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economics**

**by**

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# Doing good with other people's money: A charitable giving experiment with students in environmental sciences and economics

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## Abstract

We augment a standard dictator game to investigate how preferences for an environmental project relate to willingness to limit others' choices. We explore this issue by distinguishing three student groups: economists, environmental economists, and environmental social scientists. We find that people are generally disposed to grant freedom of choice, but only within certain limits. In addition, our results are in line with the widely held belief that economists are more selfish than other people. Yet, against the notion of consumer sovereignty, economists are not less likely to restrict others' choices and impose restrictions closer to their own preferences than the other student groups.

**Keywords:** dictator game; charitable giving; social preferences; freedom of choice

**JEL classifications:** C92; D64

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“The power to do good is also the power to do harm.”

Milton Friedman (Capitalism and Freedom, 1962)

## 1. Introduction

There exist many areas within modern society where people make decisions that involve others' welfare. Examples include policy makers, household decision-makers, community leaders, and firm managers. Accordingly, a number of experimental studies in both social psychology and economics have investigated how individuals behave when they are responsible not only for their own well-being but also for someone else's (see, e.g., Kerr and MacCoun 1985; Charness 2000; Daruvala 2007; Charness and Jackson 2009; Eriksen and Kvaløy 2010).<sup>1</sup> In comparison, relatively little is known about individuals' willingness to voluntarily assume responsibility for others' welfare when what the others can gain bears no consequences for the decision makers' monetary payoff but can affect a third party.<sup>2</sup> Yet, trading off the welfare of one group against that of another is a decision that both individuals and policy makers around the world often face. In the present paper, we provide experimental evidence on this issue by using a dictator game with an environmental organization (the WWF) as the recipient.

We place each dictator in a group with three other participants and augment the standard game so that each dictator makes three choices.<sup>3</sup> First, he decides on his individual donation to a particular WWF project aimed to save the orangutans. He then chooses a donation for *all* members of his group (including himself). Finally, he is given the opportunity to dictate the other group members' *minimum* donation, thereby restricting their choice of how much to keep for themselves. Several independent researchers have studied the “individual” dictator game and found that, contrary to the predictions of standard theory, many dictators give a substantial share of their endowment to other subjects (for a survey, see Camerer 2003). By

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<sup>1</sup> For example, Charness and Jackson (2009) found that in a Stag Hunt game almost one-third of the people played a less risky strategy when choosing for a group than when playing only for themselves. Similarly, Eriksen and Kvaløy (2009) showed that individuals take less risk with other people's money than with their own.

<sup>2</sup> Oxoby (2006) explored people's preferences over limiting their own and others' choice sets in a public goods experiment and found that individuals are willing to exchange liberty (i.e., unlimited choice) for efficiency. In a similar setting, Bolle and Vogel (2010) observed that giving one group member (the allocator) the power to decide on all group members' contributions enhances efficiency, but at the same time creates inequality because the allocator forces the others to contribute more than he himself does.

<sup>3</sup> In the basic version of the dictator game, one player is endowed by the experimenter with a certain amount of money and asked to share it with another player who has no choice to make.

extending the dictator game so as to include the two “collective” choices (i.e., choices on behalf of others) described above, we are able to shed light on the following questions: How does having to dictate a decision to the group affect dictators’ choice behavior?<sup>4</sup> How does the donation imposed on the whole group differ from the restriction placed on the others’ choice set? Will dictators limit the other individuals’ choice sets when their own and the others’ earnings are unrelated? To paraphrase Friedman’s (1962) opening quote, will the dictators decide in favor of the orangutan project at the expense of their fellow group members?

Although theories of social preferences suggest that individuals are sensitive to others’ well-being and value others’ rights, it is not completely obvious in our game what behavior should be considered “pro-social” since the dictator may harm his group members in order to help the WWF. No trade-off between humans and animals would arise if the dictators’ and their fellow members’ preferences were aligned. Conversely, consider a dictator who is willing to donate some money to the WWF project but expects the others to be payoff-maximizers. Then, when dictating a choice for all members of his group, such a dictator may respect the others’ preferences albeit in contrast to his own. On the other hand, strong opinion on how others’ should behave may induce the dictator to impose a donation on himself and others with an eye to his own preferences. The issue of the willingness to restrict the others’ choices in favor of the environment is even more ambiguous. Indeed, while some have argued that people must face restrictions of liberties and choices in order to preserve social order, others have insisted on the importance of unrestricted choices. Kant’s categorical imperative, for instance, suggests that a person should not impose restrictions on others that he would resist if they were imposed on him.<sup>5</sup>

The questions we pose may have different answers depending on people’s education. For example, there is empirical evidence that students of economics behave differently from other people (see, e.g., Lanteri 2008, for a survey of relevant work). Already in the early 1980s, Marwell and Ames (1981) observed that in public goods experiments, economists free-ride more than non-economists. They offered two explanations for this finding. First, students who are particularly concerned with economic incentives might self-select into economics.

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<sup>4</sup> There exists some experimental literature that has explored individual versus team decisions (see, e.g., Cason and Mui 1997; Masclet et al. 2009). In contrast to our study, this strand of research focuses on whether decisions made by individuals differ systematically from decisions made by the group via voting or discussion.

<sup>5</sup> See White (2004) for a detailed account of Kant’s ethics and its interpretation in terms of the *homo economicus*’ decision-making process.

