THIRD PARTY PUNISHMENT AND CRIMINAL BEHAVIOR: AN EXPERIMENT WITH ITALIAN CAMORRA PRISON INMATES

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Abstract. In Third Party punishment experiments (Fehr et al.; 2004), an agent may be punished for violating a social norm by an uninvolved observer - or third party - whose payoff is unaffected by the behavior of the same agent. In our research, we attempt to improve the understanding of Third Party punishment by reproducing an experiment conducted by Fehr et al. 2004 (TP-PD) with a sample of Camorra prison inmates. We then compare the decisions of the Camorra inmates with the behavior of university students with similar social and economic backgrounds. Our primary conclusion is that there are significant differences in cooperative and sanctioning behavior.

Keywords: Camorra, prison inmates, social values, social norms, sanction, punishment, reciprocity, social preference, third party, normative criteria, laboratory experiment

JEL classifications: A13, D63, D23, C92, K42, Z13

1.   Introduction

Mutually beneficial cooperation is a pervasive social phenomenon that most traditional economic theories have failed to understand. In laboratory experiments and in real-world teams, we observe that individuals tend to enforce cooperative choices even when the economic interest of the individuals would suggest a different course of action (Bowles et al.;2011; Henrich et al.; 2001;Gintis et al.;2003). According to social scientists and evolutionary theorists, the study of cooperation in a society may explain how that society has evolved (Putman 1994).

However, the persistence of cooperation cannot be explained without understanding how individuals establish explicit common rules to enforce cooperation by punishing free riders. These rules or social norms are not necessarily enforced by external authorities or sophisticated legal mechanisms. Interesting examples of how humans have always sanctioned free riding and self-interested behavior are reported in the classical anthropological study of Turnbull (1987) on pygmy tribes, in which free riding is

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sanctioned with ostracism and the loss of social status. However, similar enforcement mechanisms can be observed in all societies and social networks.

Economic experiments have proved that sanctions are a powerful means to enforce cooperation and tested the relative strength of different monetary and non-monetary punishment mechanisms.

The most common punishment schemes that have been tested are termed Second Party (SP) and Third Party (TP) punishment. In Second Party punishment, an individual whose payoff is affected by the behavior of free riders can retaliate by punishing defectors and causing them to bear a cost (Fehr et al., 2003). Even in contexts in which the cost overcomes the loss of income caused by free riders and punishing a specific free rider is irrelevant because the individual will not be paired with that subject in the experiment, we observe that:

- ✓ cooperative individuals dislike defectors;
- ✓ the presence of sanctions enforces cooperation in the long run;
- ✓ the social gain obtained by the increased level of cooperation overcomes the individual cost of punishment.

However, certain aspects of SP punishment must be emphasized: SP punishment is not evolutionarily stable and reputational effects cannot be ruled out (Fehr et al.; 2004). TP punishment envisages a situation in which an external party (someone whose payoff is unaffected by free-riding and negatively affected by sanctions) can impose sanctions on one or more subjects engaged in social dilemma games. Thus, TP has the advantage of preserving all of the aspects of an enforcement scheme without the reputational effects and the lack of evolutionary stability. The results confirm that individuals will punish free riding, even when the individuals face a cost and no material advantages are gained by their action. However, the analysis of enforcement mechanisms requires stronger theoretical and empirical support. Social norms are endogenously defined in each society. These norms presumably depend on the society's history and the evolution of the society's institutions, and even on the individual level the perception of the norms can depend on psychological or economic motivations. For example, comparative studies conducted in several countries (Henrich et al.; 2006) have proved that mechanisms for the enforcement of fair distributional norms (the Dictator Game) are commonly accepted and used. However, there is significant variance across the different societies, and these differences might be explained on the basis of the culture and the institutional structures.

However, within a single society, we account for considerable differences across social groups, and the claim that the university students samples represent one such group and not the entire society comprises a strong objection.

