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**Do you do what you say or do you do what you say others do?**

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# Do you do what you say or do you do what you say others do?

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## **Abstract**

We design a donations vs. own money choice experiment comparing three different treatments. In two of the treatments the pay-offs are hypothetical. In the first of these, a short cheap talk script was used, and subjects were required to state their own preferences in this scenario. In the second, subjects were asked to state how they believed an average student would respond to the choices. In the third treatment the pay-offs were real, allowing us to use the results to compare the validity of the two hypothetical treatments. We find a strong hypothetical bias in both hypothetical treatments where the marginal willingness to pay for donations are higher when subjects state their own preferences but lower when subjects state what they believe are other students preferences. The explanation is probably a self-image effect in both cases. We find that it is mainly women who are prone to hypothetical bias in this study.

**Key words:** Stated preferences, cheap talk, hypothetical bias, third person approach, choice experiment.

**JEL classification:** C91, D64, Q51

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## 1. Introduction

Survey questions are frequently used to elicit information on a variety of personal preferences. While this is relatively straightforward in most cases, there is some concern regarding the validity of responses in hypothetical survey settings associated with self-image situations such as risk, donations, and the provision of public goods. Kahneman and Knetsch [21] describe donations as a "purchase of moral satisfaction" and while Andreoni [4] shows that donations to public goods may be due to either altruism or warm-glow (egoism) both reasons are related to a positive self-image motive. With this in mind, it appears likely that the hypothetical survey situation provides a cheap opportunity for the respondents to enhance their self-image.

One criticism against survey questions concerns incentives for the truthful revelation of preferences [9]. The problem is that respondents may not place enough emphasis on the contingent part of the survey. In the hypothetical set-up where no actual payment is required, they tend to focus mainly on the benefits of the project while largely ignoring the costs. The survey then reveals the attitudes rather than the preferences of the respondents [22].

A number of studies have tested the possible disparities between hypothetical survey responses and subjects' responses in actual situations, in particular within the stated preference literature [5][8][9][17]. Findings from meta analysis studies support the belief that hypothetical situations lead to a higher stated WTP compared with non-hypothetical situations, although the evidence is mixed [26][33].

Another line of research in the stated preferences literature has focused on ways to overcome or at least reduce the hypothetical bias in survey situations. One method is the use of cheap

talk scripts where subjects are told in the introduction that a propensity to exaggerate stated WTP has been found in previous similar studies. Thus by introducing the notion into the consciousness of the subject the effect of a self-image bias is thought to be reduced. The success of cheap talk scripts has been mixed. Using private goods, classroom experiments, or closely controlled field settings, the use of cheap talk has proven to be potentially successful [11] [24] [33]. Similarly, short cheap talk scripts have also been effective in reducing marginal WTP in choice experiments [7]. Mixed results have been found when incorporating a public good with private good attributes [1] [2], and one possible explanation for the difference is that the length and structure of the cheap talk script matters.

In this paper, we suggest another method that could potentially be effective in reducing ex-ante hypothetical bias: the third-person perception approach, where we ask subjects what they believe an average person would do. This is analogous to the false consensus notion in social psychology, and implies that in many situations people blindly believe that others think like themselves. We wish to test if this approach could be successful in reducing hypothetical bias. The notion behind this is that people will use their own preferences to predict that of others and consequently state their own preferences in their responses. The assumption we make here is that when respondents use their own preferences as a proxy for others, they do not use the survey situation for self-enhancement. There are a various studies that suggest that this method may have potential, especially in situations where there is little social distance between the predictor and the target. For example, Epley and Dunning [15] found in a series of experiments that student participants consistently tend to overstate their own generosity but were relatively accurate when predicting the generosity of other students. Other studies have found that when predicting the risk-behavior of others, subjects tend to believe others have the same risk preferences as themselves [10][19]. Similarly, Henriksen and Flora [18] studied

the perceived influence of cigarette advertising on children. They found that the discrepancy between perceived influence on themselves and others was smaller when children compared themselves with their best friends than with other peers.