Second, economics students might adapt their behavior over time to the basic axioms of the theories they study. These two explanations are known as the selection and learning hypotheses, respectively.<sup>6</sup>

Economists are also traditionally seen as being more libertarian than others. The message that freedom has a value is embedded in economics. As suggested by the opening quote, Milton Friedman took a clear position against “doing good with other people’s money,” thereby favoring individual freedom. Sen (1988) drew attention to the instrumental importance of freedom (as a means to other ends) as well as to its intrinsic worth. Even basic economics courses begin by assuming consumer sovereignty. This can be traced back to Adam Smith’s proposition (1776 [1937], p. 625): “Consumption is the sole end and purpose of all production; and the interest of the producer ought to be attended to, only so far as it may be necessary for promoting that of the consumer.” It is therefore of interest to address our research questions distinguishing not only students who are expected to be more prone to protect the environment from other students, but also students who are studying economics (and business administration) from non-economists. To this aim, we recruited students from two populations at the University of Gothenburg: the Environmental Social Science program and the School of Business, Economics and Law. Some of the students in the Environmental Social Science program specialize in economics or business administration, and even take many of the same courses as the students at the School of Business, Economics and Law. Thus, we further categorize our students based on their specialization, and our final data set comprises three categories: i) economists, ii) environmental economists, and iii) environmental social scientists with no economics background.

To the best of our knowledge, no studies have examined the willingness of economists and non-economists to restrict others’ choices. Some studies have, however, shown that there is a strong correlation between economists’ policy positions and their ideological values (e.g., Fuchs et al. 1998; Ayer 2001). We extend this line of inquiry by examining whether economists, influenced by the libertarian attitudes prevalent in economics, are less eager to restrict others’ choices, and whether factors other than education – such as gender and political preferences – can explain the willingness to restrict others’ choices.

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<sup>6</sup> Other laboratory experiments shedding light on the difference between economists and non-economists include Carter and Irons (1991), Frank et al. (1993), Fehr et al. (2006), and Rubinstein (2006). Field experiments have been performed by, e.g., Frank et al. (1996) and Frey and Meier (2003).

## 2. The experiment

### 2.1 Subject pool

Our sample consists of 102 undergraduate students enrolled in the School of Business, Economics and Law and in the Environmental Social Science (ESS) program at the University of Gothenburg. Students at the School of Business, Economics and Law all study or have studied economics and business administration; we will refer to them as “economists.” Students from the ESS program undertake a common first year, which includes courses in different environmental topics and in natural science, and then start specializing in one of the following areas: economics, business administration, political science, human geography, and human ecology. This means that some ESS students also study economics and business administration. We control for this by dividing our sample into the following three groups: (i) business school students or economists (EC), (ii) environmental economists (ENV-EC), and (iii) environmental social scientists without a background in economics (ENV-NO EC).

The students were recruited in classrooms during lectures and via e-mails from lists provided by the university administration and students unions. Table 1 summarizes the number of observations for each group.

Table 1: Number of observations (individuals) for each group

<b>Student group</b>	<b>Observations</b>
School of Business, Economics, and Law (EC)	55
Environmental Social Science program	
- Specializing in economics/business (ENV-EC)	20
- Specializing in other subjects (ENV-NO EC)	27

### 2.2 Design and procedures

The experiment was conducted in late 2009 and early 2010 at the University of Gothenburg as a paper and pencil experiment. In the recruitment process, the students were told that the experiment concerned the environment and that they would earn a show-up fee of 60 SEK.<sup>7</sup> Possibilities to earn additional money in the experiment were also announced.

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<sup>7</sup> At the time of the experiment, 7 SEK = 1 USD.

The experiment was divided into two independent parts. Part 1, the main part, consisted of the augmented dictator game as described in the introduction. Part 2 involved a questionnaire with some questions about the students' background and their views of environmental policies. We will now describe the main part of the experiment.

The participants were told that they would each be randomly assigned to a group of four people, and that their other group members (either business school or ESS students) could be from any of the sessions – we conducted in total six sessions - we were conducting, including the one they were participating in. The participants had to make three independent choices, all related to the amount to be donated to a WWF project aimed to save the orangutans. For each choice, they received an endowment of 150 SEK. The students were informed that the donated money would be paid in full to the WWF. To ensure credibility, a receipt for the entire amount donated and the individual donation were made available when the participants came to collect their earnings. In addition, a receipt for the entire amount donated was posted on a university announcement board. All participants were aware of this before making any decisions.

The three decisions that the participants made were the following: The first choice was an *individual* choice; each subject decided how much to donate to the orangutan project independently of the others' donations. We regard this choice as revealing people's preferences for the environmental good. The second and third choices were *collective* in the sense that the subjects decided on behalf of their respective groups. In the second choice, each subject decided the donation level that would be applied to every group member (*including himself*). In the third choice, the subjects decided the *minimum* amount that the other persons in their respective groups (*excluding themselves*) had to donate (if at all) to the orangutan project; therefore, that could impose a restriction on the others' choices without direct monetary consequences for themselves.<sup>8</sup> Note that the first choice concerned only the decision maker, the second concerned both the decision maker and the other group members, while the third choice only affected the others. Additionally, while in the second choice the decision maker was forced to dictate a decision for the group, in the third choice he was free to decide whether to restrict the others' choice set or not.

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<sup>8</sup> Individuals made choices 2 and 3 prior to knowing whether or not they would be in the role of dictator. This implies use of the strategy method. Previous experiments have found no difference in behavior between the strategy and the play method (see, e.g., Brandts and Charness 2000; Oxoby and McLeish 2004).

