

## Are people Samaritans or Avengers?

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### *Abstract*

This paper refers on an experiment comparing the propensity to punish unfair behavior with the desire to help the victims of unfairness, in presence of a budget constraint and without the expectation of a long-run pecuniary gain. The possibility that subjects' behavior changes when the initial endowment is earned instead of being randomly assigned is considered.

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## 1 Introduction

In experimental economics, the most studied reaction to unfairness is punishment. The typical experiment analyzes the relationship between the punishment of unfair subjects and the unfairness they committed on the basis of the relationship existing between the unfair subject and the punisher (for survey and discussion see Camerer and Fehr, 2003; Ottone, 2006). In particular, research concentrates mostly on the analysis of second party punishment, despite the importance of third party punishment as a social norm enforcement device (Gintis, 2000; Fehr, Fischbacher and Gächter, 2002; Fehr and Fischbacher, 2004). Under this aspect, this paper has a twofold aim. First of all, it analyzes the external observers' tendency both to punish the unfair and to help the victims, in presence of a budget constraint. Secondly, it observes how subjects behave when their initial endowment is earned and not received as a windfall gain – as, for instance, in Güth et al. (1986), Hoffman et al. (1994) and Bosman et al. (2005).

## 2 The experimental design

The experimental design consists of three treatments: the Baseline Treatment (BT), the Solomon's Game Treatment (SGT) and the Endowment Effect Treatment (EET). In the BT, the tool was the original Third Party Punishment Game proposed by Fehr and Fischbacher (2004). At the beginning of the first stage each subject was randomly assigned a role (A, B or C) and 8 groups of 3 participants were formed. In each group, participant A (the Dictator) and participant B (the Receiver) played a Dictator Game<sup>1</sup>. In the second stage participant C (the Observer) entered the game and had to decide either to spend some amount to sanction A or to keep the whole sum. A's and C's initial endowment was the same (10 euro) and the cost for participant C to punish participant A for the amount of 1 euro, was 0.5 euro.

In the SGT, I used a variant on the Third Party Punishment Game - the Solomon's Game - where the Observer could: 1) transfer money to B; 2) spend money to sanction A; 3) both punish A and transfer money to B; 4) keep the whole sum.<sup>2</sup>

In the EET, I used again the Solomon's Game, but in this case participants had to earn their initial endowment. At the beginning of each session I asked them to solve some jigsaws for 15 minutes. When time was over, I assigned participants a score on the basis of the puzzles they had solved correctly. Two thirds of the subjects (those who scored highest) earned 10 Euro and were assigned the role of either participant A or participant C. The others started the second stage of the treatment with no money and were assigned the role of participant B<sup>3</sup>.

The experiment was run in the Laboratory of experimental economics ALEX in Alessandria, Italy, using the Z-Tree software (Fischbacher, 1999)<sup>4</sup>. Overall, 2 sessions for each treatment were run, with a total of 141 participants (48 participants both in the BT and in the SGT, 45 in the EET). At the beginning of the experiment, participants were informed about the sequential form of the game. Each subject participated in only one session and partners' identities were unknown even when the experiment was over. The strategy

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<sup>1</sup> Only transfers of whole euros were allowed.

<sup>2</sup> Both in the Third Party Punishment Game and in the Solomon's Game, in the equilibrium prediction, participant C would never punish participant A, and participant A would keep for her/himself the whole sum.

<sup>3</sup> Participants knew the scoring system.

<sup>4</sup> Thanks are due to the programmer of the Laboratory, dr. Marie-Edith Bissey.

method at the Observer's stage was implemented.<sup>5</sup> Each session lasted about 45 minutes for the BT and the SGT, and about 70 minutes for the EET. Each subject earned on average 5.86 Euro.

### 3 Results and discussion

**Result 1.** *The Observers' transfers appear to be complementary to punishment at high levels of unfairness and substitute at low levels of unfairness.*

When I add the possibility for the Observer to transfer money to the Receiver, two cases may occur. The transfer may either be a complementary good of the punishment or a substitute. Actually, both punishment and transfer from the Observer significantly decrease as the Dictator's transfer increases (see Table 1 and Figure 1). A bivariate probit regression indicates that the probability of C punishing A is related to the probability of A transferring to B (see Table 2).

