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The Intrinsic Value of Control

The Propensity to Under-Delegate in the Face of Potential Gains and Losses

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Abstract

Human beings are often faced with a pervasive problem: whether to make their own decisions or to delegate decision tasks to someone else. Here, we test whether people are inclined to forgo monetary rewards in order to retain agency when faced with choices that could lead to losses and gains. In a simple choice task, we show that even though participants have all the information needed to maximize rewards and minimize losses, they choose to pay in order to control their own payoff. This tendency cannot be explained by participants' overconfidence in their own ability, as their perceived ability was elicited and accounted for. Rather, the results reflect an intrinsic value for choice, which emerges in the domain of both gains and losses. Moreover, our data indicates that participants are aware that they are making suboptimal choices in the normative sense, but do so anyway, presumably for psychological gains.

Keywords: control premium, delegation, agency, decision rights, gains, losses

JEL Classification: C91 – D03 – D81

1 Introduction

In business, government, and daily life, people face a pervasive choice: whether to make a choice on their own or to delegate choice-making authority to someone else. With respect to investments, for example, one could rely on one's own judgment, or one could rely instead on a trusted agent. Employees might choose health care plans on their own, or might ask employers to make the relevant choices. Patients and clients have the same dilemma in dealing with doctors and lawyers. Any principal can rely on or appoint an agent, who might have superior knowledge, might be immune from various biases, and might relieve the principal of the obligation to devote scarce time, and limited cognitive resources, to making difficult choices. On the other hand, an agent might have inferior knowledge, be ignorant of the principal's real concerns, have her own biases, or be influenced by her own self-interest.

In theory, the decision whether to choose, or instead to delegate, should be a fully rational one, based on some form of cost-benefit analysis (Friedman 1953; Von Neumann and Morgenstern 2007). Choosers might begin by thinking in terms of expected value: Would the payoff be higher with or without a delegation? They might also ask about the value of saving limited time and attention (McFadden 2001; Simon 1978). If the savings would be substantial, choosers might be willing to sacrifice something in terms of expected value. It also matters whether choosing itself has benefits or costs, in the sense that choosers enjoy, or instead dislike, the time that they devote to choosing. For some people, it may be interesting or fun to think about the best investments or the right health care plan. For other people, those choices are unpleasant and tiring, a kind of hedonic tax, and it is a great relief if someone else can make the choice for them.

Choosers might also consider whether the pleasure of a reward, and the pain of a loss, are amplified or reduced if they are personally responsible for the outcomes. Studies have shown that people value outcomes they had selected themselves more than identical items that were selected for them (Brehm 1956; Egan et al. 2007, 2010; Lieberman et al. 2001; Sharot et al. 2009, 2010b). Neurologically, outcomes that were obtained by making an active choice are associated with greater activity in the striatum, a region that processes reward (Rao et al. 2008; Samejima et al. 2005; Sharot et al. 2009; Studer et al 2012), and with heightened dopamine release (Syed et al. 2015), which is a neurotransmitter crucial for learning about the value of stimuli (Schultz et al. 1997). Thus, one could imagine a situation in which choosers would prefer (1) gaining $100 if that gain came from their own efforts to (2) gaining $110 if that gain came from someone else's efforts, as the subjective value of self-attained $100 may be greater than that of $110 that was attained via an agent.

Consistent with this speculation, it has been found that people prefer options that permit further choice over those that do not (Bown et al. 2003; Catania 1981; Suzuki 1997). Similarly, people are willing to pay to control their own payoffs, rather than delegate, when faced with potential rewards (Owens et al. 2014). Would people also choose to pay to retain control in the face of potential loss? It is unknown whether choice has positive utility in situations where a person needs to decide between two aversive outcomes, such as when deciding between medical treatments or when deciding whether a stock should be sold or held to minimize loss. On the one hand, people may want to delegate choices that involve a potential loss as to avoid a feeling of regret for selecting the wrong option, and thus they may prefer to accept the status quo rather than make errors of commission (Samuelson and

Zeckhauser 1988). On the other hand, a sense of control has been shown to reduce stress and anxiety in the face of unwanted outcomes (Alloy and Clements 1992; Shapiro et al. 1996; Thompson 1999). For that reason, making a choice may reduce the aversive utility of a loss (Sharot et al. 2010a), leading people to prefer agency over delegation.

Here, we test if in the face of potential losses and gains, people will pay, or demand payment, to be choosers. On each trial, participants performed a simple choice between two shapes in order to maximize reward and minimize loss. On "gain trials," a correct choice would result in a monetary gain and an incorrect choice in no gain. On "loss trials," a correct choice would result in no loss and an incorrect choice in a monetary loss. After performing the task for an extended period of time on their own, participants were given an opportunity to delegate the decision-making to an advisor. The expected value of the advisor was disclosed on each trial and participants' perception of their own expected value was also elicited. This allowed us to examine whether participants made "rational" delegation choices given their beliefs when faced with potential gains and with potential losses.

2 Experiment I

2.1 Method

2.1.1 Participants

Twenty-six participants (aged 18 –34 years; mean age, 24.4 years; 12 females) were recruited via a University College London website. Participants gave informed consent and were compensated for their time. The study was approved by the University College London Research Ethics Committee.

2.1.2 Stimuli

Stimuli included three hundred and sixty unique geometrical shapes varying in colour and orientation. Each shape would appear at most once throughout the study.

2.1.3 Procedure

The study included two parts. Part I was a learning task and Part II was a delegation task. Each part consisted of one gain block (60 trials) and one loss block (60 trials). Order of gain and loss blocks were counterbalanced across participants.

