



## Brief Report

## From personality to altruistic behavior (and back): Evidence from a double-blind dictator game

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## ABSTRACT

There is large individual variation in altruistic behavior, spurring recurring calls for an integration of behavioral economics and personality research. However, the empirical picture has remained inconsistent. To overcome the limitations of prior work, we consider (and compare) both the classic five-factor and the HEXACO models of personality structure, use a double-blind dictator game to strictly rule out spurious effects of social desirability, and extend the research focus to include the recipient side. Results show that (i) Honesty–Humility is the primary factor to predict dictators' altruistic behavior which (ii) predicts recipients' fairness perceptions (in combination with their prior expectations) which (iii) predict recipients' (zero-acquaintance) observer judgments of dictators' trait Honesty–Humility which (iv) are associated with dictators' true (self-reported) Honesty–Humility scores.

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## 1. Introduction

Every day, people donate blood, volunteer time and effort for worthy causes, or give money to charities – all of which represent some sacrifice of personal welfare for the sake of others. Indeed, “the main importance of altruism, giving, and reciprocity, is that they constitute essential facts of societies” (Kolm, 2006, p. 8). At the same time, altruistic behavior is “one of the greatest puzzles for economics. A science based on precepts of self-interested behavior does not easily accommodate behavior that is so clearly unselfish.” (Andreoni, 2006, p. 1204). Arguably, the most vivid demonstration of such behavior comes from a simple paradigm, the Dictator Game (DG, e.g. Forsythe, Horowitz, Savin, & Sefton, 1994): One individual, called the dictator, is given an endowment and asked simply to allocate this endowment between herself and another person, called the recipient, in a one-shot anonymous setting. Hence, the DG affords a straightforward and relatively pure assessment of altruistic vs. self-interested behavior and is therefore sometimes denoted a measure of *unconditional kindness* (Ben-Ner & Halldorsson, 2010).

Literally thousands of participants in research labs around the world have been put in the role of dictators, and meta-analyses

(most recently Engel, 2011) clearly reveal that DG allocations are above zero (typically around 20–30% of the endowment) and that there is large variation between individuals in these allocations. Correspondingly, there have been recurring calls for a theoretical and empirical integration of (behavioral) economics and personality research (e.g., Ferguson, Heckman, & Corr, 2011). Specifically, a deeper understanding of which basic personality traits may account for individual differences in altruistic behavior is needed (Almlund, Duckworth, Heckman, & Kautz, 2011).

Indeed, there have been several studies linking personality traits to DG altruism. However, across studies that rely on a common taxonomy for personality traits, namely the widely accepted five-factor model of personality (e.g., McCrae & Costa, 1999), the empirical picture has turned out somewhat inconsistent: Not one of the classical five factors was a consistent predictor of DG altruism and the modal finding for each factor across studies is actually a null-effect. Even Agreeableness – which is commonly considered the one factor out of the five-factor model that should positively predict altruistic behavior (Denissen & Penke, 2008; Ferguson et al., 2011) – could only be shown to positively predict DG altruism in some studies (e.g., Baumert, Schlösser, & Schmitt, 2014; Becker, Deckers, Falk, & Kosse, 2012; Ben-Ner, Kramer, & Levy, 2008) but not (or even negatively) in others (e.g., Ben-Ner & Kramer, 2011; Visser & Roelofs, 2011; Weitzel, Urbig, Desai, Sanders, & Acs, 2010). Of course, variation in study designs and methodological details may account for such inconsistencies,

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rather than the trait conceptualizations per se. Nonetheless, such inconsistencies do call for further investigation – no matter what their exact source may be.

Fortunately, recent developments in models of basic personality structure show some promise: Based on lexical studies across various languages (Ashton et al., 2004; Lee & Ashton, 2008), the HEXACO model of personality (Ashton & Lee, 2007; Ashton, Lee, & De Vries, 2014) extends and slightly adapts the classical five-factor approach to incorporate a sixth basic factor, termed Honesty–Humility (HH). This factor subsumes fairness, greed avoidance, sincerity, and modesty and essentially stands for “the tendency to be fair and genuine in dealing with others, in the sense of cooperating with others even when one might exploit them without suffering retaliation” (Ashton & Lee, 2007, p. 156)<sup>1</sup>. As such, HH also encompasses some aspects of five-factor Agreeableness, particularly those relating to non-exploitation. Thus, HH is essentially defined as the trait that should drive DG giving. Correspondingly, HH has been linked to DG giving in several studies (Hilbig & Zettler, 2009; Hilbig et al., 2013; Thielmann & Hilbig, 2014; Thielmann, Hilbig, & Niedtfield, 2014), comprising a meta-analytical, sample-size weighted average correlation coefficient (cf. Field, 2001) of  $r = .29$ . However, these latter studies all relied on hypothetical DG scenarios rather than actual incentivized games with real recipients. The only exception to date (Baumert et al., 2014) reported a notably smaller effect of HH ( $r = .16$ ) when the DG was fully incentivized.

