Dipartimento di Politiche Pubbliche e Scelte Collettive – POLIS
Department of Public Policy and Public Choice – POLIS

Working paper n. 86

January 2007

Are people samaritans or avengers?

Stefania Ottone

UNIVERSITA' DEL PIEMONTE ORIENTALE "*Amedeo Avogadro*" ALESSANDRIA

Periodico mensile on-line "POLIS Working Papers" - Iscrizione n.591 del 12/05/2006 - Tribunale di Alessandria

Are people Samaritans or Avengers?

Stefania Ottone

Department of Public Policy and Public Choice – POLIS
University of Eastern Piedmont 'Amedeo Avogadro'
Via Cavour 84 – Alessandria 15100 – Italy
Phone: +39 0131 283715
Fax: +39 0131 283704

Abstract. The aim of this experiment is twofold. First of all, I want to compare the human tendency to punish unfair behavior to the desire to help victims of that unfairness, in presence of a budget constraint and without the expectation of a long-run pecuniary gain. Secondly, I want to check whether players' behavior changes when the initial endowment is earned and not randomly assigned. Our experiment frame is the Solomon's game.

Introduction

In the field of experimental economics the most studied reaction to unfairness is punishment. Experimental studies focused on the behavior of subjects when it is possible to punish whenever a cooperation norm or a redistribution norm is violated represent an important contribution to theories concerning fairness.[1] In particular, the experimental results differ from the theoretical predictions based on a self-interested *Homo Oeconomicus* in two cases. The first case is represented by the second-party punishment (that is, the subject who is the victim of the unfairness can react and punish the agent responsible for the unfairness) in one-shot situations. In such a case no victim should react since the punishment activity will never imply a future gain. The second case is the third-party punishment (a subject who is not the victim can punish the agent responsible for the unfairness). Again, no external observer, according to the theoretical predictions, should punish. However, what the experimental evidence suggests is that both second-party punishment in one-shot games (Güth et al., 1982; Roth, 1995; Camerer and Thaler, 1995; Ledyard, 1995; Fehr and Gächter, 2000; Fehr, 2001; Camerer and Fehr, 2003; Bosman et al., 2005; Falk, Fehr and Fischbacher, 2005) and third-party punishment, called also altruistic punishment[2] (Fehr and Gächter , 2002; Camerer and Fehr, 2003; Fehr and Fischbacher 2004a, 2004b), exist.[3]

Punishment is consistent with social preferences models and Gintis' notion of strong reciprocity too.[4] According to inequity-aversion theories, the cost of punishment is a sacrifice chosen by fair-minded people who want more equitable final outcomes. Intention-based models justify punishment as a reaction to someone's unfair intentions. According to Gintis (2000), a *strong reciprocator* experiences negative emotions (desire of revenge, desire of fighting against injustice, anger) when she faces unfair situations or social norms

[1] The Prisoner's Dilemma and the Public Good Game belong to the first category, while the Ultimatum Game, the Third Party Punishment Game and the Power to Take Game belong to the second type. For a survey see Fehr (2001), Camerer and Fehr (2003).
[2] This definition is due to the fact that this activity implies only a cost for the Observer and no gain (Fehr and Gächter , 2002).
[3] Fehr and Fischbacher (2004a) and Carpenter and Matthews (2005) compare second party punishment to third party punishment. They find out that the former reports a stronger reaction to unfairness than the latter.
[4] See paper 1 for a description in detail.

violations, and she is willing to sacrifice resources to punish unfairness and violation of norms, even when this does not provide any current or future material reward.[5]

In this experiment I consider that an external observer, who is witness to an unfair situation and who can intervene, can resist unfairness not only by punishing the oppressor, but also by helping the victim.

A large literature assumes that altruism is the explanation of the tendency to help people (i.e. Becker, 1974; Charness and Rabin, 2002[6]). In models based on altruism, the altruist's utility increases as others' well-being increases. However, studies on volunteering and donations point out that it is relevant to distinguish between altruistic behavior and altruistic motivations.[7] The possibility that different motivations may be hidden behind an altruistic action has been taken into account both theoretically (Menchik and Weisbrod, 1987; Andreoni 1989, 1990; Frey, 1997) and empirically (Freeman, 1997; Van de Ven, 2000, Schokkaert, 2003).

On the other hand, the activity of helping the victim is less studied in the experimental literature, which prefers to deal with: 1) testing the existence of altruistic behavior (i.e.Andreoni and Miller, 2002); 2) testing altruism against trust or inequity aversion (i.e. Bolton et al., 1998; Cox et al., 2004); 3) finding an incentive scheme that maximises the revenue coming from donations (i.e. Meier and Frey, 2004; Small and

[5] A case that underlines the importance of the role played by culture in people's behavior is the situation where subjects make a decision in a scenario they never faced before. Even if people are able to distinguish between a one-shot and a repeated game, the former is a new situation for them. The idea is that when people face a novel situation, their tendency is to associate it to a well-known daily experience. Consequently, they behave as if they were in the familiar situation, that is, in a repeated game scenario (Henrich et al., 2001). This means that their social and cultural background influences their tendency to punish, and their behavior is a sort of "mirror" of their 'structures of social interaction and modes of livelihood' (p.5).

[6] This refers to the previously mentioned model of *quasi-maximin preferences.*

[7] According to Barker (1993), an altruistic action may be due to three different motivations: instrumentalism, obligation and altruism. Instrumentalism assumes that people decide to help other subjects for pure material (social prestige, Mueller, 1975; Barker, 1993; Roy and Ziemek, 2000; Anheier and Salamon, 2001; allocation of money and personal exploitation of services, Mueller, 1975; Frank, 1988; gain of experience and skills, Mueller, 1975; Barker, 1993; Vaillancourt, 1994; Day and Devlin, 1998; Roy and Ziemek, 2000; Anheier and Salamon, 2001) or psychological self-interest (Bandura, 1977; Barker, 1993). Sociobiological explanations of the presence of altruistic behavior among living beings belong to this category (group selection, Wynne-Edward, 1962; kin-selection, Hamilton, 1964; reciprocal altruism, Trivers, 1971). Obligation is based on the fact that prosocial behavior can be learnt. If a subject's cultural inheritance includes pro-sociality, she will feel morally obliged to behave accordingly. Altruism (for a more detailed survey on this topic, see Ottone, 2002) implies that prosocial behavior may reflect a genuine concern for the situation of someone else. Hoffman (1981), Fishhoff (1982), Deci and Ryan (1985), Batson (1999) believe in the heterogeneity of human forces that induce people to help someone in difficulty, including altruism.

Loewenstein, 2003). To my knowledge, in experimental works helping has never been compared to punishment.

The aim of this experiment is twofold. First of all, I want to compare the human tendency to punish unfair behavior to the desire to help victims of that unfairness, in presence of a budget constraint and without the expectation of a long-run pecuniary gain. Secondly, I want to check whether players' behavior changes – as Güth et al. (1986), Hoffman et al. (1994) and Bosman et al. (2005) showed – when the initial endowment is earned and not randomly assigned. Our experiment frame is a variant on the *third party punishment game* proposed by Fehr and Fischbacher (2004a).

The paper is organized as follows. In section 2 we present the experimental design and the expected results, while section 3 is devoted to the actual results and their interpretation. A comparison of our results with the existing models concerning fairness and altruism is in section 4. Conclusions are presented in section 5. Appendix A contains the instructions.

2. The experiment

From the previous section it may be argued that human beings are inclined to promote fair behavior, punish people who do not respect this principle and help the victims. The real world and the experimental studies (above all the research promoted by Fehr) provide examples.

Up to now the experimental works studied the level of punishment assigned to unfair subjects with respect to the degree of unfairness and with respect to the relationship existing between the unfair subject and the punisher. In particular, they concentrate 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, 2004a). Our research tries to give a contribution in this direction and to give, at the same time, new inputs. First of all, we want to make the analysis by Fehr and Fischbacher (2004a) more complete. They ran Third Party Punishment Game experiments where the initial endowment of the Dictator is twice the initial endowment of the Observer. This allows different hypotheses to explain why the Observer punishes the Dictator. In our *Baseline Treatment*, we run a Third Party Punishment Game experiment where the Dictator

and the Observer have the same initial endowment. Secondly, we analyze the external observers' tendency to punish unfair people and their tendency to help the victims, in presence of a budget constraint. This is why in our *Solomon's Game Treatment* the players can not only punish unfair people but also help those individuals who are the victims of that unfairness. Finally, in the *Endowment Effect Treatment,* we check for an eventual influence of the way people receive their initial endowment on their behavior. In particular, we analyse how players behave when their initial endowment is earned and not received as manna from heaven.

2.1 Experimental Design

The experiment has been run in the laboratory of experimental economics ALEX at the University of Eastern Piedmont in Alessandria[8], using the *z-Tree* software (Fischbacher, 1999). Overall, we have run 2 sessions for each treatment, with a total of 141 participants (48 participants both in the *Baseline Treatment* and in the *Solomon's Game Treatment*, 45 in the *Endowment Effect Treatment*).

2.1.1 The Baseline Treatment (*BT*)

The tool was the original *Third Party Punishment Game* proposed by Fehr and Fischbacher (2004). In particular, each round included two stages. In the first stage couples of players were formed. In each couple the subjects played a *Dictator Game*. Player A was a Dictator and player B was a Receiver. Player A had to decide how to allocate a sum between player B and herself. Player B couldn't react to any decision made by A. In the second stage new subjects (players C) entered the game. Each new player was assigned to one of the couples that had played in the first stage. She was an Observer and had an endowment. Her task was to decide how to use that endowment. She could either spend money to sanction[9] A (each euro spent to punish A produced a sanction of 2 euro) if she thought the Dictator had been too unfair or keep the whole sum.

