Smart and generous

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Abstract

In this paper, I investigate the relationship between cognitive ability and charitable giving using register data from Sweden covering more than 1.2 million individuals. I find that cognitive ability is positively associated with the probability and amount of charitable gifts and that this relationship holds when controlling for non-cognitive ability, observable and unobservable family background characteristics, and large set of potential mediating variables, including education and income. These findings indicate that smart people are more generous towards beneficiaries of charities. I also find that cognition is positively associated with a survey measure of altruistic preferences, suggesting that smart individuals are also more intrinsically generous.

Keywords: Charitable giving, Cognitive ability, Altruism, Generosity

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1. Introduction

Humans frequently engage in prosocial behaviors such as helping family members, friends and strangers, donation of blood and organs, or by contributing to charitable causes. For example, in the U.S., more than USD 300 billion (2% of GDP) is given to charities (Giving USA, 2016), of which many produce important services to the society, such as education, health care and research. The battle against important global challenges, such as wars, refugee crisis, and pandemics, also relies crucially on peoples’ prosocial behaviors. Moreover, prosocial preferences have been shown to be important for variety of economic decisions and outcomes, such as the provision of public goods (Fehr and Gächter, 2002), contract enforcement (Fehr et al. 1997), management of commons (Ostrom et al., 2002), governmental efficiency (La Porta et al., 1997), as well as economic growth (Carpenter and Seki, 2011; Guiso et al., 2009) and development (Diamond, 2005).

However, despite their fundamental importance and the significant advances in understanding their consequences, our knowledge about which underlying individual traits that determines prosocial preferences and behaviors remains surprisingly scarce.

Studies in neuroscience are beginning to uncover the pathways for prosocial motivation and their findings point towards biological connections between brain functioning and empathy (Singer 2006), suggesting that cognitive ability may be related to prosocial motivation. Theories from sociology and behavioral economics also provide reasons to expect that prosociality is related to cognitive ability. For example, cognition is required to evaluate outside options and alternative uses of resources, appreciate non-immediate rewards and identify the needs of distant others (Bekkers 2006; Dohmen et al. 2010).

Along these lines, a few studies investigate the association between cognitive ability (measured through e.g. Wonderlic-test, RPM-test, SAT, GPA) and giving in dictator games. The evidence is mixed, however, with some studies reporting a negative relationship (Brandstätter and Güth 2002, Ben-Ner et al. (2004) and others reporting a positive relationship (Millet and Dewitte 2007, Chen et al. 2013). Moreover, Falk et al. (2018) find that cognitive ability (measured by self-rated math skills) is positively associated with altruistic preferences in the Global Preference Survey. Further evidence comes from studies using survey data on real-world prosocial behaviors such as volunteering (Denny 2003) and charitable giving (Bekkers 2006, Wiepking and Maas 2009; James 2011). These studies typically find that people who score higher on tests of cognitive ability are more generous in terms of their time and money.

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3 Previous research also find a strong association among cognitive ability and social and anti-social behaviors, such as marriage, aggressiveness, violence, and criminality (e.g. Hernstein and Murray 1994, Heckman et al. 2006).
In this paper, I add to this literature by studying how cognitive ability is related to charitable giving and a revealed preference measure of altruism. Studying both behavior and preferences is important since it is not obvious that they will be related similarly to cognition. First of all, we know that people sometimes act in contrast with their preferences. For example, although I have a sweet tooth I abstain from eating candy because I know that it have harmful consequences for my teeth. Conversely, although I genuinely dislike my grandmother’s stew I eat it to make her happy. While prosocial preferences and behaviors appears to be correlated (Falk et al. 2018), research on charitable giving report evidence that social pressure and expectations of reciprocal favors play important roles for the decision to give (DellaVigna et al 2012, Meer and Rosen 2009), suggesting that charitable giving is not only driven by intrinsic motivation (Benabou and Tirole 2006). Moreover, acting generously, by for instance, donating to charity, may be a, costly, way to convey (signal) information about ones’ underlying ability (Zahavi 1975, Millet and Dewitte 2007). Thus, finding that individuals with higher cognitive ability are more likely to give to charity does not necessarily imply that they are more altruistic, and it is therefore important to complement the analysis also with a measure of intrinsic altruism.