In order to test the performance of the cheap talk and third-person perception approaches described above, we designed a donations vs. own money choice experiment using three different treatments. In two of the treatments the pay-offs were hypothetical. In one of these, a short cheap talk script was used, and subjects were required to state their own preferences in this hypothetical scenario. In the second, subjects were asked to state how they believed an average student would respond to the choices. In the third treatment, the pay-offs were real, thereby allowing us to use the results to compare the validity of the two hypothetical treatments. The subjects were required to make 12 pair-wise choices where the characteristics of each choice were personal money, donation to a charity, and type of charity.

Our results indicate a strong hypothetical bias in both hypothetical treatments where the marginal willingness to pay for donations are higher when subjects state their own preferences but lower when subjects state what they believe are other students preferences. One possible explanation is that self-image effects are at play in both cases. In the cheap talk script treatment, the results reveal that it is mainly women who are prone to hypothetical bias.

The remainder of the paper is organized as follows: section 2 provides a description of the experimental design and procedure. The results from the study are presented in section 3 followed by a discussion in section 4.

## 2. The Experiment

### 2.1 Experimental Design

In order to test the performance of the *hypothetical-cheap-talk* and *hypothetical-other* approaches discussed above we designed a donations vs. own money choice experiment using three different treatments within which subjects were required to make the same 12 pair-wise choices where the characteristics of each choice were personal money, donation to a charity and type of charity. The charities included were World Wildlife Fund, UNICEF Children's Fund and The Red Cross disaster relief. The attributes donations and own money had four different levels respectively. A simple cyclical design or a so-called fold-over design was used. First, each of the alternatives from a fractional factorial design of 12 combinations was allocated to different choice sets. The levels of the attributes in the second alternative are obtained by adding one level to each attribute level of the first alternative, and when the highest level is reached, we start over from the lowest level. If the highest level is attained, the attribute level is set to its lowest level.<sup>1</sup> The three treatments used were:

*i) Real-Money:* In this treatment the subjects made choices with real pay-offs to both the charity as well as themselves. They were informed that one of these would be randomly drawn as the actual choice set. An example of one of the choices in this treatment is given below.

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<sup>1</sup> There were three different projects. The levels of the donation attribute were 200, 300, 400 and 500 SEK. The levels of the own money attribute were 0, 50, 100, 200 SEK. At the time of the survey 1 SEK = 0.16 USD. Due to a typing error, one choice sets with the level 200 SEK for own money, was instead 20 SEK. We will still include this choice set in the analysis.

**Choice 1. Which of the two following alternatives do you choose?**

	<b>Alternative 1</b>	<b>Alternative 2</b>
Type of project	World Wildlife Fund	Unicef Childrens Fund
Money to the project	500 SEK	300 SEK
Money to yourself	0 SEK	200 SEK

I choose

Alternative 1

Alternative 2

We use the results from this treatment in order to assess the performance of the hypothetical approaches.

ii) *Hypothetical-cheap-talk*: In this treatment all pay-offs are hypothetical, both to the subjects and the charities. The subjects were given a short cheap-talk script in which they were informed, verbally, using the overhead as well as in the text that

*“Experiences from similar studies have found that people respond differently in a survey situation to how they would act in reality. It is especially common for people to state that they are willing to donate money to a worthy charity, but later do not do so.”*

An example of one of the choices in this treatment is given below.

**Choice 1. Which of the two following alternatives would you choose?**

	<b>Alternative 1</b>	<b>Alternative 2</b>
Type of project	World Wildlife Fund	Unicef Childrens Fund
Money to the project	500 SEK	300 SEK
Money to yourself	0 SEK	200 SEK

I would choose

Alternative 1

Alternative 2

iii) *Hypothetical-others*: In this version subjects were required to state how they believed an average student would respond to the choices. An example of one of the choices in the *hypothetical-other* treatment is given below

**Choice 1. Which of the two alternatives would the average student choose?**

	<b>Alternative 1</b>	<b>Alternative 2</b>
Type of project	World Wildlife Fund	Unicef Childrens Fund
Money to the project	500 SEK	300 SEK
Money to themselves	0 SEK	200 SEK

I believe that the average student would choose

Alternative 1

Alternative 2



There were in total 12 pair-wise choices made, and they were exactly the same in all three treatments.