Final earnings were based on *one* of these three choices. If the second or third choice was selected for payment, one of the four group members was randomly assigned the role as group dictator. If the third choice was the decisive one, then the chosen dictator donated an amount equal to his choice 1 and determined the minimum amount that the others had to donate; if any of the other group members were willing to give more than this minimum, their preferences were respected in the sense that they donated according to their choice 1. All subjects were informed about these payment procedures. In addition to the above choices, we elicited the subjects' beliefs about the other group members' donations in choice 1.<sup>9</sup>

We conducted six sessions. At the beginning of each session, the subjects received general instructions explaining, step by step, the procedures to be followed.<sup>10</sup> After the experimenter had read these general instructions aloud, two big envelopes – one labeled “part 1” and the other labeled “part 2” – and one small envelope were distributed. The envelope labeled “part 1” (2) contained the instructions and the decision forms for the first (second) part of the experiment. The small envelope contained a paper slip with a code for later identification in order to be able to distribute earnings. After the experimenter's signal, the participants could remove all contents from the envelope marked “part 1,” read the enclosed instructions (which were also read aloud by the experimenter), and complete the corresponding decision forms. They then had to put the decision forms back into the “part 1” envelope. After all “part 1” envelopes were collected, the participants could take the instructions and decision forms out of the envelope marked “part 2.” The subjects were therefore informed about the questionnaire only once they had completed the first part. When everyone had filled out the questionnaire, they had to put it back into the “part 2” envelope and return the envelope to the experimenter. Payments were carried out some days later, subsequent to the formation of the four-person groups.

### **3. Results**

The results are organized in three subsections. First we present a general overview and analysis of average behavior for the whole sample of 102 participants. Then we study whether and to what extent the amount of money donated to the WWF varies with the task

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<sup>9</sup> We used a simple incentive mechanism where students could gain additional money by guessing their group members' donations correctly.

<sup>10</sup> The complete set of instructions and decision forms related to the experiment is documented in the Appendix.



and field of study. Finally we investigate how the individual choice relates to each of the two collective choices.

### 3.1 Whole sample analysis

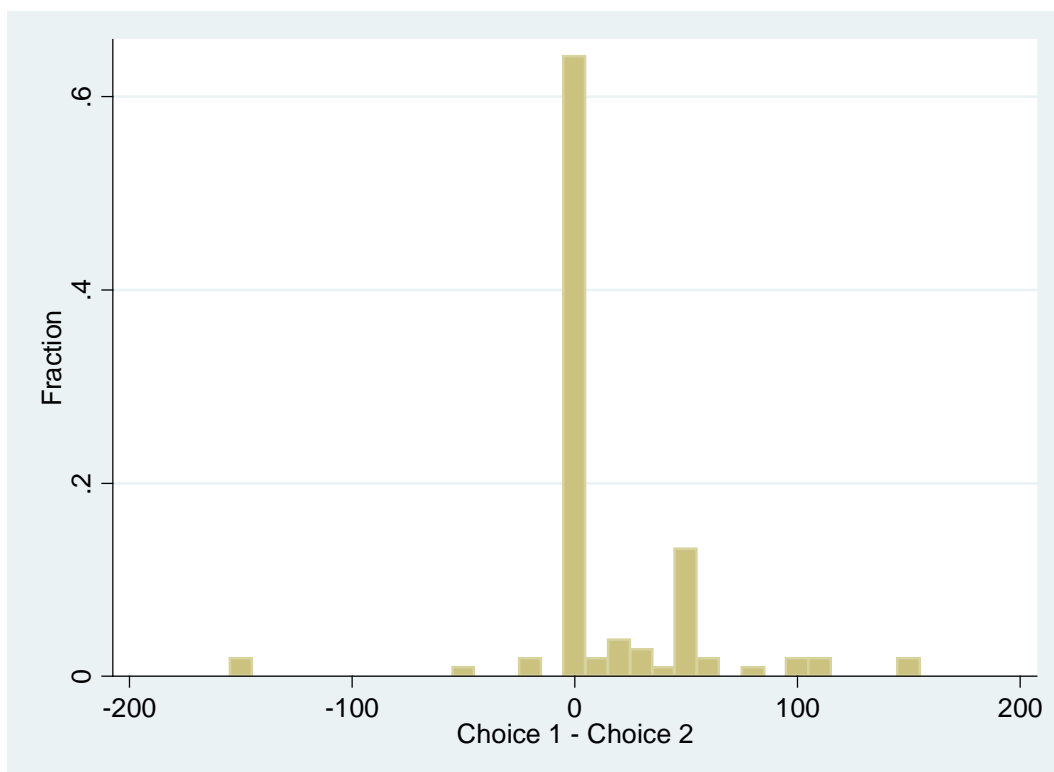
The results presented here are for the whole sample. Table 2 displays means (and standard deviations) of the amounts donated to the WWF in each of the three choices. In addition, the last row (choice 4) reports descriptive statistics of the beliefs about the others' individual donations.

Table 2: Whole sample: average response for each choice (standard deviation in parentheses)

Choice	Description	Mean
1	Standard dictator game	112 (48)
2	Dictating for the whole group	99 (49)
3	Restricting other group members' choice set	52 (53)
4	Beliefs about what others, on average, donated in choice 1	93 (40)

We start by comparing choices 1 and 2 so as to investigate whether, and if so how, having to decide for the whole group affects individual choice behavior. Figure 1 shows the distribution of the difference in donation between choice 1 and choice 2.<sup>11</sup>

Figure 1. Whole sample: histogram of the difference between choice 1 and choice 2