Among European and other Western countries, Italy has a peculiar historical characteristic: the country has the highest number of criminal organized gangs, notorious around the world, such as the Mafia, the Camorra and the Ndrangheta. These organizations closely resemble large companies, whose employees share common moral values and behavioral codes that differ from the codes commonly adopted by the remainder of the society. In this study we present the results of two experiments: a PD and a TP-PD performed using two different Italian samples. One sample was composed of 109 students from the Caserta area, where the Camorra is a large criminal power (Saviano, 2006). The second sample was composed of 129 Camorra-member inmates who are

serving sentences in a high-security prison in Naples. Our working hypothesis was that we would find significant differences in behavior in both experiments, in fact we found that cooperation rates are higher among the Camorra inmates and that the decrease in cooperation can be measured by comparing the two designs. However, the relevant difference resides in the enforcement mechanism of cooperation: overall, Camorra inmates were more willing than the students to adopt costly punishments, and the bulk of the sanctions were directed against free riders. In contrast, the students sanctioned non cooperative behavior and free riding to a similar extent. The study of criminal behavior using experiments is a growing research area (Birkeland et al.; 2011; Engel et al.; 2011). All of the papers published in the field pose research questions similar to those of our study, that is, whether it is possible to identify specific characteristics of criminal behavior that distinguish such behavior from that of the non-criminal population. Different from previous studies, in our experiments, the answer to this question is positive.

2.   The samples and the recruiting procedures

The student sample was recruited at the University of Naples II which is located in Caserta Province. The students were enrolled in different faculties (Law, Psychology, Political Science, Economics) and were recruited by advertisements on the faculty websites. The sessions were conducted on two days in the central university laboratory. Caserta Province has several family Camorra groups (Saviano,2006), and there are large prisons located in the area. However, for the inmate sample, we selected a prison that was not in the same area. Instead, the Camorra sample was recruited at one of the most important Neapolitan prisons, the Secondigliano - prison, which has four high security branches. Each branch houses approximately 400 inmates. The Camorra inmates were recruited through advertisements posted in the prison's recreation areas. The advertisements stated that a number of researchers from the University of Naples and of Salerno were conducting a study on several population groups in Campania that the researchers would conduct sessions in the prison, and that participation would be rewarded with a fee of 10 -18 euros (which corresponds to the average amount an inmate can spend at the prison canteen for cigarettes and food in a day). The inmates were free to choose between enrollment in the experiments, participation in courses or sport activities or remaining in the recreation area. Thus, the sessions did not overlap with the inmates' usual daily outdoors hours. Camorra inmates - similar to Mafiosi - are considered to be "the prison elite" and are often asked to participate in interviews or research. They generally decline the invitations. Therefore, we were surprised when a significant number of Camorra inmates appeared. We conducted both sessions on the same day, one after the other, and each session was advertised in a different branch. All of sessions were conducted in June –July 2012. A total of 109 students and 129 Camorra inmates participated in the four sessions.

The term "Camorra" refers to criminal activities that, while having a greater influence in Campania, have spread throughout the country and internationally. The Camorra, which is a secret criminal organization, originated in early 800. The organization's major development occurred after World War II, because of the cooperation of politicians, businessmen, and professionals, which enabled the Camorra to become Campania's leading industry.

The Camorra is considered a major problem in southern Italy because the organization comprises a serious obstacle to an economic and social development. The Camorra controls most important economic activities, particularly in the provinces of Naples and Caserta. The influence of the Camorra is present in the administrative life of many towns, where the Camorra control procurement and public services (the role of the Camorra in the recent Neapolitan garbage crisis is emblematic), and in the community's social life, which the Camorra affects by drug trafficking, extortion, usury, arms trafficking, prostitution and illegal immigration. Unlike the Mafia, the Camorra is not organized using a vertical structure. In contrast, the Camorra is organized into many families that–as in a trust- exert their influence on the various activities of their respective territories (Strano, 2003).

3.   The designs

The experiments consisted of two different designs: a one-shot PD and a one-shot TP-PD. For the latter design, we reproduced the design adopted in (Fehr et al.; 2004). In all of the sessions, the experiments were conducted paper-pencil. In the PD design, at the beginning of the sessions, each subject was provided an envelope that was labeled A or B and a number that identified the subject. The envelope contained an instruction sheet, a decision sheet and a questionnaire (we omit the details). The instructions were read aloud by the experimenters and in both sessions we stated that the participants could ask questions only privately and after the reading.