[8] The program has been written by the programmer of the laboratory, Dr. Bissey.
[9] In real life, costs associated to punishing may include 'the risk of retaliation or at least the potential loss of relationship, the loss of time or money, emotional tensions' (Fehr and Fischbacher, 2004b, p.186).

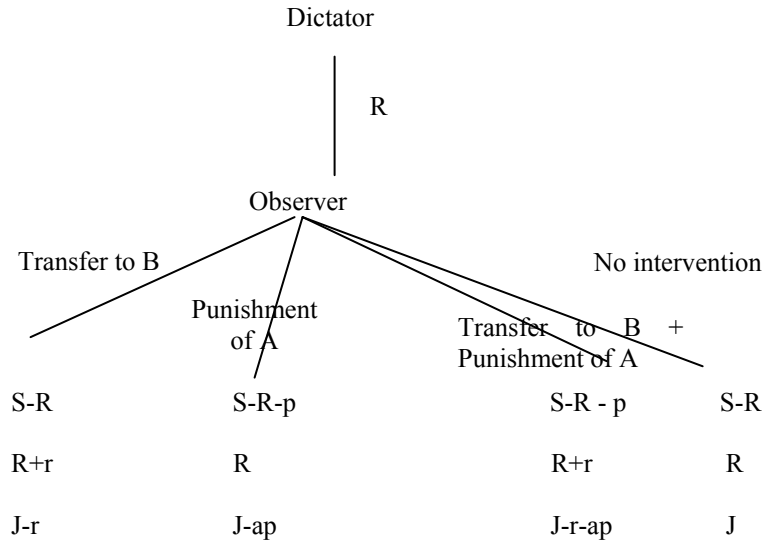
At the beginning of the first stage each player was randomly assigned a role (A, B or C) and 8 groups of 3 participants were formed. A and C's initial endowment was the same (10 euro) and the cost of one euro of punishment for player A was 0.5 euro for player C.

2.1.2 The Solomon's Game Treatment (*SGT*)

Our tool was a variant on the *Third Party Punishment Game* that we call *Solomon's Game* (*SG*). The difference is that in the *SGT* the Observer could: 1) transfer money to B if she thought the Receiver had received from A an unfair sum; 2) spend money to sanction A (each euro spent to punish A produced a sanction of 2 euro) if she thought the Dictator had been too unfair; 3) both punish A and transfer money to B; 4) keep the whole sum. The situation is represented in Figure 1.

Figure 1.

Solomon's Game



Where:

S = sum to be allocated

R = sum that A transfers to B

J = C's initial endowment

p = sanction decided by C

r = sum that C transfers to B

a = cost of each single unit of punishment

As in the *BT*, at the beginning of the first stage each player was randomly assigned a role (A, B or C) and groups of 3 participants were formed. A and C's initial endowment was 10 euro and the cost of one euro of punishment for player A was 0.5 euro for player C.

2.1.3 The Endowment Effect Treatment (*EET*)

The tool was again the Solomon's Game, but, in this case, participants had to earn their initial endowment. At the beginning of each session we asked people to solve some jaws for 15 minutes. When time was over, we collected their works and we assigned them a score on the basis of the games they had correctly solved.[10] Two thirds of the players (those who obtained the highest scores) earned 10 Euro and where assigned the role of either Player A or Player C in the second stage. The others (the 'loosers') started the second stage of the treatment with no money and where assigned the role of Player B.

At the beginning of the experiment, participants were informed about the sequential form of the game. Each player participated in only one session and partnered players' identities were unknown even when the session ended. We implemented the strategy method[11] at the Observer's stage in order to analyse subjects' behavior in details. In fact, when we ran some 'exploratory' sessions, we realized that we had very few responses of the Observer to certain transfer levels.[12]

Each session of the *BT* and of the *SGT* lasted about 45 minutes, while each session of the *EET* lasted about 70 minutes. Each subject earned on average 5.86 Euro.

2.2 Expected results

[10] Participants knew from the beginning the score assigned in each game to a correct solution.

[11] When the strategy method is used, players are asked their choice for each possible case. The final payoff is determined on the basis of the situation that actually occurs.

[12] Fehr and Fischbacher (2004a) too opted for the strategy method. They knew the possibility that people act in a different way when the strategy method is implemented with respect to a situation where they act after an actual choice is made by the opponents. However, they trust the conclusion by Cason and Mui (1998) and Brandts and Charness (2000) that the strategy method does not induce different behaviors.

By backward induction, we obtain that, both in the Third Party Punishment Game and in the Solomon's Game, in equilibrium, player C would have never punished player A, and player A would have kept the whole sum.

Rational and self-interested Observers would find it profitable neither to punish nor to transfer money to the other players. This directly turns out from the structure both of the *Third Party Punishment Game* and of the *Solomon's Game*. Consequently, if people punished only for strategic and self-interested motivations they would not punish in this case. If subjects decide to punish or to transfer it may be due to social and emotional factors, such as the desire for equity, the desire to help other people and the feeling of anger toward those people who are unfair.

Our sample may be made up of people with heterogeneous preferences. This means that the subjects will belong to two groups: some of them may be self-interested and their only aim will be the maximization of their own payoff, while other subjects will be fair-minded or altruist and, consequently, they will be interested in others' payoffs. The former will keep the whole sum, no matter how the Dictators behave. The latter will react to unfairness.

Taking account of the discussion of the previous sections and of the results obtained by Fehr and Fischbacher (2004a), Güth et al. (1986), Hoffman et al. (1994) and Bosman et al. (2005), my expected results were:

1) players have heterogeneous preferences;
2) the level of the intervention is proportional to the unfair offer of the Dictator;
3) when resources are not randomly distributed, the level of intervention is lower.

We did not have any expectation about the role played by the Observer's transfer. In particular, we did not know whether it is a substitute or a complement of punishment.

3. Results and interpretation of the experimental evidence

In this section we analyse the results of the experiment. In particular, we focus on the Observers' behavior, on the Dictators' decisions and on players' beliefs. Each subsection is devoted to one of this class of results.

3.1 Third Party Intervention

Result 1. The actual behavior of the Observers disconfirms the classical hypothesis that they are only self-interested.

In all the treatments, at each Dictator's transfer level below 5[13] there is a relevant percentage of Observers who decide to punish (see Table 1 and Figure 2). Both in the *SGT* and in the *EET* a high percentage of Observers decide to transfer money to the Receiver even when the transfer level is 5 (see Table 2 and Figure 3). Observers' punishment differs significantly from 0 at each level below 5 in the *BT* (Wilcoxon signed rank test, $P < 0.04$), at levels 0-3 in the *SGT* (Wilcoxon signed rank test, $P < 0{,}08$) and at levels 0-1 in the *EET* (Wilcoxon signed rank test, $P < 0{,}009$). The Observers' transfer both in the *SGT* and in the *EET* differs significantly from 0 at each level (Wilcoxon signed rank test, $P < 0.01$ in the *SGT* and $P < 0.09$ in the *EET*).

Table 1 – Punishment distribution

	When the Dictator transfers …					
Percentage of punishers in …	**0**	**1**	**2**	**3**	**4**	**5**
BT	62%	69%	56%	50%	43%	25%
SGT	81%	62%	44%	19%	6%	0%
EET	77%	55%	29%	16%	10%	3%

[13] Since the initial endowment of the Dictator was 10 euro, we consider each transfer below 5 unfair.

Figure 2

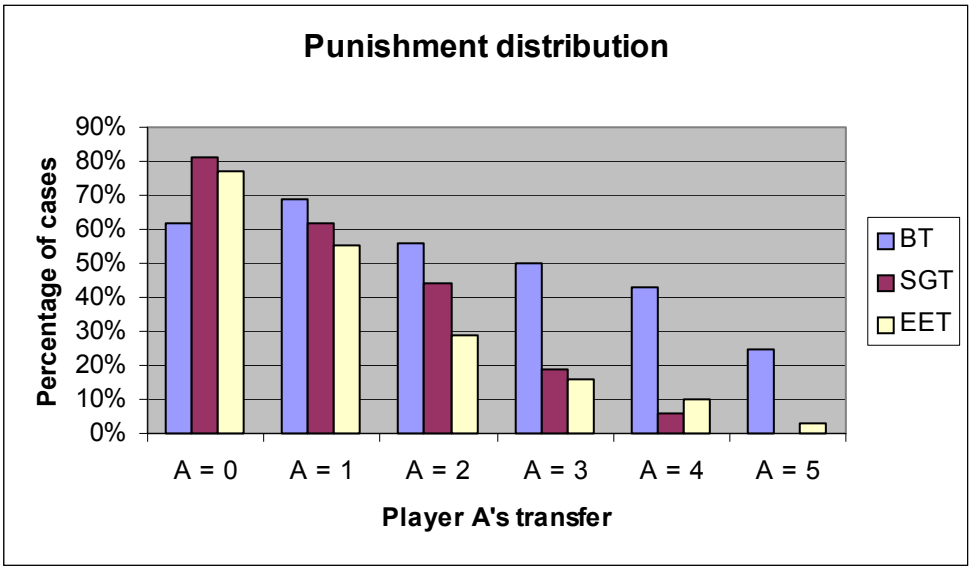
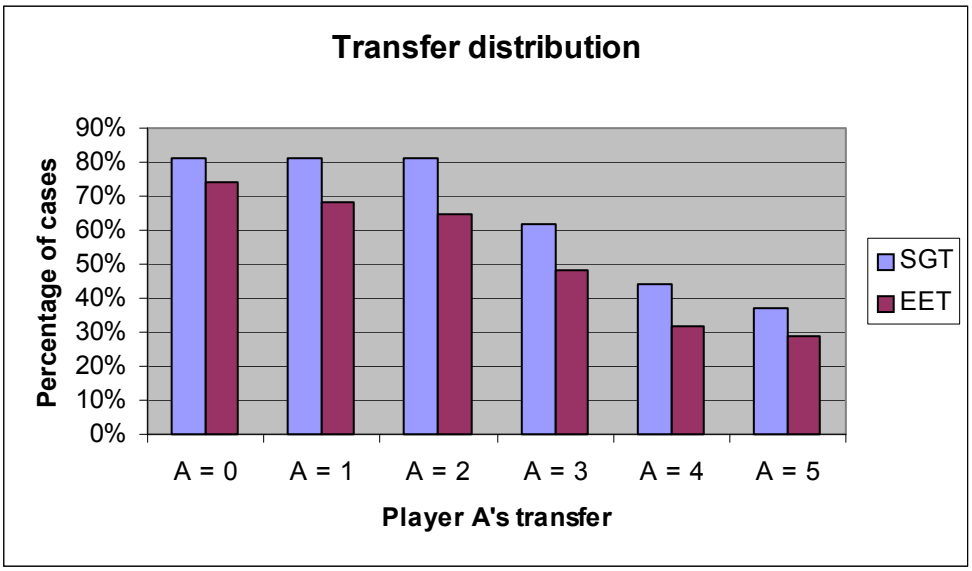