2.1.4 Part I: Learning task

The goal of the first part of the study was to familiarize the participants with a simple decision making task. On each trial two shapes were presented and the participants' task was to choose the shape that would deliver a better outcome. Participants were led to believe that there were rules that made some shapes "better" than others and that their task was to learn those rules in order to maximize their earnings. In reality, however, no underlying rules governed winning shapes. Rather, outcomes were random, such that each participant received the desirable outcome on 50% of the trials in each block. The pairs of shapes were drawn at random from the stimuli set without repetition and remained on screen until the participant made their decision. Once the choice was made, an asterisk (*) was shown above the chosen shape for 1 second and then a new screen with the outcome was presented for 1 second (**see Figure 1**). In the gain block the desired outcome was £10 and the undesired outcome was £0.

In the loss block the desired outcome was £0 and the undesired outcome was -£10. Each shape would appear only once throughout the experiment.

2.1.5 Part II: Delegation task

The goal of Part II was to quantify participants' willingness to delegate decisions to an advisor in the same task undertaken in Part I. On each trial participants had to decide first whether to select between two novel shapes themselves or to delegate the choice to an advisor. Participants were led to believe that advisors were other participants who completed the study before. On each trial there would be a different advisor. In reality, however, the "advisors" were created by a computer program.

On each trial participants were presented with two pieces of information regarding the advisor: the advisor's mean success rate in the task (from 3% to 100%, with mean 71.90 %, SD = 23.9) and the advisor's fee in British Pounds (from £0 to £10, with mean £3.46, SD = 3.59). Participants could decide either to delegate the decision between the shapes or to make the decision themselves. If participants decided to choose themselves, a pair of novel shapes would then be presented and participants were given unlimited time to make their decision. If participants decided to delegate (i.e. let the advisor choose for them), a new screen appeared for approximately 2 seconds with the pair of novel shapes and text saying "Advisor is choosing…". In either case, participants would wait an additional 1 second before going on to the next trial. Outcomes were never revealed. At the end of the study ten trials would be chosen at random from Part II and the average outcome for those trials would be added to the baseline compensation of £7.

2.1.6 Advisors

The participants paid the fee to the advisor only if they asked the advisor to choose for them and the advisor selected the correct shape. The advisors' expected value ranged from £0 to £10 in the gain block with a mean of £5, and £0 to -£10 in the loss block with a mean of -£5. Because the participants' objective accuracy rate was 50 %, their expected value was £5 (=50% * £10) on a gain block and -£5 on a loss block. Thus, a value maximizer should choose to delegate whenever the advisor had a mean expected value of £5 or higher on a gain block but not otherwise (and be indifferent when the advisor's expected value was exactly £5). On a loss block they should choose to delegate when the advisor's mean expected value was higher than -£5 but not otherwise (and be indifferent when the advisor's expected value was exactly -£5).

For example, on a gain block an advisor with 90% accuracy who charged £5 would have an expected value of ((accuracy*£10) – charge)) = ((90%*£10)-£5) = £4. On this trial a value maximizer should not delegate. On half the trials participants were offered advisors with an expected value greater than £5 (or greater than -£5 on loss trials) and the other half lower than £5 (or lower than -£5 on loss trials).

2.1.7 Self-perceived accuracy (SPA)

At the end of the study participants were asked to provide an estimate of how accurate they believed they were at choosing the correct shapes (from 1% to 99%). This estimate is referred to as self-perceived accuracy (SPA).

2.1.8 Additional questionnaires

Participants then completed the Rotter Locus of Control Scale, Rosenberg Self-esteem Scale, Mehrabian Conformity Scale, Regret Scale (Schwartz et al. 2002), and Life Orientation Test-Revised. Participants were also asked to rate their feeling on a scale from -5 (Very unhappy) to +5 (Very happy) just before each block of the delegation task and at the end of the delegation task. None of the additional questionnaires significantly explained behavior and therefore are not discussed further.

2.1.9 Analysis of delegation rates

We first calculated the percentage of trials in which participants chose to delegate. We then calculated the percentage of trials in which participants decided to delegate/retain agency out of all trials in which delegation was optimal (i.e. trials when the advisor's expected value was above £5) and the percentage of trials in which they decided to delegate/retain agency when delegation was not optimal (i.e. trials when the advisor's expected value was below £5). For loss trials this would be above and below -£5.

The same analysis was conducted taking into account the participants' self-perceived accuracy (SPA). More specifically, we calculated the percentage of trials in which participants chose to delegate/retain agency when this was optimal given a participants' SPA (i.e. the advisor's expected value was above ((SPA*£10)-charge), and when it was suboptimal (i.e. below ((SPA*£10)-charge). For loss trials this would be above and below ((SPA*-£10)-charge).

2.1.10 Analysis of indifference points

We calculated the indifference point of each subject as the expected value at which each subject would delegate with 50% probability. To this end, we ran a mixed effects model with the advisor's expected value as an independent variable, allowing for random effects and a random slope per subject. In other words, all subjects had their own parameter estimates for the advisor's expected value (random effects) and for an intercept (random slope) drawn from a common Gaussian distribution for all participants. Subsequently, we used the model predictions for each subject to estimate their indifference points respectively.

2.1.11 Analysis of control premiums

Because participants' expected value was £5 in the gain block and -£5 in the loss block (their probability of choosing correctly was always 50%), a value maximizer's indifference point would be £5 for gain and -£5 for loss if they had accurate perception of their ability. Thus the "control premium" - the amount participants are willing to forgo to retain agency – would be equal to their indifference point minus £5 (or -£5 for loss). However, participants' perception of their own ability is not completely accurate. Thus, if we take into account the participants' perception of their own accuracy (SPA), the control premium is equal to their indifference point minus the SPA.

