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Psychological Determinants of Decision Attitude

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ABSTRACT

Decision attitude — an analog of risk attitude — is the propensity to make (or avoid making) a decision: in decision aversion, a person finds it more desirable to receive through fiat the better of two options than to have a choice between them; in decision seeking, the choice is more desirable, even though it can lead to nothing better than the best option. Both decision aversion and decision seeking were found in hypothetical scenarios. Experimental manipulations and subjects' justifications point to anticipated regret, fear of blame for poor outcomes, and desire for equitable distributions as sources of decision aversion. One source of decision seeking (for self) and decision aversion (when deciding for others) appears to be the desire for the self-determination of the affected parties. We consider the implications of our results for personal choice and public policy decisions.

KEY WORDS Decision aversion Decision seeking Personal choice Public policy decisions

PSYCHOLOGICAL DETERMINANTS OF DECISION ATTITUDE

'If one liver is available for transplantation and two patients need it, who should get it first — a young mother with liver cancer, whose likelihood of surviving with a transplant is only 20%, or a 65-year-old alcoholic, whose chance is 80% assuming he stops drinking? ... The choices are so painful that everyone is trying to avoid being the one to make them.' (News article in *Science* magazine, 23 February 1990)

In this paper we introduce the concept of 'decision attitude', which refers to the desire to make

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or avoid decisions, independent of any consequence[1] that they achieve. When people are decision averse, they prefer to avoid making decisions. When they are decision seeking, they prefer to make decisions, even if the decision will lead to the same outcome that would have been offered anyway. Decision attitude is analogous to 'risk attitude'. People are said to be risk seeking when they prefer to obtain a given outcome through a risky choice than a riskless choice. The reverse is true of risk aversion. Like risk attitude, a person's decision attitude is defined operationally for each choice that he or she makes (rather than necessarily implying any stable personality trait or disposition).

We demonstrate decision aversion and decision seeking in a variety of hypothetical situations. Our first method presents subjects with questionnaires in which situations *A* and *B* describe two different outcomes. Situation *C* describes a choice to be made between the two outcomes *A* and *B*. For example, situation *A* might be to receive a sweater; situation *B* to receive $50; and situation *C* a choice between the (same) sweater and the cash. We asked subjects to rate the desirability or undesirability of being in each of the three situations. *Decision seeking* is shown by a higher rating for *C* than for the highest of *A* and *B* (e.g. 50 for *C*, 45 for *B*, 30 for *A*). In this case the subject finds making a choice more satisfactory than the best outcome that the choice could produce. *Decision aversion* is indicated by a lower rating for *C* than for the maximum of *A* and *B*. *Decision neutrality* occurs when *C* is rated equal to the best of *A* and *B*. This method avoids asking subjects directly whether they prefer a choice to an outcome. In a second method, we investigate preferences directly by asking whether the subject prefers making a choice between two equally desirable or undesirable outcomes. In addition to demonstrating the occurrence of decision seeking and decision aversion, we also investigate the sources of each, through experimental manipulations and subjects' justifications.

Non-decision-neutral behavior has been argued by some to lead to a failure to maximize utility (see Machina, 1989, for a discussion). For example, imagine Mary has twin daughters, Sue and Sarah. Mary must decide whom to will her engagement ring to (each daughter would love to have it, and it is her only nice possession). Mary could will the ring to Sue or to Sarah, or she could have the ring sold. Mary and both daughters would prefer that one daughter have the ring, but Mary may have the ring sold instead to avoid deciding between the two. This decision aversion seems to lead Mary to choose an option that has less utility than the unchosen options, at least under a straightforward analysis. A less straightforward analysis might take into account decision costs (see Shugan, 1980, and Payne *et al.*, 1988, for elaborations of this idea). Still, in this case, it does not seem plausible that Mary chose to dispose of the ring merely because she could not be bothered to think about which daughter should have it.

A rational reason for decision seeking is to obtain additional information. For example, the act of choosing may force us to consider the alternatives and help us to understand why we prefer one over another. This information may be useful for later decision making. Also, we may prefer to make a choice than to be allocated an item because the choice between the items (e.g. cash and sweater) may not have to be resolved immediately, perhaps allowing the decision maker to gather more information about the options (e.g. the sweater). These informational factors cannot account for decision aversion, and we will demonstrate that decision seeking may be found even when subjects know that no other information will be available, and when decision makers apparently have little or no opportunity to learn anything of use concerning future preferences.

