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IMAGINE BEING A NICE GUY: A NOTE ON HYPOTHETICAL VS. INCENTIVIZED SOCIAL PREFERENCES

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ABSTRACT

We conducted an experimental study on social preferences using dictator games similar to Fehr et al. (2008). We show that social preferences differ between participants who receive low-stakes monetary rewards for their decisions and participants who consider hypothetical stakes. The results are robust when we control for socio-demographic characteristics and participants' risk attitudes. Besides incentives, gender plays an important role for the categorization of different social preferences.

Keywords: social preferences, incentive mechanisms, dictator games

JEL classification number: D91

1. INTRODUCTION

The fields of economics and other social sciences, such as psychology, 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 and Shavit, 2012), causing participants to consider their decisions more carefully (Carpenter et al., 2005). Psychologists, on the other hand, tend to believe that experimental participants are generally intrinsically motivated and need no financial reward for decision-making (Camerer and Hogarth, 1999). However, previous research provides empirical evidence that different incentive mechanisms usually, but not always, induce different behavioral responses from experimental subjects.¹

In the present study, we examine the effects of the presence or absence of monetary incentives on other-regarding behavior, i.e., social preferences. Social preferences such as egalitarianism have been argued to be highly relevant to decision-making in a variety of economic contexts (Fehr and Gächter, 2000), but how monetary rewards provided in laboratory settings affect those social preferences is still unclear. Compared with a hypothetical setting with no financial reward, we find that even low-stakes monetary incentives 1) significantly decrease strongly egalitarian choices and 2) significantly increase spiteful 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 few

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

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

studies on the effect of introducing financial incentive mechanisms in DGs which reported 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:³ Compared with the incentivized treatment, a larger share of participants 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 contrary, Ben-Ner et al. (2008) showed that dictators facing decisions involving real money were slightly more generous compared with participants considering hypothetical money, but this difference was not significant in statistical and economic terms, even after controlling for subject-specific characteristics.

There are numerous models to describe different types of social preferences. In economics, the most popular ones are Fehr/Schmidt-, ERC-, Quasi-Maximin-preferences and inequality aversion; however, it is hard to distinguish these differences in experiments (Daruvalla, 2010). Fehr et al. (2008) provide us with a simple way to exactly categorize different types of social preferences: In their DGs, participants are presented three sets of dichotomous choices to allocate money to themselves and another person. In the *prosocial game*, the dictator chooses between two allocations (0.5,0.5) and (0.5,0). The dictator can thus increase his partner's payoff at no cost to achieve an egalitarian distribution. In the *envy game*, the dictator faces a choice between either (0.5,0.5) or (0.5,1). An increase in the partner's payoff is only possible by deviating from the egalitarian distribution. Finally, in the *sharing game*, the feasible allocations are (0.5,0.5) and (1,0). Choosing the egalitarian option in both 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 decision maker.

Table 1 displays how the pooled decisions map into different categories of social preferences. As we can see from Table 1, *egalitarian* subjects take the allocation (0.5,0.5) in both the *prosocial*- and the *envy game*, whereas *generous* participants deviate from the egalitarian distribution in the envy game. Considering the choices aggregated over all three DGs, strong forms of egalitarianism and generosity are characterized by choosing an equal distribution in the sharing game.

Table 1: Subcategories of social preferences

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

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

This procedure has 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); past experimental participants were usually children or adolescents. In our experiment,

³ This was done to keep the roles of senders and receivers anonymous.

we use an adult subject pool that is randomly divided into two groups: participants who consider real financial stakes (*incentivized treatment*) and participants who only imagine allocating money between themselves and the receivers (*hypothetical treatment*). To our knowledge, we are the first to study hypothetical vs. incentivized decisions in the Fehr et al. (2008) DGs. We also test whether and how various control variables affect social preferences.

2. EXPERIMENT

Our short experiment (less than 5 min) was carried out at the experimental lab of the University of Hamburg with 150 students; 90% of the participants came from Germany, 50% were male, and the average age was 25.14 ($SD = 4.73$). The participants received a 5.00 EUR show-up fee and gained on average 3.99 EUR ($SD = 0.99$ EUR) in an unrelated experiment on tax evasion (Bühren and Kundt, 2013). Our participants were afterwards randomly divided into two subgroups: 80 participants made decisions involving real money (*incentivized treatment*) and 70 made hypothetical choices (*hypothetical treatment*) in the Fehr et al. (2008) DGs. Allocation to the incentivized or hypothetical condition was independent from the treatments in the tax evasion experiment. The two groups were homogenous in terms of age, gender, income, and nationality.

