Maximization in moderation: finding the optimal level of maximizing tendency

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by

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A Thesis
Submitted to the University at Albany, State University of New York
in Partial Fulfillment of
the Requirements for the Degree of
Master of Arts

College of Arts & Sciences
Department of Psychology
2020
Abstract:

Maximizing tendency is a decision making style in which an individual keeps a high standard for decisions. Research has elicited conflicting results regarding the nature of maximizing tendency and various subjective outcomes. Extant research has shown maximizing tendency to be linearly related, both negatively and positively, to depression, optimism, life satisfaction and decision regret. Although measurement issues have been routinely blamed for the inconsistencies in these findings, this study posits that maximizing tendency is curvilinearly related to the subjective outcomes of decision regret, optimism, and life satisfaction, based on the Too Much of a Good Thing effect. It is hypothesized that low level and extreme level maximizers will obtain outcomes less desirable than moderate level maximizers. Whereas too little maximizing results in poor objective outcomes leading to worse subjective outcomes, extreme levels of maximizing results in negative rumination about one’s decisions which leads to worse subjective outcomes. Hypotheses were partially supported, as evidence provided support for the notion of curvilinearity between maximizing tendency and the outcomes of optimism, decision regret and life satisfaction. Low and high level maximizers experienced a reduction in the subjective outcomes of life satisfaction and optimism. The inverse of the hypothesized relationship between maximizing tendency and decision regret was found, such that moderate maximizers reported the highest levels of decision regret.
Maximization in Moderation: Finding the Optimal Level of Maximizing Tendency

Maximizing tendency is a decision making style characterized by optimizing one’s decision outcomes through setting high standards. Satisficing pertains to an individual’s consistent acceptance of the first adequate choice that presents itself, regardless of the availability of better options. The distinguishing feature between maximizing and satisficing, then, is the standard for one’s decisions across contexts, which in turn influences decision making behavior (Dalal et al., 2015; Diab et al., 2008; Simon, 1956). Although the idea that decision makers satisfice more than maximize is not new (Simon, 1955), the conceptualization of maximizing tendency as an individual difference that manifests across situations is relatively novel (Schwartz et al., 2002).

Within the relatively nascent area of research, maximizing tendency was initially considered a negative decision making tendency being linked to detrimental outcomes like increased decision regret and depression, and reduced life satisfaction and happiness (see Zhu, Dalal, & Hwang, 2017 for a review). A recent reconceptualization of maximizing has linked the construct to more positive outcomes such as increased happiness and life satisfaction, higher optimism levels, lower depression levels, and larger reported savings (Zhu et al., 2017). Whereas some have argued that these disparate views of maximizing tendency result from measuring maximizing tendency differently (Cheek & Schwartz, 2016; Dalal et al., 2015), this study argues that both views of maximizing tendency are accurate, and that the exclusive focus on linear relations has missed the potential nonlinear relation between maximizing tendency and outcomes.
In short, this study argues for, and tests the possibility of a curvilinear relationship between maximizing tendency and various outcomes. The argument for curvilinearity is predicated on Too Much of a Good Thing (TMGT) effect (Pierce & Aguinis, 2013)—the idea that a construct can possess beneficial properties at an optimal level with the possibility of deleterious effects in extreme quantities. When applied to maximizing tendency, TMGT describes an ideal level of maximizing that garners positive outcomes for the decision maker, yet has the potential to have detrimental effects at high and low levels.

Maximizing Tendency

Herbert Simon posited the concept of maximizing to explicate human decision making. Simon (1955; 1956) argued that humans satisfice because the cognitive effort required to maximize expected value is beyond the interest of most decision makers; in short, people satisfice because it is easier. Simon further argued that decision makers would work to find an alternative until a minimally satisfactory choice was found after which individuals were less likely to exert more cognitive effort to find better options. According to Simon, decision makers’ aspirational levels determine their search behaviors such that decision making effort is reduced as aspiration levels fall.