Table 2 –Transfer distribution

	When the Dictator transfers …					
Percentage of Player Cs who transfer in …	**0**	**1**	**2**	**3**	**4**	**5**
SGT	81%	81%	81%	62%	44%	37%
EET	74%	68%	65%	48%	32%	29%

Figure 3



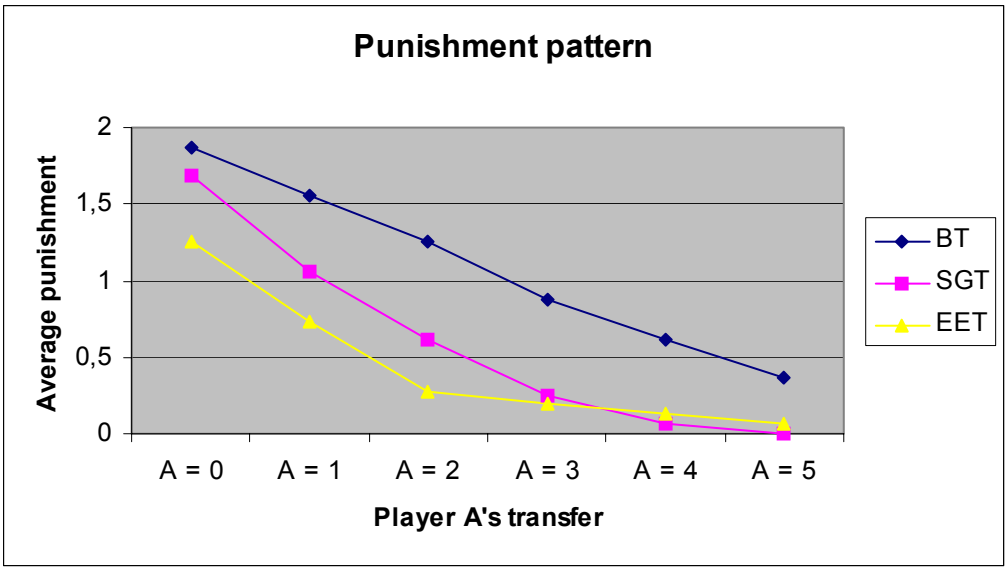
Result 2. In every treatment, both the Observers' average punishment and average transfer increase as the Dictators' transfer decreases.

The increasing level of punishment (see table 3 and Figure 4) when unfairness increases is in line with the results of other experiments (see for instance Fehr and Fischbacher, 2004a; Bernhard, 2005).

Table 3 – Average Punishment

	When the Dictator transfers …					
Average Punishment in …	**0**	**1**	**2**	**3**	**4**	**5**
BT	1.87	1.56	1.25	0.87	0.62	0.37
SGT	1.69	1.06	0.62	0.25	0.06	0
EET	1.26	0.73	0.27	0.2	0.13	0.07

Figure 4



A random effects Tobit regressions (see Table 4) of punishment on the Dictator's transfer confirms the relation between the level of punishment and the degree of unfairness in all the treatments ($P < 0.001$).

Table 4. P and T (Random Effect Tobit Model)

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

*****significance 1%**

**** significance at 5%**

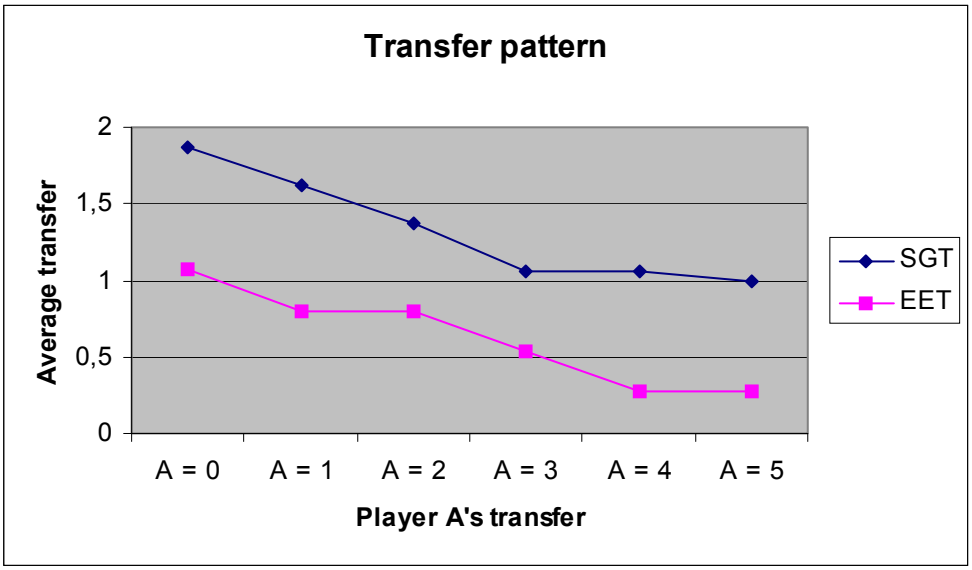
*** significance at 10%**

As for punishment, high levels of unfairness imply high levels of transfer (see table 5 and Figure 5). This may support that helping the victim is another kind of reaction to unfairness.

Table 5 – Average Transfer

	When the Dictator transfers …					
Average Transfer in …	**0**	**1**	**2**	**3**	**4**	**5**
SGT	1.87	1.62	1.37	1.06	1.06	1
EET	1.07	0.8	0.8	0.53	0.27	0.27

Figure 5



Regressing the Observer's transfer on the variable *Player A's transfer* we find a significant ($P < 0.001$) and negative (-0.32) coefficient.

Result 3. The Observers' transfer seems to be complementary to punishment at high levels of unfairness and substitute at low levels of unfairness.

When we add the possibility for the Observer to transfer money to the Receiver, two cases may occur. The transfer may be either a complementary good of the punishment or a substitute. If we run a bivariate probit, we find out that the probability to punish is related to the probability to transfer (see Table 6).

Table 6. P and T in the *SGT* and in the *EET* (Bivariate Probit Model with cluster option)

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

*****significance 1%**

**** significance at 5%**

*** significance at 10%**

If we run a Spearman correlation test in the *SGT* to analyse a possible correlation between punishment and transfer (see Figure 6), we find out that they are significantly correlated at levels 0 and 1 (P = 0.054 and P = 0.051 respectively), but not at levels from 2 to 5 (P > 0.13). A similar situation emerges in the *EET* (see Figure 7). Punishment and Transfer are significantly correlated at levels 0 and 1 and 3 (P = 0.000, P = 0.000 and P = 0.046 respectively), but not at levels 2, 4 and 5 (P > 0.12).

