g_H) + (p_M + p_L)u(M^-(g_H)]$; the right-hand side is a positive quantity by concavity of u, but w_L can always be taken to be large enough. Finally, if $u(g_L)$ is low enough (possibly even equal to $-\infty$), the first inequality clearly holds. With an initial offering stage, finally, even the Sender type g_H will choose $o = 0$ if

$$\begin{aligned} g_H\bar{w} - c + \mu g_H &< q_L\left[g_H w_L - c + \mu g_H\right] + (1-q_L)\mu\bar{g} \iff \\ g_H\left(q_H w_H + q_\varepsilon \varepsilon\right) &< c\left(q_H + q_\varepsilon\right) - \mu\left[g_H - q_L g_H - (1-q_L)\bar{g}\right], \end{aligned}$$

which is the case if, for instance, q_ε/q_H is large enough and μ relatively small. ■

6.2 Discouragement effect

6.2.1 Discouragement induces failure to ask at moderate need

1. Basic result. We find here the conditions such that Sender g_H but not g_M offers and, following no offer, Receiver w_H but not w_L asks, with only g_L refusing to help in either case. First, at the granting stage, after R has asked, we must have: $h_M(w_L) = 1$ and $h_L(w_H) = 0$, i.e.:

$$g_M w_L + \mu[g_M - g_L] > c > g_L w_H + \mu[g_M - g_L].$$

With $\mu = 0$, this simplifies to $g_M w_L > c > g_L w_H$. Second, at the asking stage, given that S did not offer unconditional help and (in equilibrium) g_H is expected to, we must have:

$$a(w_L) \quad = 0 \iff \quad p_M^N(w_L + u(g_M)) + p_L^N u(g_L) < u(\bar{g}_N), \tag{A.2}$$

$$a(w_H) \quad = 1 \iff \quad p_M^N(w_H + u(g_M)) + p_L^N u(g_L) > u(\bar{g}_N), \tag{A.3}$$

where $p_M^N = p_M/(1-p_H) = 1 - p_L^N$ and $\bar{g}_N = M^-(g_H)$. These conditions reduce to:

$$p_M^N(w_L + u(g_M)) + p_L^N u(g_L) < u(\bar{g}_N) < p_M^N(w_H + u(g_M)) + p_L^N u(g_L). \tag{A.4}$$

Finally, at the initial offering stage, we must have $o(g_H) = 1, o(g_M) = 0$, or:

$$g_H\bar{w} - c + \mu g_H > q_H(g_H w_H - c + \mu g_M) + (1-q_H)\mu\bar{g}_N$$
$$g_M\bar{w} - c + \mu g_H < q_H(g_M w_H - c + \mu g_M) + (1-q_H)\mu\bar{g}_N,$$

since offering reveals that $g = g_H$, whereas not offering leads to an ask only at w_H, which if accepted reveals that $g = g_M$. The two conditions can be rewritten as:

$$g_M\left(\bar{w} - q_H w_H\right) < c(1-q_H) + \mu\left[q_H g_M + (1-q_H)\bar{g}_N - g_H\right] < g_H\left(\bar{w} - q_H w_H\right). \tag{A.5}$$

With $\mu = 0$, this simplifies to:

$$g_M\left(\bar{w} - q_H w_H\right) \quad < \quad c(1-q_H) < g_H\left(\bar{w} - q_H w_H\right) \iff$$
$$g_M\left(\frac{q_L w_L + q_\varepsilon \varepsilon}{1-q_H}\right) \quad < \quad c < g_H\left(\frac{q_L w_L + q_\varepsilon \varepsilon}{1-q_H}\right). \tag{A.6}$$

2. Commitment to no offer. If g_H were unable to offer (constraint, commitment), or more generally not expected to ask (possible alternative equilibrium), there would be no failure to ask, provided that

$$\tilde{a}_L(w_L) = 1 \iff (p_H + p_M)(w_L + u(M^+(g_M)) + p_L u(g_L) > u(\bar{g}), \tag{A.7}$$

which then implies that $a_L(w_H) = 1$ as well. The full set of conditions for discouragement to preclude asking at w_L is therefore $g_M w_L > c > g_L w_H$, (A.4), (A.5), and (A.7).