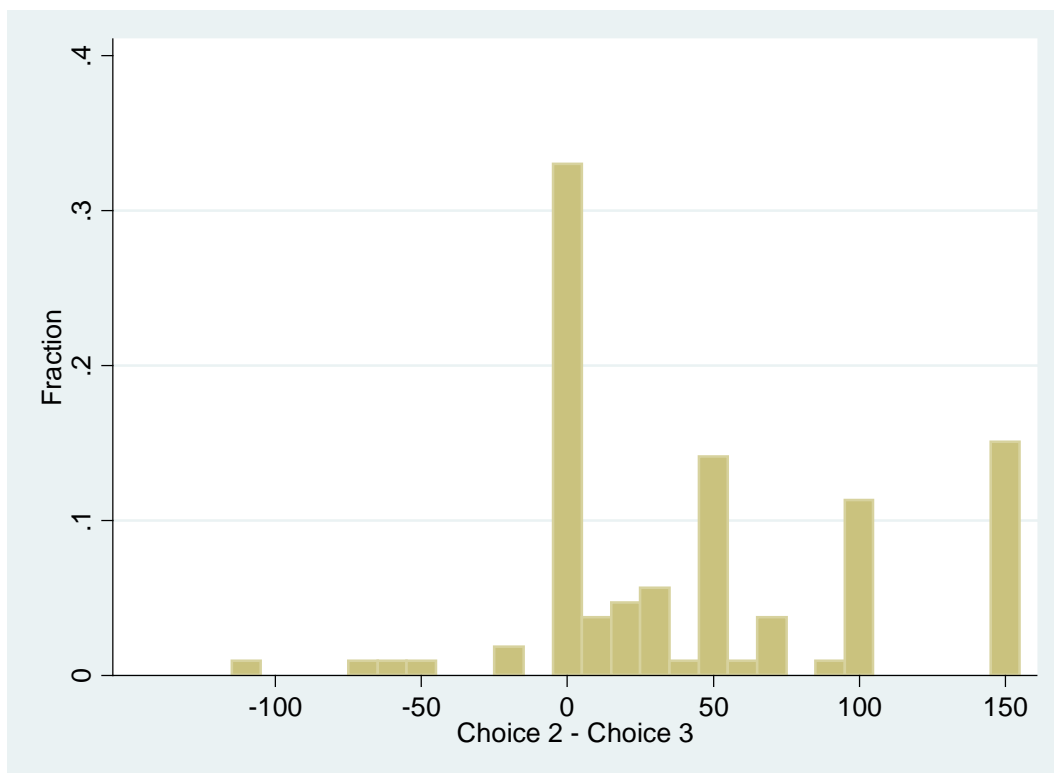
<sup>11</sup> Computing such difference is justified by the fact that each participant made all three choices.

**Result 1:** *Decision makers tend to reduce their individual donation when they know that their decision applies to all group members, but still a large fraction of participants do not change their behavior.*

Support for this result comes from Table 2 and Figure 1. The table indicates that, compared to the individual choice 1, donations decrease, on average, by 12 percent when participants have to dictate a decision to the entire group. This reduction is statistically significant using a Wilcoxon signed-rank test (p-value = 0.000). At the same time, the large proportion of zeros in Figure 1 reveals that a majority of decision makers (64%) donate the same amount to the WWF in choices 1 and 2. Figure 1 also shows that it is very unlikely that an individual increases his donation when he knows that everyone in his group must donate the same.

Next, we explore how decisions differ depending on whether the individual dictates the whole group' donation (choice 2) or only the others' but not his own minimum donation (choice 3). Note that, given Result 1, this issue conveys information about the relationship between individual donations (choice 1) and restrictions (choice 3) as well. Figure 2 draws the histogram of the difference between choice 2 and choice 3.

Figure 2. Whole sample: histogram of the difference between choice 2 and choice 3



**Result 2:** *Compared to the donation they dictate to the whole group, the decision makers place a lower restriction on the choices of others.*

A first support for this result comes from Table 2, which reveals that the average restriction on the others' donation (choice 3) is about 50 percent lower than the average donation dictated to the whole group (choice 2). A Wilcoxon signed-rank test confirms that the reduction is statistically significant ( $p$ -value = 0.000). Further support for Result 2 is provided by Figure 2, which shows that the distribution of the difference between choice 2 and choice 3 is skewed to the left (there are relatively few negative values). More specifically, 63% of the participants dictate a donation to the group that is greater than the donation they impose, as a minimum, only on the others. In light of Result 1, this implies that most participants prefer restricting others to donate a minimum amount that is much smaller than their own donation.

We conclude this section by considering the relationship between choices in the standard dictator game and beliefs about other dictators' choices.

**Result 3:** *Most subjects believe that the others donate, on average, less than themselves.*

Table 2 clearly indicates that most subjects underestimate the amount that the other group members donate in the standard dictator game: beliefs about others' donations are, on average, significantly smaller than actual donations ( $p$ -value = 0.000, Wilcoxon signed-rank test).

Summarizing the results for the whole sample, we conclude that slightly more than one-third of the decision makers reduce the individual amount donated to the WWF project when choosing for the whole group. The reduction is even more frequent and pronounced if individuals can restrict the choices of others without bearing any personal monetary consequences. Do note, however, that the average restriction level is still well above zero, suggesting that even though the decision makers do not want to impose their preferences on others, they still set a minimum to what the others have to donate. Finally, our finding on beliefs is in line with previous studies about positive self-image, according to which people think they are better than others (see, e.g., Svenson 1981; Taylor and Brown 1988; Santos-Pinto and Sobel 2005). Explanations found in the literature are that people, in general, overestimate their own abilities and that a positive self-image increases happiness.

### 3.2 Differences among student groups

In this section, we will focus on the descriptive results for the three student groups participating in our experiment: economists (EC), environmental economists (ENV-EC), and environmental social scientists (ENV-NO EC). The average responses for each choice and student group are summarized in Table 3. Let us first consider whether and to what extent the student groups differ in their individual willingness to donate to the WWF project and in their beliefs about others' willingness to donate.