Figure 6

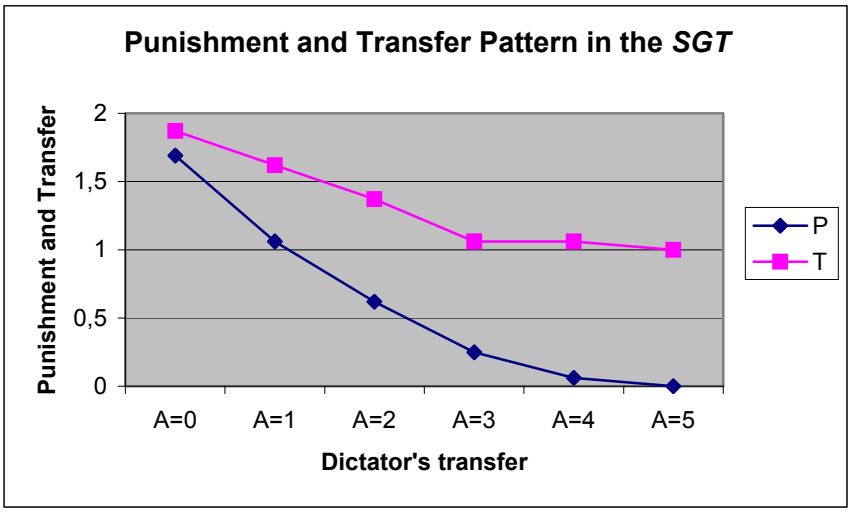
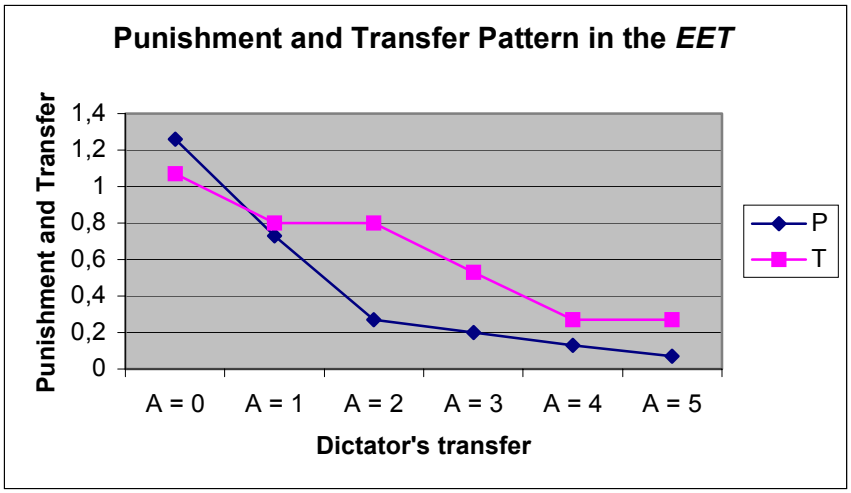
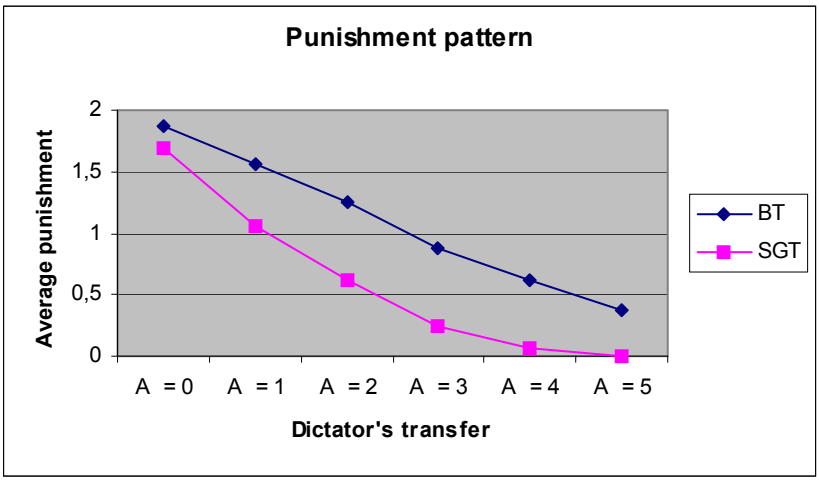


Figure 7



If we compare the Observers' punishment in the BT and in the SGT[14], we find out that in the *BT* punishment is higher than in the *SGT* at each level of the Dictator's transfer (see Figure 8).

Figure 8



We conduct the Mann-Whitney test to check whether this difference is significant. The result is that punishment in the *BT* is significantly higher than in the *SGT* at levels 3-5 ($P < 0.05$).

The fact that punishment and transfer in the *SGT* are correlated where the difference between punishment in the *BT* and in the *SGT* is not significant, may imply that, when the Dictator is extremely unfair, the Observer's reaction is bi-directional: a combination of punishment and transfer is used. When unfairness is not extreme, the Observer prefers helping the victim rather than punishing the Dictator. To sum up, at high levels of unfairness transfer does not crowds out punishment (punishment does not differ significantly in both treatments and punishment and transfer are correlated in the *SGT*), while at low levels of unfairness people substitute punishment with helping if they can (punishment is significantly higher in the *BT*).

This may be supported also by the fact that in the random effect Tobit regression, punishment decreases as effect of the interaction between Player A's transfer and the

[14] We do not consider the comparison between the BT and the EET because any difference would be due not only to the possibility for the Observer to transfer money to the Receiver, but also by the fact that now players have to earn their initial endowment.

possibility for Player C to transfer money to Player 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 Player A's transfer rises, punishment falls towards zero, and it falls faster when the Solomon's Game is played.[15]

However, this point needs further inquiry and we should develop a structural model to study the link between punishment and transfer.

Result 4.The fact that players' endowment is not randomly assigned but earned modifies the notion of fairness.

When players are not randomly given their endowment, but they have to earn it, player C's both punish and transfer less than in the *SGT*. This is confirmed by the random effect Tobit regression, but the bivariate probit reports only a significant lower probability to transfer in the *EET*. This may imply that the earned endowment affects the level of punishment and transfer and the probability to transfer, but not the probability to punish.

Another difference between the *SGT* and the *EET* concerns Player A's expectations. When we test a possible correlation between the Dictator's transfer and her expectation about the Observer's transfer, we find out that they are not significantly correlated (Spearman correlation test, P = 0.78) in the *SGT*, while they are significantly correlated (P = 0.04) in the *EET*. This may imply that, when resources are not randomly distributed but they depend on people's performance, solidarity is conditional. However, this explanation is not coherent with the fact that the Observer's transfer decreases as the Dictator's transfer increases. This last point deserve further inquiry.

[15] Another possible explanation is that punishment is significantly higher in the *BT* because, when the Observer can transfer money to the Receiver, he thinks that the pie is not 10 euro but 20 euro (the sum of the Dictator's and of the Observer's endowment). If the Observer thinks, for example, that she has to share with the Dictator the duty to give money to the Receiver, the Receiver's fair payoff is 20/3 and the Dictator fair transfer is about 3. At a first sight, it seems not to be the case, since the Observer's average transfer when the Dictator's transfer is 3 is only 1.06 in the *SGT* and 0.53 in the *EET* (see Table 5). Moreover, when we compare the Observers' ideal transfer in the *BT* (2.56), in the *SGT* (2.81) and in the *EET* (1.93), we find out that they are not significantly different (Kruskal-Wallis test, P = 0.15). The same result is confirmed by a Tobit regression where the dependent variable is the Dictator's transfer and the regressors are the dummies for the *SGT* (P = 0.74) and for the *EET* (P = 0.26). This means that the Observer reference point of fairness is not influenced by the possibility to transfer to the Receiver (as well as by the fact that the initial endowment is earned). In fact, if the opposite were true, in the *BT* the ideal transfer should be close to 5 while in the *SGT* and in the *EET* it should be close to 3.

Result 5. People's preferences are heterogeneous.

Our hypothesis that subjects have heterogeneous preferences is supported by the data. If we analyse our fourty-seven Observers' behavior, we have eleven selfish players and thirty-six fair-minded individuals. According to their different intervention decisions, it is possible to identify (see Table 7 and Figure 9) four different types (and no residual category) that we label:

-*Selfish*: an Observer who never intervenes;

-*Samaritan*: an Observer who only transfers to the Receiver when she intervenes;

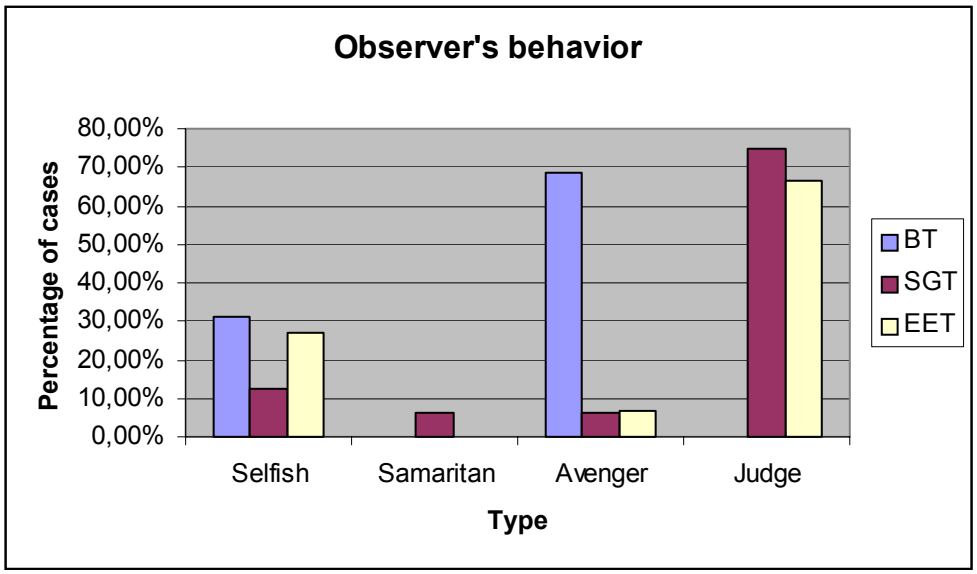
-*Avenger*: an Observer who only punishes when she intervenes;

-*Judge*: a subject who chooses a combination of punishment and transfer when she intervenes.

Table 7. Types

TYPES				
	Selfish	**Samaritan**	**Avenger**	**Judge**
BT	31.25% (5 out of 16)	-	68.75% (11 out of 16)	-
SGT	12.5% (2 out of 16)	6.25% (1 out of 16)	6.25% (1 out of 16)	75% (12 out of 16)
EET	27% (4 out of 15)	0% (0 out of 15)	6.5% (1 out of 15)	66.5% (10 out of 15)

Figure 9



The change we made in the original version of the *Third Party Punishment Game* (by introducing the possibility for the Observer to help the Receiver) is useful since it 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 injustice is strong. In the *SGT* thirteen Observers over sixteen decide to transfer money to the Receiver. One of them decides only to transfer without judging and punishing an unfair Dictator. In the *EET* ten Observers over fifteen transfer money to the Receiver. This may signify that the desire of revenge and punishment is not the only emotion stimulated by people's sense of justice. People care about the condition of the victims. If we do not allow the Observers to transfer money to the Receivers, we miss this information. In the *BT* the Observers are either Selfish or Avengers. Actually, some Selfish may be Samaritans and most Avengers may be Judges. This is and important result. It implies that, up to now, all the experiments dealing with the behavior of an external player who faces an unfair situation, actually ignore a relevant aspect.