2.1.12 Analysis of money forgone

To calculate the amount participants forgo in order to retain control, we calculated the average expected value for all of a subject's choices, relative to the amount they could have received if they had selected to delegate optimally. This measure is different from the control premium described above since it averages over all gains and losses for all actual choices throughout the experiment without estimating each subject's indifference point.

2.2 Results

2.2.1 Delegation

Participants had a strong preference to retain agency. While a value maximizer would delegate 50% of the time, participants' average delegation rate was significantly lower (mean delegation for Gains = 30.45%, one sample t-test compared to 50% $t(25) = 5.67$, $p < .001$; mean delegation for Losses = 29.87%, one sample t-test compared to 50% $t(25) = 6.27$, $p < .001$). No differences were observed between Gains and Losses for this measure or any other measure reported below.

2.2.2 Delegation "errors"

Participants were much more likely to retain agency when this was not the optimal decision (i.e., "*failure to delegate*"), than to delegate when this was not the optimal decision (i.e., "*failure to retain agency*"). Specifically, out of all trials where delegation was optimal, they chose to retain agency, *failing to delegate*, 41.92% in the gain block and 43.2% in the loss block (**Figure 2**). In contrast, out of all trials were agency was the optimal decision they chose to delegate, *failing to retain agency*, only 2.82% in the gain block and 2.94% in the loss block (**Figure 2**). As a result of these failures, participants earned £0.55 (SD = .453) less than they could if they selected optimally in the gain block and lost £0.59 (SD = .472) more than they should have in the loss block.

Note, however, that while participants were not maximizing their rewards, they were not delegating at random. Rather, they were more likely to delegate on trials when delegation was optimal (58.08%) than on trials when delegation was not optimal (2.82%) $t(25) = 9.60$, $p < .001$) in the gain block and in the loss block (56.8% and 2.94% respectively, $t(25) = 9.55$, $p < .001$), indicating that they were sensitive to the advisors' expected utility.

2.2.3 Self-perceived accuracy

Participants' perceptions of their own ability to select the shape associated with the better outcome was relatively accurate (average estimate was 49.88%) and did not differ from the true performance rate of 50% ($t(26) = .03$, $p = .97$). Thus participants' preference for agency could not be explained by overconfidence in their ability to choose accurately. Nevertheless, we redefined optimal delegation, taking into account each participant's perception of their own accuracy (see methods). Even when taking this into account, participants were still more likely to retain agency on trials when delegation was in fact optimal (*failure to delegate* on gain block = 44.65%, loss block = 46.26%) than to delegate when retaining agency was in fact optimal (*failure to retain agency* on gain block = 3.83%, loss block = 3.33%). The frequency of the two type of errors was significantly different from each other (Gain: $t(25) = 6.06$, $p < .001$; Loss: $t(25) = 6.88$, $p < .001$).

2.2.4 Indifference point & control premium

When would participants be indifferent between making the decision themselves and letting the advisor make it for them? A rational agent should be indifferent between delegating the choice and retaining agency when the advisor's expected value is £5 in the gain block and -£5

in the loss block. This is because the subject's own expected value is £5 for gains and -£5 for losses. Thus in those situations it should not matter who makes the decision.

However, our participants' average indifference point was £7.53 (SD = 2.04) in the gain block and -£2.15 (SD = 2.35) in the loss block, which is significantly different from £5: gains: $t(25) = 6.31$, $p < .001$, and -£5: loss: $t(25) = 6.19$, $p < .001$. In other words, participants were willing to forgo £2.53 (i.e. = £7.53 -£5) (SD = 2.04) in the gain block and lose an extra £2.85 (i.e. = -£2.15-(-£5)) (SD = 2.35) in the loss block in order to retain agency. We refer to this number as a control premium. Re-calculating the control premium, taking into account participants' self-perceived accuracy (SPA) by subtracting the SPA of each subject from their indifference point, results in very similar control premium estimates; £2.54 (SD = 2.40) for gains and £2.86 (SD = 2.52) for losses. Thus, the control premium seems to stem from an intrinsic value for control.

3 Experiment II

Results from Experiment I indicate that participants delegated less than they should if they were to maximize their rewards. This was true both for gain trials and loss trials. Their tendency to under-delegate could not be explained by overconfidence, but seemed to reflect a utility gain from control as such.

In Experiment 1 participants first made the delegation decision and only then were shown the specific choice that was to be made on that trial (i.e. the two shapes to be selected from). Our aim in Experiment II was to replicate the results of Experiment I in a situation where full information regarding the choice was available to participants *before* they were required to make the delegation decision. Thus, on each trial the pair of shapes were presented before participants had to decide whether to delegate the decision. Because the probability of choosing correctly between stimuli in all pairs was 50%, presenting the pairs in advance should not affect delegation preference.

3.1 Methods

3.1.1 Participants

Twenty-five participants (aged 19 –50 years; mean age, 24.7 years; 13 females) were recruited via a University College London website. Participants gave informed consent and were compensated for their time. The study was approved by the University College London Research Ethics Committee.

3.1.2 Stimuli

Same as in Experiment I.

3.1.3 Procedure: Part I (learning task)

Same as in Experiment I.

3.1.4 Procedure: Part II (delegation task)

Same as Experiment I, except that participants were presented with the pair of shapes at the same time they were deciding on whether to delegate the choice. Thus, participants had complete knowledge of the choice at hand before deciding to delegate. If they chose to

delegate, they would wait approximately 2 seconds for the advisor to choose. If they decided to choose themselves, than they were given unlimited time to do so (see **Figure 1b**).

3.1.5 Additional questionnaires

Same as in Experiment I, with an additional request at the end of Part II to estimate how accurate the participant thought they were at delegating (i.e. subjective delegation accuracy).