Overall, the punishment (P) from the Observer to the Dictator and the transfer (T) from the Observer to the Receiver are significantly correlated if the transfer from A to B is 0 or 1 (Spearman correlation;  $p = 0.054$  and  $p = 0.051$  respectively); but not if the transfer ranges from 2 to 5 ( $p > 0.13$ ). Moreover, in the BT the punishment is significantly higher than in the SGT if the transfer from A to B ranges 3-5 (Mann-Whitney test;  $p < 0.05$ ). This suggests that at high levels of unfairness an external observer will try both to punish the unfair behavior and to help the victim, while at low levels of unfairness s/he will substitute punishment with help.<sup>6</sup> This result is supported also by a random effect Tobit regression, according to which punishment decreases following the interaction between participant A's transfer and the possibility for participant C to transfer money to participant B. The fact that the coefficient related to the possibility for C to transfer money to B is zero means that when A's transfer is zero, punishment is the same in all the treatments. However, as participant A's transfer rises, punishment falls towards zero, and it falls faster when the Solomon's Game is played.

**Result 2.** *When participants have to earn their endowment, participants C both punish and transfer less than in the SGT.*

This result is confirmed by the random effect Tobit regression (see Table 1 and Figure 1), but the bivariate probit reports a significantly lower probability to transfer only in the EET (see Table 2). This may imply that the fact that the endowment is earned affects the level of punishments and transfers and the probability to transfer, but not the probability to punish.

**Result 3.** *People's preferences are heterogeneous.*

Analysing the Observers' behavior, four different types can be identified (see Figure 2):

- "selfish": an Observer who never intervenes;
- "Samaritan": an Observer who intervenes only by transferring to the Receiver;
- "avenger": an Observer who intervenes only by punishing the Dictator;

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<sup>5</sup> When the strategy method is used, subjects are asked their choice for each possible case. The final payoff is determined on the basis of the situation that actually occurs.

<sup>6</sup> Another possible explanation is that punishment in the SGT is higher than in the BT because the Observer thinks that s/he has to share with the Dictator the duty to give money to the Receiver. Consequently, the Dictator fair transfer is about 3 and not 5 anymore. I tested this hypothesis and I found that this is not the case.

- “judge”: an Observer who intervenes by choosing a combination of punishment and transfer.

The change I made in the original version of the Third Party Punishment Game (by introducing the opportunity for the Observer to help the Receiver) makes it possible both to provide a more detailed classification of human types and to discover that the attitude of human beings to help those who suffer from an unfair behavior is strong and multifaceted - the desire of revenge is not the only emotion stimulated by people’s sense of justice. People care about the condition of the victims. In the BT the Observers are by necessity either “selfish” or “avengers”. Actually, some “selfish” may be “Samaritans” and most “avengers” may be “judges”.

#### **4 Comparison with social preferences theories**

To what extent are social preferences theories suitable to explain the results obtained in this experiment? Theories of unconditional altruism may explain why third parties decide to transfer money, but they never predict punishment.

Fairness theories face several problems in explaining third party punishment. The model proposed by Bolton and Ockenfels (2000) may explain the behavior of the “Samaritans”, but not the behavior of “judges” and of “avengers”, who are the majority. The “avenger” and the “judge” behavior are not consistent with Fehr and Schmidt’s model, while the ‘Samaritan’ behavior may be explained only when the Observer transfers to the Receiver an amount that is smaller than – or equal to – what the Dictator assigned. The models by Rabin (1993) and by Dufwenbeg and Kirchsteiger (2004) can predict neither third-party punishment nor third-party transfer. Actually, these models describe none of the types presented above.

The hybrid model by Falk and Fischbacher (2000) and the DASM model by Kohler (2003) have the same prediction power as the model by Fehr and Schmidt. The hybrid model (social welfare concern + reciprocity) developed by Charness and Rabin (2002) may explain all types presented in this paper. The non-self-centred version of the model by Fehr and Schmidt may also predict all the four types (Ottone and Ponzano, 2007).