Janis and Mann's (1977) conflict model of decision making outlines two coping strategies that people use to avoid making difficult decisions (in which all options involve serious risks and no hope of a better option): if there is no time urgency, procrastinate; if there is time urgency, attempt

[1] By 'consequence' we mean those states of affairs that we can evaluate, in terms of our goals, no matter how they come about: in particular, whether they result from our own decision or not (Baron, 1993).

to pass the buck or shift responsibility for the decision onto someone else. (If the buck cannot be passed, the decision maker will bolster the least objectionable option.) These strategies minimize the psychological stress inherent in high conflict decision situations. Frisch *et al.* (1992), in a study of real-life problem solving, found evidence that people avoid decisions, particularly when the decision resulted in great stress. While it may sometimes be rational to reduce stress by avoiding a decision, the short-term benefit of stress avoidance may, at other times, not be worth the long-term cost. Jones and Frisch (1993) showed that decisions made by rational deliberation are more often associated with good outcomes than those made by more chaotic methods.

Cognitive dissonance theory (e.g. Festinger, 1957; Festinger and Carlsmith, 1959) likewise suggests that decision aversion could result from conflict itself. For example, if a father could save the life of only one of his children, this terrible decision might produce the dissonant cognitions that (1) 'I would do anything to save the life of my child' and (2) 'I must let one of my children die'. He would surely either suffer terrible grief whichever option he chose, or try to avoid the decision altogether (denying the decision, to reduce dissonance). Dissonance theory also suggests a reason for rational decision-seeking: the desirability of an option may increase as a result of its having been chosen voluntarily (Aronson and Mills, 1959).

Although decision seeking and aversion as we have defined them could serve the goals of the decision maker (or of others), we are primarily interested in cases in which they do not. More generally, we seek psychological mechanisms of decision seeking and aversion that fail to distinguish cases in which these attitudes are beneficial from those in which they are harmful.

An intuitive example of decision aversion

To give the reader an intuitive experience of decision aversion, we begin the experimental section of our paper with an example that seems to us to be a prototypical case (based on the experience of the protagonist in Styron, 1979). We then consider what features of a situation might produce decision seeking or decision aversion, and we report the effects of these features on decision attitude as measured both by situation ratings and choices.

In the example that follows, each subject was asked to rate each part on a scale from −100 (as undesirable as possible), through 0 (neutral), to +100 (as desirable as possible), but subjects were told that they could go beyond the end points of the scale if necessary. This instruction attempted to avoid floor effects (use of −100 only) given the extreme nature of the scenario.

BONE MARROW PROBLEM

You have twins, a boy and a girl. Both have an unusual disease and will die immediately without a bone marrow transplant.

A. Both children match you, so you could donate to either one. You have only enough bone marrow for one child, and there is no donor for the other child. You choose which child will get a transplant. The other will die.

B. Only one child matches you, but you do not know which one. You have enough bone marrow for both children. One child will die and the other will live.

C. Only one child matches you, the boy (girl). You have only enough bone marrow for this child, and there is no donor for the other child. She (he) will die.

Situation *A* involves an informed choice of which child will die and which will live. The other situations either give the subject no choice of what to do or the choice is made in ignorance of which child will benefit and which will lose. Note that all cases have the same objective consequence: one child alive and one child dead.

Fifty-one of 62 subjects showed decision aversion (*A* rated worse than the best of the remaining

cases). Nine were decision neutral (*A* rated as equal to the best of the rest) and two were decision seeking (sign test, $p < 0.0005$). Throughout the paper we report only non-parametric statistics (sign tests) on the frequencies of subjects preferring some option over some other option. The hypotheses tested relate only to within-subject *directions* of the differences between options, rather than to the mean values assigned to each option. However, it is interesting to note informally how different the mean ratings were for the choice and no-choice items. The rating scale was defined from -100 to $+100$, yet the mean rated desirability of case *A* was -332 (compared with -116 for case *C*).

Subjects' justifications raise the issues of choice and knowledge of identity as important features of the desirability of the situation: 'It is a blind decision, therefore less painful [*B*].' 'I'd have to toss a coin to see which one of my kids would die.' 'How would I choose?' 'No matter who is saved I will feel guilty. How would I choose which child should live and which shouldn't?' 'I didn't want to be able to choose. Having to decide which child lives and which dies is the worst choice imaginable [*A*].' The argument that subjects are decision averse purely because they do not wish to incur the decision costs necessary to make a choice seems implausible in this case, and no subject mentioned this in his or her justifications.

Factors affecting decision seeking and aversion

Many factors might contribute to decision aversion and decision seeking. Here we focus on factors that pilot research suggested were important, and that have received little attention elsewhere. Examples of factors that we do not study are the desire to remove decisions from oneself for purposes of self control (as discussed by Ainslie, 1975; Elster, 1979; Thaler and Shefrin, 1981), the difficulty of trading off particular attributes (Beattie and Barlas, 1993), and the desire to avoid decision costs (e.g. Shugan, 1980).

(1) *Preserving equity.* Certain situations set up strong, socially defined 'focal points' concerning equitable distribution of some good among interested parties (e.g. inheritance of all property by the eldest son (in titled British families); equal division of property between legitimate children (in USA in the late twentieth century)). When all options violate equity norms (as in the case of Mary above), people may be decision averse.