3.2 Results

3.2.1 Delegation

Replicating the results of Experiment I, participants had a strong preference to retain their agency. While a value maximizer would delegate 50% of the time, participants' average delegation rate was significantly lower (mean delegation for Gains = 25.33%, one sample t-test compared to 50% $t(24) = 5.83,\ p < .001$; mean delegation for Losses = 24.67%, one sample t-test compared to 50% $t(24) = 5.90,\ p < .001.$). No differences were observed between Gains and Losses for this measure or any other measure reported below.

3.2.2 Delegation "errors"

Participants were much more likely to retain agency when this was not the optimal decision (i.e. "*failure to delegate*") than to delegate when this was not the optimal decision (i.e., "*failure to retain agency*"). Specifically, out of all trials where delegation was optimal, they chose to retain agency, *failing to delegate*, 55.06% in the gain block and 56.94% in the loss block (**Figure 2**). In contrast, out of all trials were agency was the optimal decision, they chose to delegate, *failing to retain agency*, only 5.74% in the gain block and 6.26% in the loss block (**Figure 2**). As a result of these failures, participants earned £0.85 (SD = .54) less than they could if they selected optimally in the gain block and lost £0.88 (SD = .46) more than they should have in the loss block.

As in Experiment I, while participants were not maximizing their rewards, they were not delegating at random. Again, they were more likely to delegate on trials when delegation was optimal (44.94%) than on trials when delegation was not optimal (5.74%), $t(24) = 9.60,\ p < .001$ in the gain block and in the loss block (43.06% and 6.26%, respectively, $t(24) = 9.55,\ p < .001$), indicating that they were sensitive to the advisors' expected utility.

3.2.3 Self-perceived accuracy

Participants were slightly overconfident about their own ability to select the shape associated with the better outcome. Their average estimate was 57.8%, which was significantly different from the true performance rate of 50% ($t(24) = 2.21,\ p < .05$). However, even when redefining optimal delegation taking into account each participant's perception of their own accuracy (see methods), participants were still more likely to retain agency on trials when delegation was in fact optimal (*failure to delegate* on gain block = 53.70%, loss block = 55.80%) than to delegate when retaining agency was in fact optimal (*failure to retain agency* on gain block = 8.38%, loss block = 8.93%). The frequency of the two type of errors was significantly different from each other (gain: $t(24) = 4.78,\ p < .001$; loss: $t(24) = 4.96,\ p < .001$).

3.2.4 Indifference point & control premium

As in Experiment I, rational agents should be indifferent between delegating the choice and retaining agency when the advisor's expected value is £5 in the gain block and -£5 in the loss block. However, our participants' average indifference point was £9.00 (SD = 4.72) in the gain block and -£1.55 (SD = 3.56) in the loss block, which is significantly different than £5: gains $t(25) = 4.23,\ p < .001$, and -£5: loss: $t(25) = 6.84,\ p < .001$. In other words, participants were willing to forgo £4.00 (i.e. = £9.00 -£5) (SD = 4.72) in the gain block and lose an extra £3.45 (i.e. = -£1.55-(-£5)) (SD = 3.56) in the loss block in order to retain agency. Re-calculating the control premium, taking into account participants' self-perceived accuracy (SPA) by subtracting the SPA of each subject from their indifference point results in similar control premium estimates; £3.22 (SD = 5.26) for gains and £2.67 (SD = 4.40) for losses.

3.2.5 Perceived delegation accuracy

In addition to asking participants to report self-perceived accuracy of choosing the correct shapes, we asked them to estimate how accurate they were at delegating. Participants' estimates were surprisingly accurate and did not differ significantly from how well they were in fact delegating. The latter was calculated as the percentage of trials they made optimal decisions (i.e. delegating when they should be and retaining agency when they should be). Comparing perceived delegation performance and actual delegation performance for gains: $t(24) = .15$, $p = .88$, and losses, $t(24) = .13$, $p = .89$.

Nor did perceived accuracy of delegation and actual accuracy of delegation differ when optimal delegations was defined taking into account SPA (gains, $t(24) = .14$, $p = .88$, losses, $t(24) = .47$, $p = .64$). The two scores correlated with each other; in other words, participants' perceived accuracy of delegation correlated with actual accuracy of delegation defined based on SPA (loss: $r(23) = .43$, $p = .033$, marginally for gains: $r(23) = .39$, $p = .057$). There was no relationship between a subject's SPA and perceived accuracy of delegation ($r(23) = .28$, $p = .17$). Together, these results suggest that participants knew how well they were delegating and may have been aware that by retaining control they were losing money, yet chose to do so nevertheless.

4 Discussion

Our results demonstrate that participants are willing to forgo rewards for the opportunity to control their own payoffs. This preference was observed not only when faced with potential gains (in accord with Owens et al. 2014), but also when faced with potential losses. Moreover, our findings indicate that participants accurately assess the (sub)optimality of their delegation choices, suggesting that they are aware of the premium they are paying to maintain control.

The results could not be explained by participants' overconfidence in their ability to maximize rewards and minimize losses, as their beliefs regarding their own ability were elicited and accounted for. In fact, on average participants did not express overconfidence in Experiment I and were only slightly overconfident in Experiment II. This is not surprising, as the task was designed to minimize overconfidence; participants (1) were unlikely to hold prior beliefs about their ability from "real world" experience (2) had a 50% likelihood of making the correct choice on every trial, and (3) were given plenty of experience with the

task. Participants were also given complete information about potential advisors, which would allow them to make rational decisions. Thus, under-delegation could not be attributed to a systematic misperception of either the subject's expected utility or the advisor's expected utility. Indeed, when questioned about their ability to delegate accurately, participants provided surprisingly accurate assessments.

