



Donations, risk attitudes and time preferences: A study on altruism in primary school children[☆]



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ABSTRACT

We study in a sample of 1070 primary school children, aged seven to eleven years, how altruism in a donation experiment is related to children's risk attitudes and intertemporal choices. Examining such a relationship is motivated by theories of reciprocal altruism that provide a cornerstone for understanding human social behavior. We find that higher risk tolerance and patience in intertemporal choice increase, in general, the level of donations, albeit the effects are non-linear. We confirm earlier results that altruism increases with age during childhood and that girls are more altruistic than boys. Having older brothers makes subjects less altruistic.

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1. Introduction

Non-selfish, other-regarding behavior is an important prerequisite for cooperation in human societies where large numbers of genetically unrelated strangers interact with each other. This means that such behavior is a lubricant for the well-functioning of institutions, markets and societies as a whole (Bowles, 2004; Boyd and Richerson, 2005). Therefore, the

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reasons for other-regarding preferences toward genetically unrelated strangers have been under close scientific scrutiny for decades. A fundamental contribution for a better understanding of the roots of other-regarding behavior has been provided by [Trivers \(1971\)](#) who argues that cooperation among non-kin can be maintained at high levels through reciprocal altruism. An individual engages in reciprocal altruism if she foregoes immediate benefits by acting altruistically toward another person in the expectation of receiving a larger payoff from the interaction partner in return later. [Trivers' \(1971\)](#) model generalizes to multiparty interactions in which the decision maker does not benefit directly from the reciprocity of her interaction partner (this phenomenon is coined “indirect reciprocity”). In fact, “. . . the donor of a good deed does not necessarily expect to be rewarded by the recipient but perhaps by another individual who may be the recipient of other good deeds by other donors” ([Mohtashemi and Mui, 2003](#), p. 523; see also [Alexander, 1987](#)). Reciprocal behavior is frequently observed in humans ([Fehr and Gächter, 2000](#)), but it obviously involves a component that is related to intertemporal choices, because altruism is expected to pay off at some time in the future only while the costs of it have to be borne now. Individuals with higher discount rates of future rewards can therefore be expected to engage less in altruistic behavior than more patient individuals ([Axelrod, 1984](#)). This will be the first hypothesis tested in this paper.

Apart from patience, risk preferences are potentially important for reciprocal altruism. If an individual helps another subject hoping to be repaid later, the individual has to bear the risk that the other subject is not going to reciprocate in the future. From this it follows that more risk averse individuals could be less likely to engage in reciprocal altruism. This will be studied as our second hypothesis.

Our setting to study our hypotheses involves more than 1000 primary school children in the bilingual city of Meran in Italy. The children are seven to eleven years old and represent 86% of all primary school children in this city with its 38,000 inhabitants. We let children decide in a dictator-game like framework how many experimental tokens they want to keep for themselves and how many they want to donate to a well-known charity in this part of Italy. While the determinants of donations have been extensively studied with adults ([List, 2011](#)), we can examine which factors influence children's altruistic giving to needy recipients. Of course, our paper is also related to previous work on how altruism develops in childhood. Both psychologists and economists are interested in this issue (see [Eisenberg and Fabes, 1998](#), for a review from the perspective of developmental psychology). The common bottom-line seems to be the insight that altruism develops and gets stronger in childhood. In other words, the evidence from dictator, ultimatum and trust games suggests that humans become less selfish as they grow older ([Murnighan and Saxon, 1998](#); [Harbaugh and Krause, 2000](#); [Harbaugh et al., 2003](#); [Benenson et al., 2007](#); [Sutter and Kocher, 2007](#); [Fehr et al., 2008](#); [Gummerum et al., 2008, 2010](#)). However, none of these previous studies has addressed how pro-social behavior in the various bargaining games or allocation tasks relates to risk attitudes and intertemporal choices. For this reason we are contributing to this literature on social preferences and their development during childhood by examining the hypotheses outlined above. In addition to testing the relation of pro-social behavior to risk attitudes and intertemporal choices, our dataset allows us to study the effects of socio-demographic variables such as the children's IQ, the number of siblings and measures for the socioeconomic status and education of their parents.

Our results suggest a significant, yet largely non-linear, relation between altruism in our donation experiment and risk tolerance, respectively patience. Altruism increases with age, a finding that confirms previous studies. Girls are more generous in their donations, and so are subjects with a higher relative IQ. Having older brothers reduces donations. We find no difference in the donations of Italian- and German-speaking children.

The rest of the paper is structured as follows: the next section describes the experimental design. The results are presented in Section 3 and Section 4 concludes the paper.

2. Experimental design

The experiments were conducted in October and November 2012 in the city of Meran in the province of South Tyrol, Italy. This city provides an almost unique natural setting since half of its 38000 inhabitants are German-speaking and the other half speak Italian. Schools are segregated by language, despite serving children from the same neighborhoods. This enables us to assess whether the language spoken influences the children's attitudes toward altruism.¹ We obtained permission from 86% of parents of all primary school children in Meran to run experiments with their children.² The experiments were conducted during regular school hours. Participation in each experimental session was, of course, voluntary for children, but all except one single child consented to participate. In total, 1117 children, aged seven to eleven years and attending grades two to five of the primary schools in the city, participated in the experiment. Each subject was asked to repeat the instructions in own words in order to check for understanding. 14 children were not able to do so adequately, and thus were excluded from the analysis below. Moreover, 33 other children were not considered for the analysis because they stated to have close ties to the charity, either through relatives working there or because their family received support from the charity. [Table 1](#) indicates the final number of subjects ($N = 1070$) that is used for the analysis, broken down by grade, gender and language spoken.

¹ In a recent study, [Chen \(2013\)](#) shows that languages with strong future tense reference (like Italian) induce less future-oriented economic behavior than languages with weak future tense reference (like German). Thus, it is sensible to test whether this language-effect extends to other dimensions of economic behavior such as distributional preferences.

² Since we do not have any information about the 14% of parents who did not give consent, we cannot study whether the sample of participating children (86% of all primary school children in Meran) is different from the non-participating children.

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