We can now compare the results in order to assess the performance of the two hypothetical treatments. Since we only observe the choices and not the preferences of the respondents, we apply a standard random utility model in the analysis. The utility of alternative  $i$  for individual  $k$  is

$$V_{ik} = \alpha_i + \beta_k' \text{Donation}_i + \lambda_k' \text{Money}_i + \varepsilon_{ik}, \quad (1)$$

where  $\alpha_i$  is a project specific constant,  $\text{Donation}_i$  is the amount of money donated to a particular project,  $\text{Money}_i$  is the amount of money the individual receives,  $\varepsilon_{ik}$  is an error term, and  $\beta_k$  and  $\lambda_k$  are parameters. Note that we will only be able to estimate the difference in project specific constants. In order to allow for unobserved heterogeneity we assume that the two parameters  $\beta_k$  and  $\lambda_k$  are randomly distributed with a normal distribution. Since we have repeated observations, we assume that the parameters are constant across choice sets for a given individual. We assume that the errors terms are normally distributed. The model is estimated as a random parameter probit model with simulated maximum likelihood using Limdep 9.0; see Train [37] for details on simulated maximum likelihood. From the utility specification in (1), we can estimate the marginal willingness to pay for a donation to a project; this is simply the ratio of donation and money coefficients.

## 2.2 Experimental procedure

A total of 268 undergraduate students from Karlstad University took part in the experiments that were conducted at the beginning of a lecture. The participants studied courses in business administration and economics. 103 men and 165 women participated in seven separate

experimental sessions, each of which lasted around 20 minutes. Verbal instructions with supporting overheads were used in addition to the written instructions in the questionnaire. The questionnaire consisted of two parts, the choice experiment and questions regarding the respondents' socioeconomic status. The responses were anonymous in all three treatments. In the *Real-money* version, the participants were given an identity number which was also printed on the back of the questionnaire. The session began with the experimenter explaining how the payment procedure guaranteed anonymity. After the session, each respondent took their identity card to a room where another person randomly picked a number in order to establish for which of the twelve questions the pay-off would occur. The respondent was immediately paid the sum corresponding to the choice made and the corresponding donation registered and later paid anonymously.

### **3. Results**

We begin with estimating three separate models for the three different treatments. Table 1 reports the results of the random parameter models for the three treatments. All models are estimated with simulated maximum likelihood using 250 Halton draws [37].

[Table 1 about here]

In terms of sign and statistical significance of the parameters, the three treatments yield similar results. Furthermore, in all models the standard deviation parameters are statistically significant, indicating that we are capturing unobserved heterogeneity. However, the magnitude of the WTP is quite different across the three models. In the hypothetical-cheap-talk treatment the marginal WTP for a donation is 1.64 SEK, which means that a subject is willing to pay 1.64 SEK in order to increase a donation by 1 SEK. Without even comparing

with the real-money treatment, we can conclude that there is a strong hypothetical bias; despite including a short cheap-talk script. This result is in contrast with the earlier findings of Carlsson and Martinsson [8] and Lusk and Schroeder [28] who both find that choice experiments tend not to suffer from hypothetical bias for marginal trade-offs. Johansson-Stenman and Svedsäter [20], on the other hand, found a hypothetical bias for marginal WTP in a similar experiment.<sup>2</sup> In a meta-analysis of hypothetical bias the hypothetical value was about 2.5-3 times the real-money value for public goods, choice experiments and cheap-talk scripts, which is in line with our results [33].