The experiment was fully computerized using z-Tree (Fischbacher, 2008). Every participant was instructed to choose between two possible allocations of money for himself and an anonymous receiver that participated in the same experimental session. The possible payoffs were 0.00 EUR, 0.50 EUR, and 1.00 EUR. To every dictator's decision one receiver was randomly matched; dictators never knew the identity of their receiver. This exercise was repeated for the three DGs. Because the participants received no feedback in the one-shot DGs and the transactions were completely anonymous, we can rule out the possibility that social preferences resulted from strategic behavior or that they were affected by selfish motives (Fehr et al., 2008, 2011). The only difference across treatments was that respondents in the hypothetical treatment were instructed to *imagine* that they could choose between the two allocations to themselves and the receivers within the DGs. After all decisions had been completed in the incentivized treatment, one of the three DGs was randomly chosen, and the money the participants allocated to themselves and received from their counterparts in that game was added up and paid out; average earnings were 1.15 EUR ($SD = 0.39$ EUR). After completing the experiment, participants filled out a post-experimental questionnaire.

3. RESULTS

3.1. TYPES OF SOCIAL PREFERENCES

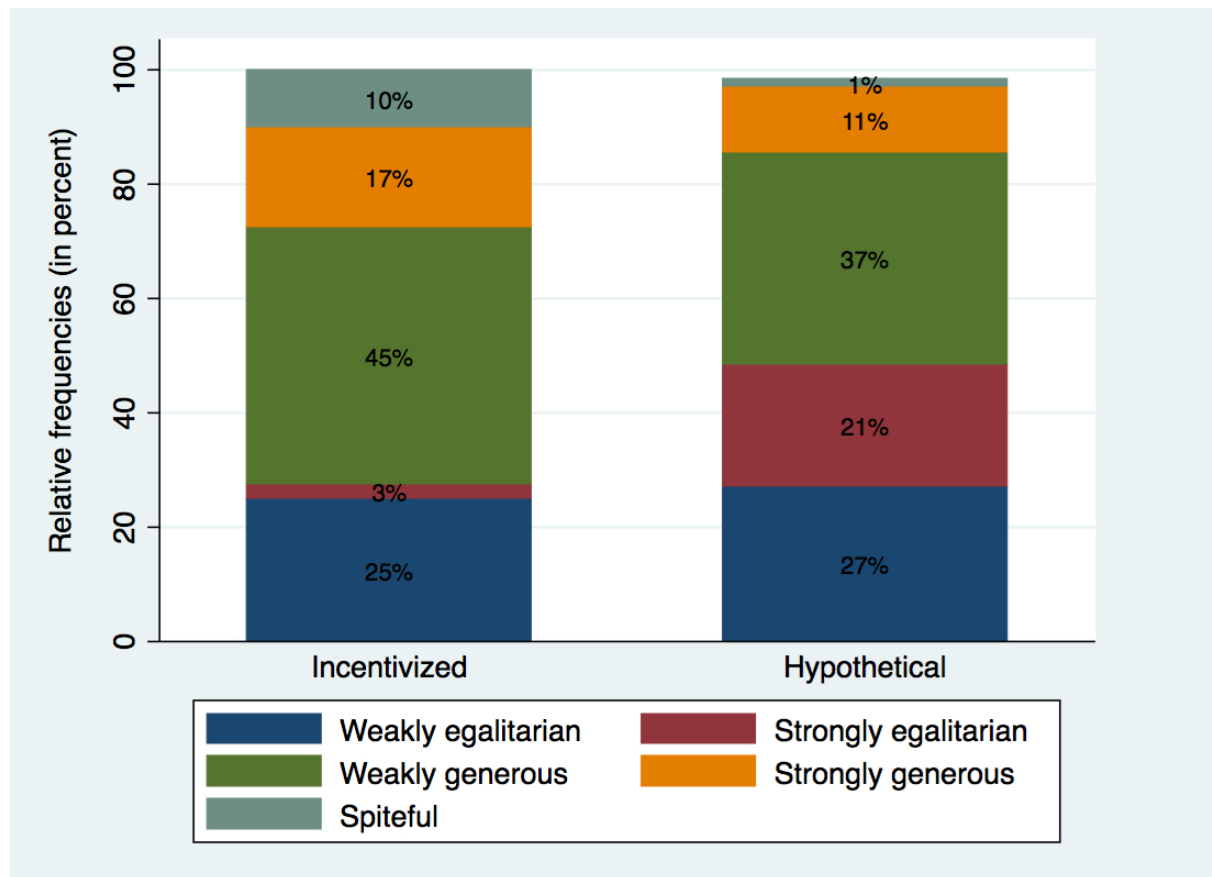
Figure 1 illustrates the percentage of participants by treatment that fall into the five categories of social preferences based on the aggregated decisions they made in the DGs.⁴