3.2 The Dictator's Transfer

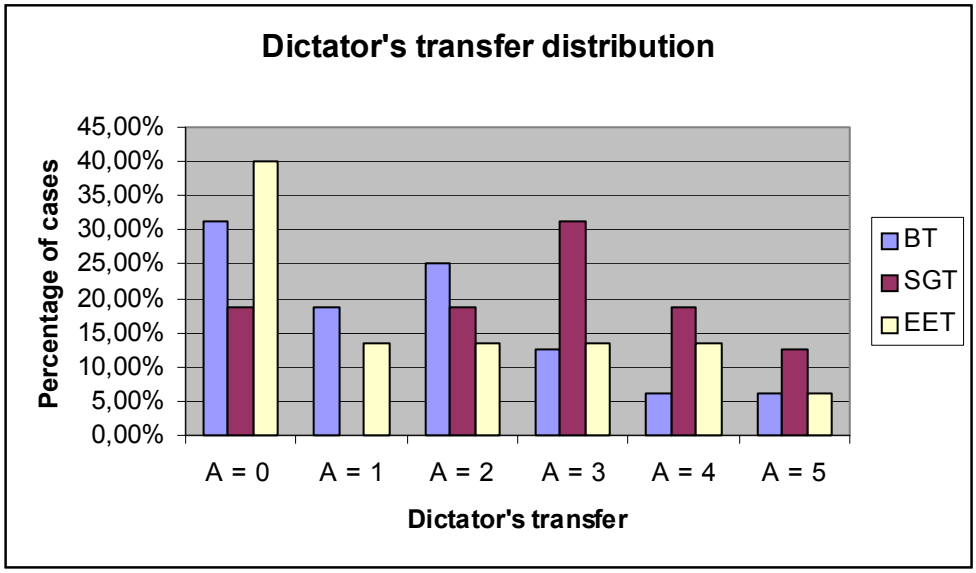
Result 6. The actual behavior of the Dictators disconfirms the classical hypothesis that they will keep the whole sum.

About 68.75% of the Dictators in the *BT,* 81% in the *SGT* and 60% in the *EET* give more than nothing to their assigned Receiver (see Figure 10 and Table 8). These transfers differ significantly from 0 (Wilcoxon signed rank test, P = 0,001 in the *BT,* P = 0.000 in the *SGT* and P = 0.003 in the *EET*).

Table 8 – Dictators' Transfer distribution

	Dictator's transfer					
Percentage of cases in …	**0**	**1**	**2**	**3**	**4**	**5**
BT	31.25%	18.75%	25%	12.5%	6.25%	6.25%
SGT	18.75%	0%	18.75%	31.25%	18.75%	12.50%
EET	40%	13.5%	13.5%	13.5%	13.5%	6%

Figure 10



Two possible motivations may explain this result. It may be possible that some Dictators are fair-minded and they decide to give some money to the Receiver. On the other hand, it may be possible that a self-interested Dictator decides to transfer a sum that is high enough to avoid punishment. If this is the case, the classical theory fails again: punishment is a credible threat. The average transfer from the Dictator to the Receiver is 1.62 in the *BT*, 2.69 in the *SGT* and 1.67 in the *EET*. From a Kruskall-Wallis test it turns out that there is no significant difference (P = 0.13).

4. Comparison with social preferences theories

As we mentioned in the introduction, social preferences theories, where subjects take into account not only their own material payoff but also others' payoffs, have been developed. To what extent are these theories suitable to explain the results obtained in our 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) suggests that people care about their position relative to one another. In our experiment the fair share should be 1/3 of the total endowment, that is, each player should have 20/3. Actually, with an initial endowment of

10, the Observer has ½ of the total endowment. Consequently, she should be willing to decrease her material payoff. However, punishment increases the share of the Observer, because reducing the Dictator's payoff by 2 costs only 1. Suppose that the Observer spends 2 euro to punish the Dictator. The total payoff is now 14 and the Observer's payoff is 8, that is, 2/7 (> ½) of the total. The only possible solution for the Observer is to transfer money to the Receiver until her own payoff corresponds to the fair share. This model may explain the behavior of the *Samaritans*, but not the behavior of the *Judges* or the *Avengers* that represent the majority.

The model by Fehr and Schmidt (1999) can usually predict third party punishment and transfers to worse-off subjects. Fehr and Schmidt assume that subjects are self-centred inequity averse and, consequently, they are willing to spend money to decrease the payoff of people who are better-off and to increase the payoff of people who are worse-off. In our experiment, if the Dictator keeps the whole initial endowment, her payoff is equal to the payoff of the Observer and there would be no reason for the third party to punish someone who is as rich as her. At the same time, it would not be profitable to transfer money to the Receiver because it creates a disadvantageous inequality for the Observer. If the Dictator transfers any sum to the Receiver, her payoff is always lower than the Observer's. The *Revenger's* and the *Judge's* behavior are not consistent with the model by Fehr and Schmidt since there is no outcome-oriented reason to punish the worse-off Dictator. On the other hand, the *Samaritan's* behavior may be explained if the Observer transfers to the Receiver an amount smaller or equal to what the Dictator has sent.

The intention-based reciprocity models by Rabin (1993) and Dufwenbeg and Kirchsteiger (2004) can predict neither third-party punishment nor third-party transfer. They are based on the assumption that the Dictator is only punished if she is unkind to the Observer and the Receiver only receives a transfer if she is kind to the Observer. None of our types is explained by these models.

The model by Falk and Fischbacher (2000) and the DASM model by Kohler (2003) have the same predictable power as the model by Fehr and Schmidt.

The hybrid model (social welfare concern + reciprocity) developed by Charness and Rabin (2002) may explain all our types. Punishment is the Observer's reaction to the Dictator's misbehavior, while transfer comes from the quasi-maximin principle, according

to which the Observer transfers money to the Receiver to improve the condition of the poorer player.

As I showed in my Ph.D. thesis, a non-self-centred model of inequity-aversion may predict all types.

5. Summary and conclusions

The aim of this experiment is twofold. First of all, I want to compare the tendency to punish unfair behavior and the desire to help victims of that unfairness, in presence of a budget constraint and without the possibility for a long-run pecuniary gain. My research tool is a variant of the *Third Party Punishment Game* that we call *Solomon's Game.* While in the original version of the game the external Observer was only allowed to punish the Dictator, in our new version we introduce the possibility for the Observer to transfer money to the Receiver. Secondly, I want to check whether players' behavior changes when the initial endowment is earned and not randomly assigned. Our experiment frame is the Solomon's game.

My expected results are mostly confirmed. In particular:

1) players have heterogeneous preferences. The introduction of the *Solomon's Game* makes it possible to identify four different 'Types';

2) the level of intervention depends on the unfair offer of the Dictator;

3) when resources are not randomly distributed, the level of intervention is lower;

4) when we compare our results with the existing social preferences models, we find out that the hybrid model by Charness and Rabin has a good predictable power, while the model by Fehr and Schmidt fails to explain several choices of half players. As I showed in my Ph.D. thesis, a non-self-centred model of inequity-aversion may predict all types.

Concerning the role played by the Observer's transfer, the most interesting result is that the possibility for the Observer to transfer money to the Receiver allows to better understand people's reaction to unfairness. This is, in my opinion, the new real input of this experiment. From our analysis it seems that the Observers' transfer is complementary to punishment at high levels of unfairness and substitute at low levels of unfairness.

Several results deserve a further inquiry. First of all, it would be interesting to deeply study the relation between transfer and punishment.

Another interesting point to analyse in detail is the effect of the intervention cost. We ran some pilots where both punishment and transfer were free for the Observer. The effect was that, for each level of the Dictator's transfer, the Observers intervened (by punishing and transferring) more. The idea is that intervention reflects prosociality. This is a sort of ordinary good, whose demand increases as its price decreases.

Appendix A

Instructions for the *Baseline Treatment*

FIRST SCREEN. Welcome to the experiment and thank you for participating. There are neither difficulties nor tricky questions. You are only required to follow the instructions that will appear on your screen. Your answers will be absolutely anonymous. It will not be possible to the experimenter to match the answers with the person who provided them. Silence during the experiment is required.

SECOND SCREEN. The experiment involves three different participants (referred to as Player A, Player B and Player C) and it is made up by two stages. At the beginning of the first stage, you will be randomly assigned a role (A, B or C) and a group. No participant will know the identity of the partnered subjects.

FIRST ROUND. Players A and B have to share 10 euro. In particular, subject A has an initial endowment of 10 euro and has to decide whether to transfer 0, 1, 2, 3, 4 or 5 euro to the Receiver. Subject B has an initial endowment of 0 euro and cannot react to any decision taken by A.

SECOND ROUND. Player C has an initial endowment of 10 euro. Her task is to decide how to use those 10 Euro. She can: 1) spend money to reduce A's payoff (each euro spent by C to reduce A's payoff reduces A's payoff of 2 euro); 2) keep the whole sum.

To sum up, she is allowed to allocate her 10 euro as she wants as soon as: 1) the sum of the euro that C uses to reduce A's payoff and that C keeps is equal to 10; 2) the sums that C allocates are in whole euro (C cannot transfer eurocent).

Player C is asked to declare how much she would spend to reduce A's payoff if A's transfer is 0, 1, 2, 3, 4 or 5 euro. The final pay-off is computed on the basis of A's actual transfer to B.

THIRD SCREEN. To be sure that you have understood, check if it is clear that:

- If A decides to transfer 2 euro to B and C decides to pay 2 euro to reduce A's payoff, A will earn 4 euro, B 2 euro and C 8.
- If A decides to transfer 2 euro to B and C decides to keep the 10 euro, A will earn 8 euro, B 2 euro and C 10.