Table 3: Average response for each choice and student group (standard deviation in parentheses)

Choice	Description	ENV-NO EC	ENV-EC	EC
1	Standard dictator game	132 (40)	123 (32)	101 (54)
2	Dictating for the whole group	117 (41)	98 (38)	92 (55)
3	Restricting other group members' choice set	48 (52)	50 (51)	54 (56)
4	Beliefs about what others, on average, donated	111 (37)	96 (38)	84 (42)

**Result 4:** *Individual donations are, on average, smaller for economists (EC) than for students with a background in environmental science (ENV-NO EC and ENV-EC), but significantly so only compared to ENV-NO EC.*

As shown by choice 1 in Table 3, economists are, on average, more selfish than the two groups of ESS students. However, a series of Wilcoxon rank-sum tests reveal that only the difference between EC and ENV-NO EC is statistically significant (p-value = 0.025; the p-values for the comparisons between EC and ENV-EC and between ENV-EC and ENV-NO EC are 0.163 and 0.144, respectively). Hence, the individual donations of environmental economists are in between those of the other two student groups.

**Result 5:** *Both economists (EC) and environmental economists (ENV-EC) have lower expectations about the others' generosity than do environmental social scientists (ENV-NO EC).*

The last row in Table 3 provides a first support for this result. Further corroboration stems from a series of Wilcoxon rank-sum tests, which reveal that the difference between EC and ENV-NO EC is statistically significant (p-value = 0.007), whereas the difference between EC and ENV-EC is not (p-value = 0.197). Moreover, the difference between ENV-EC and ENV-NO EC is weakly significant (p-value = 0.090).

Thus, although the object of the donation is an environmental good, the donation behavior of the environmental economists seems to be more similar to the behavior of the economists than to that of the environmental social scientists. The same holds for the beliefs about others' behavior. However, we are not able to distinguish whether this result is due to a selection effect or a learning effect.

Concerning the two collective choices, Table 3 suggests that the differences in choice 2 among student groups parallel the differences in choice 1 and beliefs: economists and environmental social scientists dictate, respectively, the lowest and the highest average donation to the group. Conversely, Table 3 points at a similarity among student groups with respect to the restriction placed on the others' choice set. It is, however, problematic to directly compare choices 2 and 3 across fields of studies since the student groups differ not only in the amounts individually donated to the WWF but also in their expectations about the others' donations. As it is likely that the collective choices depend both on one's preferences and on one's expectations about the others' donations, in the next sub-section we will look in detail at the relationship between these factors.

### 3.3 Choosing for the others

To what extent does choosing the amount that other people have to donate to the WWF differ from choosing one's own donation? To answer this question, we calculate the difference between the individual donation and each of the two collective choices. The bigger the difference, the more a subject is willing to modify his preferences when deciding for others. For those who, in choice 3, decide not to restrict the others' choice set, we assume a restriction of zero.<sup>12</sup> The results are reported in Table 4.

Table 4: Differences between one's own choice and each collective choice (standard deviation in parentheses)

Description	ENV- NO EC	ENV-EC	EC
Donation in choice 1 – donation in choice 2	14.5 (53.4)	24.8 (36.7)	8.7 (37.9)
Donation in choice 1 – restriction in choice 3	84.0 (59.9)	75.6 (54.3)	46.9 (60.2)
Share of participants who restrict the others' choices	0.55	0.63	0.65

**Result 6:** (i) *Environmental economists (ENV-EC) are more willing than the other student groups to modify their individual donations when choosing for the whole group, although only the difference between ENV-EC and EC reaches significance.* (ii) *Economists (EC) are*

<sup>12</sup> In the experiment, the minimum restriction that a participant could place on the others' donation was 10 SEK. Thus, if one wanted to place a zero-restriction, he had to opt for not restricting the others' choices.

*more likely than the other student groups to impose restrictions on the others' donations that are closer to their own donation.*

As to part (i) of the result, the first row in Table 4 shows that when choosing a donation for the whole group, environmental economists reduce, on average, their individual donation by almost 25 SEK, whereas environmental social scientists reduce it by 14.5 SEK and economists by only 8.7 SEK. Wilcoxon rank-sum tests allow us to reject the hypothesis of equal reduction when comparing ENV-EC and EC (p-value = 0.015), but not when comparing ENV-EC and ENV-NO EC (p-value = 0.477) or EC and ENV-NO EC (p-value = 0.134). Since the economists are the most selfish group in the individual choice, it may appear obvious that they deviate the least from their individual donation. However, the result is confirmed even if we compare the percentile change between choice 1 and choice 2, which is, on average,  $-20\%$  ( $= -25/123$  SEK) for ENV-EC,  $-11\%$  ( $= -15/132$ ) for ENV-NO EC, and only  $-9\%$  ( $= -9/101$ ) for EC.

Turning to part (ii) of Result 6, the second row in Table 4 indicates that when imposing a restriction on others without direct monetary consequences for themselves, economists are the group that departs the least from their individual donations. This difference among student groups is corroborated by Wilcoxon rank-sum tests comparing the distribution of the variable of interest ("choice 1 – choice 3") for EC and ENV-EC (p-value = 0.058) and for EC and ENV-NO EC (p-value = 0.024).<sup>13</sup> Part (ii) of Result 6 may be explained by the fact that the share of those imposing a restriction is the highest for economists (see the last row in Table 4). However, tests of equal proportion reveal that the differences in these shares across student groups are not statistically significant.<sup>14</sup>

We conclude our analysis by ascertaining how the differences between individual and collective choices relate to the detected differences in expectations among the student groups, controlling for other factors. To this aim, we estimate a seemingly unrelated regression (SUR) model consisting of two equations. In the first equation, the dependent variable is the difference between own donation and group donation. In the second equation, the dependent variable is the difference between own donation and restriction on the others' choice set. The two equations are estimated simultaneously, allowing for a correlation between their error

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<sup>13</sup> No difference is detected between ENV-EC and ENV-NO EC (p-value = 0.531).

