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Maximizers versus satisficers: Decision-making styles, competence, and outcomes

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Abstract

Our previous research suggests that people reporting a stronger desire to maximize obtain worse life outcomes (Bruine de Bruin et al., 2007). Here, we examine whether this finding may be explained by the decision-making styles of self-reported maximizers. Expanding on Schwartz et al. (2002), we find that self-reported maximizers are more likely to show problematic decision-making styles, as evidenced by self-reports of less behavioral coping, greater dependence on others when making decisions, more avoidance of decision making, and greater tendency to experience regret. Contrary to predictions, self-reported maximizers were more likely to report spontaneous decision making. However, the relationship between self-reported maximizing and worse life outcomes is largely unaffected by controls for measures of other decision-making styles, decision-making competence, and demographic variables.

Keywords: maximizing, satisficing, decision making, competence, decision style.

1 Introduction

Behavioral decision research (Edwards, 1961; Hastie & Dawes, 2001; Yates, 1990) characterizes behavior in terms of its consistency with the axioms of utility maximization (Bernoulli, 1738/1954; von Neumann & Morgenstern, 1953). A half-century of research has revealed both consistency with and departures from that norm (e.g., Baron, 2000; Plous, 1993). The latter include "satisficing," choosing an alternative that is "good enough," rather than "maximizing," selecting the option with the highest expected utility (Simon, 1978). Such strategies can be beneficial — if they save enough cognitive effort to justify any loss in expected payoff (Simon, 1955, 1956, 1957).

Historically, decision-making research has focused on general processes underlying deviations from normative theory, such as satisficing instead of maximizing (Lopes, 1987). More recently, attention has turned to individual differences in decision making (e.g., Stanovich & West, 1998, 2000), asking whether, through preference or ability, individuals make decisions in consistent ways, across tasks and situations (Bromiley & Curley, 1992). Individual differences that have been examined include risk aversion and risk judgments (Slovic, 1962; Weber, Blais, & Betz, 2002); preference for rational, intuitive, dependent, avoidant, or spontaneous decision-making styles (Scott & Bruce, 1985); and decision-making competence (Bruine de Bruin et al., 2007; Finucane et al., 2002, 2005; Parker & Fischhoff, 2005).

Building on Simon's work, Schwartz et al. (2002) developed a scale measuring the degree to which individuals report trying to maximize, rather than satisfice. It includes items such as "When I watch TV, I channel surf, often scanning through the options even while attempting to watch one program." The other items capture ways in which one might explore as much information as possible when making a choice. Given the many options often available in modern life (e.g., TV channels, cars, jobs, prospective mates), maximizing is no small feat (Iyengar & Lepper, 1999; Schwartz, 2004a; 2004b; Tversky & Shafir, 1992).

Perhaps because of the challenges of successfully implementing a maximizing strategy, people who attempt to do so fare less well in life, in the sense of experiencing less happiness, optimism, self-esteem, and life satisfaction, while incurring more depression, perfectionism,

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and regret (Schwartz et al., 2002). Moreover, individuals who try to maximize may have less constructive decision-making styles (Schwartz et al., 2002). For example, aspiring maximizers make more upward social comparisons, thereby inducing regret and counterfactual thinking about what might have been. They rely more on external information sources (Iyengar, Wells, & Schwartz, 2006), which might lead them to further question their choices. Thus, these decision-making styles may undermine the very satisfaction that attempted maximizers try so hard to achieve (Schwartz et al., 2002).

Even when maximizing pays off with better outcomes, satisfaction with those outcomes still may not follow. Iyengar, Wells & Schwartz (2006) found that recent college graduates who described themselves as maximizers secured jobs with 20% higher starting salaries, but felt less satisfied during the job search and afterward. One possible explanation is that attempting to maximize encourages focusing on one easily compared feature (salary), while neglecting other features important to job satisfaction. Were that the case, then those who attempt to maximize may make poorer decisions, despite strongly desiring the opposite. Conversely, in decisions that lack easily compared criteria, would-be maximizers may face cognitively intractable situations, like those that led Simon to propose the advisability of satisficing.

Consistent with these hypotheses, Bruine de Bruin et al. (2007) found that people with higher self-ratings on Schwartz et al.'s (2002) maximizing scale had *lower* scores on a measure of Decision-Making Competence (DMC), which is described below ($r = -.19$, $p < .001$). In addition, self-identified maximizers also reported worse outcomes on the Decision Outcome Inventory (DOI), which includes 41 negative life events that might reflect poor decision making. These events range broadly in their impacts and frequency, and include ruining clothes in the laundry, having a check bounce, having a mortgage or loan foreclosed, being in jail overnight, and having been diagnosed with type 2 diabetes (which is more likely among people who have made poor lifestyle choices).

