

Imagine being a nice guy: A note on hypothetical vs. incentivized social preferences

Christoph Bühren*

Thorben C. Kundt†

Abstract

We conducted an experimental study on social preferences using dictator games similar to Fehr et al. (2008). Our results show that social preferences differ between subjects who receive low-stakes monetary rewards for their decisions and subjects who consider hypothetical stakes. Our findings indicate that, apart from incentives, gender plays an important role for the categorization of different social preferences.

Keywords: social preferences, generosity, egalitarianism, incentive mechanisms, dictator games.

1 Introduction

The fields of economics and other social sciences, such as psychology, often differ in their views on the use of monetary incentives in experiments. Economists usually argue that financial rewards create a more realistic environment within the lab (Rosenboim & Shavit, 2012), causing subjects to consider their decisions more carefully (Carpenter et al., 2005). Psychologists, on the other hand, tend to believe that experimental subjects are generally intrinsically motivated and need no financial reward for decision-making (Camerer & Hogarth, 1999). Of course, this distinction is somehow artificial and far from building a clear-cut dividing line between those professions, but the role of incentives in experiments remains an important field, given that previous research provides empirical evidence that different incentive mechanisms usually, but not always, induce different behavioral responses from experimental subjects.¹

In this study, we examined the effects of the presence or absence of monetary incentives on other-regarding behavior, that is, social preferences. Social preferences, such as egalitarianism or generosity, are argued to be highly relevant to decision-making in a variety of economic and social contexts such as philanthropy and charitable giving, organ donations, or family transfers (see Kolm & Ythier, 2006, for a comprehensive overview). However, exactly how mon-

etary rewards affect those social preferences remains unclear. Compared to a hypothetical setting without financial rewards, we found that even low-stakes monetary incentives 1) decrease (strongly) egalitarian choices, 2) increase spiteful choices, but 3) also increase generous choices.

A common way to elicit social preferences is to use the dictator game (DG) in which a sender (dictator) decides how to allocate a sum of money to himself and a receiver.² There are only few studies on the effect of introducing financial incentive mechanisms in DGs and these report mixed results: Sefton (1992) found significantly more self-interested offers in a DG with a low-stakes financial reward compared with Forsythe et al.'s (1994) results for an equally designed hypothetical setting. In Dana et al. (2007), receivers in a binary DG were instructed to choose hypothetically between an equal and an unequal distribution, while the choices of dictators were incentivized: Compared with the incentivized treatment, a larger share of subjects picked the egalitarian option in the hypothetical treatment. Amir et al. (2012) reported that 1\$ incentives in an online DG significantly decreased average offers compared to a no-stakes DG. On the other hand, Ben-Ner et al. (2008) showed that dictators facing decisions involving real money were slightly more generous compared with subjects considering hypothetical money, but this difference was not significant in statistical and economic terms, even after controlling for subject-specific characteristics.

Various models to describe different types of social preferences. In economics, the most popular ones are Fehr and Schmidt (1999), who incorporate envy and altruism in the utility function, the theory of equity, reciprocity, and competition (ERC) by Bolton and Ockenfels (2000), in which deviations from egalitarian distribution result in disutility, and the Quasi-maximin model by Charness and Rabin (2002),

The authors would like to thank Robin Hogarth, Björn Frank, Fiona Hayes, two anonymous referees, and subjects at the 14th EBES Conference in Barcelona (2014) for helpful comments.

Copyright: © 2015. The authors license this article under the terms of the Creative Commons Attribution 3.0 License.

*Department of Economics, University of Kassel, Nora-Platiel-Str. 4, 34127 Kassel, Germany. Email: c.buehren@uni-kassel.de.

†Corresponding author: Department of Economics, Helmut-Schmidt-University, Holstenhofweg 85, 22043 Hamburg, Germany. Email: kundt@hsu-hh.de.

¹See Camerer and Hogarth (1999) for an overview.

²Engel (2011) provides a meta-study on DGs. For an overview of other games used to elicit social preferences, see Levitt and List (2007).

which takes into account the lowest payoff of a distribution. However, it is not easy to distinguish these different models in standard DGs (Daruvala, 2010, e.g., uses evaluations of money distributions in groups of 11).