(2) *Anticipated regret and rejoicing.* In making a decision under uncertainty, people may take into account the regret they might feel when they compare the outcome they get to what they would have received if another option were chosen (Bell, 1982; Loomes and Sugden, 1982). Anticipated regret could lead to decision aversion. For example, imagine that a patient has one of two equally likely diseases, only one chance to choose a treatment, and each treatment is specific to one disease. She may feel worse if the chosen treatment fails than if there were no other choice, for she will now know that the unchosen treatment would have succeeded. Likewise, decision seeking may result if people focus on the possibility of rejoicing over a relatively good outcome. Regret and rejoicing will be especially salient when, as in this example, the decision maker will find out what would have happened if the alternative option had been chosen. (Note that the roles of regret and rejoicing in this analysis are different from their roles in regret theory itself, where they both affect choices in the same way. Anticipated regret and rejoicing can have the same effect on the choices made but opposite effects on the desirability of *making* a choice.)

(3) *Role, standing, and autonomy.* Belief in the value of self-determination could lead to decision aversion if one is deciding on behalf of another person, and decision seeking when deciding for oneself. Depending on the person, the situation, and the culture, the opposite rules might sometimes predominate: some people might enjoy making decisions for others, or might wish for some paternalistic decision maker to choose for them. Our subjects were from a culture

that emphasizes personal autonomy, so we expect the former pattern to predominate.

(4) *Accountability*. Accountability, the need to justify decisions to others (as studied by Tetlock, 1992), might cause decision aversion when either option is seen as violating a social norm that one's audience might support, or when either option could lead to a bad outcome for which one could be blamed in hindsight (Baron and Hershey, 1988).

In the studies below we manipulate these factors and examine their effect on decision attitude. We also collect justifications for subjects' responses, in order to check that the subjects allude to factors that we hypothesize will affect their preferences (rather than to some artifact of the experiment). We use the justifications merely to back up the results of the experimental manipulations. No formal quantitative analysis is attempted as many subjects wrote little beyond restating their choices, or wrote nothing at all. The preponderance of comprehensible responses point, however, to the operation of the hypothesized factors in each case.

METHOD

Subjects were students at the University of Chicago or the University of Pennsylvania, solicited through signs placed on the campuses and paid for their participation. Each item briefly described a scenario with some situational variants. Some situations involved decisions and some involved outcomes without decisions. Subjects were asked to rate the desirability of each situation and to justify their response briefly. (Subjects were omitted from some analyses because they provided data that were illegible, incomplete, or showed misunderstanding of the instructions. The number of subjects discarded in each item is given when the results for that item are discussed, if relevant.)

The rating scale used for situations ran from −100 ('as undesirable as it can be'), through 0 ('neither desirable nor undesirable'), to +100 ('as desirable as it can be'). Subjects were also told that they could, if they wished, go beyond the ends of the scales, to try to avoid floor and ceiling effects for highly negative and positive items.

Equity, standing, and accountability

We begin our investigation with the effect of the equity factor on decision attitude. We ask whether people are decision averse when they must make a choice that leads to a distribution perceived as inequitable, as when an indivisible good must be given to one of several people, each with an equal right to it. This effect may be greater when the distributor has little standing/right to make the decision (e.g. he or she does not own the goods), when the distributor uses personal choice to distribute the goods unevenly, and when the recipients know that the distributor made the choice (because when these conditions hold the decision maker will be held accountable and blamed). We tested these predictions with the following item:

PIANO PROBLEM

You are the trustee of your sister Mary's estate. Mary had two children. All the money has been divided equally, and Mary's possessions must now be divided. Mary's only major possession was a priceless antique grand piano, which both children played as children and which both children would now like to have. The children are not allowed to see the instructions concerning the piano. Rate the situations from your point of view.

A. Mary instructed you to give the piano to the older child. The children will know that this was Mary's decision.

B. Mary instructed you to give the piano to the younger child. The children will know that this was Mary's decision.

C. Mary instructed you to decide which child got the piano. But the children were told that Mary herself decided who would get the piano, and you are not allowed to tell them that you decided.
D. Mary instructed you to give the piano to the older child. The children were told that this was your decision, and you are not allowed to tell them that Mary decided.
E. Mary instructed you to give the piano to the younger child. The children were told that this was your decision, and you are not allowed to tell them that Mary decided.
F. Mary instructed you to decide which child got the piano. The children will know that you decided.

A general pattern of strong decision aversion was found: 46 of 58 subjects rated *C* lower than the maximum of *A* and *B*, six subjects were neutral and two were seekers. (Four subjects were discarded.) Subjects were significantly more decision averse than decision seeking (sign test, $p < 0.0001$). A similar pattern was found when *A* and *B* are compared to *F* (in which the children now know that you decided): there were 47 avoiders and four seekers (sign test, $p < 0.0001$) (three neutral and four discarded).