Thus, although the HH factor shows some promise as a potential predictor of DG altruism, the extant evidence also remains inconclusive. In particular, it needs to be tested whether HH can account for “real” altruistic behavior, that is, allocations in a fully incentivized DG with actual recipients. Specifically, it is vital to rule out spurious effects due to social desirability, such that some individuals may simply claim to be high in a trait (such as HH) and likewise claim they would share in the DG. Such a spurious effect of social desirability may explain why effects in hypothetical scenarios appear to be larger than in situations involving real stakes (see above). Indeed, even in the one study comprising monetary incentives and real interaction (Baumert et al., 2014), social desirability may still have been present because dictators had to reveal their altruism vs. selfishness to the experimenter (when collecting their payoffs). In essence, “experimenter demands increase generosity in the dictator game” (Bekkers, 2007, p. 139), unless a so-called “double-blind” DG procedure is used in which dictators need not reveal their allocation decision to the experimenter (e.g., Eckel & Grossman, 1996) – thus adding anonymity between dictators and researchers to the more common anonymity between dictators and recipients. In turn, if a self-reported trait can be shown to predict behavior in a “double-blind” game, this constitutes strong evidence against spurious effects of social desirability.

In addition to these concerns, previous investigations of personality effects in DG allocations have essentially ignored the recipient side, rather than turning full circle. First, even those studies that did include real recipients did not let recipients judge the fairness of the allocations they receive. This is problematic because even if one were to find that higher levels of some trait (such as HH) are aligned with larger allocations, this does not automatically imply that these allocations were indeed perceived to be fair (in absolute terms). Second, for a trait to be generally associated with a particular behavior, one would expect that observing this behavior will, in turn, allow for forming valid judgments about the trait of the acting individual. In other words, it should be tested how (well) recipients judge dictators’ personality in light of the allocation they

receive. Overall, then, we intended to show that (i) HH predicts dictators’ (double-blind) allocations which (ii) predict recipients’ fairness perceptions which (iii) predict recipients’ judgments of dictators’ levels of HH which (iv) should be associated with dictators’ true HH scores.

## 2. Study

### 2.1. Measures, procedure, and participants

The full study consisted of two independent parts. In the first part, dictator behavior was assessed, whereas the second part collected data from recipients. In the first part, participants completed a pre-study via the internet, at least 24 h prior to coming to an experimental session in the lab. In this online pre-study, we included the German version (Moshagen, Hilbig, & Zettler, 2014) of the 60-item HEXACO-PI-R (Ashton & Lee, 2009) and the German NEO-FFI (Borkenau & Ostendorf, 1994). As part of the lab session (which otherwise consisted of unrelated tasks), participants completed the double-blind DG: They received a neutral envelope marked only with a random participant code and containing 5.00 € (approximately 7.00 USD) in the form of ten 50 Cent coins and were asked to divide this endowment between themselves and another, unknown person (a randomly selected stranger they would not knowingly meet). Specifically, participants were instructed to take whatever amount of money they desired out of the envelope and pocket it. They were then instructed to seal the envelope (containing their allocation to the recipient) and place it carefully into a ballot box. It was ensured that participants could make their allocations in private and that neither other participants nor the experimenters could observe the allocations. That is, participants were concealed behind screens when making their allocation and when placing the envelope into the ballot box. A document signed by the PI of the study guaranteed to participants that their allocation would remain completely anonymous and that it would later be passed on to another individual.

In the second part, which was run several weeks later in the lab, a different set of participants received the DG allocations previously made by the dictators. Specifically, recipients were thoroughly informed of the procedure by which the dictators had made these allocations. They were then told that they were going to receive one randomly drawn envelope and asked to make a prediction how much money they expected to find therein. Next, they received an envelope, counted its content, and were then asked to judge how fair they thought the allocation was on a five-point Likert-type scale ranging from “unfair” to “fair”. Finally, recipients were given the ten HH-items from the 60-item HEXACO-PI-R observer-report form and asked to thereby judge the personality of the dictator whose envelope they had received. All (translated) verbatim instructions can be found in the [Online Supplemental Material](#).

To determine the required sample size, we conducted an a priori power analysis. As noted above, the meta-analytical correlation between HH and hypothetical DG allocations across previous studies was medium sized<sup>2</sup>. To detect such an effect ( $r = .29$ ) with satisfactory statistical power ( $1 - \beta = .80$ ) given a conventional type-I error (.05), a sample size of  $N = 91$  is required (Faul, Erdfelder, Buchner, & Lang, 2009). Over-recruiting slightly, we thus recruited 96 participants (54 female, aged 18–33 years,  $M = 21.8$ ,  $SD = 3.3$ ) in the first part as dictators and another 96 participants (55 female, aged 18–33 years,  $M = 21.5$ ,  $SD = 3.3$ ) as recipients in the second part of the study.

<sup>1</sup> HH is conceptually distinct from HEXACO Agreeableness which subsumes reactive aspects of cooperation (forgiveness, patience etc.), that is, non-retaliation. Indeed, the two factors have been dissociated empirically (Ashton et al., 2014; Hilbig, Zettler, Leist, & Heydasch, 2013).

<sup>2</sup> Note that the smaller effect size reported by Baumert et al. (2014) was unknown at the time of designing the study.

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