The analyses in Bruine de Bruin et al. (2007) focused on developing and validating the DMC and DOI measures. In that context, Schwartz et al.'s (2002) self-reported maximization scale was one of several comparison measures. As a result, the paper reported zero-order correlations of maximizing with DMC and DOI, but not with other decision-making styles or demographic characteristics. In particular, the analyses did not examine the extent to which lower DMC scores and problematic decision-making styles account for the correlation between self-reported maximizing and poorer life outcomes. Here, we examine this question, using Bruine de Bruin et al.'s (2007) diverse community sample and rich dataset.

We begin by asking whether self-reported maximizers tend to report several decision-making styles. One such measure is *behavioral coping*, or taking action to resolve difficult tasks, rather than working around them (Epstein & Meier, 1989; Katz & Epstein, 1991). Because self-reported maximizers may set unattainable goals, they should report less of such coping. Five other measures come from Scott and Bruce's (1985) suite of decision-making style scales. Self-reported maximizers should report engaging in (1) more *rational* decision making, reflecting their perception of systematic deliberation about their choices; (2) less *intuitive* decision making, attempting to avoid relying on feelings and instincts (e.g., Slovic, Finucane, Peters, & McGregor, 2004); (3) more *dependence* on others, reflecting interpersonal comparisons and the quest for information; (4) more *avoidant* decision making, postponing decisions to search for more information and ponder the possibilities; and (5) less *spontaneous* decision making, in the sense of taking more time to carefully decide. Finally, we expect self-reported maximizers to report greater regret about their past decisions, replicating Schwartz et al.'s (2002) finding in a diverse community sample.

Subsequently, we take advantage of the diversity of Bruine de Bruin et al.'s sample to examine how self-reported maximizing varies with socio-demographic variables. Finally, we examine whether the correlations between self-reported maximizing and the two performance measures, A-DMC and DOI, are reduced after controlling for the other styles and demographics.

2 Method

2.1 Sample

We recruited 360 people from the Pittsburgh area through social service organizations (46.1%) and other community groups. The social service organizations were located in poorer sections of the city and served disadvantaged populations. Other community groups were located in relatively more affluent locations and did not address the needs of disadvantaged populations. Among participants responding to demographic questions, ages ranged from 18 to 88 (M=47.7, SD=17.0); 73.8% were women, 65.5% white, 28.2% African-American, and 6.3% other racial minorities. Highest level of education was 2.8% no degree, 44.6% a high school degree, 13.0% an associate's degree, 29.1% a bachelor's degree, 9.5% a master's degree, and 0.9% a Ph.D. Except for the proportion of women, the sample resembles U.S. Census figures for the Pittsburgh area.

2.2 Measures

Self-reported maximizing. We used Schwartz et al.'s (2002) 13-item measure of tending to maximize, rather than satisfice, which uses a scale anchored at 1 (=completely disagree) and 5 (=completely agree).

Other decision-making styles. We used the 15-item *behavioral coping* module of the Constructive Thinking Inventory (e.g., "When I realize I have made a mistake, I usually take immediate action to correct it;" Epstein & Meier, 1989; Katz & Epstein, 1991), with a scale anchored at 1 (=definitely false) and 5 (=definitely true). Scott and Bruce (1985) provided scales for self-reported attempts to (a) *make decisions rationally* (4 items; e.g., "I make decisions in a logical and systematic way"), (b) *base decisions on intuitions* (5 items; e.g., "I generally make decisions that feel right to me"), (c) *depend on others* (5 items; e.g., "I often need the assistance of other people when making important decisions"), (d) *avoid making decisions* (5 items; e.g., "I postpone decision making whenever possible"), and (e) *make decisions spontaneously* (5 items; e.g., "I make quick decisions"). The response scale was anchored at 1 (=completely disagree) and 5 (=completely agree). Finally, we used Schwartz et al.'s (2002) 5-item measure of the *tendency to feel regret* (e.g., "When I think about how I'm doing in life, I often assess opportunities I have passed up"), using the same response scale as Scott & Bruce (1985).