Schwartz and colleagues (2002) were the first to propose maximizing tendency as an individual difference wherein some decision makers would seek out the best possible option across decisions. In measuring this construct, Schwartz and colleagues (2002) developed a three factor scale with the factors later labeled High Standards, Alternative Search, and Decision Difficulty (Nenkov et al., 2008). Some researchers, however, have challenged the conceptualization of maximizing tendency as proposed by Schwartz and colleagues.
Diab et al. (2008) suggested that maximizing, as proposed by Simon (1955; 1956), is actually characterized by a refusal to lower standards during choice optimization, and that decision difficulty and alternative search are not part of the theory of the maximizing construct. Dalal and colleagues (2015) further refined this conceptualization, arguing that the defining feature of maximizing tendency is the refusal to lower one’s standard for making decisions, and that searching for alternatives and finding decisions difficult are outcomes resulting from a refusal to lower one’s standards. Finally, Cheek and Schwartz (2016) agreed that decision difficulty should not be considered part of the construct domain of maximizing, but alternative search and high standards are both central to the concept of maximizing. Although the debate about the nature of the maximizing construct has not been settled, the implications of maximizing tendency on decision making outcomes and decision maker well-being have been mixed.

Linear Relations among Maximizing Tendency and Outcomes

The various conceptualizations of maximizing described earlier have resulted in different measures of maximizing tendency. Inconsistencies in measurement approach have culminated in contrasting ideas of maximizers. Studies show that those higher in maximizing tendency experience better objective outcomes. For example, a sample of university students high in maximizing tendency secured salary offers 20 percent larger than low level maximizers (Iyengar et al., 2006). Additionally, maximizers have reported larger savings accounts (Zhu et al., 2017). The effects of maximizing tendency on subjective outcomes, however, are more ambiguous (Diab et al., 2008; Lai, 2010; Schwartz et al., 2002). Subjective outcomes include life
satisfaction, regret, optimism and depression (Lai, 2010; Schwartz et al., 2002). Depending on
the measure used, maximizing can be negatively or positively related to life satisfaction,
optimism, depression, and decision regret.

For example, Schwartz and colleagues’ (2002) three-factor maximization scale (MS) is
negatively related to life satisfaction, happiness, optimism, and self-esteem as well as positively
related to decision regret (Schwartz et al., 2002). It is believed that the decision difficulty and
alternative search components are driving these results (Diab et al., 2008; Nenkov et al., 2008;
Weinhardt et al., 2012). Indeed, the decision difficulty facet of the MS points to a tendency for
maximizers to ruminate as options proliferate; rumination has been linked with anxiety,
depression and neuroticism (Muris et al., 2005). Furthermore, Purvis and colleagues (2011)
found that neuroticism was positively associated with alternative search and decision difficulty
factors of the Maximization Scale.

When viewing maximizing through a high standards lens, relationships with subjective
outcomes and traits are more promising. Purvis et al. (2011) explored maximizing tendency
correlates, linking conscientiousness to Schwartz and colleagues’ (2002) measure of high
standards as well as high standards measured by Diab et al.’s (2008) Maximizing Tendency
Scale (MTS). Furthermore, high standards have demonstrated a positive relation with life
satisfaction, positive affect, happiness, and optimism (Dalal et al., 2015; Purvis et al., 2011).

Moreover, Blasberg et al. (2016) made an important distinction between high standards
and perfectionistic standards, stating that high standards showed a high level of excellence,
whereas perfectionistic standards were flawless. Positive outcomes such as life satisfaction and
positive affect were associated with high standards, but negative outcomes were associated
with perfectionistic standards, including depression, anxiety, negative affect and shame
(Blasberg et al., 2016). Although high standards have been linked to positive outcomes
(Blasberg et al., 2016; Dalal et al., 2015 Nenkov et al., 2008; Purvis et al., 2011), other studies
have shown that high standards are related to increases in negative outcomes such as decision
regret (Diab et al., 2008). Despite maximizers enjoyment of the cognitive complexity that
accompanies optimizing decisions (Weinhardt et al., 2012), too much decision optimization
might result in detrimental outcomes. This suggests that maximizing is actually curvilinearly
related to outcomes such that those who maximize too much or too little experience more
negative subjective outcomes.