3. **The waiting trap.** If g_H is able to offer but not expected to (alternative equilibrium), there will be no failure to ask, and even Sender indeed g_H does not offer,

$\tilde{o}(g_H) = 0$, if

$$g_H \bar{w} - c + \mu g_H < q_H(g_H w_H - c) + q_L\left(g_H w_L - c) + \mu M_N^+(g_M)\right).$$

With $\mu = 0$, this simplifies to $g_H \bar{w} - g_H\left(q_H w_H + q_L w_L\right) < c(1 - q_H - q_L)$, or finally

$$g_H q_\varepsilon \varepsilon < c q_\varepsilon \iff g_H \varepsilon < c \tag{A.8}$$

Putting everything together, for $\mu = 0$ we have equilibrium multiplicity in $(o(g_H) = 1, a(w_L) = 0)$ versus $(\tilde{o}(g_H) = 0, \tilde{a}(w_L) = 1)$ if and only if

$$\begin{aligned}
g_M w_L &> c > \max\left\{g_L w_H, g_H \varepsilon\right\}, && \text{(A.9)}\\
g_M\left(\frac{q_L w_L + q_\varepsilon \varepsilon}{1 - q_H}\right) &< c < g_H\left(\frac{q_L w_L + q_\varepsilon \varepsilon}{1 - q_H}\right), && \text{(A.10)}\\
p_M^N(w_L + u(g_M)) + p_L^N u(g_L) &< u(\bar{g}_N)\\
&< p_M^N(w_H + u(g_M)) + p_L^N u(g_L), && \text{(A.11)}\\
(p_H + p_M)(w_L + u(M^+(g_M)) + p_L u(g_L) &> u(\bar{g}), && \text{(A.12)}
\end{aligned}$$

Simplifying with $g_L = 0$ from here on, the first two conditions (for Senders) become

$$\max\left(g_H \varepsilon,\ g_M\left(\frac{q_L w_L + q_\varepsilon \varepsilon}{1 - q_H}\right)\right) < c < \max\left(g_M w_L,\ g_H\left(\frac{q_L w_L + q_\varepsilon \varepsilon}{1 - q_H}\right)\right) \tag{A.13}$$

These define, for any (w_L, w_H) and other relevant parameters, a nonempty interval for c if and only if

$$g_H \varepsilon < g_M w_L, \tag{A.14}$$

which holds provided ε is small enough. Turning now to the two Receiver conditions, and using the abbreviated notation

$$u_M^+ \equiv u(M^+(g_M)) = u\left(\frac{p_H g_H + p_M g_M}{p_H + p_M}\right),\ \bar{u}_N \equiv u(M^-(g_H)) = u\left(\frac{p_M g_M + p_L g_L}{p_M + p_L}\right),$$

conditions (A.11)-(A.12) take the form

$$\begin{aligned}
p_M(w_L + u_M) + p_L u_L &< (1 - p_H)\bar{u}_N < p_M(w_H + u_M) + p_L u_L,\\
(p_H + p_M)(w_L + u_M^+) + p_L u_L &> \bar{u},
\end{aligned}$$

With w_H large enough, the second inequality in the first condition always holds, and we are left with

$$p_M w_L \quad < \quad (1-p_H)\bar{u}_N - p_M u_M - p_L u_L, \tag{A.15}$$
$$(p_H + p_M) w_L \quad > \quad \bar{u} - (p_H + p_M) u_M^+ - p_L u_L, \tag{A.16}$$

which defines a nonempty interval for w_L if and only if

$$\frac{\bar{u} - (p_H + p_M) u_M^+ - p_L u_L}{p_H + p_M} < \frac{(1-p_H)\bar{u}_N - p_M u_M - p_L u_L}{p_M}.$$

This can be rewritten as:

$$\left(\frac{p_L}{p_M} - \frac{p_L}{p_H + p_M}\right)(-u_L) > \frac{\bar{u} - (p_H + p_M) u_M^+}{p_H + p_M} - \frac{(1-p_H)\bar{u}_N - p_M u_M}{p_M}. \tag{A.17}$$

As u_L becomes low enough, ensured for instance by g_L small and $u(g) = \ln g$,

$$\bar{u}_N = u\left(\frac{p_M g_M}{p_M + p_L}\right) = u\left(\frac{p_M g_M}{1 - p_H}\right)$$

remains finite provided $p_M g_M$ is bounded away from zero. Inequality (A.17) then holds, defining a nonempty interval of w_L (with values that become large together with $-u_L$), and for each of them an appropriate interval of c that, together with a w_H large enough, ensure all the desired conditions for an equilibrium with discouragement effect.