The hypothetical-other treatment also results in a hypothetical bias. The marginal WTP in this treatment is around 0.16 SEK, which is statistically significantly lower than the marginal WTP in the real-money treatment. In this case, the bias is in the other direction, since the marginal WTP for this treatment is lower than the real marginal WTP. One explanation is that while subjects use themselves as a reference point when evaluating others [13], they use the survey situation to bolster their self-image and validate a positive sense of self [12] by predicting the generosity of others to be less than their own. Thus, a respondent with an own marginal WTP of say 0.3 SEK, is able to enhance her own self-image by stating a lower value for her peers. As discussed in the introduction, the critical assumption of the third-person perception approach is that because respondents were not asked to explicitly state their own preferences, they would not use the survey situation as an opportunity for self-enhancement. However, the results of our study suggest that this assumption is erroneous. Research has shown that individuals who report attitudes and behavior for themselves and others are motivated to believe they possess various desirable attributes not only on an absolute level, but also on a relative level when compared to others [3] [30] [31]. We believed that the

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<sup>2</sup> One reason why Johansson-Stenman and Svedsäter [20] find a hypothetical bias, while Carlsson and Martinsson [8] do not, could be that the latter use a within-sample design, where the same respondents answer both a hypothetical and a real-money experiment.

respondents would not engage in such comparison as they were not explicitly asked to state their own preferences relative to others, but the results suggest that this was probably not the case.

Using two-sided t-tests we can in all cases reject the hypothesis of equal WTP<sup>3</sup> and we can for all models reject the hypothesis of equal parameters.<sup>4</sup> Thus, looking at the aggregate data, we see a strong indication of hypothetical bias in both the hypothetical-cheap-talk and the hypothetical-other treatments. This is most likely due to strong self-image effects.

Considering the rank of the projects we find that the UNICEF children's fund is the most preferred project for the real-money treatment, while there is no statistical difference between UNICEF and the Red Cross disaster relief for the hypothetical treatments. The WWF is least preferred in all treatments.

#### *Males versus females*

There is some empirical evidence that women are less egoistic than men [25], offer more in dictator games [14], and express more concern with the environment than men, although the results is mixed [41]. There is also a recent paper that found that women are more prone to starting point bias in a choice experiment than men are [23]. A closer look at our data also revealed differences in behavior between male and female subjects. Therefore we estimate the random parameter probit models for the three treatments for males and females separately.

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<sup>3</sup> The standard errors are calculated with the Delta method [16].

<sup>4</sup> This is tested with likelihood ratio tests. When performing this test we need to account for the fact that the estimated parameters are confounded with the respective scale parameters. One way of dealing with this problem is to first test for a difference in scale between the data sets. We do this using the grid search procedure by Swait and Louivere [36]. Given the estimated scale parameter one can then test the hypothesis of equal parameters. When estimating the random parameter model with the grid search procedure, 25 draws were used instead of 250.

The results are reported in Table 2. All models are estimated with simulated maximum likelihood using 250 Halton draws [37].

[Table 2 about here]

From table 2 we see that there is a substantial difference between male and female responses in the hypothetical-cheap-talk treatment. For males, the marginal WTP is around 0.36 SEK and the difference between hypothetical-cheap-talk and real-money is not statistically significant using a two-sided t-test. For females the parameter for own money is very small and highly statistically insignificant. In addition, the parameter for the standard deviation of own money is relatively large and statistically significant for females. This indicates that a non-negligible fraction of the female respondents have a reverse sign for this parameter.

From the random parameter model we can obtain individual-level parameters from the estimated model, using Bayes Theorem [37]. This means that we can get a notion of where a specific individual, or a group of individuals, is placed in the estimated distribution. Figure 1 and 2 in the appendix reports histograms for females and males for the hypothetical-cheap talk and real-money models. For hypothetical-cheap-talk, both models predict a large fraction of respondents with a negative WTP, but the fraction is substantially larger for female respondents. The distribution for the real-money is similar, but the share of subjects with a negative WTP is much smaller for both groups.<sup>5</sup> Due to the large standard error for the own-money parameter in the female sample, the estimated marginal WTP is actually not statistically significantly different from zero.

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<sup>5</sup> The random parameter model with normal distribution implies that there will be a fraction of respondents with a reverse sign, since we do not restrict the distribution. However, we obtain similar results for the individual-level estimates of the parameters if we instead use a jack-knife procedure with a standard logit model.

