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**Working Paper**

## Who gives? - The Roles of Empathy and Impulsiveness

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# WHO GIVES?

## ON EMPATHY AND IMPULSIVENESS

James Andreoni<sup>1</sup>, Ann-Kathrin Koessler<sup>2</sup>, Marta Serra-Garcia<sup>3</sup>

### ABSTRACT

We investigate the impact of empathy and impulsiveness on charitable giving using a real donation experiment. We confirm that greater empathy predicts greater charitable giving. Contrary to recent literature, however, we find a significant negative relationship between impulsiveness and donation behavior. Specifically, when financial resources are scarce, donations are more often made by decision-makers who are able to suppress an intuitively egoistic response.

**Keywords:** Empathy, Impulsiveness, Charitable Giving, Donation, Pro-Social Behavior

**JEL classification:** C91, D64, H40

### Highlights:

- A real donation experiment in which individual impulsiveness and empathy are elicited
- Empathy predicts the likelihood of an individual making a charitable donation
- Impulsiveness is associated with fewer donations when the available financial means for donations are scarce

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# 1. INTRODUCTION

Over 350 billion US dollars, or close to 2% of GDP, are donated to charity in the United States every year (Giving USA, 2015). A large body of literature has emerged examining what motivates people to give, ranging from reduced form models of warm-glow giving (Andreoni 1989), to models of giving to manipulate social- and self-image (Benabou and Tirole, 2006; Ariely, Bracha and Meier 2009, Andreoni and Bernheim, 2009).<sup>1</sup>

Recently, researchers have been examining the roles of two specific mental states in determining the act of giving: empathy and impulsiveness. The large body of literature on empathic concerns argues that the ability of humans and a few other primates to feel what others feel is as a fundamental link in the chain that leads to an altruistic act (see, e.g., de Waal, 2012, Batson et al. 1987 and Batson 2011 or research on the empathy-altruism hypothesis in non-human and human primates, and an application to economics see Andreoni, Rao and Trachtman, 2017). Empathy, however, can require some attention to putting oneself in someone else's shoes (Andreoni and Rao, 2011).

A second body of literature argues that giving is instead impulsive and nearly automatic, and that thoughtfulness could impede giving. This hypothesis has been advocated most successfully by Rand and colleagues (Rand et al. 2012, Rand and Kraft-Todd, 2014, Cone and Rand, 2014, and in the meta-study Rand, 2016). In contrast to the literature on empathy, the claims for giving induced by impulsiveness have been less clearly established. Contrary to Rand and coauthors, some other researchers do not find a significant relationship between giving and manipulations of cognitive load or time pressure (e.g. Tinghög et al. 2013 or Verkoeijen and Bouwmeester 2014). Others have found the opposite result that is, individuals who act more impulsively behave in more self-oriented ways (Curry et al. 2008, Fehr and Leibbrandt, 2011, Martinsson et al., 2012, Piovesan and Wengström, 2009).<sup>2</sup> One evident difference between the mentioned studies is Rand and colleagues examine the

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<sup>1</sup> For reviews see Andreoni (2006) and Andreoni and Payne (2013).

<sup>2</sup> An excellent review and discussion can be found in Riedl, Vesterlund and Recalde (2014).

causal effect of impulsivity by manipulating external conditions, by, for example, limiting response time and trigger by this way intuition instead of reasoning. The other studies, on the contrary, investigate correlations based on individual differences in disposition or endogenous reaction time. This may (partly) explain the differing results.<sup>3</sup> Most studies, however, focus on cooperation and not giving, and recipients are fellow students, expected to be financially well-off.

In this paper, we explore the impact of empathy and impulsiveness in a single and real donation study. We ask: who gives? Is it those who are more empathic or those who are more impulsive, or both? In a real donation experiment, we elicit donation decisions and collect previously validated measures of empathic concern (Davis, 1983) and impulsiveness (Barratt, 1959; Frederick, 2005). To the best of our knowledge this study is the first to test the relationship between empathy and impulsiveness and charitable giving.

We find that empathic individuals are significantly more likely to donate. We find a one standard deviation increase in empathic concern increases the likelihood of a donation by 8 percentage points. Hence, we can confirm the importance of empathy as a pillar of pro-sociality. On the other hand, and in contrast to Rand and coauthors, we found that impulsiveness is negatively related to giving. A one standard deviation increase in trait-impulsiveness (Barratt, 1959) decreases the likelihood of a donation by 8 percentage points. Interestingly, the negative relationship between impulsiveness and giving becomes stronger when financial resources are more scarce. Under such conditions more impulsive individuals are even less likely to donate.