**Too Much of a Good Thing?**

Simon (1990) argued that maximizing places a heavy (often unbearable) computational
burden on the decision maker (p. 16). It stands to reason, then, that this increased
computational burden that maximizers engage in may result in negative outcomes. These
negative outcomes, though, may only be realized if maximizing exists at extreme levels. Stated
differently, it is possible that maximizing is related adaptively to outcomes as one’s standards
increase. These gains in positive outcomes, however, begin to level-off and actually become
negative as the standard becomes too high. Such a relationship is explained by a curvilinear,
TMGT effect, and may explain why some studies have found positive outcomes of high
standards and others have found negative outcomes.
It is posited that standards are curvilinearly related to outcomes. More specifically, individuals with standards that are low experience worse objective outcomes from consistently making suboptimal decisions but later realize that better options were available. This realization results in worse subjective experiences (Dalal et al., 2015). As an individual’s standard increases, decision outcomes improve resulting in more positive objective outcomes and therefore more positive subjective outcomes (Dalal et al., 2015; Zhu et al., 2017). Holding standards that are too high, though, results in standards that border on perfectionistic tendencies as noted by Blasberg et al., (2016). When standards are set so high, decision making paralysis can occur wherein the search for options that meet the overly-high (low-level perfectionistic) standard persists as such an option may not be found. This conceptualization is in line with Schwartz and colleagues’ (2002) view of maximizing in which maximizers experience negative subjective outcomes as a result of feeling their decisions never meet their high standard (see also, Schwartz & Ward’s, 2004, notion of paradox of choice). Schwartz and colleagues’ proposition differs from the hypothesis presented here, because it is argued that this process only occurs for those extremely high in maximizing tendency.

Such curvilinear relations among individual differences and outcomes is not new. Indeed, TMGT effects have been studied widely in the personality domain with the general argument that having certain personality attributes often results in adaptive outcomes until a point at which previously considered positive trait is no longer beneficial (Pierce & Aguinis, 2013). For example, the functional form of the relation between conscientiousness and work performance has been questioned recently (Carter et al., 2014; Pierce & Aguinis, 2013). An orientation for
extreme detailed work can become debilitating and prevent a highly conscientious individual from submitting work for fear of failure (Carter et al., 2014). Extreme levels of conscientiousness border on subclinical levels of obsessive compulsive behaviors (Carter et al., 2018). Similarly, Grant (2013) showed that extroversion is nonlinearly related to sales performance such that introverts and highly extroverted individuals had lower sales compared to ambivert individuals.

**Current Study**

The current study tests the proposed curvilinear relations among maximizing tendency and various subjective outcomes. This study focuses on subjective outcomes given the emphasis on the subjective experiences of maximizers in the extant literature. Specifically, curvilinear relations between maximizing tendency and optimism, life satisfaction, and decision regret are tested. Optimism is characterized by positive expectations about future outcomes (Carver & Scheier, 2014). In focusing on a high standard for one’s decision, maximizing prompts thinking about short term and long term (i.e., future) aspects of one’s decisions (Zhu et al., 2017); that is, meeting a current and future higher standard. Those who do not maximize fail to consider the future facets of their decisions and are therefore less likely to feel positively about future outcomes (i.e., be less optimistic). Those who maximize a moderate amount, though, are likely to consider future aspects of their current decision and therein feel more positively about their future outcomes. When someone maximizes too much, however, considering the future aspects of one’s decision engenders rumination about (1) if an alternative option selected now may be better in the future, and/or (2) if delaying choice may reveal a superior alternative in the future.
In both cases, the extreme maximizer is unlikely to feel positively about the future outcomes, experiencing less optimism.