Our findings are in accord with a prior study that identified a significant "control premium" in an experimental setting in which participants could bet that a partner, or instead they themselves, would answer quiz questions correctly (Owens et al. 2014). In light of participants' elicited beliefs, participants should have bet on themselves 56.4% of the time – but in fact, did so 64.9% of the time. It follows that participants were, on average, willing to give up 8% to 15% of their expected earnings in order to retain control. As in our study, the preference for control could not simply be explained by overconfidence or subjective beliefs; control appeared intrinsically desirable.

Fehr et al. (2012) also find, in a fundamentally different design, that people will sacrifice their material interest in order to maintain authority. They conduct an "authority game," in which principals could choose to delegate decisions to an agent. Their central finding is that people will under-delegate, showing "a strong behavioral bias among principals to retain authority against their pecuniary interests and often to the disadvantage of both the principal and the agent." Their major explanation is that people do not like to be overruled, and they know that if they delegate, their agent might disregard their information, or their wishes, in order to make their own selection. Using a different experimental design, Bartling et al. (2013) similarly find that decision rights have intrinsic and not merely instrumental value. There is also a relationship here between our findings and the phenomenon of "reactance," which suggests that people rebel against choice-denying commands by defying them (Brehm and Brehm 2013).

Our results support the past findings for the existence of a "control premium" and extend them by demonstrating a positive control premium not only in the domain of potential gains, but also in the domain of potential loss. Furthermore, our results suggest that participants are aware that they are selecting to pay a premium for control.

Why would people choose to under-delegate when they are seemingly aware of the material cost of under-delegation? We speculate that this behavior reflects a non-monetary intrinsic value for control, which is expressed via choice. The intrinsic value of choice may have emerged for a number of reasons. First, outcomes that we select ourselves often suit our preferences and needs more than those that have been selected for us (Beattie et al. 1994; Kray 2000; Polman 2010; Stone and Allgaier 2008; Waldfogel 1993). Thus, we have learned that environments in which we can exercise choice are usually more rewarding (Leotti et al. 2010; Patall et al. 2008; Rotter 1966). The frequent association between choice and reward may have led choice itself to be experienced as rewarding - something we seek and enjoy.

Second, a biologic system that provides higher intrinsic reward for things we had obtained ourselves compared to those that were simply chosen for us may be adaptive. If we learn that an action results in a reward, we can repeat that action in the future to gain more of the same. However, if we do not execute an action to obtain reward (or avoid harm), we lose the opportunity to acquire a "blueprint" of how to gain rewards (or avoid harm) again in the

future. Thus, the value of outcomes we had obtained ourselves emerge both from their utility *and* from the information they contain for future outcomes.

In sum, in a series of controlled laboratory experiments we show that people are willing to pay a control premium in order to make their own choices. While a control premium has been previously demonstrated within the domain of gains, here, we also report a similar premium in the domain of losses. This finding runs counter to the idea that people prefer to delegate decisions involving unwanted outcomes in order to avoid regret (Loomes and Sugden 1982) and instead supports the notion that choice may be preferred regardless of expected valence of the outcome (Leotti and Delgado 2011, 2014). Moreover, the current study suggests that people are aware of the monetary premium they are paying to retain agency, but do so anyway, presumably for psychological benefit. Thus, in the normative sense, choosers can be losers, and knowingly so.

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Figure Captions

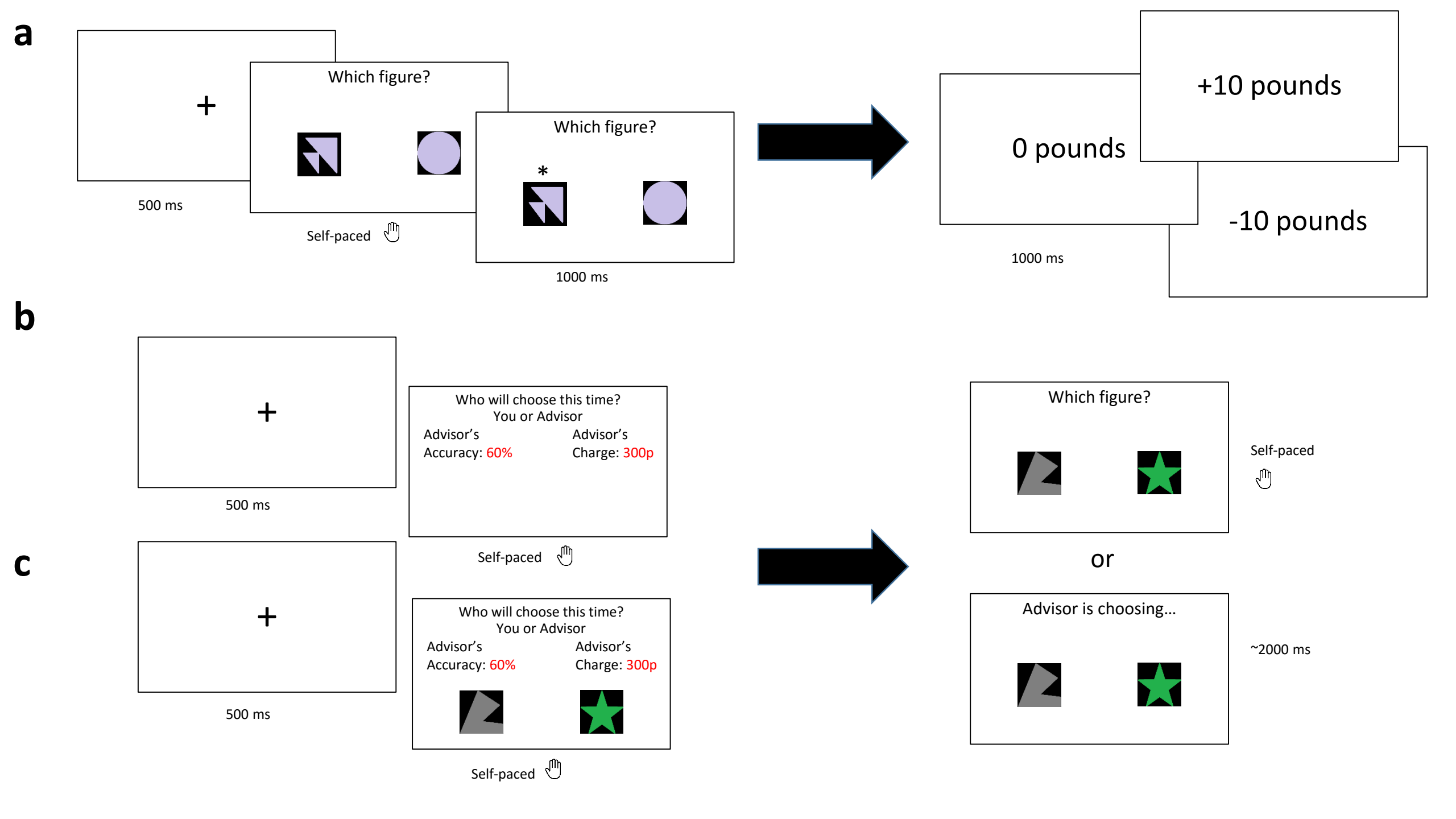
Fig. 1. Task. (a) In the first part of the experiment – the Learning Task - participants were asked to choose on each trial between two figures. If they successfully selected the shape associated with the better outcome they received £10 in the gain block and £0 in the loss block. If they were unsuccessful and selected the shape associated with the worse outcome they received £0 in the gain block and lost £10 in the loss block. (b) In the second part of the experiment - the Delegation Task - participants first choose whether they would like to retain agency and make the choice themselves or delegate the choice to an advisor. They were presented with the advisor's success rate and charge. Thereafter, based on their revealed preference, they either chose between the two shapes or an advisor choose for them.

