Personality and altruism in the dictator game: Relationship to giving to kin, collaborators, competitors, and neutrals

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ABSTRACT

We investigate altruism in the context of the economic dictator game experiment where subjects are presented with different persons who can be classified as kin, collaborator, competitor and neutral based on their similarity/relationship to the subject. The classification is based on the role others play in facilitating or impeding an individual's access to resources needed for reproductive success. The role of the Big Five personality traits in giving to the different target persons is examined. We find that kin are treated most generously, followed by collaborators, neutrals, and competitors. Personality has no effect on giving to kin, but a significant effect on giving to collaborator, neutral and competitor. We also find non-linear relationships between personality and giving.

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1. Introduction

Altruistic behavior is a sacrifice of one's resources for the benefit of others, representing a tradeoff between one's self-interest and regard for others. Resources can include time (helping an elderly person cross the street, visiting a sick relative), money (donating money to a religious organization), or flesh (donating blood, plasma or organs).

In the psychological literature, altruism is usually measured by asking respondents how they would behave or feel towards other people in various situations, e.g., whether they would donate blood or help others in need (e.g., Rushton, Chrisjohn, & Fekken, 1981), or record actual behavior (e.g., Ferguson, Farrell, & Lawrence, 2008,). In economics, altruism has been measured by the amount of money an individual is willing to give to someone else, usually in the context of an experiment called the dictator game (DG). In this experiment, each subject in the role of "sender" is granted a monetary endowment and is asked to consider keeping it or sending any portion of it to another person. Experiments similar to the DG have also been used in psychology (e.g., Ashton, Paunonen, Helmes, & Jackson, 1998; Tajfel's 1970). The amount sent is regarded as a measure of other-regarding or altruism (Andreoni & Miller, 2002; Ben-Ner & Putterman, 1998).

Altruism has been investigated mostly relative to generic "other" persons who were usually not further identified. To assess the role of the attributes of the potential beneficiary of altruistic acts the reader may conduct a mental exercise by imagining a "person." What describes that person? Man or woman, young or old, an acquaintance or a stranger, from your country or from abroad, believer or agnostic? Would you respond to a survey or give in a DG the same way if you imagined the other person as a man, young, an acquaintance, from your country and your own religion, or, alternatively, if you thought the other person was a woman, old, a stranger, from another country, and from a different religion?

In this paper we focus on the concept of altruism as expressed by the willingness-to-give money in the DG and investigate how this tendency varies with respect to the *attribute similarity* between the sender and the receiver. Following a recent call by Borghans, Duckworth, Heckman, and ter Weel (2008) we investigate how heterogeneity in altruism, as manifested by giving in the DG, is related to personality traits.

From an evolutionary-theoretical perspective, scholars argued that there are two types of altruism: kin altruism (Hamilton, 1964) and reciprocal altruism (Trivers, 1971). Evolutionary theory emphasizes reproduction and resources that facilitate it as well as providing for oneself and one's offspring *and* for relatives and their offspring. The resources include food, safety and physical protection, all of which are, and have been in the ancestral environment, in scarce supply. *Kin altruism* implies helping related persons in order to improve their – and one's own – reproductive success.

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Kin altruism is undergirded by kin selection, which consists of the evolution of characteristics conducive to the reproductive success of close relatives including willingness to sacrifice resources that aid one's own reproduction for the benefit of kin and the ability to discern kin from others (Hamilton, 1964; Daly & Wilson, 1988). *Reciprocal altruism* entails making sacrifices for unrelated others who are likely to provide at least as much help in the future in a reciprocal fashion, so it entails an evolved ability to recognize potential partners to transactions and the likelihood that they will indeed reciprocate (Fehr & Fischbacher, 2003; Trivers, 1971).

But kin and potential collaborators are not the only types of persons an individual may interact with. Some persons may be regarded as foes or competitors, and others as neither friend nor foe. On the basis of an individual's direct or cultural experiences he or she may classify other persons as either (1) kin, (2) a collaborator or potential contributor to one's reproductive and survivability resources, (3) a direct competitor for or absconder of such resources, or (4) a neutral, someone who has no bearing on these resources. Individuals classify other people into these categories on the basis of observed attributes, the expected future benefits and threats from interaction with them, and what they learn from their own culture. Person 1 may be an individual's identical twin or a possible relative. Person 2 may be a friend, a neighbor, a coworker, or someone adhering to the same religion. Person 3 may be an active member of an enemy group that wishes to take away one's myriad resources, a member of an opposing tribe or a fan of a rival sports team. Person 4 may be a member of a geographically-distant and non-competing tribe or a random person in the street.