For the analysis on the relationship between cognitive ability and charitable giving, I use register data from Sweden covering information about cognitive ability and charitable donations for 30 cohorts of males. Data on cognitive ability comes from the military enlistment records and builds on the conscripts logical, verbal and abilities as well as technical understanding. The test has been subject to evaluation by psychologists (Carlstedt 2000) and appears to be a good measure of general IQ, i.e. the g-factor (Carroll 1993). Data on charitable donations is collected from the Swedish Tax Agency’s tax register and captures donations larger than 200 SEK (≈30 USD) to the major charities in Sweden.

The military enlistment was mandatory and the data covers essentially the entire male population aged 35-64, in total more than 1.28 million observations.

In addition to being the first one to investigate the relationship in a population-wide dataset, using a composite measure of general intelligence together with register based information on charitable donations; I contribute by testing for the importance of non-cognitive ability (personality) for the relationship. Previous studies indicate that personality, such as empathy and social skills, plays an important role for altruistic acts in general (e.g. Ben-Ner et al. 2004, Klimecki et al 2016) as well as for the decision to donate to charity (e.g. Wiepking and Maas 2009). A more social personality is likely to be associated with more extended social networks which in turn increases the likelihood of being asked to make a donation (Wiepking and Maas 2009). Another reason for why one wants to control for non-cognitive ability is that the cognitive test score may, in part, be determined by personality (Dohmen et al 2010). The

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4 The measure of cognitive ability has been shown to be a significant predictor of labor market outcomes (Lindqvist and Vestman 2011) and mortality (Öhman 2015).
measure of personality I use builds on a psychologist’s evaluation of the conscript’s personality and the characteristics that give a high score include persistence, social skills, and emotional stability and has been shown to predict various labor market outcomes (Lindqvist and Vestman 2011).

I also contribute by investigating what role family background plays for the relationship. Research shows that there is hereditability in cognitive ability (Grönqvist et al. 2017), prosocial preferences (Cesarini et al. 2009) and prosocial behaviors (Wilhelm 2008). If some of the inherited factors that affect cognitive ability, via separate channels also affect preferences for charitable giving, this will bias the cognitive ability coefficient. I investigate how large this hereditability bias is by controlling for parental income and education as well as parental giving behavior. Moreover, I identify brothers in the data and estimate models with sibling fixed effects.\textsuperscript{5} Since biological siblings share on average 50 percent of their genes, this approach will account for some of the genetic influence. It also accounts for environmental factors operating at the family level that may influence the relationship, such as practices, values and preferences for generosity (Wilhelm et al. 2008; Bekkers 2007).

My findings are that cognitive ability is positively associated with both the presence of charitable donations and the level of donations (conditional on donation). The crude estimates imply that a one-stanine point increase in cognitive ability (corresponding to half of a standard deviation) increases the likelihood of charitable giving by 24 percent and the donated amount (conditional on giving) by 10 percent. Interestingly, the results show that the relationships remain similar when I control for non-cognitive ability. In fact, the predictive power of non-cognitive ability is only about one tenth of that of cognitive ability and the association between non-cognitive ability the donated amount is negative. On the contrary, my results show that around half of the relationship could be explained by mediators such as education, income, marital status, presence of children and membership in the Church of Sweden. Interestingly, years of schooling is positively associated with charitable giving even when controlling for cognitive ability. This suggests that education is an important provider not only of cognitive skills, but also of other factors that lead individuals to engage more in charitable giving, such as prosocial values, social trust and enhanced confidence in charitable organizations, awareness of needs and exposure to information about charitable causes, and social networks (Wiepking and Bekkers 2012). Moreover, my analysis show that the significant relationship between cognitive ability and charitable giving remains similar when I control for family background (e.g. genes, inherited preferences etc.).