Outcomes were not revealed. (c) The delegation task in Experiment II was slightly different from Experiment I. Here, the pair of figures was shown at the time participants made the delegation choice.

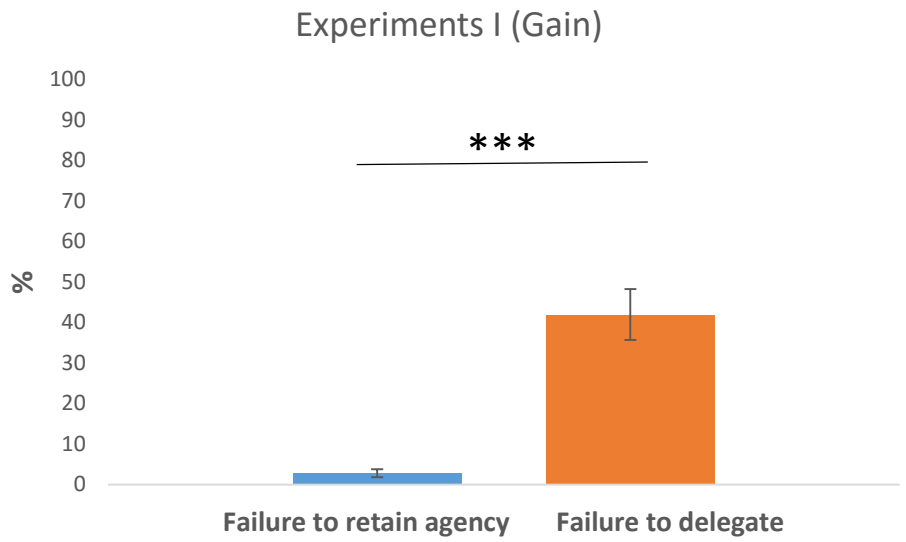
Fig. 2. Delegation "Errors". Participants were more likely to fail to delegate when delegation was optimal (orange bars) than fail to retain agency when retaining agency was optimal (blue bars). This was true for all blocks; (a) Gain block in Experiment I, (b) Loss block in Experiment I, (c) Gain block in Experiment II and (d) Loss block in Experiment II.

***p<.001. Error bars are standard errors of the mean.

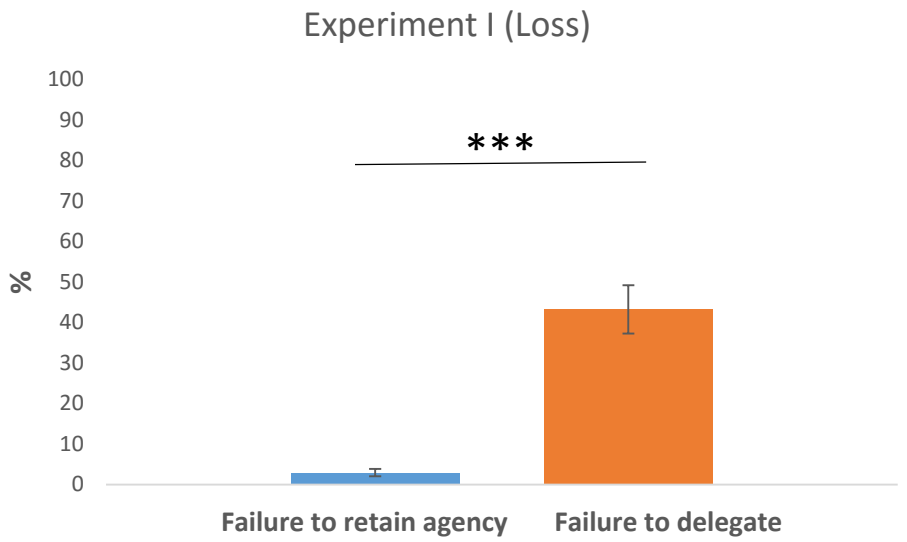
Fig. 3. Indifference Points. The indifference point is the point when the probability of delegating is 50%. While a rational agent should be indifferent between retaining agency and delegating when an advisors' expected value is £5 in the gain block and -£5 in the loss block, because the participant's expected value is £5 in the gain block and -£5 in the loss block, the graphs clearly shows that in practice the indifference point is greater than £5 in the gain block and -£5 in the loss block. This suggests that participants assign positive utility to choice. The grey lines show the intersection between 50% probability of delegation and the indifference curve. The curves shown here are the model predictions for the group average for Experiment I (a, b) and Experiment II (c, d).