In our study, we used DGs similar to those of Fehr et al. (2008) which provided us with a simple way to categorize different types of social preferences. Subjects were presented with three sets of dichotomous choices to allocate money to themselves and another person. In the prosocial game, the dictator chose between two different allocations, (0.5,0.5) and (0.5,0). The dictator could increase his partner's payoff at no cost to achieve an egalitarian distribution. In the envy game, the dictator faced a choice between (0.5,0.5) and (0.5,1). An increase in the partner's payoff was possible only by deviating from the egalitarian distribution. In the sharing game, the feasible allocations were (0.5,0.5) and (1,0). Choosing the egalitarian option in the prosocial or the envy game indicates inequality aversion: In the former case, the decision maker does not want the other person to earn less than himself, and in the latter case, he does not want his partner to earn more. The sharing game can be regarded as a strong form of the prosocial game—the fundamental difference is that taking the egalitarian option in the sharing game is costly for the dictator. A particular advantage of choosing the three dichotomous choice sets instead of a single (continuous) DG is that subjects' choices can be directly translated to five (weak and strong) types of social preferences, namely spite, egalitarianism, and generosity (Table 1).

These types of social preferences differ with respect to their underlying motives. In particular, Table 1 shows that spiteful subjects always choose options making their counterparts *worse* off, even if they could increase their partners' payoff *at no cost* in the prosocial game. Weakly egalitarian subjects choose the egalitarian option whenever they are not disadvantaged; they are not spiteful but they also do not allow their counterparts to earn more than them. Strongly egalitarian subjects always choose the egalitarian option—no matter if it “hurts” others or them. Weakly generous subjects grant their counterparts a higher payoff if this is at no cost for them. Finally, strongly generous subjects *always* choose the best option for their counterparts in the three DGs, even if this means a costly transfer in the *sharing game* and a deviation from the (0.5,0.5) distribution in the *envy game*, with the latter choice representing the fundamental difference to the egalitarian category.

The dictator games of Fehr et al. (2008) have been applied in a variety of settings (e.g., Svensson, 2009; Bauer et al., 2011a; Bauer et al., 2011b; Fehr et al., 2011; Zaleskiewicz and Helka, 2011; House et al., 2012); experimental subjects were usually children or adolescents, incentives were usually sweets. Fehr et al. (2011) provided small monetary incentives to a group of adolescents. In our experiment, we used an adult subject pool that was randomly assigned to an

Table 1: Subcategories of social preferences.

Category	Prosocial game	Envy game	Sharing game
Spiteful	(0.5,0)	(0.5,0.5)	(1,0)
Weakly egalitarian	(0.5,0.5)	(0.5,0.5)	(1,0)
Strongly egalitarian	(0.5,0.5)	(0.5,0.5)	(0.5,0.5)
Weakly generous	(0.5,0.5)	(0.5,1)	(1,0)
Strongly generous	(0.5,0.5)	(0.5,1)	(0.5,0.5)

Source: Own compilation based on Fehr et al. (2008).

incentivized treatment and a *hypothetical treatment*. To our knowledge, we are the first to study hypothetical vs. incentivized decisions in the Fehr et al. (2008) DGs in an adult subject pool.

Having a look on the DG results mentioned above, the introduction of financial incentives is likely to lead to different motives. The results of Dana et al. (2007) speak for more hypothetical egalitarianism, whereas those of Ben-Ner et al. (2008) indicate slightly more incentivized generosity. Following Amir et al. (2012), we expect incentivized subjects to be less nice than subjects of our hypothetical treatment, that is, we hypothesize them to be more spiteful and less *strongly* egalitarian or generous.

2 Experiment

The social preferences experiment involved three allocation decisions similar to the Fehr et al. (2008) DGs. Since the experiment lasted less than five minutes, it was preceded by two other unrelated experiments.³ Combining short experiments this way is a common practice (see, e.g., Fischbacher and Föllmi-Heusi, 2013).