One limitation with the data is that it lacks information about cognitive ability for females. However, I attempt to overcome this issue by identifying brother-sister constellations and impute the sister’s cognitive ability with that of her brother(s). While the results should be

\textsuperscript{5} A similar approach is used by Lundborg et al. (2014) to study the role of cognitive and non-cognitive skills for the relationship between height and earnings.
interpreted with caution, they nevertheless suggests that the positive relationship between cognitive ability and charitable giving is present also among women, and that this hold also when I control for individual and parental characteristics. Interestingly, the relationship is weaker among women than among men. While this may be a consequence of the fact that a proxy for cognitive ability is used for women, but not for men, it is consistent with the results in Ben-Ner et al. (2004).

For the analysis on relationship between cognitive ability and prosocial preferences, I use survey data, containing a qualitative measure of revealed altruistic preferences (Falk et al. 2018) for a representative sample of the adult Swedish population, which I link to data on cognitive ability from the military records and demographic and economic characteristics from administrative register. The analysis sample cover slightly more than 1,000 individuals.

One limitation with these data is that they do not cover the same individuals for whom I have information about charitable donations. Another limitation is that I do not have a comprehensive measure of non-cognitive ability for the individuals who answered the survey (expect for survey measures of risk-taking, patience, trust and reciprocity, which may capture some aspects of personality) or the possibility to control for observable or unobservable family background characteristics. Nevertheless, to the best of my knowledge, no previous study has investigated the relationship between intelligence and altruistic preferences using a composite measure of general intelligence.

My results show that altruistic preferences vary systematically with cognitive ability. Individuals with higher cognitive ability are significantly more altruistic and this result is robust to the control for economic and demographic characteristics as well as other preference measures.

Are my findings special for Sweden? The fact that earlier studies from the US report similar relationship between cognitive and charitable giving as I do suggest that this is not the case. The results with respect to the relationship between cognitive ability and prosocial preferences are also consistent with those for several other countries (Falk et al. 2018). Moreover, other preference measures, i.e. patience, risk-taking, reciprocity and trust, display similar relationships with cognitive ability (measured either as the composite measure or as subjective math skills) as in Falk et al. (2018). This further suggests that Swedes are not inherently different and hence, that my findings are likely to generalize to other contexts as well.

The measure of cognitive ability used in this study captures something closer to innate ability than the measures used in previous studies (e.g. SAT score, verbal proficiency, or self-reported math skills) and hence, is less likely to be determined by prosocial preferences and behaviors. The measure is, however, not without problems and the relationships reported in this paper

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6 I cannot employ a family fixed approach since there is no variation in imputed cognitive ability across sisters.
7 I have a measure of self-reported math skills, similar to that used in Falk et al. (2018), and it displays a similar relationship to altruism as the composite measure of cognitive ability from the enlistment records.
should be interpreted in terms of correlations rather than causality. The paper nevertheless establishes that there exists a robust and significant relationship between cognitive ability and generosity, which appears to extend across the population as a whole.

The structure of the papers is the following. Section 2 reports details about the data. Section 3 describes the estimation framework. Section 4 reports the results and finally, section 5 offers some concluding remarks.

2. Empirical method
The baseline empirical model relates cognitive ability and charitable giving and looks as follows:

\[ y_i = \alpha + \beta c_i + \varepsilon_i \quad (1) \]

where \( i \) is the index for the individual, \( y \) is charitable giving (presence or amount) and \( c \) is cognitive ability. In this model, \( \beta \) will pick up both the causal impact of cognitive ability, that run through e.g. smarter people being more generous, or through mediating variables, as well as the influence of any omitted variables that are correlated with cognitive ability and giving.

After having established the direction and magnitude of the unconditional relationship, I explore how the relationship is affected by non-cognitive ability. Non-cognitive ability is a measure of personality and it is likely to have an independent impact on charitable giving (Bekkers and De Graaf 2005; Bekkers 2006). Non-cognitive ability may also be correlated with charitable giving through its relationship with cognitive ability, if for example personality affect how the individual performs in the test of cognitive ability. The model that controls for non-cognitive ability, \( nc \), looks as follows:

\[ y_i = \alpha + \beta c_i + \varphi nc_i + \varepsilon_i \quad (2) \]