Adult-Decision-Making Competence. A-DMC has six component tasks, selected to cover the skills central to normative theories of decision making (Bruine de Bruin et al., 2007; Parker & Fischhoff, 2005). The A-DMC tasks were based on ones studied by behavioral decision researchers, drawing on the understanding derived from multiple rounds of experimental research. *Resistance to Framing* uses valence-framing problems (Levin, Schneider & Gaeth, 1998) to measure whether choices are affected by formally irrelevant variations in how options are described. For example, one pair of items asks for quality judgments of ground beef described as either (a) "20% fat" or (b) "80% lean." Fourteen such pairs are presented in two sets, with one containing the positively-valenced member of each pair, and the other containing the corresponding negatively-valenced items. *Recognizing Social Norms* asks "out of 100 people your age, how many would say it is sometimes OK" to engage in each of 16 undesirable behaviors (e.g., "steal under certain circumstances"). These estimates are compared to the percent of respondents from this study who had reported earlier that "it is sometimes OK" to engage in each behavior, with each person's score being the within-subject correlation between judged norms and observed norms. *Under/Overconfidence* uses a 34-item true/false knowledge test, with each answer accompanied by a probability judgment (on a scale ranging from 50%=just guessing to 100%=absolutely sure) that it is correct. Each person's score is the absolute value of the difference between their mean probability judgment and the actual percentage correct. The questions were representatively drawn from 17 *Complete Idiot's* guides advising on a wide variety of decisions. *Applying Decision Rules* assesses the ability to apply specified decision rules (e.g., elimination by aspects) to ten hypothetical choices, with each option characterized on several attributes in a table. *Consistency in Risk Perception* assesses the ability to make risk judgments that are internally consistent (e.g., giving a lower probability to dying in a terrorist attack than to dying from any cause), with 20 paired judgments. *Resistance to Sunk Costs* uses ten single-choice sunk cost problems to assess the ability to ignore irrecoverable prior investments, and consider only future consequences when making decisions. The aggregate Adult Decision-Making Competence (A-DMC) measure is the unweighted average of standardized task scores. It represents the extent to which individuals can make decisions normatively — as a potential correlate of their self-reported attempts to maximize.

Decision Outcomes Inventory (DOI). The Decision Outcome Inventory elicits self-reports of having experienced each of 41 negative events, varying widely in domain and severity (e.g., threw out food or groceries you had bought, locked yourself out, got divorced, had an unplanned pregnancy). For 35 of these events, respondents only received credit for avoiding a negative outcome if they indicated having made a decision crucial to experiencing it (e.g., only those who reported having a driver's license received credit for not having lost it). As a proxy for severity, each outcome was weighted by the proportion of participants who reported *not* experiencing it (among those who had the opportunity), assuming that more severe outcomes tend to be less frequent (as is the case with spending a night in jail, versus forgetting a birthday). Severity was computed specifically using responses from this sample. Weighted outcomes were averaged and subtracted from 0, so that higher scores reflect better outcomes. Thus, the DOI score reflects the number of negative outcomes respondents had avoided, out of those they had the opportunity to experience, weighted by severity. The A-DMC and DOI measures are available from the authors or online at http://sds.hss.cmu.edu/risk/ADMC.htm, as well as in this issue of *Judgment and Decision Making* (http://journal.sjdm.org/vol2.6.htm).

Demographics. Education is assessed from answers to, "What is currently your highest level of education?" with the options of no degree, high school, associate, bachelor, masters, and Ph.D. A dummy variable for being recruited

Table 1: Relationships among decision-making styles.

Decision-making Style	Maximize	Cope	Rat.	Int.	Dep.	Avoid.	Spon.
To cope behaviorally	−.20***						
To decide rationally	.06	.58***					
To decide intuitively	.05	.42***	.44***				
To depend on others	.29***	−.04	.23***	.24***			
To avoid decisions	.37***	−.43***	−.11+	.00	.40***		
To decide spontaneously	.31***	−.26***	−.21***	.19***	.10+	.44***	
To feel regret	.47***	−.31***	.01	−.01	.34***	.41***	.18**

+ p<.10; *p < .05; ** p < .01; *** p < .001 two-sided.

from a social service organization targeting residents with lower levels of socio-economic status was used as a proxy for socio-economic status (SES; 0 = lower, 1 = higher).