<sup>14</sup> This is true for all three comparisons: p-value = 0.825 for EC versus ENV-EC, p-value = 0.408 for EC versus ENV-NO EC, and p-value = 0.582 for ENV-EC versus ENV-NO EC.

terms. Included in each equation as independent variables are two dummy variables for the field of study (EC is the baseline), the difference between own donation and belief regarding the others' donation, and interaction terms between this difference and the education dummy variables. Control variables are personal factors such as political preferences, gender, and membership in an environmental organization.<sup>15</sup> The results are presented in Table 5.<sup>16</sup>

Table 5. Regression models

Dependent variable	Equation 1	Equation 2
	Choice 1 – choice 2	Choice 1 – choice 3
ENV-NO EC	8.413 (11.980)	36.212* (19.137)
ENV-EC	5.914 (10.297)	32.965** (16.447)
Choice 1 – Beliefs about others' donations	0.307*** (0.114)	0.223 (0.182)
(Choice 1 – Beliefs about others' donations) × ENV-NO EC	0.374* (0.221)	-0.073 (0.353)
(Choice 1 – Beliefs about others' donations) × ENV-EC	0.428* (0.229)	-0.415 (0.366)
Right-wing (= 1 if right-wing supporter)	14.613* (7.686)	3.057 (12.278)
Woman (= 1 if woman)	-11.044 (7.686)	20.257 (12.906)
Environmental organization (= 1 if member of an environmental organization)	-2.419 (12.176)	-14.909 (19.450)
Constant	0.892 (7.319)	31.698*** (11.692)
Correlation		0.367
Breusch-Pagan test of independence	Chi = 11.88, p-value = 0.001	
No. of obs.	102	102
R2	0.274	0.131

\*, \*\*, and \*\*\* denote that the coefficient is statistically significant at the 10%, 5%, and 1% level, respectively.

Notwithstanding the positive and significant correlation – which basically indicates that there is a strong correlation between choice 2 and choice 3 even after controlling for individual donations and beliefs – the two equations bear interesting dissimilarities. Equation 1's results reveal that the larger the difference between the individual and the group choice, the larger

<sup>15</sup> As the students are very homogenous with respect to age and income, these characteristics are not included in the analysis. Moreover, the student groups differ considerably in political preferences, gender, and membership in environmental organizations. More specifically, there are significantly more right-wing supporters among the economists (58%) than among the environmental social scientists (10%); the environmental economists are more similar to the economists: 41% of them support the right-wing parties. The environmental social scientists are more likely to be women (85%) and members of an environmental organization (30%) than the economists (51% and 3.6%, respectively) and the environmental economists (67% and 11%, respectively).

<sup>16</sup> We have also estimated the models without the personal characteristics (mainly because of the significant differences among the student groups). The statistical significance of the remaining coefficients remains the same.

the expected difference between one's own donation and the others' average donation. This implies that our participants tend to respect the others' preferences: if they expect the others to donate less than themselves, they are likely to decrease their own donation when they choose for the whole group. However, this respect for the others' (expected) preferences varies with the field of study. This is indicated by the significantly positive coefficient of the two interaction terms: an increase in the difference between own donation and beliefs about others' average donation by 10 SEK increases the dependent variable by 3.07 SEK for economists and by 7.35 SEK for environmental economists. As for the personal control variables, only political preferences influence the dependent variable significantly. Specifically, right-wingers are more prepared than students voting for other parties to decrease their donation level in choice 2. The coefficient of the dummy "Right-wing" is actually the largest one (almost 15 SEK), pointing to the economic significance of political preferences for behavior.

When considering equation 2 (and thus the difference between own donation and restriction imposed on others), the expectations about others' donations are no longer important. On the other hand, in equation 2, the coefficient of both education dummies is positive and significant, implying (in line with Result 6) that economists are more likely to state a restriction closer to their own preferences.

#### **4. Conclusion**

We have considered an augmented dictator game with a WWF project as the recipient. We assigned a dictator in each group of four and asked them to choose their own donation to the environmental project, the donation of their group, and the minimum donation of other group members. By using this design, we mainly aimed at answering the following two questions: Will dictators tend to impose their preferences on the others when they choose on behalf of the group? Will dictators restrict the others' choices when such a restriction bears no monetary consequences for the dictators but does affect the WWF project?

The answers to the above questions may be influenced by the respondents' education. Traditionally, economists are regarded as being more selfish and libertarian than others. It therefore seemed worth distinguishing economics students from students with an environmental studies background, where the latter group includes both environmental economists and non-economists.



As regards the first of our two main research questions, we find that while almost two-thirds of the subjects do not modify their individual donation when their decision involves the whole group, the remaining one-third decrease their individual donation. This decrease is positively correlated with the expected difference between one's own donation and the others' average donation: dictators decrease their individual donation more the less giving behavior they expect from the others. This result parallels that of Charness and Jackson (2009), who find that one-third of their population is sensitive to the issue of being responsible for another person's welfare.

As regards our second research question, our data shows that although most of the dictators apply a restriction, the imposed average restriction still leaves the others the opportunity to keep two-thirds of the initial endowment. It seems, therefore, that the decision makers do not want to impose their own preferences on other people, yet they have a minimum donation level that they deem acceptable. This result suggests that individuals may be willing to grant freedom of choice (via larger choice sets), but only within certain limits; to some extent, they decide in favor of the orangutans at the expense of the payoff-maximizing choice of their fellow members.

Finally, the analysis of behavior of the different student groups indicates that economists differ from environmental social scientists: they donate the least individually, have the lowest expectations about the others' generosity, and impose restrictions on others' choices that are closer to their own preferences. Hence, on the one hand our results are in line with the commonly accepted wisdom that economists are more selfish than non-economists, but on the other hand they question the claim that economists are more libertarians than others. Further work needs to be done in order to be confident about the generalization of these findings to other goods. Yet the experimental evidence garnered here, for an environmental good, suggests that the aversion to interfering with freedom of choice and to "doing good with other people's money" that economics education tries to instill does not make economists more libertarian than others.