In total, six sessions were carried out at the experimental lab of the University of Hamburg in November 2012 with 150 students participating. Subjects were invited via the recruitment software *hroot* (Bock et al., 2012). They received a 5.00 EUR show up fee that was announced in the invitation.⁴ 90% came from Germany, 50% were male, and the average age was 25.14 ($SD = 4.73$).

Subjects were randomly divided into two subgroups: 80 made decisions involving real money (*incentivized treat-*

³The first experiment included a real counting task with varying levels of effort provision (treatment 1: *no effort*, treatment 2: *moderate effort*, treatment 3: *hard effort*) and focused on the effect of work effort on income tax evasion; the second experiment measured risk attitudes using incentivized Holt and Laury (2002) lotteries. Average earnings were 3.99 EUR ($SD = 0.99$ EUR). The experiments did not affect decisions in the DGs (see Sections 3; for details on the experiments: see Bühren and Kundt, 2014).

⁴This is the standard fee for students participating in the experimental lab at the University of Hamburg.

ment), 70 made hypothetical choices (*hypothetical treatment*) in the DGs.⁵ The assignment to the experimental conditions was independent of the treatments in the preceding experiments. The only differences across treatments was that respondents in the hypothetical treatment were instructed to *imagine* they could choose between two allocations within the DGs, whereas subjects in the incentivized treatment were informed that one of their decisions and the decision of another experimental subject would be paid out to them (see Appendix A).

The experiment was computerized using z-Tree (Fischbacher, 2008). Possible allocations in the three DGs were presented to the subjects as outlined in section one, with payoffs of 0.00 EUR, 0.50 EUR, and 1.00 EUR (see Appendix A).⁶ To every dictator’s decision one receiver was randomly matched. In order to avoid reciprocity, the matching procedure ensured that the roles of senders and receivers remained independent and anonymous: a dictator A sending a transfer to a receiver B received a transfer from another, unrelated dictator C. Subjects were aware of this type of matching. The exercise was repeated for the three DGs; following Fehr et al. (2008), we kept the ordering of the DGs identical across subjects. Subjects received no feedback in the one-shot DGs and transactions were kept anonymous in order to rule out that social preferences resulted from strategic behavior or that they were affected by selfish motives (Fehr et al., 2008).

In the incentivized treatment, one DG was randomly chosen and we paid out the money the subjects allocated to themselves and received from another subject in that game. Average earnings were 1.15 EUR (*SD* = 0.39 EUR).

3 Results

Table 2 illustrates the number of subjects by treatment that fall into the five categories of social preferences based on the aggregated decisions in the DGs. The categorization of subjects is significantly different across treatments (Pearson’s $\chi^2(4) = 17.9, p < 0.01, two-sided$).

Taking a closer look at the individual types of social preferences, the differences in the egalitarian categories are most obvious: 34 subjects (48.6%) in the hypothetical treatment could be categorized as *egalitarian* (weakly or strongly), but only 22 (27.5%) behave egalitarian in the incentivized treatment. The difference of 12 subjects (21.1 percentage points) is highly significant (Fisher’s exact test, $p = 0.01$,

⁵Statistical analysis (t-tests and Fisher’s exact tests) revealed that the treatments were homogenous in terms of sociodemographic characteristics and subjects’ choices in the previous experiments.

⁶The options in each of the DGs were designed in such a way that it was technically impossible to choose more than one allocation by using radio buttons, which allow the selection of only one option at a time. None of the options was pre-selected. Pre-selection would bias choices in favor of a default option.

Table 2: Results of the behavioural subcategories (by treatments)

Category	Treatment		Total
	Hypothetical	Incentivized	
Spiteful	1	8	9
Egalitarian	34	22	56
<i>Weakly egalitarian</i>	19	20	56
<i>Strongly egalitarian</i>	15	2	17
Generous	34	50	84
<i>Weakly generous</i>	26	36	62
<i>Strongly generous</i>	8	14	22
Total	69	80	149

Notes: One subject could not be categorised based on her/his choices in the DGs.

two-sided). Choices in the *sharing game* revealed that 15 subjects (21.4%) in the hypothetical treatment picked the egalitarian distribution (0.5,0.5) in *all* DGs (*strongly egalitarian*), whereas the number dropped to 2 (2.5%) in the incentivized treatment (Fisher’s exact test, $p < 0.01, two-sided$). Unlike in the *envy* and *prosocial game*, choosing (0.5,0.5) in the *sharing game* involved a costly transfer and thus represents a strong form of other-regarding behavior in terms of inequality aversion and altruism as defined by evolutionary biology (Fehr et al., 2008). Taken together, considering real money seriously influenced the equality motive, even for relatively low stakes. Similar results for DGs with low stakes were also reported by Sefton (1992) and Amir et al. (2012).