2.3 Procedure

Respondents were run in group survey sessions held in their communities. On a cover letter, respondents were told that the study was about decision styles, and that they would "be given several decision problems, items from an intelligence test, as well as questions about decision styles, decision outcomes, and demographic information." A-DMC tasks were self-paced, in the order: (a) positive versions of the Resistance to Framing items, (b) Recognizing Social Norms questions asking if "it is sometimes OK" to engage in different behaviors, (c) Under/Overconfidence, (d) Applying Decision Rules, (e) Consistency in Risk Perception, (f) Resistance to Sunk Costs, (g) negative versions of the Resistance to Framing items, and (h) Recognizing Social Norms questions asking about their peers' reported behaviors. This order maximized the distance between paired tasks (Resistance to Framing, Recognizing Social Norms). Subsequently, participants completed the decision-making styles measures, in the order: regret, maximizing, behavioral coping, rational, intuitive, dependent, avoidant and spontaneous decision making. Finally, they completed the DOI and the demographic questions. Participants received two envelopes containing $17.50 each, with the option to donate to the organization that recruited them. As stated in the recruitment materials: "We will give $35 for your time and effort. You will be given a choice between (a) taking home $35; (b) giving $35 to the organization through which you were recruited or (c) taking home $17.50 and giving the organization $17.50."

2.4 Analysis strategy

First, we examine Pearson correlations between self-reported maximizing and the other decision-making styles, as well as the demographic variables. Then, we report hierarchical multiple linear regressions predicting A-DMC, entering maximizing on the first step, the other the decision-making styles on the second step, and demographics on the third. Finally, we report hierarchical regressions predicting DOI, entering maximizing and the other decision-making styles on the first two steps, demographics on the third, and A-DMC on the fourth.

3 Results

3.1 Scale properties

All eight decision-making style variables had ranges of 1 to 5, with higher scores indicating greater endorsement of the style. The mean self-reported maximizing score was 2.9 (Cronbach α = .76). Other means were 3.0 for regret (Cronbach α = .65), 3.8 for behavioral coping (Cronbach α=.86), 3.8 for rational (α = .85), 3.6 for intuitive (α = .87), 3.4 for dependent (α = .83), 2.6 for avoidant (α = .89), and 2.6 for spontaneous (α = .87) decision making. As reported in Bruine de Bruin et al. (2007), A-DMC has an α of .85 and test-retest reliability of .73. DOI has an α of .88.

3.2 Self-reported maximizing and other decision-making styles

Table 1 presents correlations between self-reported maximizing and the other decision-making styles. Consistent with Schwartz et al.'s account, self-reported maximizing is related to less behavioral coping, more depending on others, and a stronger tendency to avoid decisions. However, we did not find the expected corrections with self-

Table 2: Relationships between decision-making styles and demographics.

	Gender	Age	SES	Education
To maximize	−.11*	.01	−.16**	−.16**
To cope behaviorally	.01	.20***	.24***	.20***
To decide rationally	−.04	.19***	.16**	.16**
To decide intuitively	.10	.20***	.05	−.07
To depend on others	.07	.11	.05	.05
To avoid decisions	.09	−.07	−.20***	−.12*
To decide spontaneously	.01	−.08	−.25***	−.27***
To feel regret	−.04	−.08	−.11*	−.09

+ p<.10; *p < .05; ** p < .01; *** p < .001 two-sided

Notes: Gender is coded as 0 if male and 1 if female. SES is 1 (higher) if respondent was interviewed at a social service organization (0 otherwise). Education is coded as 1 if no degree, 2 if high school, 3 if associates degree, 4 if bachelors degree, 5 if masters degree, and 6 if Ph.D.

reports of deciding rationally and deciding intuitively — and found the opposite of the expected correlation with deciding spontaneously. Replicating a key result from Schwartz et al. (2002), we find that people who reported stronger commitments to maximizing also reported experiencing greater regret.

3.3 Decision-making styles and demographic characteristics

Row 1 of Table 2 shows that self-reported maximizing was greater for respondents drawn from lower SES locations and reporting less education (SES and education were correlated at r = .42, p < .001). It was slightly higher among men and unrelated to age. The rest of the table shows that each style measure, except depending on others, was significantly correlated with at least one demographic variable. The analyses below clarify these relationships.

3.4 Predicting decision-making competence and decision outcomes from decision-making styles and demographics

As mentioned, Bruine de Bruin et al. (2007) found statistically significant pair-wise relationships between several of the decision-making style variables and both A-DMC and DOI.[1] Tables 3 and 4 present hierarchical regression models predicting A-DMC (left) and DOI (right). Step 1 uses self-reported maximizing as a predictor, Step 2 adds the other seven decision-making styles, Step 3 adds the demographics, and Step 4 adds A-DMC (for the DOI analyses).