The game in the PD session was one-stage. Therefore, the game consisted of a single decision that the participants were required to report on the decision sheet. Subjects A (B) were endowed with 10 experiment tokens and were paired with subjects B (A). The subjects had to determine whether to keep the tokens or send them to the partner. If the subjects sent the tokens to their partners, the researcher would triple the amount. Therefore the game had four possible outcomes: (10, 10), (40, 0), (0, 40), (30, 30). The four outcomes were illustrated in a table provided on the instructions sheet and on the decision sheet.

The TP-PD is a two-stage design in which three subjects (A, B and C) participate. The first stage is exactly equivalent to the PD and our procedures were precisely the same with the fundamental difference that A and B were aware that the C player would act in the second stage and could affect their final income by awarding deduction points to one of them (or both). In fact, at the beginning of the second stage, after A and B had determined whether to send the tokens, the C player was endowed with 40 tokens, and he had to determine whether to keep the tokens or spend the endowment to attribute deduction points to A and B. One deduction point would decrease A and B's total number of tokens by three units (C was allowed to attribute a maximum of 20 deduction points to each player). We retained certain important features of the design created by (1). First, at the beginning of the second stage, A and B's endowments were increased by 15 tokens (avoiding the focal point: 40, 40, 40). Second, the participants received a show-up fee of 10 tokens to prevent a subject from experiencing a loss after C's decision. Finally, C's decisions were recorded using the strategy method (Selten, 2003).

According to the strategy method, C was asked to indicate on the decision sheet how many deduction points he would allocate for each of the four possible outcomes in the PD:

(CC), (DD), (CD), (DC). In our design, the three subjects acted at the same time in different rooms with different experimenters. The pairing procedure was conducted after the experiments. In each room, the experimenter collected the closed envelopes and asked one participant to mix the envelopes and form pairs. The pairs and their identification numbers were then read aloud. Next, privately, in the presence only of the participant who had randomly selected the pairs, we opened the envelopes and calculated the gains.

The final gains were then posted in the recreation area and on the faculty websites. For the TP-PD the procedure was the same. However, the participant A or B of the first stage formed triplets rather than pairs. To make forming triplets possible, the C decisions were collected first and brought to the first room. Once the triplets had been formed, always privately but in the presence of one participant A or B and C (selected randomly) the experimenters calculated the final gains. Then the gains were reported in a table and the results posted in the recreation area and on the university website. As in Fehr et al., the exchange rate was token = 0.3 euro cent, whereas the average earning was between 12-15 euros, both for the students and the Camorra inmates. The final gain was provided directly to the students after the experiments and was credited to the inmates' internal accounts.

4.   Discussion of the results

Figure 1 shows Player A and B's decisions in the PD and in the TP-PD sessions performed in prison and with the university students. Analyzing the data, we are interested in two points: i) the comparison of the prisoners' and students' cooperation rates and ii) the effect of sanctions on cooperative behavior in both samples.
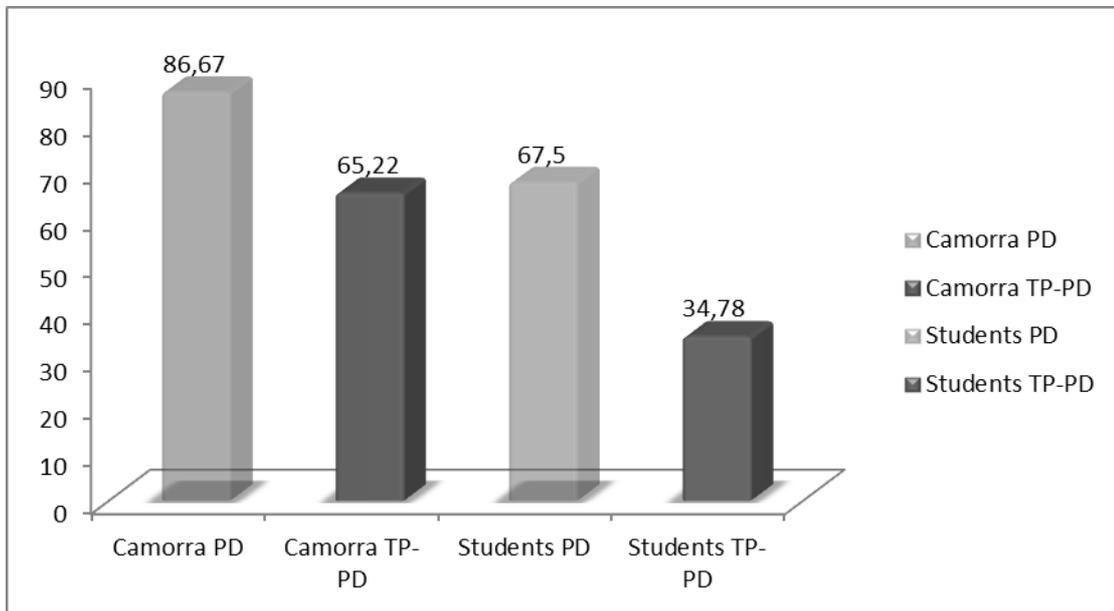
Figure 1- PD, PD-TP GAME: Camorra vs Students

