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Time preference before and after a risky activity – A field experiment

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ABSTRACT

This paper examines how a risky activity (e.g., skydiving) affects an individual's time preference related to financial decisions (i.e., wanting to get paid before or after the activity). We found that prior to a risky activity, inexperienced people were more *present-oriented*, than they were afterwards. Interestingly, the more experienced individuals were, the less likely they were to demonstrate a preference for the present. Our findings suggest that engaging in activities that individuals might find frightening or thrilling (e.g., skydiving; driving faster than the speed limit; going to a mall) could make less experienced actors shortsighted when processing information (considering the present rather than the future), and lead to shortsighted financial decisions. We suggest that the attempt to regulate concerns associated with activities individuals might find frightening affects unrelated, important daily decisions due to a shift in their time preference.

1. Introduction

During their daily affairs, people commonly make decisions they perceive as risky. These risky decisions touch many areas of life including monetary decisions (e.g., which pension fund to join; what stocks to buy), as well as general or social leisure activities such as riding a motorcycle, off-road biking, kite-surfing, hang-gliding, or skydiving. Skeel, Neudecker, Pilarski, and Pytlak (2007) extrapolated the concept of risky behavior, and suggested additional "impulsive and deleterious activities" that would fit the definition of risky behavior. Their definition included using recreational drugs, "driving while intoxicated," "unplanned sexual behavior," as well other "thrill-seeking activities" which are more "socially appropriate" (e.g., skydiving; p. 204).

Risky activities, which generate an opportunity to engage in a behavior that might appear dangerous, are generally known to cause a strong feeling characterized as "thrill, a combination of excitement and fear" (Brashers, 2001, p. 482). The excitement associated with a risky environment or being involved in risky activities is known to influence individuals' perception of

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morbidity, often leading them to reflect on mortality (Carstensen, Fung, & Charles, 2003; Carstensen, Isaacowitz, & Charles, 1999). Thinking of one's own mortality might have detrimental consequences for individuals, and influence decision processes. For instance, Chao, Szrek, Pereira, and Pauly (2009) studied decision processes among inhabitants of South Africa where the middle-age mortality rate is higher than other western countries (due to HIV/AIDS), and demonstrated how future orientation (i.e., thinking about the future) was positively related to both physical health and subjective expectation of survival.

Lahav, Benzion, and Shavit (2011) compared time preferences (using subjective discount rate) of soldiers, university students, and high school students in Israel. They argue that soldiers generally experience a violent atmosphere, uncertainty about the near future and possible mortality. On the other hand university students and teenagers live in a more certain and calmer environment. The results showed that soldier-participants are relatively more present-oriented than the other two groups. The authors explained that soldiers focus on the risk they face during their military service, which leads to an augmented feeling of thrill, as well a higher perception of mortality risk.

It seems that the sensation of thrill associated with expected risky activities (Skeel et al., 2007), may change individuals' perceptions and consequently their actions. Studying how risky and thrill-creating activities influence decision processes is important. Unfortunately, studies in real life domains are rare due to the complications inherent in measuring individuals' preference while they are engaged in a real life, risky behavior. This notion was supported by Skeel et al. (2007, p. 204) who pointed out, "investigations into the phenomenon of real-world risk-taking should include risks of impulsivity as well as those of thrill-seeking, though options for such questionnaires in adults are limited."

The current paper examines how engaging in a risky activity (skydiving) influences individuals' time preference and risk perception before and after the activity. Varying morbidity and mortality perceptions could be defined as ongoing, long-term episodes due to their unfortunate nature. In the current paper, we examine the effect of the immediate and real physical danger associated with skydiving on time preference. Our paper adds to the literature and previous research on the relationship between a risky environment and time preference (Chao et al., 2009; Lahav et al., 2011) in several ways. First, it shows that the relationship exists even when the person voluntarily *chooses* to engage in the thrilling activity (skydiving) rather than being coerced to engage in it (as in the case of soldiers or living in a dangerously unhealthy environment). Second, unlike other studies that test the relationship between time preference and engagement in a long term risky environment or activity, our study demonstrates the relationship is valid also when the activity is limited in time, and does not require long-term engagement (as is the case for soldiers on active duty or people facing health risks). Simply put, the effect of risky activity on a decision-maker's time preference is immediate and does not require long term exposure to create a cognitive change. This means the phenomenon should be extrapolated to all individuals facing a risky activity, and not just to ones who had been exposure for a long duration. Third, the paper adds to previous literature (Lahav et al., 2011), by demonstrating how an exogenous and independent risky event or environment affects time preference. This line of research is more applicable to the way risk affects time preferences in real-world settings.

2. Using skydiving as a natural lab to monitor emotions and risk perception

Skydiving is defined as a high-risk activity involving elements of both danger and opportunity, and having a strong thrilling, emotional response (Brashers, 2001). Several studies have already used skydiving in order to test human responses to high-risk activity. To understand what motivates people to skydive, Celsi, Rose, and Leigh (1993) examine risk perceptions and motivations of people who skydive. They found that the underlying motivation for engaging in such risky activity stems not from rational calculations but from emotional factors.

Fenz and Epstein (1967) record the skin conductance, heart rate, and respiration rate of experienced and novice parachutists during a sequence of events leading up to and following a jump. They found that novice parachutists show increases in the various measures before the jump. The experienced parachutists show an increased rates at the beginning but these decreased closer to the moment of the jump. They suggest that experienced jumpers were better at regulating their anxiety prior to the jump.

Mujica-Parodi et al. (2009) measured human sweat stimuli by collecting axillary samples obtained from 144 individual participants divided into two groups. One of the group participated in a tandem skydive for the first time (they called this the "the stress condition") and the other group was asked to run on a treadmill for the same length of time, at the same time of day as the first group (they called this "the exercise condition;" it was a control group). The authors reported, "debriefing of our donors and their tandem-masters post-jump indicated that while fear markedly increased during the ascent, peaking in the minutes leading up to exiting the plane and during free fall, feelings of relief and/or thrill sometimes followed once the parachute opened and upon landing" (p. 7).

The findings of previous studies indicate that before and after the jump emotions differ in nature (anxiety before the jump, relief afterward), and these emotions are different for experienced and novice jumpers (Celsi et al., 1993).

Acknowledging the affective responses that individuals display prior to and following the jump (Celsi et al., 1993), as well the strength of the effect on novice jumpers (Fenz & Epstein, 1967), we test whether these previously researched emotional responses, before and after a jump, also influence unrelated financial decisions. Specifically, we measure monetary time preference (being paid now vs. later; Benzion, Rapoport, & Yagil, 1989; Thaler, 1981) before and after the risky activity.

To understand how individuals respond to the jump, we asked experienced and inexperienced skydivers to participate in a short survey. We tested the effects of timing (before vs. after the jump) in both groups by asking some of the participants in