3.4.1 Decision-making competence

Step 1 of Table 3 shows that the self-ratings on the maximizing scale have a significant negative relationship with A-DMC. When all eight styles are considered (Step 2), A-DMC scores are significantly correlated with two seemingly contradictory styles: less reported maximizing and less spontaneous decision making.[2] Adding the demographics (Step 3) leaves weak significant relationships with reported maximizing and spontaneous decision making, while revealing that A-DMC is slightly lower for women and much higher for respondents with more education and higher SES.

3.4.2 Decision outcomes

Step 1 of Table 4 shows a significant correlation between reporting more maximizing and experiencing worse decision outcomes. When all eight styles are considered (Step 2), significantly better outcomes are reported by respondents who report less maximizing, more behavioral coping, more intuitive decision making, and less deciding spontaneously — with marginally significant correlations with depending on others more and avoiding decisions

[1] As reported in Bruine de Bruin et al. (2007), each of the A-DMC components correlated negatively with self-reported maximizing, reaching statistical significance for under/overconfidence (r = −.21, p > .001) and consistency in risk perception (r = −.13, p < .05).

[2] These regressions were run using all planned tests. Follow-up analyses, removing non-significant predictors, did not qualitatively change the patterns of results presented here.

Table 3: Hierarchical linear regressions predicting A-DMC.

Predictor Variable	Step 1	Step 2	Step 3
To maximize	−.21***	−.15*	−.12*
cope behaviorally	–	.09	.00
decide rationally	–	.07	.04
decide intuitively	–	.01	.08
depend on others	–	.05	.01
avoid decisions	–	−.04	−.01
decide spontaneously	–	−.19**	−.10+
feel regret	–	.03	.03
Female	–	–	−.12*
Age	–	–	−.04
Education	–	–	.23***
Higher SES	–	–	.36***
A-DMC	–	–	–
F-statistic	14.85***	5.35***	15.58***
(df)	(1, 300)	(8, 293)	(12, 289)
Adjusted R^2	.04	.10	.37

+ p<.10; *p < .05; ** p < .01; *** p < .001 two-sided

Note: Statistics are standardized regression coefficients.

Table 4: Hierarchical linear regressions predicting DOI.

Predictor	Step 1	Step 2	Step 3	Step 4
maximize	−.26***	−.15*	−.16**	−.13*
cope	–	.17*	.14+	.14+
rational	–	−.02	−.03	−.04
intuitive	–	.15*	.11+	.09
others	–	.12+	.07	.07
avoid	–	−.12+	−.09	−.08
spontaneous	–	−.24***	−.20**	−.17**
regret	–	.04	.07	.06
Female	–	–	−.02	.01
Age	–	–	.28***	.28***
Education	–	–	−.08	−.12*
Higher SES	–	–	.21***	.14*
A-DMC	–	–	–	.21***
F-statistic	20.96***	11.46***	12.34***	12.69***
(df)	(1, 300)	(8, 293)	(12, 289)	(13, 288)
Adjusted R^2	.06	.22	.31	.34

Notes: N = 302. Variance inflation factors range from 1.0 to 2.5, indicating only modest multicollinearity.

less. As with A-DMC (Table 3), spontaneous decision-making style stood out.[3] The correlations with reported maximizing and spontaneity appear to remain stable with the addition of the demographic variables (Step 3). Step 3 also reveals better DOI for older and higher SES respondents.

Adding the A-DMC (Step 4) reveals that scoring higher on A-DMC is significantly related to reporting more positive decision outcomes on the DOI, even after including all the decision style and demographic measures. DOI scores are also higher for individuals who are older, have less education, and come from the higher SES locations. Among the style measures, significant positive relationships remain for self-reported maximizing and deciding spontaneously.[4,5]

4 Discussion

As predicted, individuals who report a stronger tendency to maximize are also more likely to report other maladaptive decision-making styles, such as less behavioral coping, greater dependence on others, more avoiding of decision making, and greater experience of regret. Contrary to predictions, self-reported maximizers are *more* likely to report spontaneous decision making. We failed to find predicted correlations with rational and intuitive styles. Below, we first explain how these findings affect the relationship of maximizing with A-DMC and DOI, and then discuss each in more detail.

Bruine de Bruin et al. (2007) found that self-reported maximizers appeared to be poorer decision makers, whether measured by a standard measure (A-DMC) or self-reported outcomes (DOI). Here, we found that self-reported maximizing and A-DMC were negatively related in hierarchical regression analyses that included other decision-making styles that might characterize maximizers, as well as several standard demographic variables. The introduction of spontaneous decision making into the regression models substantially reduced

[3]Follow-up analyses, adding each decision style individually, show that the reduction in the coefficient for maximizing is due almost entirely to the addition of the spontaneous decision-style variable.