Examining the egalitarian category where participants opted for the equal distribution in the *prosocial*- and the *envy game*, we find that 48% of the participants in the hypothetical treatment are categorized as *egalitarian* (weakly or strongly), but only 28% fell into this category in the incentivized treatment. The difference of 20 percentage points between the two treatments is statistically significant (Fisher's exact test, $p = 0.01$, *two-sided*). Considering their

⁴ The percentages for the hypothetical treatment do not add up to 100 because one participant could not be categorized based on his choices in the DGs (*prosocial game*: (0.5,0); *envy game*: (0.5,1); *sharing game*: (1,0))

choices in the *sharing game* reveals that still 21% of the participants in the hypothetical treatment picked the egalitarian distribution (0.5,0.5) in *all* DGs and can thus be categorized as *strongly egalitarian*, whereas the frequency drops to only 3% in the incentivized treatment (Fisher's exact test, $p < 0.01$, *two-sided*). Unlike in the *envy-* and *sharing game*, choosing (0.5,0.5) in the sharing game involves a costly transfer and 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 among our participants, even for relatively low stakes. Similar results for DGs with low stakes were also reported by Sefton (1992) and Amir et al. (2012).

Figure 1: Results of the behavioral subcategories (by treatments)



In contrast, we find that incentivized participants are slightly more generous. Pooling generous and strongly generous subjects results in a fraction of 62% in the incentivized and 48% in the hypothetical treatment; yet this difference is not significant (Fisher's exact test, $p = 0.10$, *two-sided*). This pattern is in line with Ben-Ner et al. (2008), who also found insignificantly greater generosity for real rather than hypothetical choices in DGs.

Finally, examining the frequency of *spiteful* choices, we find a significant difference of nine percentage points between the two treatments (Fisher's exact test, $p = 0.04$, *two-sided*); 10% of the incentivized participants chose the option that *minimized* their anonymous partner's payoffs in *all* DGs. In contrast, the frequency of spiteful choices was only 1% when participants only imagined being a dictator.

In the next section, we will show that our results remain basically unchanged when we control for socio-demographic factors and risk attitude.

3.2. MULTIVARIATE ANALYSIS

We applied probit regressions to analyze additional factors affecting social preferences as indicated by the behavioral subcategories. For the five behavioral subcategories, we used dummies as dependent variables, with outcome 1 meaning that the observation falls into the respective subcategory and 0 meaning that it does not. Both models included a *treatment dummy* (0 = incentivized, 1 = hypothetical). We further took into account socio-demographic information on the participants' *gender* (0 = *male*, 1 = *female*), *age*, and *income* (open question on monthly net income). In addition, we controlled for participants' *risk attitudes* that were measured with incentivized lotteries similar to Holt and Laury (2002) in the previous experiment.⁵ Although dictators' decisions are not risky, Carlsson et al. (2005) found a strong correlation between risk and inequality-aversion.

Table 3 shows that the treatment dummy is positive and highly significant for the *strongly egalitarian* category; the marginal effect indicates that, ceteris paribus, subjects in the hypothetical treatment are 14.8 percentage points more likely to be strongly egalitarian than subjects in the incentivized treatment. The effect reverses for the *spiteful* category, for which we find a negative, albeit only marginally significant, coefficient.