In contrast, we found that incentivized subjects were slightly more generous. Pooling generous and strongly generous subjects resulted in a total number of 50 subjects (62%) in the incentivized, and 34 (49%) in the hypothetical treatment; yet this difference is not significant (Fisher’s exact test, $p = 0.10, two-sided$). Also the strongly generous choices do not differ significantly by treatment. This pattern is in line with Ben-Ner et al. (2008), who found non-significantly larger generosity for real as compared with hypothetical choices in DGs.

Finally, examining the frequency of *spiteful* choices, we found a significant difference between the two treatments (Fisher’s exact test, $p = 0.04, two-sided$); 9 (10%) of the incentivized subjects chose the option that *minimized* their anonymous partner’s payoffs in *all* DGs. In contrast, only one subject out of 70 (1%) made this kind of decision when subjects only imagined being a dictator in the experimental setting.

With respect to gender, the majority of 51 men (69%) in our sample could be categorized as generous, whereas the

largest fraction of 38 female subjects fell into the egalitarian category, with even 14 of them (19%) in the strongly egalitarian class (see Appendix B for an overview and Croson & Gneezy, 2009, for comparable results). In this respect, choices of women (*men*) are on average comparable to choices in our hypothetical (*incentivized*) treatment. According to two-sided Fisher exact tests, the treatment effect (incentivized vs. hypothetical) in the weakly generous as well as the strongly egalitarian category is significant for women ($p = 0.096$ and $p < 0.01$, respectively) but not for men. These findings suggest that women respond more to the introduction of monetary incentives. Similar to our result, Eckel and Grossman (1996) found in their “punishment game” that women are more responsive to changes in the incentive structure than men.

4 Discussion and conclusion

In this paper, we presented the results of an experiment on social preferences elicited by using DGs similar to Fehr et al. (2008). We showed that incentivizing subjects affects their choices in DGs and the categorization into different social preference classes.

(Almost) nobody wanted to be spiteful (only 1 of our subjects) when choices had no monetary consequences. Furthermore, strongly egalitarian choices that indicate an aversion to disadvantageous *and* advantageous distributions almost disappeared when people were incentivized (3%). The majority of incentivized subjects (62%) displayed generous choices. In the hypothetical treatment, egalitarian choices were slightly more frequent than generous choices (48.6% vs. 48%). The increase of spiteful and generous choices and the decrease of strongly egalitarian choices in the face of low monetary consequences indicate that the elicitation of subjects’ true preferences might be complicated when using a hypothetical treatment. Ultimately, generous as well as spiteful choices only have material consequences if monetary rewards are at stake.

Within the context of the existing literature, our results in the incentivized treatment are very much in accordance with the categorization of 16- and 17-year old adolescents presented in Fehr et al. (2011). In their experiment, Fehr et al. (2011) used a comparably higher stake of 6 EUR for this subsample and found that the majority could be categorized as *generous* (60%), while only 26% fell into the *egalitarian* category and 14% in the *spiteful* category. The results presented in Fehr et al. (2011) also confirm the gender effect we observed in our data: while female subjects between 16- and 17 years were more frequently categorized as *egalitarian*, male subjects turn out to be in the *generous* category more often.

Our results imply that experimental findings for social preferences depend crucially on the underlying earn-

ing mechanism; even low stakes are able to systematically change the categorization into different classes of social preferences. The effects of stakes on decision-making have also been reported in a number of other, partly comparable, experimental environments (see Camerer & Hogarth, 1999, for an overview). It would be interesting to see if the categorization of the incentivized treatment changes with the integration of large stakes (Carpenter et al. 2005); however, the results provided by Fehr et al. (2011) suggest that the size of stakes (in absolute and relative terms) do not necessarily lead to systematically different categories.