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<sup>3</sup> We thank an anonymous reviewer for valuable comments on this point.

## 2. EXPERIMENTAL DESIGN

We designed a laboratory experiment in which actual donation decisions were elicited. The experiment took place over two days, one week apart. On the first day the work of a charity, GiveDirectly, was presented to the participants in the experiment. They were then asked to donate \$5 of their experimental payments to GiveDirectly. A week later subjects returned to the lab and completed a follow-up survey, which elicited individuals' level of impulsiveness and empathy.

### 2.1. Measuring Empathy and Impulsiveness

The methodology used to elicit empathy and impulsiveness was based on widely used measurement scales of empathy and impulsiveness in the psychology literature. To measure the degree of empathy among the individuals in the experiment we used the Interpersonal Reactivity Index or IRI (Davis, 1983). The IRI is a multidimensional tool used to assess individual differences in empathy. With help of 28 self-reported items, cognitive and emotional facets of empathy are assessed.<sup>4</sup> The index comprises four dimension of empathy, namely in the following subscales: Fantasy, Perspective-taking, Empathic Concern and Personal Distress.<sup>5</sup> As in studies on prosocial behavior, we concentrate on the 'Empathic Concerns' subscale which measures the emotional aspects of empathy, i.e. sympathy and concern for others.

To identify the degree of an individual's impulsiveness we employ two measures, a measure of trait impulsiveness and a measure of behavioral impulsiveness, since previous research showed that trait impulsiveness does not necessarily correlate with behavioral measures of impulsiveness (Lane et al. 2003). As a trait measure we use the Barrat Impulsiveness Scale (Barratt, 1959), a 30-item instrument widely used to assess the varying dimensions of the impulsiveness of individuals<sup>6</sup>. As a behavioral measure of impulsiveness we used the Cognitive Reflection Test or CRT (Frederick,

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<sup>4</sup> Response options range from 0 (does not describe me well) to 4 (describes me very well).

<sup>5</sup> A detailed description of these subscales, as well as exemplary questions can be found in the Appendix.

<sup>6</sup> We use the BIS scale for the analysis in its aggregate form, subscales are listed and explained in the Appendix.

2005). The CRT is a three-item measure designed to assess an individual's ability to control a first intuitive, but incorrect response.

## **2.2 Experimental procedures**

The experiment was conducted at UC San Diego with a total of 175 participants. In the first four sessions, with a total of 81 students, each participant received a \$6 show-up fee for the first part of the experiment. To incentivize students to return, the show-up fee for the second week of the experiment was \$20. Since show-up fees may affect donation decisions, we conducted four additional sessions in which an equal show-up fee of \$15 was paid each week. In total 94 subjects participated in this set of experimental sessions. The structure of the show-up fees did not affect donation behavior (32.4% vs. 29.3% in the first and second set of sessions;  $Z\text{-stat}=0.4276$ ,  $p=0.6690$ ). Also, the show-up fees did not affect the rate at which students returned the second week, which was 98.8% and 90.3% respectively for the first and second set of sessions ( $Z\text{-stat}=-2.370$ ,  $p=0.9911$ ).

Although the change in show-up fees does not affect the overall donation, we examine whether it influences the relationship among giving behavior and empathy and impulsiveness. The reason is that impulsive individuals may focus on the show-up fee paid out week 1, ignoring that of week 2, when making their donation decision. If so, impulsive individuals may be less likely to donate when the show-up fee is \$6 compared to \$15.

At the beginning of the experiment, participants were randomly seated in separate computer cubicles and reminded of the longitudinal design of the study. Then, the experimenter presented the work of GiveDirectly in a slide presentation. At the end of this pitch, participants were asked whether they wanted to donate \$5 of their show-up fee for the session. Participants indicated their donation decision via entries in their respective computer terminals, and then completed a short questionnaire in which we elicited individual characteristics, including age, gender, study major, and fluency in English. Subjects were also asked to complete the Cognitive Reflection Test (CRT). Subsequently, participants were paid their corresponding show-up fee, minus the donation, if any. A week later participants

returned to the laboratory to complete the experiment. During this session they completed the BIS and IRI measurement scales.