I then go on and investigate to what extent the relationship could be explained by mediating variables. The most obvious ones are education and income (James 2011). Education increases income and given that giving to charity is a normal good (e.g. Andreoni 2006), one would expect more education to lead to more charitable giving. Education may also affect charitable giving positively through its provision of prosocial values, social trust and enhanced confidence in charitable organizations, awareness of needs and exposure to information about charitable causes, and social networks that increases the likelihood of being solicited for donations (Wiepking and Bekkers 2012). Field of education is also linked to both cognitive ability and charitable giving (Frey and Meyer 2004, Eckel et al. 2005). Other potential mediators are marital status, presence of children, religiosity (Wiepking and Bekkers 2012). The influence of these potential mediators are captured by the following model:

\[ y_i = \alpha + \beta c_i + \varphi nc_i + \gamma X_i + \varepsilon_i \quad (3) \]
where $X$ is a vector of mediating variables.

To investigate the role of family background I extend the previous model with controls for parental education and parental income, as they may relate to both an individual’s propensity to give and cognitive ability. I also include a control for the parents’ charitable giving. The model looks as follows:

$$y_i = \alpha + \beta c_i + \delta nc_i + \gamma X_i + \delta Z_i + \epsilon_i \quad (4)$$

where $Z$ is a vector of the parental variables.

Finally, I investigate the importance of any confounding influence from unobserved family level factors that are also associated with charitable giving and cognition by estimating a model with sibling fixed effects. The identification of the coefficient on cognitive ability relies upon variation in cognitive ability among siblings and the model looks as follows:

$$y_{ij} = \alpha + \beta c_{ij} + \gamma X_{ij} + \theta_j + \epsilon_{ij} \quad (5)$$

where $ij$ is an index for an individual $i$ in family $j$ and $\theta$ is the sibling fixed effect. The fixed effect captures family characteristics shared by all siblings within the same family such as parental characteristics and confounding environmental factors operating at the family level, such as family practices, civic identity and preferences for generosity (Wilhelm et al 2008; Bekkers 2007). Moreover, since biological siblings share on average half of their genes, the fixed effects approach therefore accounts for some of the genetic influence, which may bias the cognitive ability coefficient (Cessarini et al. 2009; Grönqvist et al. 2017, Wilhelm et al. 2008).

The interpretation of the estimate of $\beta$ from model 5 is: the impact of cognitive ability that remains after accounting for the effect of cognitive ability that operates through mediators and after controlling for factors associated with, but not caused by, cognitive ability, i.e. non-cognitive ability and family background.

In a robustness analysis, I estimate model 5 for a sample of twin-brothers. While the data at hand do not allow me to distinguish between dizygotic and monozygotic twins and hence, perfectly test for the importance of genetics, this strategy enables me to evaluate the importance of school environment and neighborhood characteristics, factors that are more likely to be shared by twins than by conventional siblings.
3. Data and descriptive statistics

The data used in the empirical analyses are collected from several administrative registers. This subsection describes the data sources, the key variables, the study population and provides descriptive statistics.

3.1 Data

Tax registers

Data on charitable gifts are collected from the Swedish Tax Agency’s Income and Tax register. During the period 2012-2015, tax-residents in Sweden older than 18 years had the possibility to get at tax reduction for monetary gifts to charitable organizations. To get the reduction certain requirements needed to be fulfilled. First, the recipient organization had to be a tax-exempted foundation or other non-profit organization active in charity work for the economically needy or in the promotion of scientific research and approved by the Tax Agency. Second, the donor had to make one or more gifts, each of at least 200 SEK (~30 USD) to a given organization per year and a total annual gift amount of at least 2,000 SEK. The tax reduction was 25 percent of the gift amount and could amount to a maximum of 1,500 SEK per year, corresponding to a total annual gift amount of 6,000 SEK.

The only thing that the donor needed to do to get the reduction was to report his/her person identity number to the recipient organization, which was responsible for reporting the gift to the Tax Agency. This is unlike a system with deductions for charitable gifts, employed in for example in the US (Cloetfelter 1997), which requires that the donor understands the tax law and actively file forms with the tax return. This feature of the Swedish context reduces the risk that a relationship between cognitive ability and charitable giving simply captures more intelligent individuals’ higher financial literacy (Lussardi et al. 2010) and thus, potentially higher knowledge about loopholes in the tax system. However, it may still be the case that more intelligent individuals are aware of the gains of making gifts to the organizations that that were approved by the tax agency.