Overall our results therefore suggest that it is the female respondents that drive the results of a strong hypothetical bias in the aggregate model. It is difficult to come up with any one single explanation to this. It cannot be the case that women, in this setting, care more about the good as men actually have a higher WTP in the real-money experiment. Additionally, we should not expect any large income differences between men and women in a student-sample. It could be that women are more socially oriented than men are, and that generosity and altruism is an important part of their self-image. Thus, when responding in the hypothetical-own treatment they may tend to overstate their generosity to a greater degree than men in order to conform to their own self-image and perhaps also the image they believe that society has of women. For example in a field experiment on blood donations and monetary compensation Mellström and Johannesson [29] find a significant crowding out effect for women but not for men. They argue that this is because women are more concerned with social esteem than men, and that the behavior in the experiment is a way to signal generosity.

Our findings are completely contrary to two previous studies on hypothetical bias and gender. In an open-ended contingent valuation survey on donations to the Nature Conservancy hypothetical bias, for both males and females were found [6]. However, the hypothetical bias for males was three times larger than the one for females. In an induced value public good game females were more likely to reveal their true value than males when hypothetical payments are used [31]. Since we get the opposite results, neither of the studies can be generalized.

The difference between WTP for the hypothetical-other and the real-money treatments is significant for both males and females. Thus, our suggestion to use a third-person approach in order to reduce hypothetical bias has not proven to be successful in this particular experiment.

#### **4. Discussion**

The results from the third-person perception approach were rather disappointing in that the expected false consensus effect where the respondents should project their own preferences on others was unsuccessful. Instead we may have observed a self-enhancement effect where the respondents derive satisfaction from favorable social comparison. Although we do not explicitly ask the respondents to state their own preferences as well, they may well have used their own preferences as an anchor and when predicting others to be less generous than themselves tip the generosity scale in their own favor. This better-than average-effect [3] can be viewed as a type of self-serving bias in which people evaluate their own characteristics more favorably than those of others. This self-enhancement motive is central in the psychological downward comparison theory where people validate a positive sense of self by engaging in social comparison thereby obtaining feeling of well-being and self-esteem [40]. This effect may also have been augmented by the ambiguous nature of the comparison target, the “average student” permits a high level of subjectivity in the comparison process thereby allowing respondents more latitude to select downward comparison targets [3] [34] [39].

Kahneman and Sugden [22] discuss the risk that survey questions may elicit responses that reflect attitudes rather than preferences. While this is a problem usually associated with open-ended contingent valuation surveys, the results from the hypothetical own treatment confirm this risk even for choice experiments. The higher marginal WTP for the hypothetical own treatment compared to the other treatments reflect that own money has less influence on the observed choices and that donated money and the choice of project play a much more important role in the decision. Since the participants apparently contemplate less over own money, their responses appear to reflect attitudes rather than preferences between donated and

own money. One reason for this attitude effect is probably the self-enhancement obtained from donations. This problem is especially apparent for female respondents in our survey, which is actually contrary to two previous studies [6] [31]. Coupled with the fact that we have quite a small student sample one should be cautious with generalizing the results and further, it indicates the need for further studies that consider gender differences with respect to hypothetical bias.

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Table 1. Results of random parameter models for the three treatments, p-values in parentheses.

	Hypothetical-cheap-talk	Hypothetical-other	Real-money
<b>Random parameters</b>			
Donation	0.0033 (0.000)	0.0027 (0.000)	0.0068 (0.000)
Own money	0.0020 (0.001)	0.0171 (0.000)	0.0160 (0.000)
<b>Standard dev. random parameters</b>			
Std dev donation	0.0068 (0.000)	0.0115 (0.000)	0.0088 (0.000)
Std dev own money	0.0120 (0.000)	0.0204 (0.000)	0.0255 (0.000)
<b>Fixed parameters</b>			
Unicef vs WWF	0.502 (0.000)	0.650 (0.001)	0.635 (0.000)
Red Cross vs Unicef	-0.125 (0.095)	0.148 (0.241)	-0.375 (0.003)
WWF vs Red Cross	-0.222 (0.002)	-0.443 (0.000)	-0.341 (0.003)
Number of observations	1296	1152	768
Number of individuals	108	96	64
Pseudo R2	0.12	0.23	0.19
MWTP donation in SEK (standard error)	1.64 (0.399)	0.155 (0.021)	0.427 (0.034)

Table 2. Results of random parameter models for the three treatments for male and female sub-samples, p-values in parentheses.

