

A Discrepancy Between “What Should You Choose?” and “What Do You Choose?” in Intertemporal and Risky Decision-Making¹

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Abstract

Purpose: When facing important decisions, people often ask themselves “What should I choose?” This question may involve intertemporal and risky decisions. The aim of our study was to test a potential discrepancy between the normative and descriptive perspective, that is, between “What should you choose?” and “What do you choose?”.

Methodology: In this study we assessed the rate of delay and probability discounting of 236 participants. The design was a 2 (“choose”/“should choose”) × 2 (small/large) × 5 (delays or probabilities) factorial design in delay and probability discounting.

Findings: People are less impulsive when taking the normative perspective than when they take the descriptive one. This phenomenon occurs in relation to large payoffs. However taking the normative rather than descriptive perspective makes no difference in risky decisions.

Research limitations: In further research it would be beneficial to study real outcomes as choice consequences and to control for variables that might moderate the impact of our manipulation, such as addictions.

Implications: The manipulation with the perspective may be applied not only in financial decision making. Our results may find a practical implementation to help impulsive people make more sensible decisions.

Originality: We demonstrated the internal conflict between the descriptive and normative mode in delay discounting decision making.

Keywords: impulsivity, delay discounting, probability discounting, perspective taking, risk, intertemporal choice.

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Introduction

In day-to-day life, people often struggle between what they desire and what they think they should choose. Bazerman et al. (1998) described a conflict between those perspectives. An intrapersonal conflict theory indicates that the self is focused on short-term aims, whereas the should self is focused on long-term aims (Bazerman et al., 1998). May this rivalry between the two selves be applied to intertemporal and risky choices?

To describe participants' impulsivity and attitudes to risk, researchers measure the subjective value of payoffs. Delay discounting is the decrease in the subjective value of a payoff while its delay increases, whereas probability discounting is the decrease in the subjective value of a payoff as the probability of its occurrence decreases (Green and Myerson, 2004). The higher rate of the delay discounting corresponds the greater impulsivity. The higher rate of probability discounting corresponds to greater risk aversion. In the present study, to address the question whether there is a discrepancy in intertemporal and risky decision making when choice situations are framed differently, we used a mixed factorial design and asked one group of participants to take the descriptive perspective (i.e. “What do you choose?”) and the other group to take the normative perspective (i.e. “What should you choose?”). We propose a practical approach to decision making not from the perspective of “What would I choose?” but from that of “What should I choose?”, at least for decisions with high stakes.

The intrapersonal conflict in decisions that involve time manifests itself in preference reversals. When given a choice between 100 EUR now and 110 EUR in one week, an individual is inclined to choose the instant payoff, but when a one-year delay is added to both options, the larger reward becomes the preferred one (Green, Fristoe and Myerson, 1994). Preference reversals can be viewed from the discounting perspective. The steeper the discounting – the more weight an individual puts on present events – the sooner the preference reversal. The decision to choose smaller, earlier payoffs can be labeled as a “want,” whereas the choice of larger but delayed option is the “should” choice (Bazerman et al., 1998). A study by O'Connor et al. (2002) shows that the “want” self is more affect-driven and the “should” self is more rational when making intertemporal decisions.

Emotions also drive risky decision-making, in which risk aversion is typically affected by negative emotions like dread or fear (Lerner and Keltner, 2001; Slovic, 1987; Slovic, Finucane and MacGregor, 2007). In the domain of risky decisions, the intrapersonal conflict is less clear. Hsee and Weber (1997) argue that the absence of emotions may lead to risk neutrality. When participants of their study assumed another person's

perspective, their choices moved towards risk neutrality, compared to decisions from their own perspective. The authors argue that this effect confirms the risk-as-feelings hypothesis, according to which emotions are the driving force of risk aversion. Therefore, when assuming the perspective of an abstract person, decisions tend to drift toward risk neutrality. It can be argued that – in choice scenarios involving probabilistic outcomes – the “want” choice is characterized as more risk-averse than the more neutral “should” choice.

One of the strategies that influence human choices concerns perspective-taking. In such scenarios, people make decisions by taking another perspective on the choices they make. In conclusion, because impulsivity and risk aversion are important aspects of our lives, and are related to vast array of behaviors such as addiction or gambling (Madden and Bickel, 2010), we investigate whether perspective taking may influence the delay and probability discounting rate. Specifically, the aim of the present study is to test whether the intrapersonal conflict between the “want” self and the “should” self can be induced by perspective-taking. We posed the following hypotheses: 1) When people are asked “What should you choose?”, they exhibit lower impulsivity than when they are asked “What do you choose?”; 2) When people are asked “What should you choose?”, they are less risk-averse than when they are asked “What do you choose?”

Method

Participants

In the present study, 236 participants (159 females and 77 males) completed a delay discounting task ($N = 121$) or probability discounting task ($N = 115$). All participants (mean age = 25.1 years; $SD = 7.14$) were recruited by our research team from a university student pool. All procedures were approved by the Ethics Committee.