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## **Appendix: Experimental instructions (originally in Swedish)**

### **Welcome**

You are about to participate in an experimental study carried out by researchers at the School of Business, Economics and Law at University of Gothenburg and the Max Planck Institute of Economics.

The experiment consists of two parts. When both parts are completed you will receive a show-up fee of 50 kronor. You can earn additional money depending on your decisions in the experiment. In order for us to be able to use your decisions and to give you the additional money you may earn, you have to answer ALL questions. All your answers will be treated in an anonymous manner and cannot be traced to your name.

It is important that you remain silent and refrain from looking at other people's responses. If you have questions or need assistance of any kind, please raise your hand.

The experiment will be carried out according to the following steps.

1. When everyone has finished reading these general instructions, we will give you two large and one small envelope. The large envelope (labeled "PART 1") contains the instructions and the decision sheets for the first part of the experiment. The other large envelope (labeled "PART 2") contains the instructions and decision sheets for the second part of the experiment. The small envelope contains a strip with your personal **identification number**. Do not reveal your identification number to any other participant.
2. When the experimenter tells you to do so, open the big envelope marked as "PART 1" and take out the contents.
3. Before you start completing the decision sheets, the experimenter will read the instructions for part 1 aloud. If you have any questions please raise your hand when the experimenter has finished reading the instructions.
4. As soon as you have made all the required decisions, put back the completed decision sheets into the big envelope marked as "PART 1" and make sure to seal it.
5. When everyone has completed part 1, the experimenter will come around and collect the envelope marked as "PART 1" from each participant.
6. When the experimenter tells you to do so, open the envelope marked as "PART 2" and remove all its contents.
7. The experimenter will read the instructions for part 2 aloud.
8. As soon as you have answered all the questions from part two, put back the completed sheets into the big envelope marked as "PART 2" and seal it.
9. When all participants have answered all the questions, the experimenter will tell you to hand over the second large envelope to him. He will also give you the show-up fee of 60 kronor.
10. Keep the strip with your identification number with you: you will be asked to show it when you collect your earnings on Friday XX at office D-60X at the Department of Economics, School of Business, Economics and Law (Vasagatan 1).

**It is very important that you do not open the envelopes until the experimenter tells you to do so and remain quietly seated during the entire session.**

## Part 1: INSTRUCTIONS

In this part of the experiment you will be randomly assigned to a group of four people. You will not be present when we form the groups and you will never be able to identify any of the other members of your group. Your group members will be other students in the Smil or Nmil program but not necessarily those who are with you now.

Each of you receives an endowment of 150 kronor in addition to the show-up fee of 60 kronor. You have to decide how much of your endowment of 150 kronor you want to donate to a project with the aim to save the orangutans. You keep for yourself the money that you do not want to donate. You will also have to decide on the amount that the other members of your group should donate to the project.

The amount that you and the other members of your group might decide to donate to the orangutan project will be paid in full to WWF that is responsible for the project. When you come and collect your earnings you will be told how much the donation to the WWF was in total and your individual contribution to the project. A copy of the receipt will also be made available on the SMIL-program bulletin board once the money is paid to the WWF.

### Orangutan project

The orangutan is seriously threatened of extermination. The reason for this is to a large extent that two million hectares rain forest has been harvested annually for the last ten years. Another problem is the illegal hunting for meat. For the past hundred years 90% of the orangutans have disappeared. According to WWF something has to be done now, otherwise the orangutan will soon be exterminated. As part of the work to save the orangutans the WWF continuous collects money from the general public.

### Your choices

You (as well as the other members of your group) will be asked to make three different choices in relation to the orangutan project. Your final earnings will be based on only *one* of these three choices. More specifically, after everyone has handed in their envelopes, we will randomly select one of the three choices as the “decisive” choice, where all three choices are equally likely. The “decisive” choice will be the same for all the groups. The table below summarizes the three choices that you will face:

**Table: Your choices**

<b>Choice 1</b>	You decide how much you want to donate to the orangutan project individually and independently of the others' donation.
<b>Choice 2</b>	You decide how much every person in your group (including yourself) has to donate to the orangutan project, i.e. everyone in your group has to pay according to your decision.
<b>Choice 3</b>	You decide the <i>minimum</i> amount that the other persons in your group (excluding yourself) have to donate (if at all) to the orangutan project.

## **Your earnings**

Your final earnings will be calculated according to the following rules:

- If choice 1 is selected as the “decisive” choice, then you as well as the other members of your group will donate to the project the amount each of you has individually specified. This means that each group member will keep for him/herself the difference between 150 and his/her own individual choice.
- If choice 2 is selected as the “decisive” choice, then a randomly chosen individual from each group will determine how much every member (including him/herself) has to donate to the project and therefore how much every member can keep for him/herself.
- If choice 3 is selected as the “decisive” choice, then a randomly chosen individual from each group will determine the minimum amount that the other members have to donate to the project while the randomly chosen group member will donate according to his/her (individual) choice 1. If any of the other members were willing to donate more than this minimum, then their preferences will be respected in the sense that they will donate according to their choice 1. If the randomly chosen group member decides not to set a minimum amount, then each member will donate according to his/her choice 1.

Each of the choices (choice 1, choice 2, and choice 3) has the same probability of being selected as the “decisive” choice and each of the four group members has the same probability of being selected in order to decide for the group. Please make all the three choices carefully since each one of them can potentially become the “decisive” choice.

Besides making these three choices, you will have to provide two guesses about the others’ choices. You can earn more money if your guesses turn out to be correct.