a
+
500 ms
Which figure?
Self-paced
Which figure?
*
1000 ms
+10 pounds
0 pounds
-10 pounds
1000 ms
b
+
500 ms
Who will choose this time?
You or Advisor
Advisor's Accuracy: 60%
Advisor's Charge: 300p
Self-paced
c
+
500 ms
Who will choose this time?
You or Advisor
Advisor's Accuracy: 60%
Advisor's Charge: 300p
Self-paced
Which figure?
Self-paced
or
Advisor is choosing...
~2000 ms

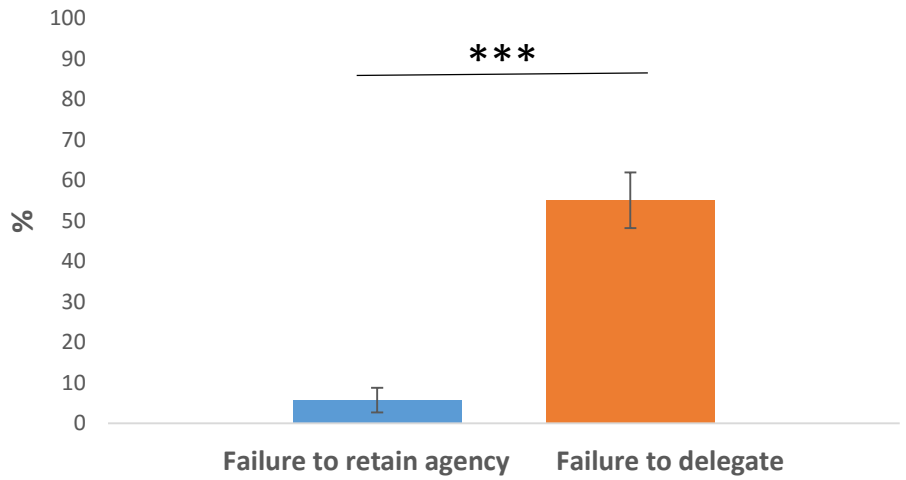
a


Experiments I (Gain)
100
90
80
70
60
50
40
30
20
10
0
%
***
Failure to retain agency
Failure to delegate

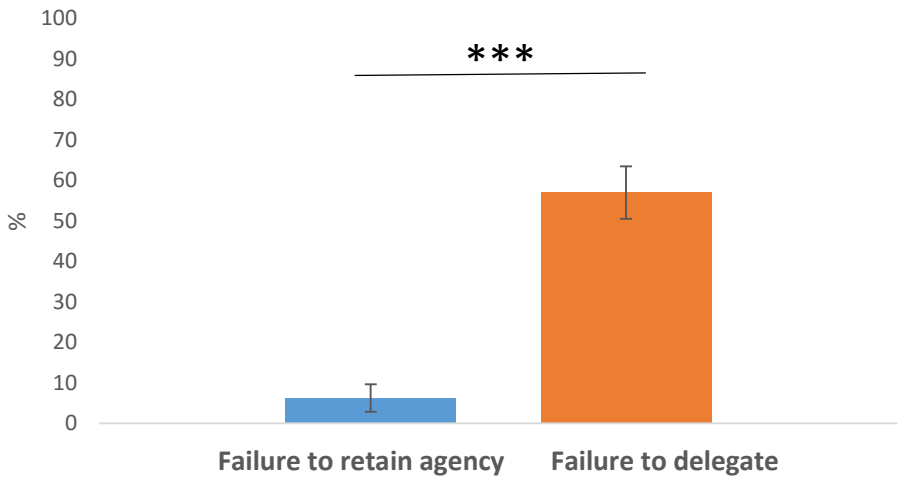
b


Experiment I (Loss)
100
90
80
70
60
50
40
30
20
10
0
%
***
Failure to retain agency
Failure to delegate

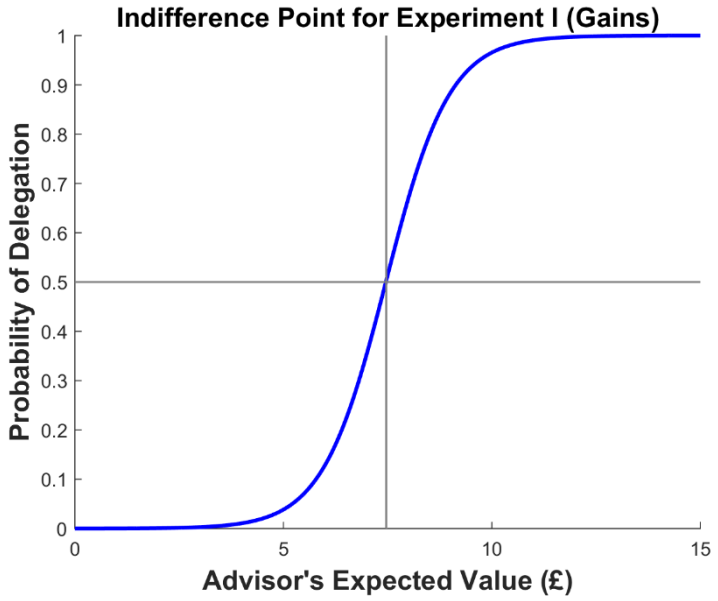
c


Experiments II (Gain)
100
90
80
70
60
50
40
30
20
10
0
%
***
Failure to retain agency
Failure to delegate