Turning now to the additional requirement ensuring that removing offer possibilities restores asking at w_L, (A.7) can be rewritten similarly as

$$(p_H + p_M) w_L > \bar{u} - (p_H + p_M) u_M^+ - p_L u_L, \tag{A.18}$$

which is the same as (A.16). Combining with (A.15), w_L must be such that

$$\frac{1}{p_H + p_M}\big(\bar{u} - (p_H + p_M) u_M^+ - p_L u_L\big) < w_L < \frac{p_M + p_L}{p_M}\big(\bar{u}_N - \frac{p_M u_M + p_L u_L}{p_M + p_L}\big), \tag{A.19}$$

where the lower bound makes the w_L Receiver unwilling to ask when he has learned from the absence of an offer that $g < g_H$, and the upper one make him willing to ask when he has learned nothing. For this condition to define a nonempty interval for w_L, it must be that the term on the right is indeed larger than that on the left. Letting as before

$u_L \to -\infty$ (for instance, $g_L \to 0$ and $u(g) = \ln(g)$) while keeping $u(p_M g_M)$ bounded away from zero so that $\lim_{g_L \to 0} \overline{u}$ is positive and finite, both sides of (A.19 tend to $+\infty$, but their ratio has the finite limit

$$\frac{p_L}{p_M} \frac{p_H + p_M}{p_L} = \frac{p_H + p_M}{p_M} > 1, \tag{A.20}$$

so the interval between them is indeed nonempty (and, in fact, arbitrary large). This inequality reflects, intuitively and precisely, the better odds of a avoiding the large loss u_L (from having an ask turned down) when the Sender can still be g_H in spite of there having been no offer. The required range for w_L is therefore nonempty for $-u_L$ large enough.

Note, finally, that the waiting-trap equilibrium (Table 4a) risk can easily dominate the always-ask, no-offer equilibrium (Table 4b) for player types (g_H, w_L), which are the only two whose behavior differs between the two. This occurs if

$$\begin{aligned} & \left[\bar{u}_N - \frac{p_M}{p_M + p_L} w_L - \frac{p_M}{p_M + p_L} u_M - \frac{p_L}{p_M + p_L} u_L\right] [q_L(g_H w_L - c) + q_\varepsilon(g_H \varepsilon - c)] \\ > \ & \left[(p_H + p_M) u_M^+ + p_L u_L + (p_H + p_M) w_L - \bar{u}\right] [-q_\varepsilon(g_H \varepsilon - c)]. \end{aligned} \tag{A.21}$$

The first product multiplies the payoff deviations to each of these two types from playing their strategy of Table 4b when the opponent is playing that of Table 4a, the second one does the reverse.

To verify that (A.21) indeed corresponds to these products, suppose the type w_L Receiver deviates from the strategy in Table 4a to that in 4b, while the Sender (of each type) sticks to 4a. Since type g_H is already ruled out after not receiving an offer, the expected difference in R's payoffs is:

$$\begin{aligned} L_R \ & \equiv \ \frac{p_M}{p_M + p_L} \left[(w_L + u_M) - \bar{u}_N\right] + \frac{p_L}{p_M + p_L} \left(u_L - \bar{u}_N\right) \\ & = \ \frac{p_M}{p_M + p_L} w_L + \frac{p_M}{p_M + p_L} u_M + p_L u_L - \bar{u}_N < 0 \end{aligned}$$

(by (A.4)), which gives the first bracket in the first line of (A.21). Conversely, suppose type w_L Receiver deviates from the strategy in Table 4b to that in 4a, while all Senders stick to 4b. The expected difference in R's payoffs is now:

$$\begin{aligned} L'_R &\equiv p_H\big[\bar{u} - (w_L + u_M^+)\big] + p_M\big[\bar{u} - (w_L + u_M^+)\big] + p_L\big(\bar{u} - u_L\big) \\ &= \bar{u} - (p_H + p_M)u_M^+ - p_L u_L - (p_H + p_M)w_L < 0 \end{aligned}$$

(by (A.16)), which gives the second bracket in the first line of (A.21).

Next, suppose type g_H Sender deviates from the strategy in Table 4a to that in 4b, while the Receiver sticks to 4a. The expected difference in S's payoffs is

$$\begin{aligned} L_S &\equiv q_H\big[(g_H w_H - c) - (g_H w_H - c)\big] + q_L\big(- g_H w_L + c\big) + q_\varepsilon\big(- g_H \varepsilon + c\big) \\ &= -q_L(g_H w_L - c) - q_\varepsilon(g_H\varepsilon - c) < 0 \end{aligned}$$

(by (A.6) with small ε). Conversely, suppose type g_H Sender deviates from the strategy in Table 4b to that in 4a, while the Receiver sticks to 4b. The expected difference in S's payoffs is

$$\begin{aligned} L'_S \equiv q_H\big[((g_H w_H - c) - (g_H w_H - c)\big] + q_L\big[(g_H w_L - c) - (g_H w_L - c)\big] \\ + q_\varepsilon\big[(g_H\varepsilon - c) - 0\big] = q_\varepsilon(g_H\varepsilon - c) < 0. \end{aligned}$$

We now compare deviations pairwise. On the Sender side, $|L_S| > |L'_S|$ if and only if

$$q_\varepsilon(g_H\varepsilon - c) + q_L(g_H w_L - c) \;\;>\;\; -q_\varepsilon(g_H\varepsilon - c),$$

which holds given that (A.13) implies that $g_H\varepsilon < c < g_H w_L$.