Subjects apparently preferred that the children believe that the decision was Mary's, so that they could avoid accountability. This is shown by comparisons between *A* and *D* (older child) and between *B* and *E* (younger child). In each case, 51 of 58 subjects prefer that the children believe Mary decided. (In the *A* versus *D* comparison, two preferred the opposite, one was neutral, and four were discarded (sign test, $p < 0.0005$); in the *B* versus *E* comparison three preferred the opposite, one was neutral and four were discarded: sign test, $p < 0.0005$.) This conclusion is also supported by a comparison between *C* and *F*. Thirty-seven of 58 subjects preferred that the children believe that the decision was Mary's (sign test, $p < 0.0003$). Those who preferred that the children knew (13 subjects) apparently did so because they thought that the truth should be known (although they did not want the responsibility of actually choosing).

In sum, subjects would rather have choice removed from themselves than be put into a situation in which they are forced to make inequitable distributions to parties with equal right to the good. Several subjects suggested that they would resort to chance mechanisms like a coin flip to remove choice (and thus blame and accountability) from themselves. This point is followed up in the second part of the paper, in which subjects are explicitly offered the use of chance devices. Perceived accountability also appears to affect decision attitude: subjects preferred that their involvement in the decision not be public knowledge.

Regret

Anticipated regret would affect decision aversion most strongly when the decision maker had an alternative option that would have led to a better outcome, especially when the outcome of the alternative is known. (Resolution of both chosen and unchosen options is central to Bell's, 1982, regret theory, although no research shows that this is necessary for regret effects.) To examine the effect of anticipated regret, we presented the following problem, in which regret is possible only in *C*:

MEDICAL INSURANCE PROBLEM
One medical insurance plan pays nothing for medical expenses up to $1000 per year, but it pays for all expenses beyond that, including nursing homes, mental hospitals and experimental surgery. Another medical plan covers 80% of these items, but it pays all other medical bills. Both plans cover families. John has a wife and two children who both depend on his medical insurance. John would like to have annual physical exams covered, but he is worried about the prospect of catastrophic illness. You are John.

Exhibit 1. Numbers of subjects showing post-outcome regret or rejoicing dependent on success of choice, for MEDICAL INSURANCE problem for (a) John and (b) benefits officer, with sign test results

(a)

Situation	Regret	Neutral	Rejoicing	Discarded	
Need surgery, chose 1 (success)	9	27	7	15	n.s.
Need surgery, chose 2 (failure)	20	28	2	18	$p < 0.002$
Routine, chose 1 (failure)	14	17	5	22	$p < 0.04$
Routine, chose 2 (success)	6	21	9	22	n.s.

(b)

Situation	Regret	Neutral	Rejoicing	No answer	
Need surgery, chose 1 (success)	6	24	9	19	n.s.
Need surgery, chose 2 (failure)	18	15	5	20	$p < 0.005$
Routine, chose 1 (failure)	22	13	2	21	$p < 0.001$
Routine, chose 2 (success)	12	13	11	24	n.s.

A. John's employer offers only the first plan.
B. John's employer offers only the second plan.
C. John's employer offers both plans and he can choose which plan he will get.

Out of 58 subjects, 35 were decision seeking, 11 were decision averse ($p < 0.0005$, sign test), eight were neutral (rating *C* the same as the maximum of *A* and *B*), and four were discarded. As predicted, we found that most subjects were decision seeking when deciding for themselves.

To further investigate the role of regret we asked the same subjects how they would feel if the decision (1) turned out badly and (2) turned out well. Our prediction was that subjects would be most upset when the decision both turned out poorly and they had made the decision. We also predicted that subjects would show rejoicing (the opposite of regret) when their own decision happened to turn out well.

MEDICAL INSURANCE PROBLEM — POST-OUTCOME ITEMS
Now please rate the following situations for how you would feel if John's child was in a car accident and needed expensive experimental surgery.
A. (as above)
B. (as above)
*C*1. Situation *C*, and you chose the first plan.
*C*2. Situation *C*, and you chose the second plan.
Now please rate the following situations for how you would feel if John's family needed only routine treatment.
A. (as above)
B. (as above)
*C*1. Situation *C*, and you chose the first plan.
*C*2. Situation *C*, and you chose the second plan.

(For both of these items, if subjects felt that either *C*1 or *C*2 was a choice that they would never have made, they were allowed to leave the item blank.)

Exhibit 1(a) shows the results of the post-outcome ratings. Regret is defined as rating the choice (*C*1 or *C*2) worse than the same situation achieved through no choice (*A* or *B*, respectively). Rejoicing is the reverse, and neutral behavior is to set $C1 = A$ or $C2 = B$.

In both cases in which their choice was a failure, subjects showed a significant regret effect. However, a significant rejoicing effect was not found for either of the successful choices. If anticipated rejoicing effects are generally not as great as the anticipated (negative) regret effects, subjects would be generally decision averse.