**Hypothesis 1:** There is a reversing, inverted-U shaped curvilinear relation between maximizing tendency and optimism such that the relation changes from positive to negative through the range of maximizing tendency.

Life satisfaction is a global assessment about one’s life quality (Pavot & Diener, 2008), and is a general evaluation of how positively or negatively one views their life as a whole. Maximizing tendency is expected to be curvilinearly related to life satisfaction through the evaluation of the objective outcomes of one’s decisions. Those low in maximizing tendency will have a reduced appraisal of life quality as a result of consistently accepting suboptimal decisions. Individuals higher in maximizing tendency will have better appraisals of life quality because their decisions tend to have better objective outcomes. But, when maximizing tendency reaches levels at which standards cannot be met, life satisfaction will fall for two reasons: (1) decision paralysis can occur from consistent rumination on the possibility of better alternatives being available, and/ or (2) being less satisfied with one’s objective choice under the assumption that a better choice was available, but not selected.

**Hypothesis 2:** There is a reversing, inverted-U shaped curvilinear relation between maximizing tendency and life satisfaction such that the relation changes from positive to negative through the range of maximizing tendency.

Connolly and Zeelenberg (2002) defined decision regret using two components, a dissatisfaction with a choice because it falls short of one’s standard and making a decision that was, in retrospect, not justified. It is expected that individuals low in maximizing tendency will exhibit decision regret because of the latter aspect of the definition: In setting a low standard and making a choice, regret will ensue because the objective outcomes, being less positive, will
make the decision maker feel less justified in their choices. Individuals with a moderate amount of maximizing tendency, however, will experience reduced decision regret because their increased standards result in objectively better outcomes. Those with extreme levels of maximizing, though, experience more regret due to the former aspect of the definition: These individuals are expected to perceive any choice as not meeting a high enough standard.

**Hypothesis 3:** There is a reversing, U-shaped curvilinear relation between maximizing tendency and decision regret such that the relation changes from negative to positive through the range of maximizing tendency.

**Method**

**Participants**

Participants were obtained using Amazon’s Mechanical Turk (MTurk). Given the tendency for curvilinear effects to be small (Dalal & Zickar, 2012), an a priori power analysis determined that a minimum of 215 respondents would be necessary to detect a $\Delta R^2$ of about .05. To account for unusable data, 250 respondents were recruited. A total of 237 usable responses were acquired, after controlling for submission quality and success in the completion of attention checks. All participants were from the United States, 18 years or older and had at least an 80 percent approval rating on MTurk. The sample was, on average, 35.57 years old ($SD = 10.12$). The sample consisted of 147 (62%) males, 90 (37.8%) females and one (.2%) nonbinary person. The educational attainment of respondents consisted of 19 (8%) high school graduates, 18 (7.6%) having attended some college, 12 (5%) with a two year degree, 138 (57.98%) having received a four year degree, 50 (21.01%) with a master’s degree, and one doctorate degree. Most respondents reported full time employment (80.67%), with part-time employment reported by 25
(10.5%) respondents, 18 (7.6%) respondents indicated unemployment or retirement, and three (1.2%) respondents were students.

**Measures**

All responses will be made on a 1 (*Strongly Disagree*) to 5 (*Strongly Agree*) scale.

**The Maximizing Tendency Scale-7.** The seven-item MTS-7 was used to assess levels of maximizing tendency in decision makers (\(\alpha = .85\)). Increasing scores reflect increasing levels of maximizing. A sample item is, “No matter what I do, I have the highest standards for myself” (Dalal et al., 2015).

**The Satisfaction with Life Scale (SWLS).** The five-item SWLS assesses respondents general evaluation of their life (Diener et al., 1985). A sample item is, “In most ways my life is close to my ideal” (\(\alpha = .86\)).