The tax register covers individual level information on all gift amounts of at least 200 SEK (including also gift amounts exceeding the maximum of 6,000 SEK that led to a reduction). While there is no information about the recipient organizations, the tax agency provides documentation of approved charitable organizations during the period, and it shows that all the major charities in Sweden are represented. In 2012, there are 44 and in 2015 there are 78.

For the analysis, I use information about the presence of charitable gifts as well as information about the monetary values.

From the tax registers, I also collect information on other economic and demographic characteristics such as age, disposable income, education, membership in the Church of Sweden. (TO BE EXTENDED).
Military enlistment records

Data from the military enlistment records for the years 1970-1996 provide scores from tests of cognitive and non-cognitive abilities. Military enlistment was mandatory during this period and essentially all male Swedish citizens enlisted the year they turned 18 or 19. The enlistment involves tests of health status, physical fitness, cognitive ability and an interview with a psychologist.

I provide a short description of the tests of cognitive and non-cognitive ability below. Lindqvist and Vestman (2011) provide a more detailed account of the enlistment procedure and the tests of cognitive and non-cognitive ability.

Cognitive ability is assessed through four subtests, with the purpose of measuring the individual’s logical, spatial, verbal and technical comprehension. The results of the tests is combined to a general cognitive ability measure standardized to a discrete 1-9 scale, which follows a stanine scale, approximating a normal distribution, with mean five and standard deviation two. The test appears to be a good measure of general intelligence, IQ, (Carlstedt 2002).

Non-cognitive ability is measured through a 20-25 minutes long interview with a psychologist. The purpose of the interview is to assess four dimensions of the individual’s personality: emotional stability (ability to control and channel nervousness, stress tolerance, anxiety disposition), social maturity (extraversion, having friends, responsibility and independence), psychological energy (perseverance, ability to fulfill plans, focus), and intensity (self-activation in the absence of external pressure, intensity and frequency of leisure activities). The four personality dimensions have a clear mapping to the Big Five personality traits (Grönqvist et al. 2018). The interview resulted in a general non-cognitive ability measure standardized to stanine scale. It should be noted that, while the ultimate purpose of the interview is to evaluate the individual’s ability to perform military service and to function in a war situation, motivation for doing the military service is not among the set of characteristics considered beneficial for the military service. Each individual is assigned a score from 1 to 9 in this respect.

3.2 Study population
The study population contains all males in Sweden who enlisted during the period 1970-1996 and who lived in Sweden during the years 2012-2015, in total 1,254,103 individuals.

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8 Exemption was granted to men with severe physical or mental handicaps, those institutionalized (due to mental disorder or being in prison), and those living abroad. Until 1997, more than 90 percent of all men in each cohort went through the whole enlistment procedure.
9 Table 1 in Öhman (2015) displays the correspondence between stanine scores and IQ scores.
For the estimation of model 5, I identify brother constellations using the Multi-Generation Register. More specifically, I identify brothers who share biological mother and father, in total 236,595 brother constellations, or a total of 508,071 individuals.

Moreover, in robustness analyses, I investigate twin samples, where the twins are identified by shared biological mother and father and shared year-and-quarter of birth.

I also use the register to link brothers and sisters (conventional and twins), in order to impute women’s cognitive ability.

3.3 Descriptive statistics

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4. Results

4.1 The relationship between cognitive ability and charitable giving

Presence of charitable giving

Figure 1 displays the prevalence of charitable giving over the cognitive ability distribution. The figure shows a strong positive gradient with the prevalence of charitable gifts increasing from 2.5 percent among those with the lowest score to over 20 percent in among those with highest score.

I now continue to investigate whether this association remains when accounting for mediators and potentially omitted variables.