[4]A quadratic maximizing term, added to this equation after Step 1, had a standardized beta of .76, p < .05. The positive curvature represents modestly better reported decision outcomes for those with very low and very high maximizing scores. Adding this term did not markedly affect the standardized coefficient for maximizing, either alone (standardized beta = −.25) or with the other variables included (standardized beta = −.12). Including a quadratic maximizing term had no effect on the regression predicting A-DMC.

[5]When an interaction between A-DMC and self-reported maximizing is entered into the equation, it is non-significant (standardized beta = −.05). Hence, whereas higher DMC can compensate for a maximizing style, it does not moderate it (or vice versa).

the relationship between self-reported maximizing and decision-making ability, while other decision-making styles (behavioral coping, deciding rationally, deciding intuitively, depending on others, avoiding decisions, and feeling regret) did not. Thus, with the exception of spontaneity (which we address below), attempting to maximize appears to be a distinct, maladaptive decision-making style, associated with poor decision making, in this diverse community sample.[6] The regression coefficient on maximizing was not substantially reduced in hierarchical analyses where many of the other styles dropped from significance, suggesting that maximizing, as measured, may be a more proximal correlate of A-DMC and DOI. Past research has found greater dissatisfaction among self-reported maximizers (Iyengar et al., 2006; Schwartz et al., 2002), a result that might reflect their having higher expectations or lower abilities. The present results suggest that maximizers actually experience more negative life outcomes (as measured by the DOI), perhaps as a result of being less competent (as measured by A-DMC).

Consideration of the other decision-making styles may help clarify these patterns. Self-reported maximizers report less use of *behavioral coping* strategies for reducing the stress of unresolved challenges (Epstein & Meier, 1989; Katz & Epstein, 1991). Satisficing could be one such strategy, which Bruine de Bruin et al. (2007) found to be associated with better decision-making competence and outcomes.

Self-reported maximizers report depending more on others for information, consistent with the accounts of Schwartz et al. (2002) and Iyengar et al. (2006). While good advice can improve decisions, consultation can also undermine effective decision making by encouraging unrealistic aspirations, focusing attention on readily quantified outcomes, and revealing contradictory advice (Fischhoff, 1992). Perhaps reflecting these contrary possibilities, self-reported dependence on others is unrelated to decision-making competence or outcomes.

Self-reported maximizers report greater decision avoidance, plausibly the result of taking the time to examine each option in detail. When that examination fails to yield clearly superior options, the result may be inaction or actions driven by events outside of individuals' control (Fischhoff, in press). The perils of these processes might contribute to the finding that reporting greater decision avoidance was correlated with worse decision-making competence and decision outcomes. Experimental studies have found greater avoidance as the number and quality of decision options increases (Dhar, 1997; Tversky & Shafir, 1992), decision features that might particularly affect maximizers.

Self-reported maximizers reported greater spontaneity, in the sense of making spur-of-the-moment choices. This result appears contrary to the image of maximizers agonizing over the "best" option. One possible clue is that reporting spontaneity was correlated with reporting decision avoidance; perhaps people who postpone making decisions end up making what feel like "spur of the moment" choices. It is also possible that maximizers tend to see choices as spontaneous because they have difficulty seeing them as adequately reasoned. As noted (footnote 3), the spontaneous decision-style measure was the only one that substantially reduced the coefficients on maximizing in either hierarchical regression.

Self-reported maximizing was, however, unrelated to the self-reported rational decision-making style measure, a seemingly related construct. A speculative explanation is that the maximizing scale includes items expressing frustration (e.g., "Renting videos is really difficult. I'm always struggling to pick the best one."), whereas the rationality items are more neutral (e.g., "When making decisions, I consider various options in terms of a specific goal"). Past research has found that rational decision-making scores are positively correlated with competence and good outcomes, while maximizing is negatively correlated (Bruine de Bruin et al., 2007; Crossley & Highhouse, 2005; Russ, McNeilly & Comer, 1996). However, in the presence of the other predictors, the rational decision-making style predicted neither A-DMC nor DOI, whereas maximizing continued to be negatively related to them. Possibly, the rational decision-making scale captures self-observation of some behaviors actually associated with good decision making, whereas the maximizing scale captures self-observation of ineffective ones.

Self-reported maximizing was not negatively correlated with self-reports of deciding intuitively, seemingly the complement of deciding rationally. An intuitive style has sometimes been related to better competence and outcomes (Bruine de Bruin et al., 2007; Crossley & Highhouse, 2005), and sometimes not (Phillips & Strohmer, 1982; Singh & Greenhaus, 2004). Future research should investigate the possibilities that this is the result of measurement or more substantive issues.