In the PD game, 86.67 % of the prisoners (both A and B players) sent their tokens to the partner, whereas the percentage of cooperative choices among the students in the same session was much lower (approximately 67.50%) and a chi-square test shows that such difference is significant (P-value=0.021).

When we analyze the evidence from the TP-PD game, we note a decrease (statistically significant on the basis of a $\chi2$- test) in the cooperation rates regardless of which sample we consider. This variation among the Camorra inmates is from 86.67% to 65.22% (P-value=0.009), whereas among the students the variation is from 67.50 % to 34.78% (0.0025). In addition, the difference between the cooperation rates is statistically significant (P-value: 0.0035). Two comments are in order. First, one could argue (as in Birkeland et al.2011), that the behavior of the inmates is affected by the experiment being conducted in a prison (i.e., the cooperation rates differ because there a "prison effect" that influences the behavior of the Camorra members). However, Birkeland et al. (2011), did not find evidence of a particularly strong experimenter demand effect in prison. In particular, these researchers did not report differences in the pro-social preferences of the prisoners and a benchmark group of criminals (not in prison when they participated in the same experiment). Moreover, the previous studies in this field cited above (Cmura et al., 2010) reported a significant similarity between an experiment conducted in a prison and an experiment performed with a control group in a laboratory. Finally, as reported during several interviews with the prison personnel, the "prison effect" among the Camorra inmates is highly negligible because i) they are grouped with members of other (non rival) Camorra clans and to prevent friendships among roommates, each inmate is frequently moved to other prison cells and frequently to other prison facilities in Italy.

In our opinion, the difference in cooperation rates is more likely to reflect the main peculiarity of the selected sample. As outlined above, Camorra inmates differ from other prisoners in that they belong to a criminal organization, and this organization is notoriously (and historically) characterized by strong cooperative behavior among its members: i.e. the Camorra's statutes (written in 1842) recognized the importance of mutual respect and non interference as the association's basic moral code (Palmieri, 2010).

The second important difference that emerges between the two samples concerns the effect of the introduction of the punishment option in the TP-PD game. The evidence in Figure 1 indicates that the cooperation rates decrease in both samples in the TP-PD session. However, the decrease is larger among the students: Camorra inmates again demonstrate higher cooperation rates than the control group.

This result is not new. Laboratory findings document a detrimental effect of sanctions on human altruism, particularly when sanctions are considered as unfair or illegitimate (Fehr and Rockenbach,2003). Regarding the effect of punishment in a one-shot PD context, there is no previous evidence with which we can compare our results. However - from a different perspective - Birkeland et al. (2011) notes a difference between a sample of prisoners and a control group in a comparable setting. These researchers find that prisoners increase their pro-social behavior when the punishment option is introduced (even if the prisoners do not respond to an increase in expected punishment). In contrast, in the control group, a decrease in pro-social behavior is registered when the punishment option is introduced. However, the behavior responds strongly to an increase in expected punishment.

We now consider only the TP-PD experiment, where our primary research question concerns the choices of costly punishments by the third parties.