FOURTH SCREEN. More generally, it should be clear that:

- each euro that C spends to reduce A's payoff decreases A's gain by the amount of 2 euro.

FIFTH SCREEN. Before the experiment can begin, you will be asked some control questions, to check whether you have understood the rules. The experiment will begin as soon as every participant has successfully answered all control questions.

The following screens display the control questions and the real sessions.

Instructions for the *Solomon's Game Treatment*

FIRST SCREEN. Welcome to the experiment and thank you for participating. There are neither difficulties nor tricky questions. You are only required to follow the instructions that will appear on your screen. Your answers will be absolutely anonymous. It will not be possible to the experimenter to match the answers with the person who provided them. Silence during the experiment is required.

SECOND SCREEN. The experiment involves three different participants (referred to as Player A, Player B and Player C) and it is made up by two stages. At the beginning of the first stage, you will be randomly assigned a role (A, B or C) and a group. No participant will know the identity of the partnered subjects.

FIRST ROUND. Players A and B have to share 10 euro. In particular, subject A has an initial endowment of 10 euro and has to decide whether to transfer 0, 1, 2, 3, 4 or 5 euro to the Receiver. Subject B has an initial endowment of 0 euro and cannot react to any decision taken by A.

SECOND ROUND. Player C has an initial endowment of 10 euro. Her task is to decide how to use those 10 Euro. She can: 1) transfer money to B; 2) spend money to reduce A's payoff (each euro spent by C to reduce A's payoff reduces A's payoff of 2 euro); 3) both reduce A's payoff and transfer money to B; 4) keep the whole sum.

To sum up, she is allowed to allocate her 10 euro as she wants as soon as: 1) the sum of the euro that C uses to reduce A's payoff, that C transfers to B and that C keeps is equal to 10; 2) the sums that C allocates are in whole euro (C cannot transfer eurocent).

Player C is asked to declare how much she would transfer to B and spend to reduce A's payoff if A's transfer is 0, 1, 2, 3, 4 or 5 euro. The final pay-off is computed on the basis of A's actual transfer to B.

THIRD SCREEN. To be sure that you have understood, check if it is clear that:

- if A decides to transfer 2 euro to B and C decides to transfer 1 euro to B, A will earn 8 euro, B 3 euro and C 9.
- If A decides to transfer 2 euro to B and C decides to pay 2 euro to reduce A's payoff, A will earn 4 euro, B 2 euro and C 8.

- If A decides to transfer 2 euro to B and C decides to transfer 3 euro to B and to pay 1 euro to reduce A's payoff, A will earn 6 euro, B 5 euro and C 6.
- If A decides to transfer 2 euro to B and C decides to keep the 10 euro, A will earn 8 euro, B 2 euro and C 10.

FOURTH SCREEN. More generally, it should be clear that:
- each euro that C transfers to B increases B's gain by the amount of 1 euro;
- each euro that C spends to reduce A's payoff decreases A's gain by the amount of 2 euro.

FIFTH SCREEN. Before the experiment can begin, you will be asked some control questions, to check whether you have understood the rules. The experiment will begin as soon as every participant has successfully answered all control questions.

The following screens display the control questions and the real sessions.

Instructions for the *Endowment Effect Treatment*

FIRST SCREEN. Welcome to the experiment and thank you for participating. There are neither difficulties nor tricky questions. You are only required to follow the instructions that will appear on your screen. Your answers will be absolutely anonymous. It will not be possible to the experimenter to match the answers with the person who provided them. Silence during the experiment is required.

SECOND SCREEN. The experiment is made up by two stages. In the first stage, you will be asked to carry out a task to earn your initial endowment you will use in the second stage. The rules to employ the earned amount will be explained at the beginning of the second stage.

FIRST STAGE

THIRD SCREEN. Your task is to solve puzzles, anagrams, crosswords and sudokus for a maximum of 15 minutes. Each game will be assigned a score according to the rules illustrated in your paper named 'score rules'. After 15 minutes, you will hand in your work. Two thirds of the participants whose obtain the best score will receive an initial endowment of 10 euro for the second stage. The remaining one third will receive no money. If ties occur, the last paying position will be randomly assigned through draw.

FOURTH SCREEN. In the second stage you will be assigned a role and you will be asked to take some decisions employing your initial endowment you earned in the first stage. This implies that two thirds of the participants will be endowed with 10 euro, while the remaining one third will receive no money.

FIFTH SCREEN. The first stage is going to start. As soon as you receive the paper with the games to solve, you will have 15 minutes to do your best. After 15 minutes, you will hand in your work and the lab assistants will assign a score to each participant. None

of the other participants will ever know either your performance or your score. Moreover, each player will know her/his own initial endowment only after reading the instructions concerning the second stage. None of the other participants will ever know the amount of money you earned in the first stage of the experiment.

SECOND STAGE

SIXT SCREEN

FIRST ROUND. Players A and B have to share 10 euro. In particular, subject A has an initial endowment of 10 euro and has to decide whether to transfer 0, 1, 2, 3, 4 or 5 euro to the Receiver. Subject B has an initial endowment of 0 euro and cannot react to any decision taken by A.

SECOND ROUND. Player C has an initial endowment of 10 euro. Her task is to decide how to use those 10 Euro. She can: 1) transfer money to B; 2) spend money to reduce A's payoff (each euro spent by C to reduce A's payoff reduces A's payoff of 2 euro); 3) both reduce A's payoff and transfer money to B; 4) keep the whole sum.

To sum up, she is allowed to allocate her 10 euro as she wants as soon as: 1) the sum of the euro that C uses to reduce A's payoff, that C transfers to B and that C keeps is equal to 10; 2) the sums that C allocates are in whole euro (C cannot transfer eurocent).

Player C is asked to declare how much she would transfer to B and spend to reduce A's payoff if A's transfer is 0, 1, 2, 3, 4 or 5 euro. The final pay-off is computed on the basis of A's actual transfer to B.

SEVENTH SCREEN. To be sure that you have understood, check if it is clear that:

- if A decides to transfer 2 euro to B and C decides to transfer 1 euro to B, A will earn 8 euro, B 3 euro and C 9.
- If A decides to transfer 2 euro to B and C decides to pay 2 euro to reduce A's payoff, A will earn 4 euro, B 2 euro and C 8.
- If A decides to transfer 2 euro to B and C decides to transfer 3 euro to B and to pay 1 euro to reduce A's payoff, A will earn 6 euro, B 5 euro and C 6.
- If A decides to transfer 2 euro to B and C decides to keep the 10 euro, A will earn 8 euro, B 2 euro and C 10.

EIGHTH SCREEN. More generally, it should be clear that:

- each euro that C transfers to B increases B's gain by the amount of 1 euro;
- each euro that C spends to reduce A's payoff decreases A's gain by the amount of 2 euro.

NINETH SCREEN. Before the experiment can begin, you will be asked some control questions, to check whether you have understood the rules. The experiment will begin as soon as every participant has successfully answered all control questions.

The following screens display the control questions and the real sessions.

REFERENCES

- Andreoni J., 1989, Giving with Impure Altruism: Applications to Charity and Ricardian Equivalence, *Journal of Political Economy,* 97, 1447-58.
- Andreoni J., 1990, Impure Altruism and Donations to Public Goods: a Theory of Warm-glow Giving, *Economic Journal,* 100, 464-77.
- Andreoni J., Miller J., 2002, 'Giving According to GARP: An Experimental Test of the Consistency of Preferences for Altruism', *Econometrica*, 70, 737-53.
- Anheier H.K., Salamon L.M., 2001, Volunteering in Cross-national Perspective: Initail Comparisons, Civil Society Working Paper 10.
- Bandura A., 1977, *Social learning theory,* Englewood Cliffs, Prentice-Hall.
- Barker D.G., 1993, Values and Volunteering, *Volunteering in Europe,* Voluntary Action Research, 2(2), The Volunteer Centre, London.
- Batson C.D., 1999, Two threats to the common good: self-interested egoism and empathy-induced altruism *Personality & Social Psychology Bulletin,* 25(1), 3-14.
- Becker G.S., 1974, 'A Theory of Social Interactions', *Journal of Political Economy,* 82, 1063-93.
- Bernhard H., 2005, 'Third Party Punishment within and across Groups – An Experimental Study in Papua New Guinea', Institute for Empirical Research in Economics, University of Zürich, Preliminary Working Paper.
- Bolton G.E, Katok E., Zwick R., 1998, 'Dictator game giving: Rules of fairness versus acts of kindness', *International Journal of Game Theory,* 27, 269-99.
- Bolton G.E., Ockenfels A., 2000, 'A Theory of Equity, Reciprocity and Competition', *American Economic Review*, 90(1), 166-93.
- Bosman R., Sutter M., van Winden F., 2005, 'The Impact of Real Effort and Emotions in the Power to Take Game', Journal of Economic Psychology, 26, 407-29.
- Brandts J., Charness G., 2000, 'Hot versus Cold: Sequential Responses and Preference Stability in Experimental Games', *Experimental Economics*, 3, 227-38.
- Camerer C., Thaler R.H., 1995, 'Anomalies: Ultimatums, Dictators and Manners', *Journal of Economic Perspectives,* 9(2), 109-220.