### 3. RESULTS

Thirty-one percent of the participants (48 out of 175) donated \$5 to GiveDirectly. Importantly, measured empathy and impulsiveness varied between donors and non-donors. Table 1 shows the average values for the empathy and impulsiveness measures of subjects who decided to donate and subjects who decided against it. Empathy and impulsiveness predict donation behavior, controlling for other individual characteristics. Table 2 presents marginal effects of probit regressions on the likelihood of a donation. All specifications control for gender, study major and English language skills<sup>7</sup>. To ease the interpretation of the coefficients, all empathy and impulsiveness measures are standardized. Column 1 of Table 2 presents the estimation results pooling all sessions of the experiment. Consistent with the empathy-altruism hypothesis, we find that an individual is more likely to give the higher the level of empathic concern he or she displays. A one standard deviation increase in the empathic concern score corresponds with an eight percentage point increase in the likelihood of a donation ( $p=0.001$ ).

**Table 1: Empathy, impulsiveness and donation behavior**

|                                | Empathic Concern<br>(IRI) |     | Trait Impulsiveness<br>(BIS scale) |     | Behavioral Impulsiveness<br>(CRT score) |     | N  |
|--------------------------------|---------------------------|-----|------------------------------------|-----|---|-----|----|
|                                | mean                      | sd  | mean                               | sd  | mean                                    | sd  |    |
| <i>Panel A: \$6 endowment</i>  |                           |     |                                    |     |   |     |    |
| NO DONATION                    | 25.2                      | 3.5 | 75.1                               | 7.0 | 1.3                                     | 1.0 | 50 |
| DONATION                       | 25.7                      | 2.6 | 72.1                               | 6.5 | 1.6                                     | 1.1 | 24 |
| <i>Panel B: \$15 endowment</i> |                           |     |                                    |     |   |     |    |
| NO DONATION                    | 25.5                      | 3.3 | 73.1                               | 5.9 | 1.7                                     | 1.1 | 58 |
| DONATION                       | 26.7                      | 3.0 | 72.0                               | 5.9 | 1.6                                     | 1.2 | 24 |

*Notes: This table presents the raw data for the personality measures. The first row displays the average scores (and respective standard deviations) for subjects who decided not to donate. The second row displays the values for subjects who decided to donate to the charity.*

<sup>7</sup> Since variance in age was low in our sample we refrain from adding age as another control variable. The results, however, do not change by doing so.

Impulsiveness, on the contrary, has a negative relationship to charitable giving ( $p=0.001$ ). This finding is driven by behavior in the experimental sessions in which the donation constituted a larger share of the subject's endowment (\$5 out of \$6, instead of \$15), as shown in columns 2 and 3 of Table 2. As shown in column 2, when subjects receive a \$6 endowment, a higher degree of impulsiveness implies a significantly lower likelihood of donating. One standard deviation in the BIS measure corresponds to a likelihood of observing a donation that is a 12 percentage points lower ( $p<0.001$ ). Furthermore, lower behavioral impulsiveness, as measured by a higher CRT score, is positive and has a weakly significant influence on donation behavior ( $p=0.08$ ). This result stands in contrast to previous research, which has found a negative relationship between CRT scores and dictator game giving (Cueva et al. 2016, Ponti and Rodriguez-Lara 2015). The reason for this we see in the neediness of the recipient. The ability to suppress an intuitive response favors giving when the person is in need and resources are scarce. Then, when subjects receive a \$15 endowment, as shown in column 3 of Table 2, impulsiveness is no longer predictive of donation decisions (BIS:  $p=0.456$  and CRT score:  $p=0.813$ ).<sup>8</sup> The difference in the relationship between trait impulsiveness and donations is significantly weaker when the endowment is \$15, as shown in column (4) of Table 2, where impulsiveness and endowment are interacted ( $\chi^2=2.81$ ,  $p=0.094$ ).<sup>9</sup>

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<sup>8</sup> Interestingly, the relationship between behavioral and trait impulsiveness and donation behavior is gender-specific. For male subjects, behavioral impulsiveness is a strong predictor of donations. One unit of standard deviation in correct answers (more reflection) increases the likelihood of donations by 24 percentage points in the male subsample ( $p=0.046$ ) see column 2 of Table 3 in the Appendix). For the female subsample, by contrast, the behavioral impulsiveness has almost no predictive power for the donation decision. Instead, donations made by females are strongly correlated with trait impulsiveness. One unit of standard deviation in the BIS scale increases the donation likelihood by 17 percentage points ( $p<0.001$ ), as shown in column 3 of Table 3 in the Appendix.