Self-reported maximizers tend to report experiencing more regret, replicating, with a diverse community sample, a result that Schwartz et al. (2002) attributed to unfavorable social comparisons. Bruine de Bruin et al. (2007) found that people who express more regret have worse decision-making competence and outcome scores (Bruine de Bruin et al., 2007), suggesting that the feeling might be warranted.

In this diverse sample, we found more self-reported maximizing among men (as found in some samples by

[6]This conclusion does not exclude the possibility that there may be positive (or negative) externalities to maximizing, realized by others around the maximizer.

Schwartz et al., 2002), less educated people, and ones interviewed at an organization serving lower SES individuals. On the other decision-making style measures: (a) there were no other gender differences; (b) older individuals reported more behavioral coping and more rational and intuitive styles; (c) lower SES individuals reported less behavioral coping, being less rational, more avoidant, more spontaneous styles, and more regretful; (d) individuals with less education reported less behavioral coping, being more rational, more avoidant, and more spontaneous.

As with previous studies, we report correlations. Although it is tempting to interpret the results as showing that good outcomes and decision-making competence follow from attempting to satisfice (rather than maximize), the opposite is also possible. Negative life experiences, or recognized limits to one's decision making could encourage people to maximize, hoping that it will lead to better outcomes. That might be particularly true for low SES individuals, who tend to face a world with greater risks and fewer resources.

The relationships among the decision-making styles (e.g., the positive correlation between maximizing and spontaneity) also raise the possibility of more complex relationships, including mediation or third-variable explanations. Experimental studies (e.g., manipulating maximizing pressure) might provide causal evidence. Prospective designs might identify temporal emergence of different tendencies — as reported by Parker & Fischhoff (2005), whose 18–19 year old respondents had entered a longitudinal study between ages 10–12. Our conclusions also depend on the reliability and validity of our measures – as seen in some of the discussion (above) about the meaning of various scales. With correlated predictors, unreliability complicates the identification of independent effects.

These results show the importance of distinguishing between intent (style) and action (competence). The hierarchical regressions find that styles and competence do little to diminish either's ability to predict DOI. Other results find that self-reported maximizing, a style that endorses a feature common to normative models of decision making, is negatively related to the ability to follow normative decision-making strategies (A-DMC). Thus, the self-reported tendency to maximize is associated with worse life outcomes, while the ability follow normative rules is associated with better ones. If these relationships are indeed causal, then teaching both normative decision-making skills and the importance of satisficing might help people to achieve better outcomes.

References

Baron, J. (2000). Thinking and Deciding, 3rd Ed. New York, NY: Cambridge University Press.

Bernoulli, D. (1738/1954). Exposition of a new theory on the measurement of risk. *Econometrica*, *22*, 23–36.

Bromiley, P., & Curley, S. P. (1992). Individual differences in risk taking. In J. F. Yates (Ed.), *Risk-taking behavior* (pp. 87–132). New York, NY: John Wiley & Sons.

Bruine de Bruin, W., Parker, A. M., & Fischhoff, B. (2007). Individual differences in Adult Decision-Making Competence. *Journal of Personality and Social Psychology*, *92*, 938–956.

Crossley, C. D., & Highhouse, S. (2005). Relation of job search and choice process with subsequent satisfaction. *Journal of Economic Psychology*, *26*, 255–268.

Dhar, R. (1997). Consumer preference for a no choice option. *Journal of Consumer Research, 24,* 215–231.

Edwards, W. (1954). The theory of decision making. *Psychological Bulletin, 51,* 380–417.

Epstein, S., & Meier, P. (1989). Constructive thinking: a broad coping variable with specific components. *Journal of Personality and Social Psychology, 57,* 332–350.

Finucane, M. L., Mertz, C. K., Slovic, P., Schmidt, E. S. (2005). Task complexity and older adults' decision-making competence. *Psychology and Aging, 20*, 71–84.

Finucane, M. L., Slovic, P., Hibbard, J. H., Peters, E., Mertz, C. K., & Macgregor, D. G. (2002). Aging and decision-making competence: An analysis of comprehension and consistency skills in older versus younger adults. *Journal of Behavioral Decision Making, 15,* 141–164.

Fischhoff, B. (1992). Giving advice: Decision theory perspectives on sexual assault. *American Psychologist, 47*, 577–588.