Design

The design was a 2 (“choose”/“should choose”) \times 2 (small/large) \times 5 (delays or probabilities) factorial design in each discounting condition. The only between-subjects factor was the main experimental manipulation, i.e., “choose”/“should choose.”

Procedure

The procedure was based on a dynamic multiple staircase algorithm (Du, Green and Myerson, 2002), which aimed to estimate indifference points. That is, such value of

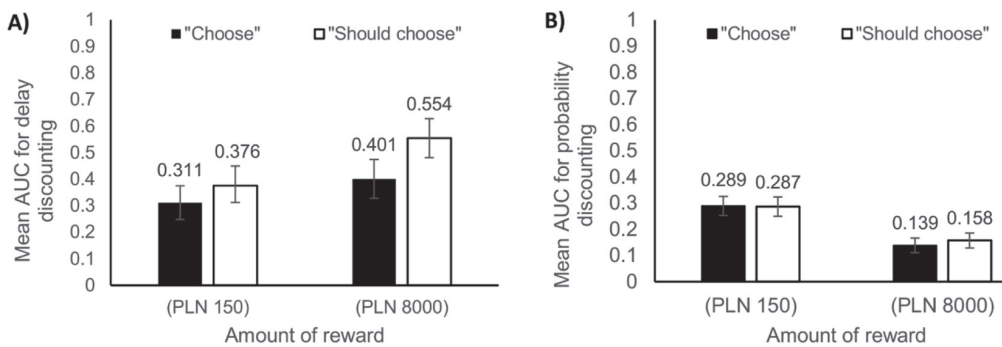
a present (in delay) or certain (in probability) payoff that would be subjectively equal for participants to the delayed or risky payoff. Throughout the procedure, participants chose between two cards on the computer screen. One of them presented the delayed or risky alternative, which remained constant during a specified experimental condition (PLN 150 – small reward or PLN 8000 – large reward; 1 euro equaled approximately PLN 4.2), and the other card presented the immediate/certain alternative that changed after each choice. The size of the decrease or increase was the undiscounted amount divided by 2^k , in which k was the numerical order of that choice from the second ($k = 2$) through the seventh ($k = 7$). The total number of choices was six, and the indifference point was the value of the smaller amount after the final adjustment following the sixth choice. The procedure started with $k = 1$, which gave the adjusting value of the immediate stimulus, i.e., before any choice, half of the larger amount (PLN 75 for small reward and PLN 4000 for large reward). Each adjusting value was rounded to the nearest integer. Participants made a series of choices for five different delays (1, 6, 24, 60, 120 months) in the delay discounting part of the procedure and for five probabilities (expressed in percentage chances: 90%, 80%, 55%, 30%, 10%) in the probability discounting part, to obtain indifference points. The conditions of different delays or probabilities were presented in random order.

Results

The main index of the discounting rate in delay or probability in our research was the size of the area under the curve (AUC; Myerson et al. 2001). The AUCs for delay discounting represent area under indifference points obtained from the main procedure when plotted as a function of delays or probabilities (expressed as odds against = $((1-p)/p)$, in which p is probability). The AUC ranges from 0, which indicates the steepest possible discounting, to 1 which indicates no discounting. The larger the AUC value, the slower the discounting rate. To verify our main hypotheses, we used a mixed 2×2 ANOVA. The first factor was within-subjects (amount), and the second factor was between-subjects (“choose”/“should choose”). The analysis revealed that – in delay discounting – the main effects of both magnitude ($F(1, 119) = 64.29, p = .002, \eta^2 = .351$) and experimental manipulation ($F(1, 119) = 5.590, p = .020, \eta^2 = .045$) were significant. Moreover, the interaction effect between these two factors was significant ($F(1,119) = 7.017, p = .009, \eta^2 = .56$). Due to this finding, we base our conclusions on the interpretation of this interaction effect. Simple effects showed that, when the reward is small, there are no significant differences between the impulsivity of those participants who simply chose alternatives and that of those who chose what they should ($p = .157$). However, when the amount of the reward was large, participants made less

impulsive choices from the “should” perspective ($p = .004$). The general pattern of results is shown in Figure 1 (panel A). These results confirm our hypothesis and research aims and show that we actually can decrease our impulsivity. In probability discounting, the only significant effect was the main effect of the amount of reward ($F(1, 113) = 144.970, p < 0.001, \eta^2 = .562$). There was no effect of the main experimental manipulation with this perspective ($F(1, 113) = 0.170, p = .680, \eta^2 = .002$), and there was no interaction between the factors ($F(1, 113) = 0.825, p = .365, \eta^2 = .007$). Therefore, in probability discounting, we found no evidence for the effects of the framing of instructions on participants’ risk-taking. The reverse magnitude effect in probability discounting was replicated (Figure 1, panel B).