<sup>9</sup> There is no significant difference in the relationship between empathy and behavioral impulsiveness by endowment (IRI:  $\chi^2=0.73$ ,  $p=0.393$  and CRT:  $\chi^2=0.50$ ,  $p=0.482$ ).



**Table 2: Probit regression on Likelihood of Donation,**

|                        | (1)                           | (2)                  | (3)                   | (4)                           |
|------------------------|-------------------------------|----------------------|-----------------------|-------------------------------|
|                        | <b>Likelihood of Donation</b> |                      |                       |                               |
| <i>Sessions:</i>       | <i>\$6 and \$15 endowment</i> | <i>\$6 endowment</i> | <i>\$15 endowment</i> | <i>\$6 and \$15 endowment</i> |
| <i>Empathy</i>         |                               |                      |                       |                               |
| Empathic concern (IRI) | 0.084***<br>(0.026)           | 0.059*<br>(0.031)    | 0.107***<br>(0.037)   | 0.100***<br>(0.029)           |
| IRI X \$6 Endowment    |                               |                      |                       | -0.031<br>(0.037)             |
| <i>Impulsiveness</i>   |                               |                      |                       |                               |
| Trait (BIS)            | -0.082***<br>(0.025)          | -0.118***<br>(0.029) | -0.039<br>(0.052)     | -0.027<br>(0.045)             |
| BIS X \$6 Endowment    |                               |                      |                       | -0.093*<br>(0.056)            |
| Behavioral (CRT)       | 0.027<br>(0.042)              | 0.090*<br>(0.052)    | -0.015<br>(0.063)     | -0.010<br>(0.071)             |
| CRT X \$6 Endowment    |                               |                      |                       | 0.071<br>(0.101)              |
| \$6 Endowment          | 0.030<br>(0.121)              |                      |                       | 0.086<br>(0.117)              |
| Observations           | 156                           | 74                   | 82                    | 156                           |

*Notes: This table presents the average marginal effects (calculated at means of all variables) from probit regression on donations. Empathic concern is measured with the same titled subscale (EC) of the Interpersonal Reactivity Index (Davis, 1983). The individual's level of Impulsiveness is elicited with two measures: the Barratt Impulsiveness Scale (BIS) and the Cognitive Reflection Test (CRT) (Frederick, 2005). Column 1 presents the estimates of the likelihood of donation based on the entire sample. Estimations in Column 2 are based on sessions where subjects received a \$6 endowment. Estimations in Column 3 include only sessions in which individuals received a \$15 endowment. Standardized mean scores are taken as a basis for all personality measures (IRI-EC, BIS, and CRT). All specifications include the individual characteristics, gender, English-language skills and whether an individual studied Economics as control variables. Further, experimenter fixed effects are included in all specifications. Robust standard errors, clustered at the session level, are shown in parentheses. The symbols \*\*\*, \*\*, and \* indicate significance at the 1%, 5% and 10% levels, respectively.*

In sum, empathy is a consistently important factor in donation behavior. By contrast, impulsiveness is strongly related to altruistic actions only when immediate financial resources are scarce. Under such circumstances an impulsive individual is less likely to donate, whereas a person who is able to suppress this first intuitive response and capable of reflection might take future payments into account and may hence be more willing to donate.

## **4. CONCLUSION**

Existing research has shown that charitable giving is driven by a wide array of motivations. Recently, economists have begun to consider two new motivations: empathy and impulsiveness. In this paper we have examined the role of heterogeneity in individual characteristics of giving. In a laboratory experiment we tested whether two important personality traits, empathy and impulsiveness, predict a real donation decision.

Our results confirm empathy is a central factor in charitable giving. We also find support for a relationship between impulsiveness and donation behavior. Particularly, when financial means are small, the individual's level of impulsiveness has a negative relation to the donation decision. Our results reaffirm the critical role of empathy in charitable giving. Our analysis also shows that the relationship between impulsivity and giving may not be as consistent across contexts. We find a negative relationship that becomes increasingly negative when subjects see resources as more scarce. This finding is interesting for two reasons. First, it suggests that the relationship between giving and impulsiveness is complex and may be influenced by other contextual factors. Second, it suggests an area for further exploration in order to try to understand the conflicting findings in this area - that is, does the relative degree of wealth or scarcity among the subjects in these studies differ in ways that may interact with impulsivity to create conflicting results?