**Decision Regret.** Decision regret was measured using Schwartz et al.’s (2002) five-item scale (\(\alpha = .67\)). A sample item is, “Whenever I make a choice, I’m curious about what would have happened if I had chosen differently.” Another item, “Once I make a decision, I don’t look back,” was dropped due to the low inter-total correlation which is typical of reverse-keyed items (Dalal & Carter, 2015); removing this item increased alpha to \(\alpha = .77\).

**Optimism.** Optimism was measured using the State Optimism scale (Millstein et al., 2019). A sample item is, “I am feeling optimistic about my future” (\(\alpha = .90\)).

**Procedures**

Data was collected through MTurk using an online survey with one temporal point of data collection. The scales and items answered by respondents were presented in a randomized
order. Three attention check items were interspersed throughout the survey and used to screen out any careless responses. Respondents were compensated $.75 for survey completion.

Analyses

Analysis proceeded in three steps. In step 1, item response theory (IRT) was used to compute standing on maximizing tendency. In step 2, using the latent-trait estimates from step 1, polynomial regression analysis was conducted. In step 3, assuming significant quadratic effects, the inflection points were computed and the curvilinear effects were plotted.

**Step 1: IRT Analysis of Maximizing Tendency.** Carter et al., (2017) demonstrated that the power to detect curvilinear effects was maximized when predictor variable standing was indexed using IRT scoring from the best fitting IRT model. As such, in step 1, the graded response model and the graded unfolding model were fit to MTS-7 responses. Theta (θ) estimates from the best fitting model were then computed for each individual and used to index maximizing tendency in step 2.

**Step 2: Polynomial Regression Analysis.** Polynomial regression was used to test for curvilinearity between the predictor and the outcomes. First, a linear regression was conducted to see if maximizing linearly predicted the outcomes. Next, a quadratic term was added to the model, and incremental improvement in fit was assessed (i.e., $\Delta R^2$).

**Step 3: Plotting and Inflection Point.** After obtaining significant quadratic terms, follow up analyses proceeded with two steps: plotting and computing the inflection point. This depicted the nature of the curvilinear relationship.
Results

A necessary component of Item Response Theory is unidimensional factor structure. As such, parallel analyses were conducted to ensure this criterion was met. Inspection of the scree plot and parallel analysis results confirmed the unidimensional structure of the MTS-7 as presented in Figure 1. In accordance with polytomous Item Response Theory practices, data were fit to the Graded Response Model (GRM) and Generalized Graded Unfolding Model (GGUM), with the latter showing superior fit, $M^2 = 6.17, p = .52, \text{RMSEA} < .001$ [0-.074] (Maydeu-Olivares & Garcia-Forero, 2010). As such, GGUM-based $\theta$-estimates were computed using Expected A Posteriori (EAP) scoring, and used in polynomial regression analyses. Inflection points were calculated by multiplying the linear regression term by -.5 and dividing the result by the quadratic term. The resulting number represented the standard deviations away from the mean at which a construct displayed diminishing returns.

Life Satisfaction

A positive linear relationship between maximizing tendency and life satisfaction was observed. Maximizing tendency significantly predicted life satisfaction scores, $b = .40, t(235) = 6.77, p < .001$. Maximizing tendency explained a significant amount of variance in levels of life satisfaction, $R^2 = .15, F(1, 235) = 41.44, p < .001$. The quadratic regression was marginally significant, $b = -.06, t(234) = -1.97, p = .05$ and maximizing tendency accounted for slightly more variance in life satisfaction, $\Delta R^2 = .01, F(2, 234) = 22.91, p = .05$. The inflection point at which optimism ceased to increase was calculated at 3.25 SD from the mean and is displayed in Figure 2.
Optimism

A positive, linear relationship between maximizing tendency and optimism was observed such that those higher in maximizing tendency experienced increased levels of state optimism. A linear regression showed that maximizing tendency significantly predicted state optimism $b = .45, t(235) = 9.67, p < .001$. Maximizing tendency also explained a significant amount of variance in state optimism, $R^2 = .28, F(1, 235) = 89.53, p < .001$. The quadratic regression was marginally significant, $b = -.05, t(234) = -1.91, p = .05$. Maximizing tendency accounted for slightly more variance in state optimism, $\Delta R^2 = .01, F(2, 234) = 47.10, p = .05$. The inflection point at which life satisfaction stopped increasing was calculated at 5.63 SD from the mean and is shown in Figure 3.