On the Receiver side, note that $|L'_R|$ is the difference between the left- and right-and sides of (A.16), which when set to zero defines the lower bound of the admissible interval for w_L shown to be nonempty in (A.17). Similarly, $|L_R|$ is the difference between the right- and left-hand sides of (A.15), which when set to zero defines the upper bound of that interval. It thus suffices to pick, for each value of u_L (and the other parameters), w_L slightly above the lower bound of the interval, meaning that $|L'_R| \approx 0 < |L'_R|$, hence the result. ■

6.2.2 Discouragement induces failure to ask at high need

We derive here sufficient conditions for the coexistence of the equilibrium in Table 3c with another equilibrium where: (i) offers by S are either infeasible, or not expected; R asks for help whenever she has a real need.

1. The strategies in Table 3c constitute an equilibrium (with non-monotonic asking) if the following hold. First, at the granting stage, after R has asked, it must be that:

$$\begin{aligned} g_{\bar{M}}w_L - c + \mu M_N^+(g_{\underline{M}}) &> \mu g_L, \\ g_{\underline{M}}w_H - c + \mu M_N^+(g_{\underline{M}}) &> \mu g_L, \\ g_{\underline{M}}w_L - c + \mu g_{\bar{M}} &< \mu M^-(g_{\bar{M}}). \end{aligned}$$

For $\mu \approx 0$, this reduces to:

$$g_{\underline{M}}w_H > c > g_{\underline{M}}w_L. \tag{A.22}$$

Next, normalize $g_L = 0$, as before. At the asking stage, given that S did not offer, we must have

$$p_{\bar{M}}^N[w_L + u(g_{\bar{M}})] + (p_{\underline{M}}^N + p_L^N)u(M_N^-(g_{\bar{M}})) > u(\bar{g}_N), \tag{A.23}$$
$$(p_{\bar{M}}^N + p_{\underline{M}}^N)[w_H + u(M_N^+(g_{\underline{M}}))] + p_L^N u(g_L) < u(\bar{g}_N), \tag{A.24}$$

which can be satisfied by picking w_L sufficiently high and sending $u(g_L) \to -\infty$ (e.g. with log-utility), while keeping $g_{\underline{M}} > 0$ so that $u(M_N^-(g_{\bar{M}})) = u\big(\frac{p_{\underline{M}}g_{\underline{M}}+p_L g_L}{p_{\underline{M}}+p_L}\big) = u\big(\frac{p_{\underline{M}}g_{\underline{M}}}{p_{\underline{M}}+p_L}\big)$ remains finite. Finally, at the initial offering stage, we require

$$\begin{aligned} g_H\bar{w} - c + \mu g_H &> q_L(g_H w_L - c + \mu g_{\bar{M}}) + (1-q_L)\mu \bar{g}_N, \\ g_{\bar{M}}\bar{w} - c + \mu g_H &< q_L(g_{\bar{M}} w_L - c + \mu g_{\bar{M}}) + (1-q_L)\mu \bar{g}_N, \\ g_{\underline{M}}\bar{w} - c + \mu g_H &< q_L \mu M_N^-(g_{\bar{M}}) + (1-q_L)\mu \bar{g}_N. \end{aligned}$$

For $\mu \approx 0$, these conditions reduce to

$$\frac{g_H(\bar{w} - q_L w_L)}{1-q_L} > c \;>\; \frac{g_{\bar{M}}(\bar{w} - q_L w_L)}{1-q_L}, \tag{A.25}$$
$$c \;>\; g_{\underline{M}}\bar{w}. \tag{A.26}$$

Note that if (A.25) holds, so does (A.26), since $\overline{w} < \frac{\bar{w} - q_L w_L}{1 - q_L}$. To ensure that (A.25) is compatible with (A.22, i.e.

$$\left(\frac{g_{\bar{M}}(\bar{w} - q_L w_L)}{1 - q_L}, \frac{g_H(\bar{w} - q_L w_L)}{1 - q_L}\right) \cap (g_{\underline{M}} w_L, g_{\underline{M}} w_H) \neq \emptyset$$

it is thus necessary and sufficient that

$$g_{\underline{M}} w_H > \frac{g_{\bar{M}}(\bar{w} - q_L w_L)}{1 - q_L} = g_{\bar{M}} \frac{q_H w_H + q_\varepsilon \varepsilon}{q_H + q_\varepsilon}, \tag{A.27}$$

which holds strictly for $g_{\bar{M}} = g_{\underline{M}}$, hence for some interval of values where $g_{\bar{M}} > g_{\underline{M}}$.