![Graph showing the relationship between cognitive ability and charitable giving](image)

**Fig. 1. Relationship between cognitive ability and presence of charitable giving.**

In Figure 2, I report the estimates of the coefficient on cognitive ability from models 1-5, presented in the forms of bars accompanied by 99 percent confidence intervals. The leftmost bars in the panels display the coefficient estimate from the most parsimonious model (1), which I refer to as the baseline relationship. The following bars provides the coefficient estimates from the more sophisticated models (2-5), i.e. the ones sequentially adding more structure. The rationale behind this form of presentation is that its allows one to evaluate how the cognitive ability-giving association changes, relative to the baseline, once more factors are controlled for. The coefficient estimates for the other control variables are reported in the appendix (Will be added)
Panel A display the results for the full population of males enlisted the military between 1970 and 1996, and who are alive in 2014. The blue bar implies that a one-stanine point increase in cognitive ability increases the likelihood of charitable giving by 2.3 percentage points, or 24 percent if compared against the prevalence in the population. The coefficient changes only marginally when I control for non-cognitive ability, see red bar. The coefficient on non-cognitive ability is statistically significant and positive but about four times smaller than the coefficient on cognitive ability (0.005). The green bar provides the cognitive ability coefficient from the model with controls for mediators and it can be seen that it remains statistically significant but drops substantially, to 0.013, as a result of this. This is expected given the evidence in previous studies. In line with previous studies, the two obvious mediating variables years of schooling and disposable income are both strong predictors of charitable giving. Regarding the impact of years of schooling, it is similar to that of cognitive ability: one additional year of schooling increases the likelihood of charitable giving by 0.013 percentage points.\textsuperscript{11}

In Panel B, I investigate the role of family background for the relationship. The estimates are based on the sample of individuals, for whom I have data on mothers and father’s schooling, incomes and charitable giving. One see that the pattern with respect to the coefficient on cognitive ability from models 1-3 largely resembles that for the full population: the coefficient is only marginally affected by the control for non-cognitive ability but drops sharply when mediators are controlled for. The coefficient is also remarkably similar in magnitude, though the impact in percent is somewhat larger because of the lower baseline prevalence. The rightmost, orange, bar indicates that controlling for parental characteristics has only a marginal impact on the cognitive ability coefficient.

In Panel C, I investigate how the relationship changes when I control also for unobserved family background, using sibling fixed effects. The estimations are now based on the sample of brothers. The pattern with respect coefficients on cognitive ability from models 1-3 repeats also in this sample. Looking at the rightmost greyish bar, which reports the estimate from the model with sibling fixed effects (5), one can see that the coefficient remains positive and statistically significant. Moreover, it shows that unobserved family background, similar to observed parental characteristics, explains only marginally more of the relationship than observed individual characteristics. The coefficient estimate implies that a one-stanine point increase in cognitive ability increases the likelihood of charitable giving by 1.1 percentage point, or 11.3 percent if compared against the sample mean.

I also go one-step further and limit the sample to twin brothers, as they are more likely to have shared school environment than differently aged brothers are. The results from this

\textsuperscript{11} In figures S3 and S4, I report results from regressions with the outcomes being various indicators for repeated giving (giving in more than year during the period 2012-2015 or giving every year during the period), and they display a similar pattern as the results in Figure 1.
analysis, which are reported in Figure S2, display a similar pattern as those in Figure 2, but with the difference that the model with sibling (twin) fixed effects produces a similar estimate of cognitive ability as the model with individual level controls.

Taken together, the estimates reported in panels A-C, show that there is a significant and robust relationship between cognitive ability and charitable giving for men. Moreover, the results suggest that half of

The questions remains, however, whether the relationship is present also for women. In Panel D, I report results for a sample of women for whom I impute their cognitive ability using information on cognitive ability of their brothers. The result are akin to those for men in that the association is positive and robust to the control for individual and parental characteristics. While the size of the coefficient is comparable to the corresponding coefficient for men (see Panel B) the size of the relationship is only half of that for men (6.5 vs, 11.5 percent, respectively). The findings are similar for a sample of women, for whom I impute cognitive ability with the cognitive ability of their twin brothers, see Figure S3.