A second version of the medical insurance problem was run in which the subject was not John, but was a benefits officer who worked in John's company and who must decide which health insurance John would get because John was away on vacation. This manipulated the effect of making the decision for oneself versus another. In contrast to the situation in which they were 'John', subjects showed substantial decision aversion (44 of 58 subjects) and little neutral (five) or decision-seeking (four) behavior (sign test, $p < 0.0001$; five subjects were discarded).

If subjects felt that they could predict John's preferences, then they should have been decision neutral on his behalf, as making the decision for him would help to get him the option he would have chosen. If they felt that they knew nothing about John's preferences then they should also have been decision neutral as they would have no reason to prefer one plan to the other. There is no normative reason why they should be decision averse, unless they fear blame from John if they chose against his actual preference. The results from the post-decision outcome items support the view that subjects fear blame (see Exhibit 1(b)). As in the case of John above, we see significant regret when the 'wrong' plan has been chosen, but no significant rejoicing after the 'right' choice.

To test the robustness of these results, we devised an additional item, the FLU problem, in which the choice cannot affect the expected outcome, because the chance of success is always 50%. In such a situation the preferences of the affected party are irrelevant, as the option chosen will not affect the chance of success. Decision seeking and decision aversion are therefore unmotivated in all cases.

FLU PROBLEM

Fred has a serious illness resembling flu. It will get better eventually, but it would get better much faster if it is treated correctly. There are only two possible diseases that Fred could have, X and Y. Both diseases are equally likely. You are Fred. There is no other information you can get.

A. There is only one treatment. It will cure disease X. No treatment can cure disease Y. Fred will get this treatment.

B. There are two possible treatments. Both treatments will cure disease X. Neither will cure disease Y. You must decide which treatment he will have.

C. There are two possible treatments. The first treatment will cure disease X but not disease Y. The second treatment will cure disease Y but not disease X. You must decide which treatment he will have. Fred can only get one treatment ever.

Now imagine that you are Fred's doctor. Rate the three situations from your point of view. There is no other information you can get.

In this item, we can tease apart whether subjects might prefer the deterministic choice (*A*) because they are either (1) averse to making a decision (*B*) (even though this will have no effect on the outcome); or (2) averse to uncertainty (*C*) *per se*. Thus we define two new measures to reflect these possibilities. A preference for *A* over *B* indicates 'pure decision aversion', since outcome is held constant. Exhibit 2(a) shows the results of this comparison (with nine subjects discarded). A preference for *B* over *C* indicates what we shall call 'uncertainty aversion' (uncertainty about which option is best) which we attribute to the desire to avoid regret. Exhibit 2(b) shows this comparison. Pure decision seeking or uncertainty seeking could result from a desire for autonomy in the 'Fred' case.

Subjects showed a mixture of pure decision seeking and aversion, and of uncertainty seeking and aversion. Only in the 'Doctor' case was there a preponderance of decision aversion. The two roles ('Doctor' and 'Fred') did not differ significantly for either comparison. Justifications indicate that

Exhibit 2. Numbers of subjects showing different pre-decision attitudes as Fred and as Doctor in FLU problem, with sign test results

(a) Pure decision attitude

Role	Decision aversion	Neutral	Decision seeking	
Fred	23	49	17	n.s.
Doctor	30	46	14	$p < 0.02$

(b) Pre-decision uncertainty attitude

Role	Uncertainty aversion	Neutral	Uncertainty seeking	
Fred	30	35	34	n.s.
Doctor	40	20	30	n.s.

Exhibit 3. Numbers of subjects showing post-outcome (a) decision aversion and seeking and (b) uncertainty aversion and seeking, as Fred and the Doctor in the FLU problem, with sign test results

(a)

Role/outcome		Decision aversion	Neutral	Decision seeking	
Fred	Success	3	67	9	n.s.
	Failure	13	60	15	n.s.
Doctor	Success	10	60	9	n.s.
	Failure	17	58	10	n.s.

(b)

Role/outcome		Uncertainty aversion	Neutral	Uncertainty seeking	
Fred	Success	4	54	20	$p < 0.001$
	Failure	30	39	19	$p > 0.07$
Doctor	Success	8	42	29	$p < 0.007$
	Failure	38	29	18	$p < 0.006$

those who avoided the decision did so to avoid blame or regret: 'If there is only one treatment I don't have to make a choice so the patient can't get mad at me if I don't fix his disease.' '... because if I choose wrong it will take longer for him to get better [*C* rated lowest].' Decision seekers often desired to maintain their autonomy: 'I can choose what I want, so *C* is the best choice.'

As before, subjects re-rated each situation (*A*, *B*, *C*) after learning the outcome (success or failure), for both roles. Exhibit 3 shows the results. Most subjects showed pure decision neutrality (Exhibit 3(a)). Log-linear analysis found no effects of role or outcome (or their interactions) on pure decision attitude. Uncertainty attitude, however, was strongly affected by outcome (Exhibit 3(b)). Following a successful outcome, subjects were decision seeking in both roles. Perhaps subjects feel that they have caused the good outcome through their decision. (These results contrast inexplicably with those obtained in the MEDICAL INSURANCE case, when subjects showed only significant post-decision regret, not rejoicing.) Following an unsuccessful outcome, subjects here were uncertainty averse.