2. When offers are infeasible (or not expected), asking will occur provided:

$$(p_{\bar{M}} + p_H)[w_L + u(M^+(g_{\bar{M}}))] + (p_{\underline{M}} + p_L)u(M^-(g_{\bar{M}})) > u(\bar{g}), \tag{A.28}$$

$$(1 - p_L)[w_H + u(M^+(g_{\underline{M}}))] + p_L u(g_L) > u(\bar{g}). \tag{A.29}$$

$(A.28)$ can be satisfied by w_L sufficiently large, which coincides with the assumption made for satisfying $(A.23)$. Let us verify that $(A.29)$ is then compatible with the other condition corresponding to Table 3c, specifically (A.24). This means that

$$\begin{aligned} (1 - p_L)[w_H + u(M^+(g_{\underline{M}}))] + p_L u(g_L) &> u(\bar{g}) \\ (p^N_{\bar{M}} + p^N_{\underline{M}})[w_H + u(M^+_N(g_{\underline{M}}))] + p^N_L u(g_L) &< u(\bar{g}_N). \end{aligned}$$

These inequalities define a non-empty interval of w_H values if

$$\begin{aligned} \frac{u(\bar{g}_N)}{p^N_{\bar{M}} + p^N_{\underline{M}}} - u(M^+_N(g_{\underline{M}})) - \frac{p^N_L}{p^N_{\bar{M}} + p^N_{\underline{M}}} u(g_L) &> \frac{u(\bar{g})}{1 - p_L} - u(M^+(g_{\underline{M}})) - \frac{p_L}{1 - p_L} u(g_L) \\ \iff \left(\frac{p_L}{1 - p_L} - \frac{p^N_L}{p^N_{\bar{M}} + p^N_{\underline{M}}}\right) u(g_L) &> \frac{u(\bar{g})}{1 - p_L} + u(M^+_N(g_{\underline{M}})) \\ &- u(M^+(g_{\underline{M}})) - \frac{u(\bar{g}_N)}{p^N_{\bar{M}} + p^N_{\underline{M}}}. \end{aligned} \tag{A.30}$$

where the right-hand and left-hand sides in the first equation are always positive since $u(\cdot)$ is concave. As $u(g_L) \to -\infty$, both go to $+\infty$, but since $\frac{p_L}{1 - p_L} < \frac{p^N_L}{p^N_{\bar{M}} + p^N_{\underline{M}}}$, equation (A.30), in which the right-hand side remains bounded, shows that the required inequality indeed holds.

Finally, since the lower bound of the interval defined just above (A.30) goes to $+\infty$ as $u(g_L) \to -\infty$, w_H also becomes arbitrarily large. Thus, although we assumed in (A.23) that w_L was "sufficiently large", $w_H > w_L$ can still be ensured. ■

6.3 Asking decision when the reference point is prior mean $\bar{g}$

In this case, corresponding to (5), we have:

$$\begin{aligned}
A(w) &= [1 - P_N(\hat{g}(w))] \left[w + \alpha \left(M_N^+(\hat{g}(w)) - \bar{g}_N + (\bar{g}_N - \bar{g})\right)\right] \\
&+ P_N(\hat{g}(w))(1+\lambda)\alpha \left[M_N^-(\hat{g}(w)) - \bar{g}_N + (\bar{g}_N - \bar{g})\right] \\
&= [1 - P_N(\hat{g}(w))][w - \lambda\alpha P_N(\hat{g}(w))][\bar{g}_N - M_N^-(\hat{g}(w))] + \alpha(\bar{g}_N - \bar{g})[1 + \lambda P_N(\hat{g}(w))],
\end{aligned}$$

or, finally

$$A(w) = [1 - P_N(\hat{g}(w))] \left[w - \lambda\alpha \left(M_N^+(\hat{g}(w)) - \bar{g}_N\right)\right] + \alpha(\bar{g}_N - \bar{g})[1 + \lambda P_N(\hat{g}(w))],$$

where we used again Bayes's rule. Therefore, $a(w) = 1$ if and only if

$$w \geq \lambda\alpha \left(M_N^+(\hat{g}(w)) - \bar{g}_N\right) + \frac{\alpha(\bar{g} - \bar{g}_N)[1 + \lambda P_N(\hat{g}(w))]}{1 - P_N(\hat{g}(w))}.$$

Because the new, second term (relative to (6)) is also increasing in $\hat{g}(w)$, hence decreasing in w, the asking decisions again determined by a unique threshold, now denoted w^{**}. It is such that $w^{**} > w^*$, because $\bar{g}_N < \bar{g}$, since not offering is a negative signal about g, by a reasoning similar to that in Section 4.3. ■