According to our results, hypothetical and incentivized decisions reflect fundamentally different situations. Experimenters have to evaluate in which cases intrinsic motivation in hypothetical scenarios vs. motivation caused by monetary rewards are better able to predict real behavior. We do not want to judge whether relying on subjects’ intrinsic motivation or incentivizing subjects leads to more external valid experimental results. Monetary incentives inside (and outside) the experimental lab might crowd out intrinsic motivation (Frey & Oberholzer-Gee, 1997), or they might reveal the true face of a hypothetically nice guy.

References

- Amir, O., Rand D. G., & Gal, Y. K. (2012). Economic games on the internet: The effect of \$1 stakes. *PLoS ONE*, 7(2), e31461. <http://dx.doi.org/10.1371/journal.pone.0031461>.
- Bauer, M., Cassar, A., & Chytilova, J. (2011a). Warfare and social preferences in children. Mimeo, University of San Francisco.
- Bauer, M., Chytilová, J., & Pertold-Gebicka, B. (2011b). Effects of parental background on other-regarding preferences in children. *CERGE-EI Working Paper Series*, 450.
- Ben-Ner, A., Kramer, A., & Levy, O. (2008). Economic and hypothetical dictator game experiments: Incentive effects at the individual level. *Journal of Socio-Economics*, 37(5), 1775–1784.
- Bock, O., Nicklisch, A., & Baetge, I. (2012). Hamburg Registration and Organization Online Tool. H-Lab Working Paper, No. 1, November 2012, Hamburg.
- Bolton, G. E., & Ockenfels, A. (2000). ERC: a theory of equity, reciprocity and competition. *American Economic Review*, 90(1), 166–193.
- Bühren, C., & Kundt, T. C. (2014). Does the level of work effort influence tax evasion? Experimental evidence. *Review of Economics*, 65(2), 209–230.
- Camerer, C. F., & Hogarth, R. M. (1999). The effects of financial incentives in experiments: A review and capital-labor-production framework. *Journal of Risk and Uncertainty*, 19 (1-3), 7–42.

- Carpenter, J., Verhoogen, E., & Burks, S. (2005). The effect of stakes in distribution experiments. *Economics Letters*, 86(3), 393–398.
- Charness, G., & Rabin, M. (2002). Understanding social preferences with simple tests. *Quarterly Journal of Economics*, 117(3), 817–869.
- Crosan, R., & Gneezy, U. (2009). Gender differences in preferences. *Journal of Economic Literature*, 47(2), 448–474.
- Dana, J., Weber, R. A., & Kuang, J. X. (2007). Exploiting moral wiggle room: Experiments demonstrating an illusory preference for fairness. *Economic Theory*, 33(1), 67–80.
- Daruvala, D. (2010). Would the right social preference model please stand up! *Journal of Economic Behavior and Organization*, 73(2), 199–208.
- Engel, C. (2011). Dictator games: A meta study. *Experimental Economics*, 14(4), 583–610.
- Eckel, C. C., & Grossman, P. J. (1996). The relative price of fairness: Gender differences in a punishment game. *Journal of Economic Behavior and Organization*, 30(2), 143–158.
- Fehr, E., Bernhard, H., & Rockenbach, B. (2008). Egalitarianism in young children. *Nature*, 454, 1079–1083.
- Fehr, E., Rützler, D., & Sutter, M. (2011). The development of egalitarianism, altruism, spite and parochialism in childhood and adolescence. *IZA Discussion Paper*, 5530.
- Fehr, E., & Schmidt, K. M. (1999). A theory of fairness, competition and cooperation. *Quarterly Journal of Economics*, 114(3), 817–868.
- Fischbacher, U. (2007). z-Tree: Zurich toolbox for ready-made economic experiments. *Experimental Economics*, 10(2), 171–178.
- Fischbacher, U., & Föllmi-Heusi, F. (2013). Lies in disguise—an experimental study on cheating. *Journal of the European Economic Association*, 11(3), 525–547.
- Forsythe, R., Horowitz, J. L., Savin, N. E., & Sefton, M. (1994). Fairness in simple bargaining experiments. *Games and Economic Behavior*, 6(3), 347–369.
- Frey, B. S., & Oberholzer-Gee, F. (1997). The cost of price incentives: an empirical analysis of motivation crowding-out. *American Economic Review*, 87(4), 746–755.
- Holt, C. A., & Laury, S. K. (2002). Risk aversion and incentive effects. *American Economic Review*, 92(5), 1644–1655.
- House, B. R., Henrich, J., Brosnan, S. F., & Silk, J. B. (2012). The ontogeny of human prosociality: behavioral experiments with children aged 3 to 8. *Evolution and Human Behavior*, 33(4), 291–308.
- Kolm, S. G., & Ythier, J. M. (Eds.) (2006). *Handbook on the Economics of Giving, Reciprocity, and Altruism*. Amsterdam: Elsevier B.V.
- Levitt, S. D., & List, J. A. (2007). What do laboratory experiments measuring social preferences reveal about the real world? *Journal of Economic Perspectives*, 21(2), 153–174.
- Rosenboim, M., & Shavit, T. (2012). Whose money is it anyway? Using prepaid incentives in experimental economics to create a natural environment. *Experimental Economics*, 15(1), 145–157.
- Sefton, M. (1992). Incentives in simple bargaining games. *Journal of Economic Psychology*, 13(2), 263–276.
- Svensson, E. I. (2009). Understanding the egalitarian revolution in human social evolution. *Trends in Ecology & Evolution*, 24(5), 233–235.
- Zaleskiewicz, T., & Hełka, A. (2011). Gender differences in allocation choices made by children aged 5 to 6. *Polish Psychological Bulletin*, 42(2), 46–51.