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## APPENDIX

### The Interpersonal Reactivity Index

The index consist of four subscales with seven items each. Each subscale targets a different aspect of empathy. First, the Fantasy scale measures the tendency that an individual imaginatively transposes his or herself into the feelings and actions of fictional characters ('I really get involved with the feelings of a character in a novel.'). The second scale, Perspective Taking, focuses on the cognitive aspect of empathy and assesses the tendency to take the psychological view of others into account ('I sometimes try to understand my friends better by imagining how things look from their perspective.'). The third scale, Empathic Concerns' measures the emotional aspect of empathy, i.e. sympathy and concern for others ('When I see someone being taken advantage of, I feel kind of protective towards them.'). The last scale, Personal Distress, measures the kind of feelings (e.g., anxiety) that can get in the way of helping others ('In emergency situations, I feel apprehensive and ill-at-ease.').

### The Barrat Impulsiveness Scale

Based on factor analysis studies, the following subscales can be identified within the BIS measuring the varying sub-traits of impulsiveness (Stanford et al. 2009): (1) Attentional Impulsiveness: describing the diminished ability to focus on a task (Attentional<sup>10</sup>: 'I don't "pay attention".' and Cognitive Instability: 'I have "racing" thoughts.'). (2) Motor Impulsiveness: impulsiveness involved in acting without thinking (Motor: 'I act "on impulse".' and Perseverance: 'I change jobs.'). (3) Non-Planning Impulsiveness involved as a lack of forethought (Self-Control<sup>11</sup>: 'I say things without thinking.' and Cognitive Complexity<sup>12</sup>: 'I get easily bored when solving thought problems.').

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<sup>10</sup> We refer to this component as 'Lack of attention' in our regressions to avoid confusion.

<sup>11</sup> This component corresponds with the variable 'Lack of self-control' in our regressions.

<sup>12</sup> We also renamed this variable to ease interpretation. This component can be find under 'Low Cognitive Complexity'.

**Table 3: Probit regression on Likelihood of Donation, Individual measures**

|                        | (1)                           | (2)          | (3)                 | (4)                        | (5)               | (6)                 | (7)                             | (8)               | (9)               |
|------------------------|-------------------------------|--------------|---------------------|----------------------------|-------------------|---------------------|---------------------------------|-------------------|-------------------|
|                        | <b>Likelihood of Donation</b> |              |                     |                            |                   |                     |                                 |                   |                   |
|                        | <b>Empathy</b>                |              |                     | <b>Trait impulsiveness</b> |                   |                     | <b>Behavioral impulsiveness</b> |                   |                   |
| <i>Endowment:</i>      | \$6                           | \$15         | \$6 and \$15        | \$6                        | \$15              | \$6 and \$15        | \$6                             | \$15              | \$6 and \$15      |
| <i>Empathy</i>         |                               |              |                     |                            |                   |                     |                                 |                   |                   |
| Empathic concern (IRI) | 0.02                          | 0.096**<br>* | 0.095***            |                            |                   |                     |                                 |                   |                   |
|                        | (0.022)                       | (0.029)      | (0.024)             |                            |                   |                     |                                 |                   |                   |
| IRI X \$6 endowment    |                               |              | -0.068**<br>(0.028) |                            |                   |                     |                                 |                   |                   |
| <i>Impulsiveness</i>   |                               |              |                     |                            |                   |                     |                                 |                   |                   |
| Trait (BIS)            |                               |              |                     | -0.102***<br>(0.020)       | -0.020<br>(0.056) | -0.007<br>(0.025)   |                                 |                   |                   |
| BIS X \$6 endowment    |                               |              |                     |                            |                   | -0.093**<br>(0.037) |                                 |                   |                   |
| Behavioral (CRT)       |                               |              |                     |                            |                   |                     | 0.101**<br>-0.044               | -0.020<br>(0.056) | -0.014<br>(0.065) |
| CRT X \$6 endowment    |                               |              |                     |                            |                   |                     |                                 |                   | 0.086<br>(0.091)  |
| Observations           | 74                            | 82           | 156                 | 74                         | 82                | 156                 | 74                              | 82                | 156               |