Regret

Maximizing tendency significantly predicted decision regret $b = .26, t(235) = 4.67, p < .001$. A linear regression showed that maximizing tendency explained a statistically significant amount of variance in decision regret, $R^2 = .06, F(1, 235) = 15.88, p < .001$. The quadratic regression was significant, $b = -.09, t(234) = -2.87, p = .001$ and maximizing tendency accounted for more variance in decision regret, $\Delta R^2 = .03, F(2, 234) = 12.30, p = .001$. Figure 4 depicts an inflection point of 1.5 SD from the mean at which inverted curvilinearity between decision regret and maximizing is observed.
Discussion

Evidence to support the three hypotheses of curvilinearity based on Too Much of a Good Thing effect was found, although the postulated directionality between regret and maximizing tendency was incorrect. The obtained results bolster extant arguments that maximizing tendency results in the positive subjective outcomes of optimism and life satisfaction. It is theorized that maximizing exists on a spectrum, with optimality existing in the center, moderate region. Individuals at the lowest and highest ends of the maximizing tendency spectrum reported reduced life satisfaction, lower optimism and less decision regret. In conjunction with Too Much of a Good Thing effect, maximizing tendency is beneficial at a moderate level whereas levels that are too low and/or high show less beneficence.

The conceptualization of maximizing tendency aligns with recent studies, in that moderate maximizers experience higher life satisfaction, more optimism and increased decision regret. The results of this study support the notion that previous categorizations of the relationship between maximizing tendency and outcomes as linear are inaccurate. The optimal level of maximizing tendency exists at a moderate amount, where the decision maker experiences higher life satisfaction and optimism. In concert with previous findings, many maximizers experience more decision regret. An augmentation in self-reported maximizing tendency was accompanied by an increase in decision regret until a point of inflection, at which experienced regret waned. While moderate maximizers generally reported better, subjective outcomes, findings regarding decision regret were anomalous. The mechanisms underlying the negative, subjective outcome of decision regret should be further explored.
Limitations and Future Directions

Previous studies have determined that males are more likely to self-report as maximizers; this study’s sample possessed double the amount of men to women, making gender differences difficult to determine (Parker et al., 2007; Schwartz et al., 2002). Additionally, the study was conducted online during a pandemic, during which participants may have felt financial strain, altering emotional responses to questions.

Due to the small amount of variance in decision regret captured by maximizing tendency, future studies may consider further elucidation pertaining to decision regret. More specifically, the relationship between decision regret and maximizing tendency may focus on potential confounds and/or extraneous variables, such as perfectionism. Another consideration is the exploration of the interaction between perfectionism and maximizing tendency. Previous studies have acknowledged perfectionism and maximizing tendency as highly correlated yet unique constructs (Bergman et al., 2006; Schwartz et al., 2002). It is possible that adverse subjective outcomes manifest when an individual is high in maximizing and perfectionism. Additionally, perfectionism may play a role in the experience of decision regret. Scales used to measure perfectionism contain items mentioning rumination, a concept fundamental to the experience of regret. Future studies should attempt to determine whether more variance in decision regret can be accounted for by the inclusion of perfectionism and maximizing tendency.
References


Appendix

Figure 1

Parallel Scree Plot Analysis

Note. FA Stands for Factor Analysis
Figure 2

Life Satisfaction and Maximizing

Note. Inflection Point is 3.25 Standard Deviations Above the Mean.
Figure 3

*Optimism and Maximizing Tendency*

(Note. Inflection Point is 5.6 Standard Deviations Above the Mean.)
Figure 4

Decision Regret and Maximizing

Note. Inflection Point is 1.5 Standard Deviations Above the Mean.