Fischhoff, B. (in press). Assessing adolescent decision-making competence. *Developmental Review*.

Hastie, R., & Dawes, R. M. (2001). *Rational choice in an uncertain world: The psychology of judgment and decision making.* Thousand Oaks, CA: Sage.

Kahneman, D., Slovic, P., & Tversky, A. (1982). *Judgment under uncertainty: Heuristics and biases.* New York: Cambridge University Press.

Katz, L., & Epstein, S. (1991). Constructive thinking and coping with laboratory-induced stress. *Journal of Personality and Social Psychology, 61*, 789–800.

Iyengar, S. S., & Lepper, M. R. (1999). Rethinking the value of choice: A cultural perspective on intrinsic motivation. *Journal of Personality and Social Psychology*, *76*, 349–366.

Iyengar, S. S., Wells, R. E., & Schwartz, B. (2006). Doing better but feeling worse. Looking for the "best" job undermines satisfaction. *Psychological Science, 17,* 143–150.

Levin, I. P., Schneider, S. L., & Gaeth, G. J. (1998). All frames are not created equal: A typology and critical analysis of framing effects. *Organizational Behavior and Human Decision Processes, 76,* 149–188.

Lopes, L. L. (1987). Between hope and fear: The psychology of risk. *Advances in Experimental Social Psychology*, *20*, 255–295.

Parker, A. M., & Fischhoff, B. (2005). Decision-making competence: External validation through an individual-differences approach. *Journal of Behavioral Decision Making*, *18*, 1–27.

Phillips, S. D., & Strohmer, D. C. (1982). Decision-making style and vocational maturity. *Journal of Vocational Behavior*, *20*, 215–222.

Plous, S. (1993). *The psychology of judgment and decision making*. New York: McGraw-Hill, Inc.

Russ, F. A., McNeilly, K. M., & Comer, J. M. (1996). Leadership, decision making and performance of sales managers: A multi-level approach. *Journal of Personal Selling & Sales Management*, *16*, 1–15.

Schwartz, B. Ward, A., Monterosso, J. Lyubomirsky, S., White, K., & Lehman, D. R. (2002). Maximizing versus satisficing: Happiness is a matter of choice. *Journal of Personality and Social Psychology, 83,* 1178–1197.

Schwartz, B. (2004a). *The paradox of choice: Why more is less.* New York: Harper Perennial.

Schwartz, B. (2004b, April). The tyranny of choice. *Scientific American, 290,* 70–76.

Scott, S. G., & Bruce, R. A. (1995). Decision making style; Development and assessment of a new measure. *Educational and Psychological Measurement, 55*, 818–831.

Simon, H. A. (1955). A behavioral model of rational choice. *Quarterly Journal of Economics*, *59*, 99–118.

Simon, H. A. (1956). Rational choice and the structure of the environment. *Psychological Review*, *63*, 129–138.

Simon, H. A. (1957). *Models of man, social and rational: Mathematical essasys on rational human behavior*. New York: Wiley.

Simon, H. A. (1978). Rationality and process and product of thought. *American Economic Review*, *68*, 1–16.

Singh, R., & Greenhaus, J. H. (2004). The relation between career decision-making strategies and person-job fit: A study of job changers. *Journal of Vocational Behavior*, *64*, 198–221.

Slovic, P. (1962). Convergent validation of risk-taking measures. *Journal of Abnormal and Social Psychology*, *65*, 68–71.

Slovic, P., Finucane, M. L., Peters, E., & McGregor, D. G. (2004). Risk as analysis and risk as feelings: Some thoughts about affect, reason, risk, and rationality. *Risk Analysis, 24,* 311–322.

Stanovich, K. E., & West, R. F. (1998). Individual differences in rational thought. *Journal of Experimental Psychology: General, 127,* 161–188.

Stanovich, K. E., & West, R. F. (2000). Individual differences in reasoning: Implications for the rationality debate? *Behavioral and Brain Sciences, 23,* 645–726.

von Neumann, J. & Morgenstern, O. (1953). *The theory of games and economic behavior*. Princeton, NJ: Princeton University Press.

Tversky, A., & Shafir, E. (1992). Choice under conflict: The dynamics of deferred decision. *Psychological Science, 3,* 358–361.

Weber, E. U., Blais, A. -R., & Betz, N. E. (2002). A domain-specific risk-attitude scale: Measuring risk perceptions and risk behaviors. *Journal of Behavioral Decision Making*, *15*, 263–290.

Yates, J. F. (1990). *Judgment and decision making*. Englewood Cliffs, NJ: Prentice Hall.