Justifications support regret/rejoicing as the mediating variable:

'I did it to myself, which is worse.' 'I could have made the right choice but I made the wrong one.' 'I would feel stupid.' 'I should have known better.' (Following failed treatment.)

'I would be glad.' 'I'd feel proud if I picked right.' 'Job well done.' (Following successful treatment.)

Some subjects, however, do not feel that they are responsible for the successful outcomes, but rather that they were just lucky: 'I am lucky.' 'It was a matter of chance.'

Log-linear analysis of Exhibit 3(b) found no effects on uncertainty attitude of role or of the interaction of role and outcome. The absence of effects contrasts with the MEDICAL INSURANCE problem, where subjects preferred to avoid decisions for others and make decisions for themselves. Such behavior is understandable in the MEDICAL INSURANCE problem (although not predicted by the normative theory) because subjects may feel uncomfortable predicting another's preferences with no information. However, in the FLU problem there is no reason to fear the choice for another because the choice does not affect the expected outcome. Nor is there any benefit in choosing for oneself. Thus, the effect of role on decision attitude appears to be mediated by the effect of the choice on the type of outcome obtained.

In sum, uncertainty aversion can affect decision attitude in the pre-outcome decision phase. Once the outcome is known, subjects expect to experience regret on having chosen the 'wrong' item. Significant rejoicing from making the 'right' choice was not found consistently. When choice can have no effect on expected outcome (as in the FLU case) subjects showed a clear tendency toward decision aversion when responding as the doctor, but not when responding as Fred. In the MEDICAL INSURANCE case, subjects showed decision seeking when deciding for themselves and decision aversion when deciding for another. Fear of recrimination appears to be the reason.

Autonomy and standing

We suggested that people may believe that affected parties should make decisions for themselves, even if the outcome is identical to that which another person would have chosen for them. In each item below the protagonist is forced into one of two actions by another party (situations *A* and *B*), or can choose between the two actions for herself (situation *C*). A rating of *C* higher than the best of *A* and *B* indicates decision seeking.

ABORTION PROBLEM

Karen is a pregnant teenager. Her boyfriend has left her. She feels that she is not ready for a child, and she wants to finish school. But she feels that abortion is wrong and that if she had an abortion she would wonder for the rest of her life what the child would have been like.

A. Karen's parents insist that Karen have the child, and so she does.

B. Karen's parents insist that Karen have an abortion, and so she does.

C. Karen's parents leave the matter up to her.

AUTO INSURANCE PROBLEM

Susan is upset about high auto-insurance rates. A proposal is being considered that would lower the rates substantially, but people who are injured would not be able to sue for damages even when the other driver was at fault, no matter how serious the damages. Susan wonders whether the lower rates would make it worthwhile to give up the right to sue.

A. The government decides to pass the proposal.

B. The government decides not to pass the proposal.

C. The government decides to give each driver a choice of the new system or the old system. (The reduction in rates for the new system is the same as in Situation *B*, and the rates for the old system are the same as in Situation *A*.)

We hypothesized that people will show decision seeking when they are making a decision for themselves, but decision aversion when making a decision for another person. We tested this using the two scenarios in two different versions. Subjects rated the situations described above 'from the person's point of view' (version 1). In version 2 subjects had to decide Karen's fate in situation

Exhibit 4. Numbers of subjects showing different decision attitudes for each decision role in the (a) ABORTION and (b) AUTO INSURANCE problems, with sign test results

(a)

Version	Aversion	Neutral	Seeking	
Karen	3	7	14	$p < 0.007$
Judge	12	11	4	$p < 0.04$

(b)

Version	Aversion	Neutral	Seeking	
Susan	4	7	13	$p < 0.025$
Politician	15	6	6	$p < 0.04$

C as a judge, or decide which way to cast the deciding vote in the legislature in the insurance case in situation *C*. These versions manipulate whether a person will show decision aversion when deciding for another even when they have standing (judge, legislator).

The results for the ABORTION problem supported the predicted pattern: subjects showed decision seeking when the affected person made the decision, even if the proposed outside decision maker had standing to do so (see Exhibit 4(a)). Similar results were found for the auto insurance item (see Exhibit 4(b)). Subjects' justifications cite autonomy as a reason for differences in their ratings: 'I find any situation in which Karen does not make her decision an undesirable one.' '... it is not a judge's place to choose what a woman does with her body.' 'I don't know what she wants.'

It is worth noting that some subjects did want to make the decision for the affected party (i.e. they showed decision seeking in version 2). Such subjects were acting paternalistically in believing that they were better able to decide what was best for Karen or Susan: 'I would be able to do what I think is right.'