6.4 Proof of Proposition 1

The only claim not shown in the text is the third one. Differentiating (11), we have:

$$\frac{\partial w^*}{\partial(\lambda\alpha)} = \frac{M_N^+(\hat{g}(w^*)) - \bar{g}_N}{1 - \lambda\alpha \left\{M_N^{+\prime}(\hat{g}(w^*))\hat{g}'(w^*) + (\partial g_N^{\max}/\partial w^*)\, \partial \left[M_N^+(\hat{g}(w^*)) - \bar{g}_N\right]/\partial g_N^{\max}\right\}},$$

The numerator is positive, and so is the denominator for $\lambda\alpha$ small enough.[34] ■

[34] If $\lambda\alpha\,(\partial\tilde{g}/\partial w^*)\,\partial\left[M_N^+(\hat{g}(w^*)) - \bar{g}_N\right]/\partial g_N^{\max} > 1$ the sign of $\partial w^*/\partial(\lambda\alpha)$ can be reversed, and multiple equilibria in $(\tilde{g}, w^*)$ may even arise.

Note also that (i) if $M_N^+(\cdot) - \bar{g}_N$ decreases with $g_N^{\max}$, $\partial w^*/\partial(\lambda\alpha)$ remains positive (whatever the size of $\lambda\alpha$, in fact), but is dampened; (ii) if it increases, then $\partial w^*/\partial(\lambda\alpha)$ is actually magnified, raising the equilibrium w^* further: this is a form of the *discouragement effect,* previously encountered in the discrete case.

6.5 Proof of Proposition 4

With $\Delta_N(g) = \tilde{g}/2$ the Sender's acceptance threshold (17) simplifies to

$$\hat{w}(g) = \frac{c - \mu\tilde{g}/2}{g}, \text{ requiring } \; c > \mu\tilde{g}/2. \tag{A.31}$$

Next, with $M_N^+(g) = (\tilde{g} + g)/2$ and $M_N^-(g) = \tilde{g}/2$, the Receiver's asking threshold (18) becomes

$$\begin{aligned} \frac{w^*}{\lambda\alpha} &= \frac{\tilde{g} + \hat{g}(w^*)}{2} - \frac{\tilde{g}}{2} = \frac{\hat{g}(w^*)}{2} = \frac{1}{2}\left(\frac{c - \mu\tilde{g}/2}{w^*}\right) \iff \\ w^* &= \sqrt{\frac{\lambda\alpha}{2}\left(c - \mu\tilde{g}/2\right)}, \end{aligned} \tag{A.32}$$

implying in particular that $\partial w^*/\partial\tilde{g} < 0$.[35] For the equilibrium to be interior as assumed, moreover, it must be that $w^* > \hat{w}(\tilde{g})$.

At the offering stage, the payoffs inside the two integrals in (19) are, respectively:

$$\begin{aligned} M^+(\tilde{g}) - M_N^+(\hat{g}(w)) &= \frac{\tilde{g} + g^{\max}}{2} - \frac{\tilde{g} + \hat{g}(w)}{2} = \frac{1}{2}\left[g^{\max} - \frac{c - \mu\tilde{g}/2}{w}\right], \\ \tilde{g}w - c + \mu\left[M^+(\tilde{g}) - M^-(\tilde{g})\right] &= \tilde{g}w - c + \mu g^{\max}/2. \end{aligned}$$

Therefore, the Sender's offering $\tilde{g}$ is given as a function of w^* by:

$$0 = \int_{w^*} \frac{\mu}{2}\left(g^{\max} - \frac{c - \mu\tilde{g}/2}{w}\right) dQ(w) + \int^{w^*} \left(\tilde{g}w - c + \mu g^{\max}/2\right) dQ(w). \tag{A.33}$$

With $\mu = 0$ we obtain the desired formulas for $\hat{w}(g), w^*$, and $\tilde{g}$. The first required inequality is trivially satisfied, and the second becomes $w^* > c/\tilde{g} = E[w|w < w^*]$, which also holds. ■

[35] Interestingly, with the uniform distribution and our choice of $\psi(P_N, F)$, the discouragement effect only operates when the Sender has reputational concerns, $\mu > 0$.

6.6 Proof of Corollaries 1 and 2

(1) Consider first the case where $q(w) = (1+\gamma)w^{\gamma}/(w^{\max})^{1+\gamma}, \quad Q(w) = (w/w^{\max})^{1+\gamma}$ on $[0, w^{\max}]$. Then

$$\begin{aligned} \int_0^w x dQ(x) &= \frac{1+\gamma}{(w^{\max})^{1+\gamma}} \int_0^w x^{1+\gamma} dq(x) = \left(\frac{1+\gamma}{2+\gamma}\right) \frac{w^{2+\gamma}}{(w^{\max})^{1+\gamma}}, \\ E\left[w|\ \ w < w^*\right] &= \left(\frac{1+\gamma}{2+\gamma}\right) \frac{1}{(w^*/w^{\max})^{1+\gamma}} \frac{(w^*)^{2+\gamma}}{(w^{\max})^{1+\gamma}} = \left(\frac{1+\gamma}{2+\gamma}\right) w^* \end{aligned}$$