Table 3: Probit regression results for the subcategories

Variables	Weakly egalitarian		Weakly generous		Strongly egalitarian		Strongly generous		Spiteful	
	Coef.	Marg.	Coef.	Marg.	Coef.	Marg.	Coef.	Marg.	Coef.	Marg.
Treatment	0.031 (0.239)	0.009 (0.073)	-0.174 (0.215)	-0.068 (0.084)	1.494*** (0.425)	0.148*** (0.050)	-0.254 (0.271)	-0.054 (0.057)	-0.890* (0.478)	-0.058* (0.034)
Gender	0.406* (0.238)	0.124* (0.072)	-0.212 (0.216)	-0.083 (0.084)	1.151*** (0.399)	0.097** (0.045)	-0.762*** (0.283)	-0.165*** (0.059)	-0.253 (0.372)	-0.016 (0.025)
Age	0.025 (0.025)	0.008 (0.008)	-0.008 (0.023)	-0.003 (0.009)	-0.027 (0.049)	-0.002 (0.004)	0.013 (0.027)	0.003 (0.006)	-0.027 (0.049)	-0.002 (0.003)
Income	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	-0.001 (0.001)	-0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	-0.001 (0.001)	-0.000 (0.000)
Risk attitude	-0.032 (0.071)	-0.010 (0.022)	0.103 (0.065)	0.040 (0.025)	-0.143 (0.110)	-0.011 (0.008)	0.001 (0.080)	0.000 (0.017)	-0.104 (0.108)	-0.007 (0.007)
Constant	-1.302* (0.728)		-0.331 (0.667)		-1.372 (1.327)		-0.983 (0.794)		0.332 (1.303)	
Pseudo R ²	0.032		0.032		0.294		0.077		0.140	

Notes: n = 149; standard errors in parenthesis; * p < 0.1, ** p < 0.05, *** p < 0.01

Decision-making behavior also differs by gender. Examining the *weakly egalitarian* choices, we find that females are 12.4 percentage points more likely to fall into this category than men; this effect is marginally significant. The corresponding effect of gender on *strongly egalitarian* decisions is highly significant, and the marginal effect accounts to 9.7 percentage points. This finding is in line with previous results from DGs (see Croson and Gneezy, 2009 for an overview). Having a look on the *strongly generous* decisions, we find a converse gen-

⁵ In Bühren and Kundt (2013), one of the 10 lottery decisions was randomly chosen for each participant and paid out; average earnings were 0.42 EUR (*SD* = 0.22 EUR) and did not significantly differ between treatments (Mann-Whitney U = 2622, z = 0.66, p = 0.50).

der effect: Male participants in our experiment were 16.5 percentage points more likely to fall into this category than females. Income and risk aversion do not influence a subject's probability of falling into any one of our five social preference groups

We also ran several regression analyses not reported in this paper to rule out any confounding effects of the tax evasion experiment and the Holt and Laury (2002) lotteries.⁶ Neither did earnings in both experiments significantly affect participants' social preferences, nor did we find any significant effect of other variables of the tax evasion experiment.

4. CONCLUSIONS

In this paper, we presented the results of an experiment on social preferences elicited by using DGs similar to Fehr et al. (2008). We were able to show that incentivizing participants can affect their social preferences, even for low stakes. Compared with participants who chose hypothetically, we found that the frequency of egalitarian choices is significantly lower and that the frequency of spiteful choices is significantly higher for incentivized participants. A multivariate regression analysis revealed a significant gender effect on social preferences: Women were more likely to display *strongly egalitarian* choices, whereas *strongly generous* decisions were more common for men.

Our results imply that experimental findings for social preferences may depend crucially on the underlying earning mechanism; even low stakes are able to systematically change social preferences. The effects of stakes on decision-making have also been reported in a number of other, partly comparable, experimental environments (see Camerer and Hogarth, 1999, for an overview). We are, however, not able to judge whether the psychological perspective (i.e., relying on the participants' intrinsic motivation) or the economic perspective (i.e., providing monetary rewards) leads to more valid experimental results. Monetary incentives might crowd out intrinsic motivation (Frey and Oberholzer-Gee, 1997), or they might reveal the true face of a hypothetically nice guy.

⁶ Details are available upon request.

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