- Camerer C.F., Fehr E., 2003, 'Measuring social norms and preferences using experimental games: A guide for social scientists', Institute for Empirical Research in Economics, University of Zürich, Working Paper 97.
- Carpenter J.P., Matthews P.H., 2005. 'Norm Enforcement: Anger, Indignation or Reciprocity?,' IZA Discussion Papers 1583.
- Cason T., Mui V., 1998, 'Social Influence in the Sequential Dictator Game', *Journal of Mathematical Psychology*, 42(2/3), 248-65.
- Charness G., Rabin M., 2002, 'Social Preferences: Some Simple Tests and a New Model', *Quarterly Journal of Economics*, 117(3), 817-69 .
- Cox J.C., Sadiraj K. and Sadiraj V., 2004, 'Implication of Trust, Fear and Reciprocity for Modeling Economic Behavior, Discussion Paper, University of Arizona.
- Day K.M., Devlin R.A., 1998, The Payoff to Work without Pay: Volunteer Work as an Investment in Human Capital, *Canadian Journal of Economics,* 31(5), 1179-91.
- Deci E.L., Ryan R.M., 1985, *Intrinsic Motivation and Self-Determination in Human Behavior,* Plenum Press, New York.
- Dufwenberg M., Kirchsteiger G, 2004, A Theory of Sequential Reciprocity', *Games and Economic Behavior*, 47, 268-98.
- Falk A., Fehr E., Fischbacher U., 2005, 'Driving Forces behind Informal Sanctions', IZA, Discussion Paper 1635.
- Fehr E., 2001, 'Theories of Fairness and Reciprocity: Evidence and Economic Applications', Institute for Empirical Research in Economics, University of Zürich, Working Paper 75.
- Fehr E., Fischbacher U., 2004a, 'Third Party Punishment and Social Norms', *Evolution and Human Behavior*, 25, 63-87.
- Fehr E., Fischbacher U., 2004b, 'Social Norms and Human Cooperation, *Trends in Cognitive Sciences,* 8(4), 185-90.
- Fehr E., Fischbacher U., Gächter S., 2002, 'Strong Reciprocity, human cooperation and the enforcement of social norms', *Human Nature*, 13, 1-25.
- Fehr E., Gächter S., 2000, 'Cooperation and Punishment in Public Good Experiments', *American Economic Review*, 90(4), 980-994.

- Fehr E., Gächter S., 2002, 'Altruistic punishment in humans', *Nature,* 415, 137-140.
- Fehr E., Schmidt K., 1999, 'A Theory of Fairness, Competition and Cooperation', *Quarterly Journal of Economics*, CXIV, 817-51.
- Fishhoff B., 1982, Debiasing in Kahnemann D., Slovic P., Tversky A., *Judgement Under Uncertainty: Heuristics and Biases,* Cambridge University Press, Cambridge.
- Frank R.H., 1988, *Passions within Reason,* W.W. Northon & Company, London.
- Freeman R.B., 1997, 'Working for Nothing: the Supply of Volunteer Labor', *Journal of Labor Economics,* 15(1), 140-66.
- Frey, B.S. (1997), Not Just for the Money, Edward Elgar Publishing Limited, Cheltenham.
- Gintis H., 2000, 'Strong Reciprocity and Human Sociality', *Journal of Theoretical Biology*, 206, 169-79.
- Güth, W., R. Schmittberger, and B. Schwarze, 1982: 'An experimental analysis of ultimatum bargaining', *Journal of Economic Behavior and Organization,* 3(3), 367-88.
- Güth, W., Tietz, R., 1986: 'Auctioning Ultimatum Bargaining Positions', in*Issues in West German Decision Research, R.W. Scholz,* Ed. Frankfurt:Lang.
- Hamilton W.D., 1964, 'The genetical theory of social behavior', *Journal of Theoretical Biology*, 7, 1-52.
- Hoffman M.L., 1981, 'Is Altruism Part of Human nature*?' Journal of Personality and Social Psychology,* 40 (1), 121-37.
- Hoffman E., McCabe K., Shachat K., Smith V., 1994, 'Preferences, Property Rights, and Anonymity in Bargaining Games', *Games and Economic Behavior*, 7(3), 346-80.
- Kohler S., 2003, 'Difference Aversion and Surplus Concern – An Integrated Approach', mimeo.
- Ledyard J., 1995, 'Public Goods: A Survey of Experimental Research', Ch. 2 in: Roth A., Kagel J., *Handbook of Experimental Economics*, Princeton University Press.

- Meier S., Frey B.S., 2004, 'Matching Donations – Subsidizing Charitable Giving in a Field Experiment', Institute for Empirical Research in Economics, University of Zürich, Working Paper 191.
- Menchik P.L., Weisbrod B.A., 1987, Volunteer Labor Supply, *Journal of Public Economics,* 32(2), 159-83.
- Mueller M.W., 1975, Economic Determinants of Volunteer Work by Women, *Signs: Journal of Women and Culture in Society,* 1, 325-38.
- Ottone S., 2002, 'L'altruismo: atteggiamento irrazionale, strategia vincente o amore per il prossimo?', *Economia Pubblica*, 3, 105-21.
- Rabin M., 1993, 'Incorporating Fairness into Game Theory and Economics', *American Economic Review*, 83(5), 1281-1302.
- Roth A.E., 1995, 'Bargaining Experiments', in *Handbook of Experimental Economics*, Kagel J., Roth A.E., Princeton University Press.
- Roy K., Ziemek S., 2000, On the Economics of Volunteering, ZEF Discussion Papers on Development Policy 26.
- Schokkaert E., 2003, The Empirical Analysis of Transfer Motives, Katholieke Universiteit Leuven, Center for Economic Studies, mimeo.
- Small D.A., Loewenstaein G., 2003, 'Helping *a* Victim or Helping *the* Victim: Altruism and Identifiability', *The Journal of Risk and Uncertainty*, 26(1), 5-16.
- Trivers R.L., 1971, 'The evolution of reciprocal altruism', *Quarterly Review of Biology*, 46, 35-7.
- Vaillancourt F., 1994, To Volunteer or Not: Canada, 1987, *Canadian Journal of Economics,* 27(4), 813-26.
- Van de Ven, J., 2000, 'The Economics of the Gift', Discussion Paper 68, Tilburg University, Center for Economic Research.
- Wynne-Edwards V.C., 1962, *Animal Dispersion in Relation to Social Behaviour,* Hafner, New York.

Working Papers

The full text of the working papers is downloadable at http://polis.unipmn.it/

***Economics Series** ****Political Theory Series** **[ε] Al.Ex Series**

2007 n.86[ε] Stefania Ottone: *Are people samaritans or avengers?*

2007 n.85* Roberto Zanola: *The dynamics of art prices: the selection corrected repeat-sales index*

2006 n.84* Antonio Nicita and Giovanni B. Ramello: *Property, liability and market power: the antitrust side of copyright*

2006 n.83* Gianna Lotito: *Dynamic inconsistency and different models of dynamic choice – a review*

2006 n.82** Gabriella Silvestrini: *Le républicanisme genevois au XVIII[e] siècle*

2006 n.81* Giorgio Brosio and Roberto Zanola: *Can violence be rational? An empirical analysis of Colombia*

2006 n.80* Franco Cugno and Elisabetta Ottoz: *Static inefficiency of compulsory licensing: Quantity vs. price competition*

2006 n.79* Carla Marchese: *Rewarding the consumer for curbing the evasion of commodity taxes?*

2006 n.78** Joerg Luther: *Percezioni europee della storia costituzionale cinese*

2006 n.77[ε] Guido Ortona, Stefania Ottone, Ferruccio Ponzano and Francesco Scacciati: *Labour supply in presence of taxation financing public services. An experimental approach*.

2006 n.76* Giovanni B. Ramello and Francesco Silva: *Appropriating signs and meaning: the elusive economics of trademark*

2006 n.75* Nadia Fiorino and Roberto Ricciuti: *Legislature size and government spending in Italian regions: forecasting the effects of a reform*

2006 n.74** Joerg Luther and Corrado Malandrino: *Letture provinciali della costituzione europea*

2006 n.73* Giovanni B. Ramello: *What's in a sign? Trademark law and economic theory*

2006 n.72* Nadia Fiorino and Roberto Ricciuti: *Determinants of direct democracy across Europe*

2006 n.71* Angela Fraschini and Franco Oscultati: *La teoria economica dell'associazionismo tra enti locali*

2006 n.70* Mandana Hajj and Ugo Panizza: *Religion and gender gap, are Muslims different?*

2006 n.69* Ana Maria Loboguerrero and Ugo Panizza: *Inflation and labor market flexibility: the squeaky wheel gets the grease*

2006 n.68* Alejandro Micco, Ugo Panizza and Monica Yañez: *Bank ownership and performance: does politics matter?*

2006 n.67* Alejandro Micco and Ugo Panizza: *Bank ownership and lending behavior*

2006 n.66* Angela Fraschini: *Fiscal federalism in big developing countries: China and India*

2006 n.65* Corrado Malandrino: *La discussione tra Einaudi e Michels sull'economia pura e sul metodo della storia delle dottrine economiche*

2006 n.64[ε] Stefania Ottone: *Fairness: a survey*

2006 n.63* Andrea Sisto: *Propensity Score matching: un'applicazione per la creazione di un database integrato ISTAT-Banca d'Italia*

2005 n.62* P. Pellegrino: *La politica sanitaria in Italia: dalla riforma legislativa alla riforma costituzionale*

2005 n.61* Viola Compagnoni: *Analisi dei criteri per la definizione di standard sanitari nazionali*

2005 n.60[ε] Guido Ortona, Stefania Ottone and Ferruccio Ponzano: *A simulative assessment of the Italian electoral system*

2005 n.59[ε] Guido Ortona and Francesco Scacciati: *Offerta di lavoro in presenza di tassazione: l'approccio sperimentale*

2005 n.58* Stefania Ottone and Ferruccio Ponzano, *An extension of the model of Inequity Aversion by Fehr and Schmidt*

2005 n.57[ε] Stefania Ottone, *Transfers and altruistic punishment in Solomon's Game experiments*

2005 n. 56[ε] Carla Marchese and Marcello Montefiori, *Mean voting rule and strategical behavior: an experiment*

2005 n.55** Francesco Ingravalle, *La sussidiarietà nei trattati e nelle istituzioni politiche dell'UE*.