	Males			Females		
	Hypothetical- cheap-talk	Hypothetical- other	Real- money	Hypothetical- cheap-talk	Hypothetical- other	Real- money
<b>Random parameters</b>						
Donation	0.0018 (0.000)	0.0027 (0.000)	0.0159 (0.000)	0.0043 (0.000)	0.0053 (0.000)	0.0062 (0.000)
Own money	0.0048 (0.000)	0.0148 (0.000)	0.0372 (0.000)	0.0002 (0.438)	0.0189 (0.000)	0.0159 (0.000)
<b>Standard dev. random parameters</b>						
Donation	0.0071 (0.000)	0.0116 (0.000)	0.0264 (0.000)	0.0043 (0.000)	0.0115 (0.000)	0.0075 (0.000)
Own money	0.0134 (0.000)	0.0168 (0.000)	0.0624 (0.000)	0.0103 (0.000)	0.0215 (0.000)	0.0254 (0.000)
<b>Fixed parameters</b>						
Unicef vs. WWF	0.523 (0.000)	0.719 (0.002)	2.669 (0.001)	0.496 (0.000)	0.591 (0.001)	0.361 (0.010)
Red Cross vs. Unicef	-0.411 (0.001)	0.176 (0.303)	-1.868 (0.001)	0.087 (0.386)	0.115 (0.586)	-0.0681 (0.694)
WWF vs. Red Cross	-0.200 (0.062)	-0.452 (0.001)	-0.408 (0.061)	-0.230 (0.022)	-0.448 (0.009)	-0.318 (0.039)
Number of obs	540	468	240	756	684	528
Number of individuals	45	39	20	63	57	44
Pseudo R2	0.13	0.21	0.29	0.10	0.24	0.19
MWTP donation in SEK	0.364 (0.098)	0.182 (0.038)	0.427 (0.041)	22.41 (71.48)	0.130 (0.025)	0.388 (0.038)

## Appendix

Figure 1. Female hypothetical cheap-talk versus real money

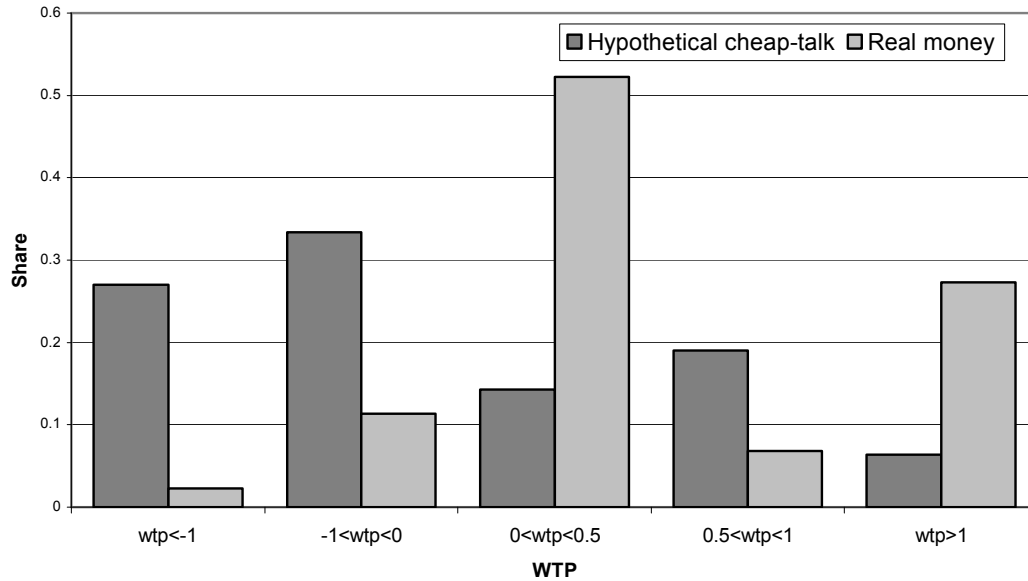


Figure 2. Male hypothetical cheap-talk versus real money