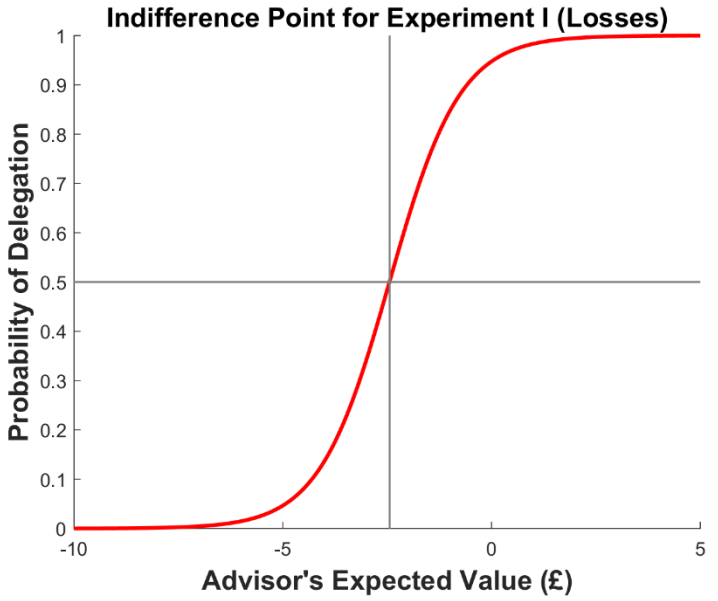
d


Experiment II (Loss)
100
90
80
70
60
50
40
30
20
10
0
%
***
Failure to retain agency
Failure to delegate

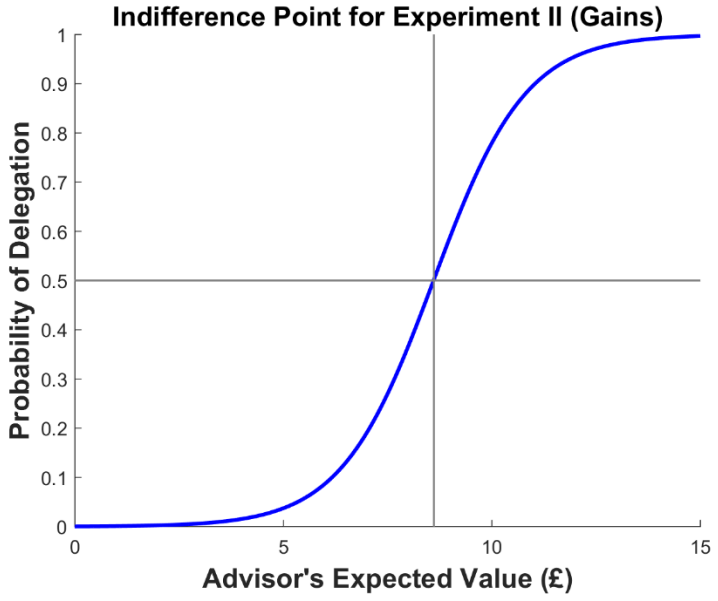
a


Indifference Point for Experiment I (Gains)
Probability of Delegation
Advisor's Expected Value (£)
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
5
10
15

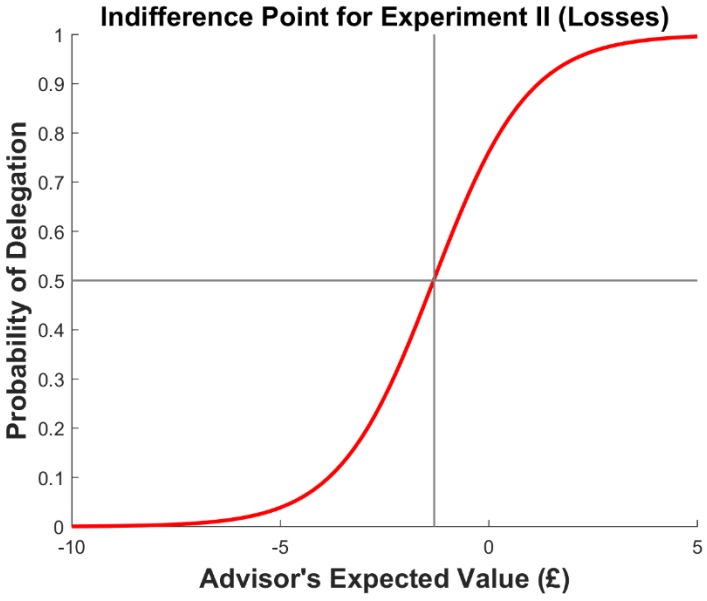
b


Indifference Point for Experiment I (Losses)
Probability of Delegation
Advisor's Expected Value (£)
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
-10
-5
0
5

c


Indifference Point for Experiment II (Gains)
Probability of Delegation
Advisor's Expected Value (£)
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
5
10
15

d


Indifference Point for Experiment II (Losses)
Probability of Delegation
Advisor's Expected Value (£)
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
-10
-5
0
5