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Reduced framing effect: Experience adjusts affective forecasting with losses☆

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ABSTRACT

The framing effect refers to the phenomenon that phrasing the same outcomes as gains or losses leads to different risky choices. Most of the framing literature is based on descriptive scenarios, whereas people in real life must make decisions from experience because they rarely receive precise descriptions. However, whether and how framing effects occur in experience-based decisions remain important open questions. In three experiments, we demonstrate that the framing effect is less pronounced in experience-than in description-based decisions. We explain this finding on the basis of affective forecasting with losses. In descriptive conditions, individuals overestimate the impact of potential losses on their emotional reactions, whereas experience helps people become aware of their ability to rationalize losses and mitigates this erroneous affective forecasting, thereby reducing the propensity for risk seeking. Our results offer insight into the specific role of experience in framing effect: experience adjusts affective forecasting with losses, which reduces the framing effect.

1. Introduction

As a famous cognitive bias, *the framing effect* is the phenomenon whereby presenting an issue in terms of potential losses or gains leads to different risky choices (for reviews, see Kühberger, 1998; Levin, Schneider, & Gaeth, 1998). Loss frames cause individuals to be more risk seeking than gain frames do.[1] Nonetheless, the vast majority of literature on the framing effect is based on descriptive decisions, and the evidence from experience-based decisions is scarce and inconsistent (Gonzalez & Mehlhorn, 2016; Mishra, Gregson, & Lalumière, 2012; Vallee-Tourangeau, Vallee-Tourangeau, & Ramasubramanian, 2016). This omission is striking because individuals seldom enjoy convenient access to a complete description of probabilities and outcomes in real life. Instead, they must search for information and learn about environmental contingencies and therefore make decisions from experience (Frey, Rui, & Hertwig, 2015). Accordingly, our study addresses an important gap in the framing literature. In this article, we examine whether and how the framing effect differs in description- and experience-based decisions and further explore the possible reason behind this difference. Such an exploration would enrich the current literature by providing not only a deeper understanding of framing but also new insight into the psychological processes that underlie experience-based decisions.

In recent years, many studies have found that description- and experience-based decisions differ systematically in both processes and outcomes (e.g., Barron & Erev, 2003; Hau, Pleskac, & Hertwig, 2009; Hertwig, Barron, Weber, & Erev, 2004; Hertwig & Erev, 2009; Lejarraga, Hertwig, & Gonzalez, 2012; Rakow & Newell, 2010; Ungemach, Chater, & Stewart, 2009; Weber, Shafir, & Blais, 2004). Some well-known cognitive biases (e.g., certainty effect, reflection effect, ambiguity aversion, endowment effect) might either not exist or be weaker when individuals make decisions based on experiences than on descriptions (Barron & Erev, 2003; Dutt, Arlo-Costa, Helzner, & Gonzalez, 2014; Ert & Yechiam, 2010; Gonzalez, 2013; Harman & Gonzalez, 2015; Hertwig et al., 2004; List, 2003; Ludvig, Madan, & Spetch, 2014; Ludvig & Spetch, 2011). However, is the framing effect, as a well-known cognitive bias (see Harman & Gonzalez, 2015), also eliminated or reduced in experience-based decisions? If yes, then is the elimination or reduction caused by the lower propensity for risk seeking in the loss frame and/or by the higher propensity for risk seeking in the gain frame? In other words, how do individuals' risk preferences differ

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[1] Another popular statement is that "individuals are risk seeking with the loss frame, whereas risk averse with the gain frame." However, from our perspective, the terms of "seeking" and "averse" are relative rather than absolute. If > 50% of a group of individuals prefer a safe over a risky prospect of equal or higher expected value, we call this propensity "risk seeking"; otherwise, we define it as "risk averse". Therefore, we use the single term of "risk seeking" rather than two terms to represent risk preferences.

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with gain/loss frames in the descriptive/experiential decision types, and what is the possible reason leading to these differences? Although it is indirect and insufficient, the available literature provides some references regarding these questions, which enlighten the current study to a certain extent.

1.1. Predictions from description and experience

In the real world, gains are naturally expected to be good, and losses are expected to be bad. By phrasing the same objective outcomes as gains or losses, we can change peoples' views (Fagley, 1993) and shift their reference points such that the same objective outcomes can be viewed as either good or bad, i.e., the so-called "framing" phenomenon. In the decision-making process, people's choices are often based on their predictions of their possible feelings regarding different outcomes (Loewenstein, O'Donoghue, & Rabin, 2003; Mellers, Schwartz, & Ritov, 1999; Wilson & Gilbert, 2003), no matter in descriptive or in experiential decisions. In fact, Schawarz et al.'s (e.g., Schwarz, 1990; Schwarz & Clore, 1983, 1988, 1996) outstanding body of work on *feelings-as-information* (i.e., feelings can be treated as sources of information) suggests the same notion. However, the sources of predictions regarding feelings are somewhat different in descriptive and experiential decisions. In description-based decisions, people must make predictions solely based on the phrasing of outcomes and are thus highly affected by the "framing", whereas experience-based decisions offer people the chance to try out different options and to experience various feelings before the final choices. Moreover, people tend to overestimate the impact of future events on their emotional reactions (Wilson & Gilbert, 2003). Taken together, the results indicate the possibility that the real experience could reduce overestimations by bringing people's predictions much closer to their actual emotional reactions, and thus, it is possible that experiences can reduce the effects of "framing".