The nature of altruism towards each of these persons is different. Person 1 will be treated most favorably as a direct investment in one's reproduction; person 2 would be treated favorably to the degree that one expects this person will reciprocate, but would be treated less favorably than kin; person 3 would be undermined, or treated least generously, depending on the nature of the interaction; and person 4 will be treated less generously than kin and collaborators but more generously than competitors. We test this hypothesized ordering of the degree of altruism in giving to the four types of persons, going beyond the standard in-group/out-group dichotomy and extending the investigation of the effects of identity categories (Ben-Ner, McCall, Stephane, & Wang, 2009) and of social distance (Osiński, 2009).

The literature on personality and altruism is limited. Ashton et al. (1998) examine the relationship between personality and kin and reciprocal altruism. They hypothesize that kin altruism entails assessment of costs and benefits to one's kin and thus should be related to empathy and attachment traits, thus negatively to emotional stability and positively to agreeableness, whereas reciprocal altruism entails forgiveness and retaliation, thus positively related to emotional stability and agreeableness. Their findings generally support the hypothesized relationships. Osiński (2009) augments the framework used by Ashton et al. (1998) by examining the effect of social distance on the relationship between personality and kin and reciprocal altruism. He finds that altruism declines with social distance and with the other's willingness to reciprocate, and is positively associated with agreeableness and negatively with neuroticism. Krueger, Hicks, and McGue (2001) investigate the relationship between personality traits and altruism and antisocial behavior. They find that altruism and antisocial behavior are unrelated, and that altruism is associated with positive emotionality whereas antisocial behavior is related to negative emotionality. Other studies find that charitable giving is positively associated with openness and extraversion, whereas blood and organ donation are positively associated with agreeableness (Bekkers, 2006), that volunteerism is weakly and positively associated with agreeableness (Carlo, Okun, Knight, & de Guzman, 2005),

and that after controlling for attachment insecurities, there is no association between personality and volunteering (Erez, Mikulincer, van Ijzendoorn, & Kroonenberg, 2008).

There have been only a handful of studies that investigated the relationship between personality and giving in the context of the DG. Ben-Ner, Kong, and Putterman (2004a) find that when the receiver is identified only as a "person", openness is positively associated with giving, but when the gender of the receiver is identified, agreeableness is mildly and positively associated with giving, whereas extraversion affects negatively males' giving and neuroticism affects negatively females' giving (Ben-Ner, Putterman, Kong, & Magan, 2004b). Ben-Ner, Kramer, and Levy (2008) find that giving with actual and hypothetical money is nearly identical on average, but there are differences associated with personality: agreeableness is associated with greater giving with actual money, whereas extraversion is associated with more generous giving of hypothetical money. Swope, Cadigan, Schmitt, and Shupp (2008) did not find associations between personality and giving in the DG.

The research on the relationship between altruism and personality thus suggests that altruism is positively associated with agreeableness and negatively with neuroticism. In our empirical work we test for associations between these and other personality traits and giving in the DG, and investigate the possibility that these associations are not linear. Although personality effects are usually assumed to be linear, studies have shown that this is not always so (e.g., Cucina & Vasilopoulos, 2005; Day & Silverman, 1989; Egloff & Hock, 2001; Robins, Tracy, & Trzesniewski, 2001). In addition, we examine whether the association between personality and giving depends on the target of the altruism (kin, collaborator, competitor, and neutral).

2. Methods

2.1. Participants

All freshmen at the University of Minnesota were invited to participate in economic-psychological experiments; nearly 10% responded, with 222 actually showing up at the experiment. The average age of the sample was 18.8 years, with female and Caucasian majorities (64.0% and 71.4%, respectively).

2.2. Materials and design

Participants were assigned to one of two identical sessions. Subjects completed the following steps: (1) a timed 12-min cognitive-ability test, (2) a personality inventory, (3) a willingness-to-give survey-experiment, (4) four more experiments that are not used in this paper (discussed in Ben-Ner et al., 2009), and (5) a detailed personal background questionnaire. Each step was contained in a separate envelope that was sealed after its completion. Subjects were then paid a $15 participation fee.

In step 3 subjects were asked to consider seriatim and separately 91 individuals, each characterized by one descriptor such as "is tall," "is from Argentina," or "is your brother in law". The analysis in the present paper uses the altruistic decisions subjects made (step 3) and the data collected on subjects' cognitive ability, personality traits and background.

Of the 222 subjects, 20 participated in a DG with just one other person (female) to test for possible bias associated with the inclusion of multiple persons in the same experiment. Tests show that there is no statistically significant difference between what the 202 subjects gave to a female in the multiple-person experiment and what the 20 subjects in the single-person experiment gave a female.