Table 1 refers to the experiment conducted in the prison. The table shows all C players' average expenditure for punishment and (in parentheses) the percentages of punishing C

players in each of the four possible situations: (DD), (CD), (CC), (DC). For example, almost all of the C players (96%) punished the defector if the other player was a cooperator in the PD, and a sizeable fraction (approximately 39%) also punished when both players defected. However, in the second case, the average punishment is much lower. A Wilcoxon signed rank test for matched players shows that this difference is significant (two tailed P-value: 0.025), indicating that the C players considered "defection" in a different manner, depending on the other player's behavior: defection appears as less damaging behavior when the other player also defects.

Surprisingly, a sizeable percentage of C players (approximately 46%) also punished the cooperator if the other player was a cooperator. However, the same action (in this case "cooperation") was considered differently depending on the other player's action: the fraction of C players who punished cooperators when the other player defected was negligible (approximately 9%) and the degree of punishment was low.

Table 1-TP-PD – Camorra sample (main statistics)

Punished player is	Other player is a defector	Other player is a cooperator
defector	1.76 (39.13%)	9.65 (95.65%)
cooperator	0.54 (8.69%)	2.91 (45.65%)
The first number in each cell indicates the average punishment of player C, whereas the number in parentheses indicates the percentage of C players who punish (N=23).		

Finally, in table 2, we regressed the expenditure for sanctions by the third parties on dummy variables that represent the different possible situations: i) both players defected, ii) the punished player defected and the other player cooperated, iii) the other player was a defector and the punished player cooperated; iv) the excluded dummy represented the situation of mutual cooperation. The estimates confirm that the tendency to punish is highly significant when the punished player is a defector (and the other is a cooperator), whereas there is not significant difference in the punishing behavior between the two cases of mutual defection and mutual cooperation.

Table 2 -TP-PD - Camorra sample (Ols regressions)

Punished player is a defector	7.89 (1.46)***
Other player is a defector	-1.22(0.56)**
Both player are defectors	1.15 (0.96)
Constant	1.76 (0.61)***
Adj. R-sq.: 0.44. N. =184.	
Notes: ***Statistically significant at 1% level; ** significant at 5% level. Robust standard errors clustering on individuals.	

We now compare the figures in table 1 with the results (in table 3) from the experiment conducted in the university laboratory.

As above, the highest percentage (56.52%) of punishments is reported for defectors when the other player cooperated. A Wilcoxon signed rank test for paired players shows that defection is considered to be a less severe violation of the norm when the other player also defects (P value=0.015).

However, the differences between the evidence from the two samples are noticeable because i) students never punished cooperators and ii) the fraction of C players who punished defectors (when the other player cooperated) in the student sample was much lower than in the prisoner sample (approximately 56% and 96%, respectively).

Table 3- TP-PD - Students' sample (main statistics)

Punished player is a	Other player is a defector	Other player is a cooperator
defector	1.48 (43.48%)	6.09 (56.52%)
cooperator	0	0
The first number in each cell indicates the average punishment of player C, whereas the number in parentheses indicates the percentage of C players who punish (N=23)		

Not surprisingly, the results in table 3 are similar to the evidence reported in (Fehr et al., 2004) for a sample of students: "the punishment of a cooperator is negligible, irrespective of whether the other player defected or cooperated" and "the sanctioning of a defector becomes much more severe if the other player changes from defection to cooperation" (Fehr et al.;2004). Similarly, in Fehr's study, the sanctioning rate is low (approximately 45%) compared with the evidence in table 1.

In summary, the most important patterns that emerge from our results are the following: Camorra inmates exhibit a higher propensity than the benchmark group of students to punish, particularly when the punished player is a defector and the defection is considered to be "unfair".

5.   Concluding remarks

Criminal activity represents a significant cost for an entire society and considerable resources are devoted to preventing crime. Important theoretical contributions for the understanding of the phenomenon are provided by theories of the economics of crime. However, traditionally, these approaches have focused on the individual's propensity to criminal activity on the basis of the expectation of profits relative to alternative professional opportunities.

In this research, we adopted a different perspective, focusing on criminal pro-social behavior. Our primary interest was to measure the behavioral distance between two groups of individuals with a similar social and historical backgrounds but very different

institutional cultures. Our results confirm that there are significant differences between the two samples in the cooperation rates and the norm enforcement mechanism. The manner in which these distances affect the individual's propensity to criminal activity, in addition to the expectation of monetary returns, is an open research question.

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