1.2. Affective forecasting with losses and gains

Losses and gains are always treated differently. Losses are generally interpreted as calling for increased vigilance and effort and are often associated with negative affect, whereas gains are generally interpreted as allowing more nonchalance and requiring less effort and are often associated with positive affect (see Schwarz, 1990, 2002). In cases of losses, a "psychological immune system" (Festinger, 1957; Taylor, 1991) is triggered automatically and unconsciously, which helps people find ways to minimize or rationalize losses (Ariely, Huber, & Wertenbroch, 2005; Novemsky & Kahneman, 2005; Strahilevitz & Loewenstein, 1998) and recover from the bad experience. Research has suggested that real experience of negative events (such as losses) might help people obtain awareness of the existence of this "immune system" and realize that these events do not have as much of an effect as expected, improving the accuracy of one's affective forecasts (Wilson, Meyers, & Gilbert, 2001). For positive events (such as gains), because there is no need to rationalize away or recover from good experience (Wilson et al., 2001), the overestimation of positive affect is usually markedly lower than the overestimation of negative affect (Kermer, Driver-Linn, Wilson, & Gilbert, 2006). Moreover, the reality that "gains do not have as much of an effect as one expects" is less surprising compared with the real experience of the losses' effect (Wilson et al., 2001); thus, people are not motivated to make efforts to accurately remember the real experience of gains (Gilbert, 1991; Thomas & Diener, 1990). Therefore, the experience of gains would not offer additional information to people, and the intensity of individuals' anticipated positive affect from description and experience should not show significant differences.

Based on the above literature, we predict that sequential experiences of losses can improve the accuracy of affective forecasting, and the reduction of an anticipated negative affect would then reduce the propensity for risk seeking in the loss frame in experience-based decisions compared with that in description-based decisions. Concerning the gain frame, however, the risk preferences would not differ between description- and experience-based decisions. We test these predictions and examine the role of *anticipated affect* in the following experiments.

1.3. The current research

We conducted three experiments to test our predictions.[2] Experiment 1 serves as the baseline of our research and examines whether the framing effect exists in experience-based decisions. In Experiment 2, we compare individuals' risk preferences in descriptive and experiential scenarios with gain and loss frames. We predict that individuals are less risk seeking in experience-based decisions than in description-based decisions in the loss frame and their propensities for risk seeking are indifferent in the gain frame. Experiment 3 further explores the role of anticipated affect in description- and experience-based decisions with gain and loss frames. Particularly, we predict that experience reduces the intensity of anticipated negative affect but not positive affect, and the anticipated negative affect mediates the path from decision type to risk preference with the loss frame.

2. Experiment 1

In Experiment 1, we adopted the sampling paradigm[3] of the classic Asian Disease Problem (ADP, e.g., Tversky & Kahneman, 1981, 1983, 1986) to provide evidence of the existence of the framing effect in experience-based decisions. This experiment established the baseline of the current research. The participants learned that 600 lives were at stake because of an epidemic and were presented with two medical programs with the same expected outcomes but framed in gain or loss terms. Instead of presenting the descriptive information, we used two blank buttons, A and B, to represent these two programs. We encouraged the participants to take as much time as they needed to review the programs before making a final decision. If the framing effect exists, then individuals would be more risk seeking in the loss frame than in the gain frame.

2.1. Method

2.1.1. Participants and design

Ninety-one students participated in this experiment in exchange for monetary compensation. Two participants were removed because they did not follow the instructions. The remaining 89 participants (47 females, 42 males, M_{age} = 21.50 years, SD = 2.71) were randomly assigned to either the gain-frame (n = 45) or the loss-frame group (n = 44) in a between-subjects single factor design (frame: gain versus loss).[4] The proportion of risky choice was the dependent variable. We determined our sample size by power analysis with G*power 3.1 (Faul, Erdfelder, Lang, & Buchner, 2007), which indicated that the sample size must include a minimum of 88 participants to have the 80% power that is necessary to detect a medium-size effect (w = 0.3) with an alpha level of 0.05.

2.1.2. Procedure and materials

The participants were presented with the ADP scenario using the

[2] These experiments were approved by the Tsinghua University Research Ethics Committee (20170410), and informed consent was acquired from all participants.

[3] Three paradigms have been employed to study experience-based decisions: the sampling paradigm, the full-feedback paradigm and the partial-feedback paradigm (see Hertwig & Erev, 2009). Unlike the last two paradigms, which produce real results from each choice, the sampling paradigm offers people the opportunity to try out different outcomes before making the final choice. We think that it is a better way to understand the role of "experience" and compare choice tendencies in description- and experience-based decisions. For further information on how the sampling paradigm operates, please refer to the "2.1 Method" section below.

[4] For the three experiments, the data were not analyzed until we completed the entire data collection process. All measures, manipulations, and exclusions are reported in the respective sections of each experiment.