



On the determinants of giving under risk



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ABSTRACT

By means of a laboratory experiment we investigate the role of risk preferences for prosocial behavior. Modifying the way the decision-maker or the recipient are exposed to risk, our design allows to identify how risk preferences impact giving-decisions. By measuring the decision-makers' risk preferences regarding both their own as well as the recipients' payoff, we generate new insights into how social preference theories may extend to risky situations.

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1. Introduction

The role of risk and uncertainty for pro-social behavior has received substantial interest in the recent literature. Motivating examples range from charitable giving with uncertain impacts, climate policies demanding current generations to bear abatement costs to increase the chance of limiting future climate impacts, to every day interactions like educating and raising children to impact their future well-being. Within the behavioral economic literature, a particular focus has been set on discussing the role of comparisons of payoff chances versus comparisons of final payoffs when ex ante evaluating the fairness of allocations in the presence of risk.¹

As opposed to a comparison of ex post payoffs, ex ante procedural fairness denotes equality of chances to win a given prize, irrespective of who finally receives that prize ex post. When extending social preferences to risky situations, the procedural fairness of an allocation is typically evaluated by a comparison of expected values of lotteries (Fudenberg and Levine, 2012; Brock et al., 2013; Saito, 2013). While the implicit assumption of risk-neutrality simplifies the exposition of these models, it also leaves open different ways of extending these models to capture risk aversion. Risk aversion may, in fact, crucially impact pro-social behavior. This argument has been picked up in a comment by Krawczyk and LeLec (2016) and the subsequent reply by Brock et al. (2016). Krawczyk and LeLec (2016) suggest that giving to others may decline under

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¹ Experimental evidence suggests that both fairness views are important to understand giving decisions under risk, see for example Bolton et al. (2005), Krawczyk and LeLec (2010), Rohde and Rohde (2011), Brock et al. (2013).

Table 1
Experimental design: lottery choices in Part 1.

	Outcomes		EV	Std.dev.
	A	B		
1	52	52	52	0
2	44	68	56	12
3	36	84	60	24
4	28	100	64	36
5	20	116	68	48
6	0	136	68	68

risk aversion: intuitively, the reward of giving decreases because the certainty equivalent of a risk-averse recipient is smaller under risk. In contrast, Brock et al. (2016) point out that this smaller certainty equivalent may lead to larger giving if the decision-maker is concerned with inequality in the sense of Fehr and Schmidt (1999). Thus, the direction of the impact of risk aversion on giving crucially depends on how an individual's social preference interacts with risk aversion. The existent literature is inconclusive on this question and it ultimately remains an empirical question how risk aversion affects prosocial behavior.

In this paper, we provide experimental evidence from variants of dictator games to clarify the role of risk and risk aversion for prosocial preferences. Importantly, we generate separate measures of a decision maker's risk aversion over own payoff and another person's payoff as well as the other person's own risk preference. A related literature has already shown that decisions may differ when making choices over lotteries for oneself vs. on behalf of an agent.² Having separate measures of risk aversion allows us to identify to what extent either risk attitude matters when distributing payoff chances in variants of the dictator game. In addition, we examine the role of social information.

We show that both measures of risk attitudes are informative of prosocial behavior under risk. While risk-averse dictators reduce giving when their own payoff becomes risky, a more nuanced picture evolves when the payoff of the recipient becomes risky. We do not find evidence that believed or actual risk aversion of the recipient leads the dictator to give less. On the contrary, giving particularly declines when dictators know or believe the recipient to be non-risk-averse. We identify strong heterogeneities in individual reactions to risk in giving situations. By showing the importance of differentiating between risk types instead of concentrating on average treatment effects measures of aggregate behavior, our findings indicate a more complex way how prosocial preferences extend to situations under risk.

2. Experimental design

The experiment consists of two parts: Part 1 elicits subjects' risk preferences, while Part 2 confronts subjects with five variants of the dictator game.

In Part 1, we use the simple risk elicitation task by Dave et al. (2010) and Eckel and Grossman (2008) to generate separate measures of risk attitudes regarding the payoff of the decision maker himself as well as the payoff of another player. For this, subjects make two decisions in random order: one on a lottery that determines their own payoff, and another decision on a lottery that determines the payoff of another subject. For both decisions, subjects chose one out of six 50/50-lotteries as presented in the first two columns of Table 1. Lotteries are constructed such that a higher expected value corresponds to a larger variance (see third and fourth column of Table 1). We refer to the lottery choices as L_{own} for choices over own payoffs and as L_{other} for choices over the other one's payoffs. Individuals are expected to choose lottery 5 or 6 if they are risk-neutral with respect to their own or the other subject's payoff ($L_{own} > 4$ or $L_{other} > 4$, respectively), respectively. Risk-seeking individuals may choose lottery 6 and risk-averse individuals may choose lotteries 1 to 4.³ Correspondingly, we code subjects who choose 1 through 4 as RAown and those with choices 5 or 6 as NRAown (for non-risk-averse) when the lottery determines their own payoff. Those who made risk-averse (non-risk-averse) choices for their randomly matched player are defined as RAother (NRAother). In addition, we ask participants to state their belief about the mode choice for own payoff (referred to as L_{belief}) (as in Chakravarty et al. (2011)). This task is conducted after all choices have been made and is incentivized with 50 cents for a correct guess.

Part 2 consists of five dictator games, played in random order, summarized in Table 2. Participants stay in the pairs from Part 1. Before decisions are taken, a random draw determines who is assigned the role of proposer and receiver. Players are told that all giving decisions are revealed to the receivers at the end of the experiment in order to close the 'moral wiggleroom' (Dana et al., 2007) and that one decision will be randomly selected for payment. Before beginning with part 2, dictators see a summary of their own lottery choices. In a between treatment design, we explore the role of social information: half of the dictators additionally receive information of the (own) lottery choice of the receiver.

² Chakravarty et al. (2011) and Faro and Rottenstreich (2006) find more risk neutrality in choices on behalf of an agent, while Pahlke et al. (2015), Agranov et al. (2014) or Eckel and Grossman (2008) find the opposite.

³ With this interpretation of individuals' choices we follow, among others, Dave et al. (2010). Note, however, that subjects with a very low degree of risk aversion might also choose lottery 5.

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