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12 As pointed out in Section 3, one concern with the charitable gifts I study is that they may capture tax incentives in addition to prosocial preferences, and that knowledge about these incentives may be correlated with cognitive ability. However, I find that cognitive ability is also significantly associated with the likelihood of making donations exceeding the maximum amount that yielded tax reduction (6,000 SEK), which suggest that this is not the case.
Fig. 2. Estimates of the impact of cognitive ability on the likelihood of charitable giving. The bars provide the estimates of $\beta$ from models 1, 2, 3, 4, 5. The bars are accompanied by 99% confidence intervals.
Level of charitable giving

In this section, I report results from the analyses on the relationship between cognitive ability and the level of charitable giving among those who give.

From Figure 3, one can see that higher cognitive ability generally is associated with larger donations. However, the relationship is not as linear as that with respect to presence of charitable giving. The relationship is essentially flat over the three lowest stanine scores and then increases gradually, except for a small decline between the fourth and fifth score.

![Fig. 3. Relationship between cognitive ability and level of charitable giving.](image)

In Figure 4, I report the estimates of the coefficient on cognitive ability in models 1-5, with the outcome being the natural logarithm of the donated amount, presented in the forms of bars accompanied by 99 percent confidence intervals.

Panel A details the results for the full population. The first bar show that a one-stanine point increase in cognitive ability increases charitable donations by 10 percent. The estimate remains essentially unchanged when adding the control for non-cognitive ability. Notably, non-cognitive ability is negatively associated with the donated amount.

Continuing to panel B, one see that the pattern repeats in the sample of individuals for whom I have information about parental characteristics. The rightmost bar show that controlling for
parental characteristics reduces the coefficient on cognitive ability only marginally. Looking at panel C one can see that controlling for unobserved family background has a similar impact.

The estimates reported in panel D show that the relationship between cognitive ability and the donated amount is positive and significant among women as well. However, in accordance to what I found in the analysis of the presence of charitable giving, the relationship appears to be weaker for women than for men. The coefficient from the most conservative model (5), represented by the rightmost bar, implies that one-standine point increase in cognitive ability increase the donated amount by 3 percent, as compared to 6 percent for men (panel B).

Taken together, the results in Figure 4, coupled with those in Figure 2, suggest that more intelligent individuals are not only more likely to make charitable donations but also that they give larger amounts.

Fig. 4. Estimates of the impact of cognitive ability on the donated amount (in log), conditional on giving. The bars provides the estimates of \( \beta \) from models 1, 2, 3, 4, 5. The bars are accompanied by 99% confidence intervals.
4.2 The relationship between cognitive ability and altruistic preferences

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Fig. 5. Relationship between cognitive ability and altruistic preferences.
Fig. 6. Estimates of the impact of cognitive ability on altruistic preferences. The bars provides the estimates of $\beta$ from models 1, 2, 3. The bars are accompanied by 99% confidence intervals.

4.3 Additional analyses

TO BE WRITTEN.

5. Concluding remarks

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References


Fig. S1. Estimates of the impact of cognitive ability on the likelihood of charitable giving among twin brothers. The bars provide the estimates of $\beta$ from models 1, 2, 3, 5. Model 5 controls for twin-brother fixed effects. The bars are accompanied by 99% confidence intervals.
Fig. S2. Estimates of the impact of cognitive ability on the likelihood of charitable giving among women with twin brother(s). The bars provides the estimates of $\beta$ from models 1, 2, 3, 5. Model 5 controls for twin-brother fixed effects. The bars are accompanied by 99% confidence intervals.
Fig. S3. Estimates of the impact of cognitive ability on the likelihood of repeated charitable giving (more than once during 4 years). The bars provide the estimates of $\beta$ from models 1, 2, 3, 4, 5. The bars are accompanied by 99% confidence intervals.
Fig. S4. Estimates of the impact of cognitive ability on the likelihood of repeated charitable giving (every year during 4 years). The bars provide the estimates of $\beta$ from models 1, 2, 3, 4, 5. The bars are accompanied by 99% confidence intervals.
Fig. S5. Relationship between non-cognitive ability and presence of charitable giving.