Individual differences in decision attitude

The studies reported above show differences in decision seeking and decision aversion for individual items, but do not tell us whether each person has a stable decision attitude across items, like a personality trait. To test this, we ran 55 subjects on seven of the items above in a within-subject design. The items were: the FLU item for self and other; the MEDICAL and AUTO insurances items for self and other; and the PIANO item (situation *F* compared to the maximum of *A* and *B*). We summed the amount of decision aversion (seeking) for each subject. The median rank-order correlation (τ) between these measures was 0.08, and the reliability coefficient α for their sum was a low 0.41. Thus while subjects differed in their responses to different items, the correlations across items in decision attitude was low. A more reliable test of individual differences in decision attitude would require quite a few more items, but these initial results do not encourage the view that decision attitude is a stable personality trait.

EFFECT OF DECISION AVERSION/SEEKING ON CHOICE BEHAVIOR

Thus far we have shown that concern for regret and equity cause decision aversion in ratings. Conversely, post-decision rejoicing and desire for self-determination cause decision seeking. In the final section we ask whether decision attitude affects choice. We asked subjects to compare a choice between

two outcomes to a randomly generated decision between the outcomes such as a coin flip (thus removing control from the affected party). Our hypothesis is that the random device is preferred when people are decision averse. Although we report the results from only two items — FLU and PIANO — we found this result consistently for most other items that we tried. Here is the PIANO problem:

PIANO CHOICES PROBLEM

You are the trustees of your sister Mary's estate. Mary had two children. All the money has been divided equally, and Mary's possessions must now be divided. Mary's only major possession was a priceless antique grand piano, which both children played as children and which both children would now like to have.

Which would you prefer:

A. Someone you know flips a coin and the elder daughter gets the piano if the coin is heads and the younger daughter gets the piano if the coin is tails.

B. You decide which daughter gets the piano.

C. It doesn't matter. *A* and *B* are equally preferable.

Thirty-seven subjects chose the coin flip, 17 wanted to choose ($p < 0.005$, sign test) and five indicated that it did not matter how the decision was made. Justifications of decision aversion mentioned fairness and blame avoidance: 'The coin is arbitrary and impartial.' 'It would not be fair to judge which child deserves or needs the piano more. Randomness is the only way.' 'This way it is totally random and I won't get blamed by the loser.' Some decision seekers felt that a coin flip would violate Mary's will (even though they were not particularly happy about having to make the choice). Others felt that their choice might lead to a superior outcome: 'As the trustee of Mary's estate I am in the position to take the decision in full responsibility that I know both sisters.'

We also ran an item similar to the FLU scenario, offering subjects choices between different situations when they were (1) Fred and (2) Fred's doctor. Thirty-nine subjects were run (one was discarded). Some subjects on this item were University of Sussex undergraduates. In the item below a coin flip was not used as the chance device. Pilot research suggested that subjects felt that a doctor would appear negligent if she publicly flipped a coin to decide on a treatment. Instead the random choice is introduced through a hospital policy to alternate treatments between patients.

FLU CHOICES PROBLEM

Fred has a serious illness resembling flu. It will get better eventually, but it would get better much faster if it is treated correctly. There are only two possible diseases that Fred could have, X and Y. Both diseases are equally likely. There is no other information available and treatment must begin immediately.

There are two possible treatments. The first treatment will cure disease X but not disease Y. The second treatment will cure disease Y, but not disease X.

You are Fred's doctor.

Which situation would you prefer to be in?

A. The hospital where you work has the following policy when two treatments are equally likely to work: the doctor should alternate treatments between patients. The last patient in Fred's situation received treatment Y. Thus the policy suggests that Fred receive treatment X.

B. The hospital has no policies in this situation so you must choose which treatment Fred receives.

C. It doesn't matter. *A* and *B* are equally preferable.

Exhibit 5 shows the results. As Fred, most subjects either did not care how the decision was made (recognizing that it is immaterial), or they wished to be involved in the choice (decision seeking). Subjects showed a tendency to be more decision averse as the Doctor than Fred (sign test, $p < 0.07$).

However, subjects were no more decision seeking as Fred than as the Doctor. In the Doctor role, about three-quarters of the subject did care how the decision was made (i.e. they preferred *A* or *B* to *C*), yet they were split about equally between decision seeking and decision aversion. This appears to be because the decision places two choice heuristics in opposition: decision-seeking subjects felt that they had an ethical responsibility to the patient to make a conscious choice, while those who were decision averse wished to avoid the responsibility (and blame) from making the wrong decision. Note, however, that several subjects who felt that they 'should' make the choice did not really want to.

Exhibit 5. Numbers of subjects showing different decision attitudes as Fred and the doctor in the FLU CHOICES problem, with sign test results

Role	Averse	Neutral	Seeking	
Fred	7	17	14	$p = 0.095$
Doctor	15	9	14	n.s.