**Table 1. P and T (Random Effect Tobit Model)**

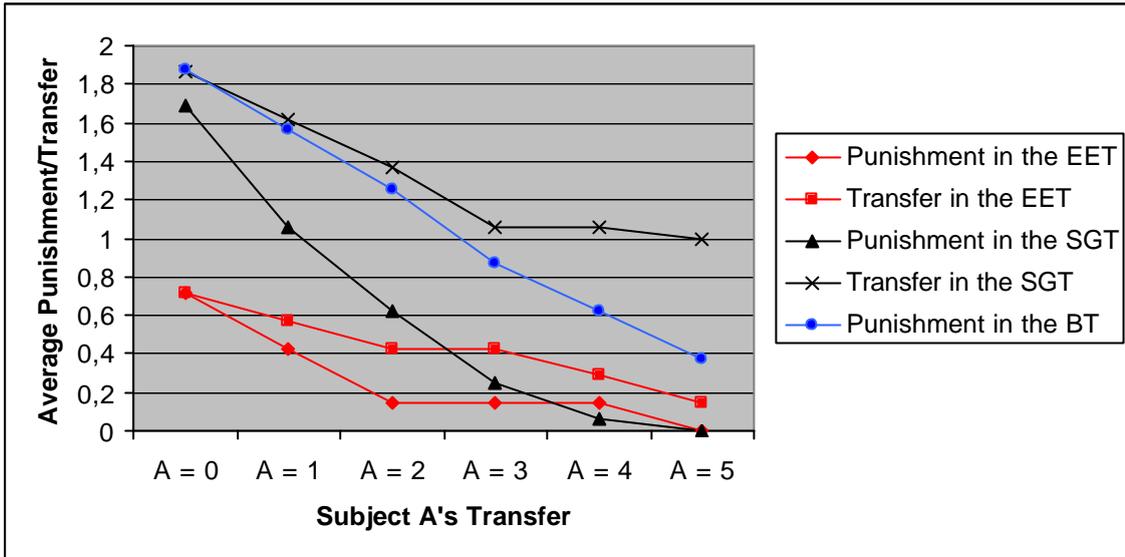
<i>Variables</i>	<i>Punishment</i>	<i>Transfer</i>
Player A's transfer	-0.537*** (0.074)	-0.317*** (0.076)
Solomon	0.388 (0.464)	-
Solomon*Player A's Transfer	-0.444*** (0.134)	-
Endowment	-1.032* (0.531)	-0.985* (0.594)
Endowment* Player A's Transfer	0.287* (0.152)	-0.11 (0.12)
Constant	1.395*** (0.313)	1.596*** (0.431)
n	47	31
T	6	6
N	282	186
Log Likelihood	-244.18884	-213.37292
Sigma_u	1.607***	1.561***
Sigma_e	0.956***	1.099***

\*\*\*significance 1%  
\* significance 10%

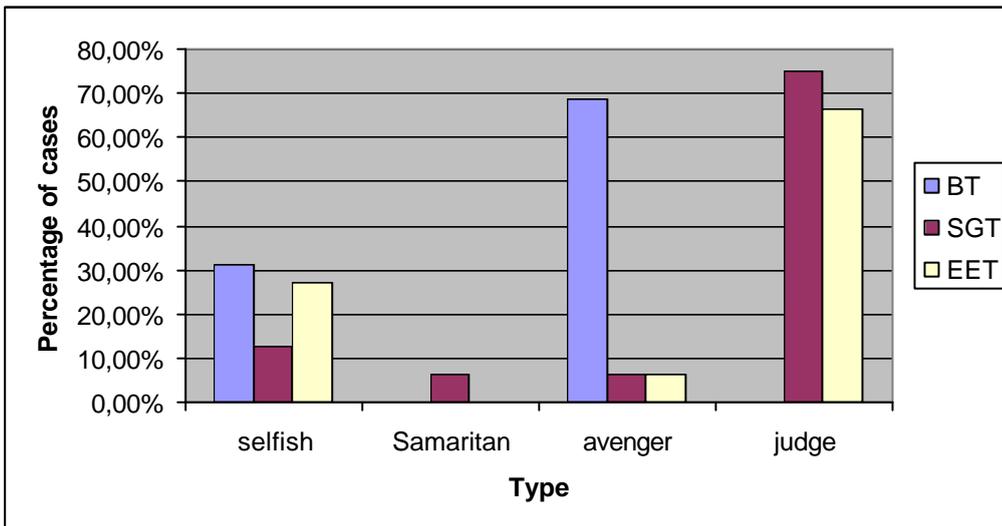
**Table 2. P and T in the SGT and in the EET (Bivariate Probit Model with cluster option)**

<i>Variables</i>	<i>Punishment</i>	<i>Transfer</i>	<i>Marginal Effect (1,1)</i>
Player A's transfer	-0.518*** (0.083)	-0.289*** (0.076)	-0.145*** (0.027)
Endowment	-0.298 (0.346)	-0.69* (0.395)	-0.121 (0.098)
Constant	0.798*** (0.301)	1.135*** (0.362)	
N	186		
Log Likelihood	-182.89875		
Rho	0.637		
Prob > chi2	0.0003		

\*\*\*significance 1%



**Fig. 1 Punishment and Transfer pattern**



**Fig. 2 Observer's behavior**

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