Time is money: Individual differences in risky choice behavior

Anne Laure Karreman, Nathan van der Stoep, Martijn Mulder

Experimental Psychology, Utrecht University, Heidelberglaan 1, 3584 CS Utrecht, The Netherlands

Introduction

Since time is money, people often feel forced to decide quickly. Although the benefit of a fast choice can be attractive, choosing the wrong option might leave you empty handed or could even cost you a fortune. As such, taking time to decide can prevent us from taking risks that result in (financial) problems. Here we investigated how people trade speed for accuracy when a benefit is at stake. We expect that for hard choices, risk-aversive participants will have a preference for certainty at the cost of slower responses and lower reward values. In contrast, risk-prone individuals might opt for faster choices with a higher risk of incorrect choices (with no reward).

Methods

Participants (n=34, age range = 18-61, 13 female) performed the random dots motion (RDM) task (Figure 1B).

Stimulus strength for hard (~70% correct) and easy (~90% correct) was estimated for each participant by fitting the proportional-rate diffusion model to practice data (6x60 trials).

Time is Money Task. During the experimental RDM trials with hard and easy stimuli (4 blocks, 120 trials each) reward decreased from 40 to 5 points in 1 second, starting at the participants non-decision time (see Figure 1C). The faster the (correct) response, the higher the reward. Points were converted into an extra financial bonus.

DDM & Risk. Individual differences in speed-accuracy-tradeoff (SAT) were measured by fitting the drift-diffusion model (DDM; see Figure 1A) to the data, using the fast-dm toolbox. Individual risk-attitude (neutral, risk or aversive) was measured using the Domain-Specific Risk-Taking questionnaire (DOSPERT). A regression analysis was used to test whether individual differences in financial risk-behavior (risk taking, risk perception and expected benefit) were related to individual differences in SAT.

References