Similarly,

$$\begin{aligned} \int_0^w (x)^{1-\chi} dq(x) &= \left(\frac{1+\gamma}{(w^{\max})^{1+\gamma}}\right) \int_0^w (x)^{1-\chi+\gamma} dq(x) = \left(\frac{1+\gamma}{2-\chi+\gamma}\right) \frac{w^{2-\chi+\gamma}}{(w^{\max})^{1+\gamma}}, \\ E\left[w^{1-\chi}|\ \ w < w^*\right] &= \left(\frac{1+\gamma}{2-\chi+\gamma}\right) \left(\frac{(w^*)^{2-\chi+\gamma}}{(w^{\max})^{1+\gamma}}\right) \left(\frac{w^{\max}}{w^*}\right)^{1+\gamma} = \left(\frac{1+\gamma}{2-\chi+\gamma}\right) (w^*)^{1-\chi}, \end{aligned}$$

and therefore

$$\tilde{g} = \frac{cE\left[w^{1-\chi}|\ \ w < w^*\right]}{E\left[w|\ \ w < w^*\right]} = c\left(\frac{2+\gamma}{2-\chi+\gamma}\right)(w^*)^{-\chi} = \left(\frac{2+\gamma}{2-\chi+\gamma}\right)\left(\frac{2}{\lambda\alpha}\right)^{\frac{\chi}{1+\chi}} c^{\frac{1}{1+\chi}}.$$

This establishes Corollary 2, and setting $\chi = 1$ yields the first part of Corollary 1.

(2) To show the second part of Corollary 1, let us look for distributions $Q(w)$ such that $N^{-}(w)/w \equiv E[w'|w < w]/w$ is either increasing or decreasing, or more generally such that $E[w'|w < w]$ rises faster / slower than a given power function w^{δ}. Specifically, we look for distributions $Q(w)$ such that $N^{-}(w) \sim w^{\theta}$, $\theta \geq 0$. Solving this integral equation,

$$\begin{aligned} \frac{\int_{w_{\min}}^{w} xq(x)dx}{\int_{w_{\min}}^{w} q(x)dx} &= \zeta w^{\theta} \Rightarrow wq(w) = \zeta\left[w^{\theta}q(w) + \theta w^{\theta-1}Q(w)\right] \iff \\ (w - \zeta w^{\theta})\frac{q(w)}{Q(w)} &= \zeta\theta w^{\theta-1} \iff (\ln Q(w))' = \frac{\zeta\theta w^{\theta-1}}{w - \zeta w^{\theta}} \iff \\ \ln Q(w) &= C + \int_{w_{\min}}^{w} \frac{\theta x^{\theta-1}}{x/\zeta - x^{\theta}} dx. \end{aligned} \tag{A.34}$$

We also need $\ln Q(w_{\min}) = -\infty$ and $\ln Q(w^{\max}) = 0$. The former will require that

$w_{\min} - \zeta w_{\min}^{\theta} = 0$ for the integral to diverge, so let us impose $\zeta = w_{\min}^{1-\theta} > 0$. Thus

$$\ln Q(w) = -\int_{w}^{w^{\max}} \frac{\theta x^{\theta-1}}{x w_{\min}^{\theta-1} - x^{\theta}} dx. \tag{A.35}$$

Defining $z = x/w_{\min}$, we can rewrite:

$$\begin{aligned} \ln Q(w) &= -\int_{w/w_{\min}}^{w^{\max}/w_{\min}} \frac{\theta (z w_{\min})^{\theta-1}}{z w_{\min}^{\theta} - (z w_{\min})^{\theta}} w_{\min} dz = -\int_{w/w_{\min}}^{w^{\max}/w_{\min}} \frac{\theta z^{\theta-1}}{z - z^{\theta}} dz \iff \\ Q(w) &= \exp\left(-\int_{w/w_{\min}}^{w^{\max}/w_{\min}} \frac{\theta z^{\theta-1}}{z - z^{\theta}} dx \right). \end{aligned}$$

To compute the integral, we note that

$$\begin{aligned} \ln(1 - z^{\theta-1})' &= \frac{-(\theta-1) z^{\theta-2}}{1 - z^{\theta-1}} = \frac{-(\theta-1) z^{\theta-1}}{z - z^{\theta}} \Rightarrow \\ -\int \frac{\theta z^{\theta-1}}{z - z^{\theta}} dz &= \left(\frac{\theta}{\theta-1} \right) \ln\left(1 - z^{\theta-1}\right). \end{aligned}$$