2005 n. 54* Rosella Levaggi and Marcello Montefiori, *It takes three to tango: soft budget constraint and cream skimming in the hospital care market*

2005 n.53* Ferruccio Ponzano, *Competition among different levels of government: the re-election problem.*

2005 n.52* Andrea Sisto and Roberto Zanola, *Rationally addicted to cinema and TV? An empirical investigation of Italian consumers*

.

2005 n.51* Luigi Bernardi and Angela Fraschini, *Tax system and tax reforms in India*

2005 n.50* Ferruccio Ponzano, *Optimal provision of public goods under imperfect intergovernmental competition.*

2005 n.49* Franco Amisano e Alberto Cassone, *Proprieta' intellettuale e mercati: il ruolo della tecnologia e conseguenze microeconomiche*

2005 n.48* Tapan Mitra e Fabio Privileggi, *Cantor Type Attractors in Stochastic Growth Models*

2005 n.47$^{\varepsilon}$ Guido Ortona, *Voting on the Electoral System: an Experiment*

2004 n.46$^{\varepsilon}$ Stefania Ottone, *Transfers and altruistic Punishments in Third Party Punishment Game Experiments.*

2004 n.45* Daniele Bondonio, *Do business incentives increase employment in declining areas? Mean impacts versus impacts by degrees of economic distress*.

2004 n.44** Joerg Luther, *La valorizzazione del Museo provinciale della battaglia di Marengo: un parere di diritto pubblico*

2004 n.43* Ferruccio Ponzano, *The allocation of the income tax among different levels of government: a theoretical solution*

2004 n.42* Albert Breton e Angela Fraschini*, Intergovernmental equalization grants: some fundamental principles*

2004 n.41* Andrea Sisto, Roberto Zanola, *Rational Addiction to Cinema? A Dynamic Panel Analisis of European Countries*

2004 n.40** Francesco Ingravalle, *Stato, groβe Politik ed Europa nel pensiero politico di F. W. Nietzsche*

2003 n.39$^{\varepsilon}$ Marie Edith Bissey, Claudia Canegallo, Guido Ortona and Francesco Scacciati, *Competition vs. cooperation. An experimental inquiry*

2003 n.38$^{\varepsilon}$ Marie-Edith Bissey, Mauro Carini, Guido Ortona, *ALEX3: a simulation program to compare electoral systems*

2003 n.37* Cinzia Di Novi, *Regolazione dei prezzi o razionamento: l'efficacia dei due sistemi di allocazione nella fornitura di risorse scarse a coloro che ne hanno maggiore necessita'*

2003 n. 36* Marilena Localtelli, Roberto Zanola, *The Market for Picasso Prints: An Hybrid Model Approach*

2003 n. 35* Marcello Montefiori, *Hotelling competition on quality in the health care market.*

2003 n. 34* Michela Gobbi, *A Viable Alternative: the Scandinavian Model of "Social Democracy"*

2002 n. 33* Mario Ferrero, *Radicalization as a reaction to failure: an economic model of islamic extremism*

2002 n. 32[ε] Guido Ortona, *Choosing the electoral system – why not simply the best one?*

2002 n. 31** Silvano Belligni, Francesco Ingravalle, Guido Ortona, Pasquale Pasquino, Michel Senellart, *Trasformazioni della politica. Contributi al seminario di Teoria politica*

2002 n. 30* *Franco Amisano, La corruzione amministrativa in una burocrazia di tipo concorrenziale: modelli di analisi economica.*

2002 n. 29* Marcello Montefiori*, Libertà di scelta e contratti prospettici: l'asimmetria informativa nel mercato delle cure sanitarie ospedaliere*

2002 n. 28* Daniele Bondonio, *Evaluating the Employment Impact of Business Incentive* Programs in EU Disadvantaged Areas. A case from Northern Italy

2002 n. 27** Corrado Malandrino, *Oltre il compromesso del Lussemburgo verso l'Europa federale. Walter Hallstein e la crisi della "sedia vuota"(1965-66)*

2002 n. 26** Guido Franzinetti, *Le Elezioni Galiziane al Reichsrat di Vienna, 1907-1911*

2002 n. 25[ε] Marie-Edith Bissey and Guido Ortona, *A simulative frame to study the integration of defectors in a cooperative setting*

2001 n. 24* Ferruccio Ponzano, *Efficiency wages and endogenous supervision technology*

2001 n. 23* Alberto Cassone and Carla Marchese, *Should the death tax die? And should it leave an inheritance?*

2001 n. 22* Carla Marchese and Fabio Privileggi, *Who participates in tax amnesties? Self-selection of risk-averse taxpayers*

2001 n. 21* Claudia Canegallo, *Una valutazione delle carriere dei giovani lavoratori atipici: la fedeltà aziendale premia?*

2001 n. 20* Stefania Ottone, *L'altruismo: atteggiamento irrazionale, strategia vincente o amore per il prossimo?*

2001 n. 19* Stefania Ravazzi, *La lettura contemporanea del cosiddetto dibattito fra Hobbes e Hume*

2001 n. 18* Alberto Cassone e Carla Marchese, *Einaudi e i servizi pubblici, ovvero come contrastare i monopolisti predoni e la burocrazia corrotta*

2001 n. 17* Daniele Bondonio, *Evaluating Decentralized Policies: How to Compare the Performance of Economic Development Programs across Different Regions or*

States.

2000 n. 16* Guido Ortona**,** *On the Xenophobia of non-discriminated Ethnic Minorities*

2000 n. 15* Marilena Locatelli-Biey and Roberto Zanola**,** *The Market for Sculptures: An Adjacent Year Regression Index*

2000 n. 14* Daniele Bondonio**,** *Metodi per la valutazione degli aiuti alle imprse con specifico target territoriale*

2000 n. 13* Roberto Zanola, *Public goods versus publicly provided private goods in a two-class economy*

2000 n. 12** Gabriella Silvestrini, *Il concetto di «governo della legge» nella tradizione repubblicana.*

2000 n. 11** Silvano Belligni, *Magistrati e politici nella crisi italiana. Democrazia dei guardiani e neopopulismo*

2000 n. 10* Rosella Levaggi and Roberto Zanola, *The Flypaper Effect: Evidence from the Italian National Health System*

1999 n. 9* Mario Ferrero, *A model of the political enterprise*

1999 n. 8* Claudia Canegallo, *Funzionamento del mercato del lavoro in presenza di informazione asimmetrica*

1999 n. 7** Silvano Belligni, *Corruzione, malcostume amministrativo e strategie etiche. Il ruolo dei codici*.

1999 n. 6* Carla Marchese and Fabio Privileggi, *Taxpayers Attitudes Towaer Risk and Amnesty Partecipation: Economic Analysis and Evidence for the Italian Case.*

1999 n. 5* Luigi Montrucchio and Fabio Privileggi, *On Fragility of Bubbles in Equilibrium Asset Pricing Models of Lucas-Type*

1999 n. 4** Guido Ortona, *A weighted-voting electoral system that performs quite well.*

1999 n. 3* Mario Poma, *Benefici economici e ambientali dei diritti di inquinamento: il caso della riduzione dell'acido cromico dai reflui industriali.*

1999 n. 2* Guido Ortona, *Una politica di emergenza contro la disoccupazione semplice, efficace equasi efficiente.*

1998 n. 1* Fabio Privileggi, Carla Marchese and Alberto Cassone, *Risk Attitudes and the Shift of Liability from the Principal to the Agent*

Department of Public Policy and Public Choice *"Polis"*

The Department develops and encourages research in fields such as:

- theory of individual and collective choice;
- economic approaches to political systems;
- theory of public policy;
- public policy analysis (with reference to environment, health care, work, family, culture, etc.);
- experiments in economics and the social sciences;
- quantitative methods applied to economics and the social sciences;
- game theory;
- studies on social attitudes and preferences;
- political philosophy and political theory;
- history of political thought.

The Department has regular members and off-site collaborators from other private or public organizations.

Instructions to Authors

Please ensure that the final version of your manuscript conforms to the requirements listed below:

The manuscript should be typewritten single-faced and double-spaced with wide margins.

Include an abstract of no more than 100 words.

Classify your article according to the *Journal of Economic Literature* classification system.

Keep footnotes to a minimum and number them consecutively throughout the manuscript with superscript Arabic numerals. Acknowledgements and information on grants received can be given in a first footnote (indicated by an asterisk, not included in the consecutive numbering).

Ensure that references to publications appearing in the text are given as follows:
COASE (1992a; 1992b, ch. 4) has also criticized this bias....
and
"...the market has an even more shadowy role than the firm" (COASE 1988, 7).

List the complete references alphabetically as follows:

Periodicals:
KLEIN, B. (1980), "Transaction Cost Determinants of 'Unfair' Contractual Arrangements," *American Economic Review*, 70(2), 356-362.
KLEIN, B., R. G. CRAWFORD and A. A. ALCHIAN (1978), "Vertical Integration, Appropriable Rents, and the Competitive Contracting Process," *Journal of Law and Economics*, 21(2), 297-326.

Monographs:
NELSON, R. R. and S. G. WINTER (1982)*, An Evolutionary Theory of Economic Change*, 2nd ed., Harvard University Press: Cambridge, MA.

Contributions to collective works:
STIGLITZ, J. E. (1989), "Imperfect Information in the Product Market," pp. 769-847, in R. SCHMALENSEE and R. D. WILLIG (eds.), *Handbook of Industrial Organization,* Vol. I, North Holland: Amsterdam-London-New York-Tokyo.

Working papers:
WILLIAMSON, O. E. (1993), "Redistribution and Efficiency: The Remediableness Standard," Working paper, Center for the Study of Law and Society, University of California, Berkeley.