### **You can now make your choices and guesses in the decision sheets.**

Once you have made all choices and guesses, please put the decision sheets back into the envelope labeled with “PART 1” and wait until the experimenter comes to your place and collects the envelope. Do not open the envelope labeled with “PART 2” before the experimenter tell you to do so.

Your identification number:

### Part 1: DECISION SHEET 1

**Choice 1:** Your first choice is to decide how much of your endowment of 150 kronor you want to donate to the orangutan project when you can decide individually and independently of the others' donation. You keep for yourself the money you do not donate. Think carefully before making this choice because it can be decisive for your earnings and the money paid to the orangutan project.

Of the 150 kronor that I have been endowed with, I want to donate the following amount to the orangutan project (please tick one of the boxes below).

- |                                     |                                     |                                     |                                     |                                     |
|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| <input type="checkbox"/> 0 kronor   | <input type="checkbox"/> 10 kronor  | <input type="checkbox"/> 20 kronor  | <input type="checkbox"/> 30 kronor  | <input type="checkbox"/> 40 kronor  |
| <input type="checkbox"/> 50 kronor  | <input type="checkbox"/> 60 kronor  | <input type="checkbox"/> 70 kronor  | <input type="checkbox"/> 80 kronor  | <input type="checkbox"/> 90 kronor  |
| <input type="checkbox"/> 100 kronor | <input type="checkbox"/> 110 kronor | <input type="checkbox"/> 120 kronor | <input type="checkbox"/> 130 kronor | <input type="checkbox"/> 140 kronor |
| <input type="checkbox"/> 150 kronor |                                     |                                     |                                     |                                     |

**Choice 2:** Your second choice is to decide how much of your endowment of 150 kronor you want to donate to the orangutan project when **everyone** in your group must donate **the same** amount as you. Think carefully before making this choice because it can be decisive for your and your group members' earnings and the money paid to the orangutan project.

Of the 150 kronor that I have been endowed with, I want to donate the following amount to the orangutan project which implies that everyone in my group (including myself) must donate this amount to the project (please tick one of the boxes below).

- |                                     |                                     |                                     |                                     |                                     |
|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| <input type="checkbox"/> 0 kronor   | <input type="checkbox"/> 10 kronor  | <input type="checkbox"/> 20 kronor  | <input type="checkbox"/> 30 kronor  | <input type="checkbox"/> 40 kronor  |
| <input type="checkbox"/> 50 kronor  | <input type="checkbox"/> 60 kronor  | <input type="checkbox"/> 70 kronor  | <input type="checkbox"/> 80 kronor  | <input type="checkbox"/> 90 kronor  |
| <input type="checkbox"/> 100 kronor | <input type="checkbox"/> 110 kronor | <input type="checkbox"/> 120 kronor | <input type="checkbox"/> 130 kronor | <input type="checkbox"/> 140 kronor |
| <input type="checkbox"/> 150 kronor |                                     |                                     |                                     |                                     |

**Choice 3:** Your third choice is to decide how much of their endowment of 150 kronor the other persons in your group have, at a minimum, to donate to the orangutan project. Alternatively, if you think that the decision of how much to donate is something each individual should decide for him/herself (according to his/her answer in choice 1) choose the alternative "everyone should decide for themselves how much to donate." Think carefully before making choice 3 because it can be decisive for your group members' earnings and the money paid to the orangutan project.

Of the 150 kronor that they have been endowed with, I want the other group members to donate the following amount at a **minimum** (please tick one of the boxes below).

- |                                     |                                     |                                     |                                     |                                     |
|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| <input type="checkbox"/> 10 kronor  | <input type="checkbox"/> 20 kronor  | <input type="checkbox"/> 30 kronor  | <input type="checkbox"/> 40 kronor  | <input type="checkbox"/> 50 kronor  |
| <input type="checkbox"/> 60 kronor  | <input type="checkbox"/> 70 kronor  | <input type="checkbox"/> 80 kronor  | <input type="checkbox"/> 90 kronor  | <input type="checkbox"/> 100 kronor |
| <input type="checkbox"/> 110 kronor | <input type="checkbox"/> 120 kronor | <input type="checkbox"/> 130 kronor | <input type="checkbox"/> 140 kronor | <input type="checkbox"/> 150 kronor |

I think that everyone should decide for themselves how much to donate.

Your identification number: 

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## Part 1: DECISION SHEET 2

We will now ask you to make guesses regarding the others' choices.

**Guess 1.** How much do you think the three other members of your group are willing to donate to the orangutan project in choice 1, when everybody decides for him/herself? Please, indicate how many of your group members you think will donate according to the amounts below by writing the appropriate number in the corresponding blank. Remember that the number of group members should sum up to three. Each correct guess will give you an extra 10 kronor.

I think that:

- ..... individual(s) will donate 0
- ..... individual(s) will donate 10 or 20
- ..... individual(s) will donate 30 or 40
- ..... individual(s) will donate 50 or 60
- ..... individual(s) will donate 70 or 80
- ..... individual(s) will donate 90 or 100
- ..... individual(s) will donate 110 or 120
- ..... individual(s) will donate 130 or 140
- ..... individual(s) will donate 150

**Guess 2.** How much do you think the three other members of you group are willing to donate to the orangutan project in choice 2, when everybody has to donate the same amount? Please, indicate how many of your group members you think will donate according to the amounts below by writing the appropriate number in the corresponding blank. Remember that the number of group members should sum up to three. Each correct guess will give you an extra 10 kronor.

I think that:

- ..... individual(s) will donate 0
- ..... individual(s) will donate 10 or 20
- ..... individual(s) will donate 30 or 40
- ..... individual(s) will donate 50 or 60
- ..... individual(s) will donate 70 or 80
- ..... individual(s) will donate 90 or 100
- ..... individual(s) will donate 110 or 120
- ..... individual(s) will donate 130 or 140
- ..... individual(s) will donate 150