Figure 1. Rate of delay discounting (panel A) and probability discounting (panel B), as evidenced by the AUC in the “choose” and “should choose” conditions for two reward amounts. Error bars represent 95% confidence intervals.



Discussion

Generally, people are impulsive and risk-averse: they tend to choose instant payoffs rather than delayed ones (Logue, 1988; Madden, Petry and Johnson, 2009; Rachlin, 1995) and incline to choose certain payoffs rather than uncertain ones (Kahneman and Tversky, 1979; Rabin and Thaler, 2001). We found that the discounting rate decreased considerably for the delayed rewards in the “What should you choose?” condition in relation to the “What do you choose?” condition. This happens for large payoffs. There was no relationship between the perspective taken and the rate of probability discounting.

Self-control is generally regarded as one of the virtues of human behavior (Ainslie, 1975; Prelec and Bodner, 2003). In several domains of life, such as maintaining good health, education, and finance, resisting instant pleasures in exchange for more substantial

outcomes later is regarded as the better choice. However, people have a tendency to act impulsively, and the reminder “What should you choose” decreases the desirability of instant gratification, because people realize what would be more efficient. Such manipulation might not have worked in terms of small rewards because those choices are perhaps not important enough or done automatically, without reflection. When people face small payoffs, we do not have to wonder if it is a good choice, because the stakes are not high enough. With large rewards, the “should” manipulation enhances self-control, because subjects realize that it is a better option to wait longer and show more restraint. This finding confirms the internal want/should conflict in intertemporal choices.

Studies point out that the decision-making process is strongly connected to emotions (Bechara, 2004; Loewenstein et al., 2001). Emotions like worry may increase the discounting rate. Whereas, when we take the “should” (normative) perspective, those emotions decrease along with the discounting rate (Worthy, Byrne and Fields, 2014). This finding agrees with the hypothesis that strong visceral factors intensify the urge to choose immediacy (Loewenstein, 1996). The selection of the normative perspective may decrease emotional intensity, thus allowing people to resist temptations. This approach worked only on large rewards because they evoke stronger physiological responses (San Martín, 2012).

People guess what is right and wrong when making choices with large delayed consequences. The larger the self-control the better. However, it is not easily achievable. On the other hand, when making risky decisions, people do not have such intuition as in the intertemporal domain. Although, some researchers argue that risk is a value (Brown, 1965; Levinger and Schneider, 1969) and taking risks is to be superior to avoiding risks, but this statement does not seem universal. In some cases, such as gambling or risky sexual behaviors, risk-taking can be viewed as a maladaptive behavior. In that sense, risk aversion or risk-taking is merely a matter of personal preferences, hence such choice is quite different from intertemporal decision making.

Some theoretical accounts treat intertemporal and risky choices as if they reflect a single dimension of impulsive behavior. Following Green and Myerson’s (2010) view on impulsivity, we may regard steeper delay discounting and shallower probability discounting as an indicator of high impulsivity, which is also in accordance with common connotations. An impulsive person will choose instant rewards but take risks at the same time (Białaszek et al., 2015). Assuming that impulsivity is a uniform construct, one would expect that an independent variable, such as our experimental manipulation, would shift intertemporal and risky choices in the same direction. Our

findings indicate that different mechanisms may govern intertemporal and risky decision-making. Furthermore, it is possible that other variables play an important moderating role in changing the way people make intertemporal and risky decisions. For instance, in populations that exhibit shallow delay discounting, that is, among high-income groups or older people (Green et al., 1996). It is possible that the ceiling-like effect weakened our manipulation. However, it would be of importance to test whether “choose”/“should choose” manipulation is beneficial for people who lack self-control like addicts (MacKillop et al., 2011). Moreover, it may be interesting to test whether our manipulation will change risk attitude in people with gambling problems (Kyonka and Schutte, 2018).

Numerous attempts have been made to change the way people make intertemporal and risky decisions. One of the strategies used to influence human choices concerns perspective-taking. Bialek and Sawicki (2014) show that, by taking the experts’ perspectives, people make less impulsive choices. On the other hand, the same strategy does not make people less risk-averse. Taking another perspective – like that of a peer – makes people choose instant payoffs and do so in a more risk-averse manner in relation to participants’ own perspectives (Białaszek et al., 2015).

The manipulation with perspective, which we used in our experiment, may be applied not only in terms of money and finances. It may also be useful for populations with increased impulsivity in general, for example, among those using and abusing addictive substances. Steeper delay reward discounting has also been observed in individuals who are dependent on nicotine (Baker, Johnson and Bickel, 2003), stimulants (Coffey et al. 2003), or opiates (Madden et al., 1997), as well as pathological gamblers (MacKillop et al., 2006).

Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Data Availability Statement

The data are available upon request from the corresponding authors.

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