To summarize, the results of the choice problems supported our hypothesis that subjects would prefer the chance device in the cases where they had previously showed decision aversion. Subjects were strongly decision averse when faced with dividing the estate inequitably in the PIANO example, preferring the socially approved solution of publicly flipping a coin. This procedure signals lack of control over the decision to both the receiver of the goods and the decision maker, removing the possibility for blame and ill feeling. These results reinforce the case for decision seeking and aversion, as they involve choices rather than ratings of the attractiveness of various situations (judgment). In the FLU scenario the results are more equivocal. This scenario places a number of different heuristics in opposition. However, the majority of the subjects did care how the decision was made (i.e. they were either decision seeking or decision averse). Although there was not a clear majority choice on this item, the justifications showed overwhelmingly that the reasons for subjects' choices were drawn from the set of factors listed in the Introduction.

DISCUSSION

Decision aversion (or reduced decision seeking) is found when the decision must be made for others, when it involves making an unfair division, or when a possible bad outcome depends both on chance and on the option chosen, thus setting up the possibility of regret. In general, it is correct not to want to decide for others when they know their desires better than we do, but this reasoning cannot easily account for all our findings. In particular, in the FLU cases in which the two diseases were equally likely, it would seem that the patient (Fred) would have no preference at all, yet subjects were still reluctant to make the decision for him. People could overgeneralize the aversion to deciding for others even to cases in which such paternalism is justified, e.g. allowing children in certain religious sects to 'decide' to abstain from life-saving medical treatment. Politically, such an attitude could lead to exaggerated support for 'freedom of choice' even when such freedom is often abused or misused. It could also generate support for institutions in which those affected have a 'voice' in the decision, even if their voice has no effect (Tyler, 1988). The avoidance of unfair divisions was a particularly powerful result. It was found for gains (the PIANO scenario) as well as for losses (e.g. the BONE-MARROW scenario). As the PIANO case shows, this effect is not dependent on whether the outcome is fair or not, but simply on whether the outcome was reached by an active decision rather than a random process.

We have also found that the potential for regret or uncertainty causes people to avoid decisions,

other things being equal. Regret is dependent on the existence of chance factors. We can therefore expect this kind of aversion to lead to excessive information gathering when the information gathered has a chance of reducing potential regret or uncertainty. Alternatively, people could avoid the anticipation of regret by deceiving themselves into the belief that uncertainty is absent. We note that the role of anticipated regret could be normatively correct if the cost of avoiding the regret is sufficiently high and if the decision maker's aversion to regret is a legitimate goal. In many decisions, however, the cost of putting regret aside may be exaggerated (see Baron, 1988, pp. 345–46), or the decision is being made for someone else who will not experience the regret (Hershey and Baron, 1987).

In most cases, we do not have the 'choice' of whether to decide or not to decide, so whether we *desire* to decide may appear to be of no consequence for our decisions. However, our decision attitude can have three consequences. First, it can affect our own hedonic responses to the situations we are in. Decision aversion can make us unhappy when we must decide, and decision seeking can make us happy. The reverse will be true in situations where we have no choice. Second, decision attitude can cause us to seek or avoid situations in which decisions will have to be made. This can occur in both public and private decisions. Decision seekers will seek positions of influence, and decision avoiders will avoid such positions. Societies will try to avoid certain (difficult) decisions by setting up fixed rules that require little interpretation (or even by using lotteries; see Broome, 1991; Elster, 1989). For example, strict rules for the allocation of donated organs could be set up to relieve doctors of the stress of making the decisions for each case themselves (Elster, 1992; *Science*, 1990). Conversely, societies may also try to insure that decisions are made on a case-by-case basis under conditions in which the public as a whole is decision seeking, thus increasing the number of decisions made. A third effect of our decision attitude is that decision aversion could incline us toward inaction (omission), leading to the bias toward omissions observed by Ritov and Baron (1990) and by Spranca *et al.* (1991). This effect requires, in addition to decision aversion, a confusion between not acting and not deciding. Spranca *et al.* (1991), however, provide evidence suggesting that many people do equate these two kinds of situations. Conversely, decision seeking could incline us toward action even when this is not in our best interest.

People might benefit from understanding better the sources of their decision attitudes. Understanding these sources would help people to avoid non-normative extensions of otherwise reasonable heuristics concerning the making or avoidance of decisions. If individual decisions or public policies are distorted by any of the effects we have found, these distortions could be reduced. In general, decision seeking can lead to desire for power beyond the effect of that power on consequences, and decision aversion can lead to procrastination or inaction (Tversky and Shafir, 1992). In the latter case a decision can be made by default under the guise of 'not making a decision'.

The methods we have used could be useful for examining other sources of decision attitudes, such as ambiguity (Frisch and Baron, 1988), cultural differences, social norms concerning roles, and individual differences. More generally, we think we have defined a new topic of study. The determinants of attitude toward decision making are potentially as important as the determinants of attitudes toward risk.

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