*Notes: This table presents the average marginal effects (calculated at means of all variables) from probit regression on donations. Each estimation is performed for both endowment variations (\$5 vs. \$15) and on the total sample, including interaction terms for the endowment variations. Columns 1 - 3 present the likelihood of a donation controlling for the individual's empathy level. Empathic concerns are measured with the same titled subscale (EC) of the Interpersonal Reactivity Index (Davis, 1983). Columns 4 - 6 estimate the likelihood of a donation controlling for the individual's impulsiveness. Trait impulsiveness is measured using the Barratt Impulsiveness Scale (BIS). Columns 7 - 9 estimate the likelihood of donation based on the individual's Behavioral impulsiveness with help of the individual's scores in the Cognitive Reflection Test (CRT) (Frederick, 2005). Standardized mean scores are taken as the basis for all personality measures (IRI-EC, BIS, and CRT). All specifications include the individual characteristics, gender, English language skills and whether an individual studied Economics as control variables. Furthermore, experimenter fixed effects are included in all specifications. Robust standard errors, clustered at the session level, are shown in parentheses. The symbols \*\*\*, \*\*, and \* indicate significance at the 1%, 5% and 10% levels, respectively.*

**Table 4: Probit regression on Likelihood of Donation with subscales by gender**

| <b>Likelihood of Donation</b>         | <b>(1)</b><br>Empathy and<br>Impulsiveness | <b>(2)</b><br>MEN<br>Empathy and<br>Impulsiveness | <b>(3)</b><br>WOMEN<br>Empathy and<br>Impulsiveness |
|---------------------------------------|--|---|---|
| <i>Interpersonal Reactivity Index</i> |  |   |   |
| Fantasy                               | 0.055**<br>(0.027)                         | 0.306*<br>(0.164)                                 | -0.004<br>(0.026)                                   |
| Perspective-taking                    | 0.034<br>(0.034)                           | 0.058<br>(0.049)                                  | 0.039<br>(0.047)                                    |
| Empathic concern                      | 0.080***<br>(0.030)                        | 0.060***<br>(0.014)                               | 0.071*<br>(0.041)                                   |
| Personal Distress                     | 0.011<br>(0.030)                           | 0.058<br>(0.044)                                  | 0.017<br>(0.079)                                    |
| <i>Barratt Impulsiveness Scale</i>    |  |   |   |
| Lack of Attention                     | -0.013<br>(0.045)                          | -0.183**<br>(0.092)                               | 0.045<br>(0.068)                                    |
| Cognitive Instability                 | -0.015<br>(0.045)                          | 0.139*<br>(0.081)                                 | 0.001<br>(0.096)                                    |
| Motor Impulsiveness                   | -0.018<br>(0.026)                          | 0.077<br>(0.055)                                  | -0.042<br>(0.078)                                   |
| Perseverance                          | 0.028*<br>(0.015)                          | -0.037<br>(0.032)                                 | 0.024<br>(0.059)                                    |
| Lack of Self-control                  | -0.125***<br>(0.032)                       | -0.002<br>(0.026)                                 | -0.171***<br>(0.039)                                |
| Low Cognitive complexity              | -0.053<br>(0.051)                          | 0.020<br>(0.030)                                  | -0.095<br>(0.067)                                   |
| <i>Cognitive Reflection Test</i>      |  |   |   |
|                                       | 0.029<br>(0.051)                           | 0.240**<br>(0.121)                                | -0.020<br>(0.051)                                   |
| Endowment                             | 0.025<br>(0.086)                           | 0.161<br>(0.146)                                  | -0.176<br>(0.109)                                   |
| Observations                          | 156  | 60  | 96  |

*Notes: This table presents the average marginal effects (calculated at means of all variables) from probit regression on the likelihood of donations. All scales of the Interpersonal Reactivity Index (Davis, 1983) are included, and the subscales of the Barratt Impulsiveness Scale (Barratt, 1959) are listed individually. The estimations are done on the basis of standardized mean scores for each subscale. All specifications also include the standardized mean scores from the Cognitive Reflection Test (Frederick, 2005) and controls for gender, English language skills and whether an individual had Economics as a major. Experimenter and endowment fixed effects serve as additional controls. The estimation in column 1 is based on the entire subject pool. The estimation in column 2 reflects male subjects only, and the estimation in column 3 female subjects only. Robust standard errors, clustered at the session level, are shown in parentheses. The symbols \*\*\*, \*\*, and \* indicate significance at the 1%, 5% and 10% levels, respectively.*