So, finally,

$$Q(w) = \left(\frac{1 - (w^{\max}/w_{\min})^{\theta-1}}{1 - (w/w_{\min})^{\theta-1}} \right)^{\frac{\theta}{\theta-1}}. \tag{A.36}$$

In the context of Proposition 4, we have $\tilde{g} = c/N^{-}(w^{*}) = c/N^{-}(\sqrt{\lambda\alpha c/2})$, so with the above family of distributions

$$\tilde{g} = \frac{c}{\xi(\lambda\alpha c/2)^{\theta/2}}, \tag{A.37}$$

which is decreasing in c for $\theta > 2$: *the higher the cost* of helping, *the more* (marginally less generous) *Senders offer unconditionally,* even though –and in a sense, because– when faced with *any* ask $w > w^{*}$ that the Receiver would dare to make more Senders would now refuse ($\hat{g}(w)$ increases), making asks less likely. ■

6.7 Proof of Proposition 5

Recall that with a uniform distribution of g's, the equilibrium equations are (A.31)-(A.32)-(A.33),together with the required inequalities

$$0 < 2c - \mu\tilde{g} < \lambda\alpha\tilde{g}^{2}. \tag{A.38}$$

Using now the distribution $q(w) = 2w$ on $[0,1]$, the system in $(w^*, \tilde{g})$ becomes

$$\begin{cases} 4(w^\star)^2 - 2c\lambda\alpha + \mu\tilde{g}\lambda\alpha = 0 \iff w^* = \sqrt{\frac{\lambda\alpha}{2}\left(c - \mu\tilde{g}/2\right)} \\ \int_{w^*} \mu\left(g^{\max}w - \frac{2c-\mu\tilde{g}}{2}\right) dw + \int^{w^*} [2(\tilde{g}w - c) + \mu g^{\max}]wdw = 0 \end{cases}, \tag{A.39}$$

where the latter equation can be explicited as

$$\tilde{g} = \frac{3[-2c\mu + g^{\max}\mu + 2c\mu w^* - 2c(w^*)^2}{-3\mu^2 + 3\mu^2 w^* - 4(w^*)^3} \approx \frac{3[\mu(2c - g^{\max}) + 2cw^*(w^* - \mu)}{4(w^*)^3} \approx \frac{3c}{2w^*}.$$

1. Existence and characterization of equilibrium. The above system in $((w^\star)^2, \tilde{g})$ has a unique solution for $\mu = 0$, given by Proposition 4. For small μ this remains true, with $w^\star \approx \sqrt{\lambda\alpha c/2}$and $\tilde{g} \approx 3c/2w^* \approx 3\sqrt{c/2\lambda\alpha}$. Furthermore, the first inequality in (A.38) trivially holds as long as $c > 0$, while the second one becomes $2c < \lambda\alpha(3c/2w^\star)^2$, or $8(w^\star)^2 < 9c\lambda\alpha$, which also holds.

2. Comparative statics. For μ sufficiently small, differentiating the first equation in (A.39) yields

$$\frac{\partial w^\star}{\partial\lambda\alpha} \approx \frac{2c}{8w^\star} > 0, \quad \frac{\partial w^\star}{\partial c} \approx \frac{2\lambda\alpha}{8w^\star} > 0, \quad \frac{\partial w^\star}{\partial\mu} \approx -\frac{\tilde{g}\lambda\alpha}{8w^\star} \approx -\frac{3}{8} < 0,$$

Turning now to the variations of $\tilde{g}$,

$$\begin{aligned} \frac{\partial\tilde{g}}{\partial\lambda\alpha} &\approx -\frac{3c}{2(w^\star)^2}\frac{\partial w^\star}{\partial\lambda\alpha} < 0, \\ \frac{\partial\tilde{g}}{\partial c} &\approx \frac{3}{2w^\star} - \frac{3c}{2(w^\star)^2}\frac{\partial w^\star}{\partial c} \approx \frac{3}{2w^\star} - \frac{3}{2(w^\star)^2}\frac{4(w^\star)^2}{8w^\star} = \frac{6}{8w^\star} > 0. \end{aligned}$$

Finally,

$$\begin{aligned} c - \mu\tilde{g}/2 &= \frac{2}{\lambda\alpha}(w^*)^2 \Rightarrow -\frac{1}{2}\left(\tilde{g} + \mu\frac{\partial\tilde{g}}{\partial\mu}\right) = \frac{4w^*}{\lambda\alpha}\frac{\partial w^\star}{\partial\mu} \approx -\frac{3w^*}{2\lambda\alpha} \Rightarrow \\ \mu\frac{\partial\tilde{g}}{\partial\mu} &= 3\sqrt{\frac{c}{2\lambda\alpha}} - \tilde{g} = 0. \blacksquare \end{aligned}$$

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