Appendix A: Instructions (translated from German)

Incentivized treatment

Part B: Which option do you choose in each case?

In the following three decisions, you determine the **payment of money to yourself and another participant in the experiment**. One of your decisions will be paid out to you and the other participant in addition to the earnings in the other experiments. The other participant will be randomly chosen among the remaining participants of the experiment. You and the other participant will remain completely **anonymous**. The other participant will only see **the amount of money you allocate to him**. Likewise, you will see how much money another anonymous participant allocated to **you**.

Please choose **for each case** one of the payout options (A or B):

- 1) A: You and the other participant both earn 0.50 EUR
B: You earn 0.50 EUR, and the other participant earns nothing
- 2) A: You and the other participant both earn 0.50 EUR
B: You earn 0.50 EUR, and the other participant earns 1.00 EUR
- 3) A: You and the other participant both earn 0.50 EUR
B: You earn 1.00 EUR, and the other participant earns nothing

Hypothetical treatment

Part B: Which option do you choose in each case?

In the following three decisions, imagine you could determine the **payment of money to yourself and another participant in the experiment**. The other participant will be randomly chosen among the remaining participants of the experiment. You and the other participant will remain completely **anonymous**. The other participant will only see **the amount of money you allocate to him**. Likewise, you will see how much money another anonymous participant allocated to **you**.

Please choose **for each case** one of the payout options (A or B):

- 1) A: You and the other participant both earn 0.50 EUR
 B: You earn 0.50 EUR, and the other participant earns nothing
- 2) A: You and the other participant both earn 0.50 EUR
 B: You earn 0.50 EUR, and the other participant earns 1.00 EUR
- 3) A: You and the other participant both earn 0.50 EUR
 B: You earn 1.00 EUR, and the other participant earns nothing

Appendix B

Results of the behavioral subcategories (by gender and treatment).

Category	Male			Female		
	Hypothetical	Incentivized	Total	Hypothetical	Incentivized	Total
Spiteful	1	4	5	0	4	4
Egalitarian	11	7	18	23	15	38
<i>Weakly egalitarian</i>	8	7	15	11	13	24
<i>Strongly egalitarian</i>	3	0	3	12	2	14
Generous	23	28	51	11	22	33
<i>Weakly generous</i>	17	17	34	9	19	28
<i>Strongly generous</i>	6	11	17	2	3	5
Total	35	39	74	34	41	75