Social norms, Emotions and cooperation in groups

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Abstract

A large body of literature in experimental economics is concerned by cooperative behavior in a public good context. Several factors are considered to be important for sustaining cooperative behaviour. These are among others, the net gain from cooperation , privacy of decision, social disapproval or existence of a punishment mechanism. We propose to discuss the impact of these features on cooperation within the frame of a single model. Specifically we consider that individuals support some moral costs from deviating from cooperative behavior. It is shown that an polymorphic equilibrium with cooperation and defection exist: players with high moral costs cooperate while those with low moral costs defect. The equilibrium with cooperative behavior depend on the distribution of moral cost in the society.We show how attractivness of the group, gain from cooperation or the distribution of moral cost affects the equilibrium probability of cooperation.

Key-Words: Norms, collective action, emotions, cooperation, psychological games, population games.

1 Introduction

There is a compelling evidence that individuals globally adhere to cooperative norms (empirically or factually observed) both in repeated and non reapeted interactions although this may depend in a non trivail way on the type of social groups (Henrich et al. [26]) and differ accross individuals within a group (Fehr and Fischbacher [10]) . For example, basic evidence on non profit making and other forms of benevolent-based organizations reveal a rough partition within these groups between some *pure consumers* of the public good (free-riders) and *benevolent* individuals (cooperators). This polymorphic configuration seems to be a stable form of organization in a variety of situations and more generally, behavior differs across and within groups with respect to law-abiding behavior, rates of criminality, moral principles, other regarding behavior, common ressource sharing ... The literature of experimental economics also shows deviations from the prediction of the rational and self-interested Homo Eoconomicus (Ledyard [24], Camerer [7] .

From a theoretical point of view, a large body of literature tries to explain why cooperation can emerge among selfish individuals in a case where the public good dilemma would predict full defection (Olson [31]). The selfinesh approach explain cooperation by the repeated structure of the game (Axelrod and Hamilton [2], Fudenberg and Maskin [18] , Kreps [29]). Cooperation is grounded on the same principle as Trivers [39] concept of reciprocal altruism: cooperation in bilateral interactions occurs only for

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the gain of future reciprocation. Alexanders ([1]) notion of indirect reciprocity and the formation of reputation within a group (Novak and Sigmund [34]) may expalin cooperation in group interaction. However self regarding behaviour does not explain cooperation involving anonymous and one shot interaction. According to Gintis [21], explaining cooperation by self interested people should be essentially sustained without third party enforcement and one way is to consider prosocial emotion (Bowles and Gintis [6]). Prosocial emotions like shame, guilt, empathy, act like an intrisic punishment when deviating from the social norm. As Olstrom [32] states social norms may lead individuals to behave differently in the same objective situation depending on how strongly they value conformance with (or deviance from) a norm". The value of conformance to the norm triggers the strength of prosocial emotions. Homans [27] defines a norm as - a statement specifying how a person is, or persons of a particular sort are, expected to behave in given circumstances - expected, in the first instance, by the person that utters the norm: " What I expect of you is what you ought to do . In this sense, norms are a shared knowledge by which individual actions are judged and different expectation about the norm may lead to different behavior and an identical action may be judged differently under two different norms configurations. The norm represents thus a sort of reference point and changing this reference point changes behavior evaluation. Nevertheles these descriptions define the norm as ad-hoc given and the ideal situation would be one where the norm is emergent from individuals' interaction and behavior. Opps [33] defines the emergence of a norm as the mean necessary to the achievment of a desired objective for the group. In this individualism methodology approach, the prerequisite for the emergence of a norm is that a common or desirable objective must be shared by the group members, that information and behavior about the desirable norm to adopt is appropriate and that the norm is sustained by appropriate incitatives to cooperate. Thus the emergence of a norm is defined by the combined action of a common objective (desirable norm) and appropriate incitatives to achieve the norm. Our methodology follows this instrumental proposition where intrinsically the appropriate behavior is defined as the socially desirable outcome for the group. Emotions will thus be generated from deviations from this desirable outcome and be proportional to the proportion of cooperators. Our modelling is inspired by different results coming from the literature of experimental economics. First cooperation may emerge when punishment opportunities are available to individuals (Fehr and Gachter [14] and [15]) and some individuals are willing to support the cost of punishment even without direct monetary benefits from doing so showing a taste for pro-social behavior (Fehr and Fischbacher [10]). Second, social approval or disapproval and peer pressure of defection leads to a significant reduction in free riding [Gachter and Fehr [19]]. In other contexts, such as in the utimatum game or trust models (Camerer [7], Fehr and Falk [16], Berg *et al.* [3]), the same deviations from the theoretical predictions have been observed and explanations based only on purely selfish preferences and own monetary payoff cannot explain the data alone. In turn, several theories have been suggested. Some are based on the distributional consequences of strategies when other regarding preferences such as altruim, fairness are incorporated into the preference function of an individual (Fehr and Schmidt [17], Bolton and Ockenfels [4]). Other's are driven by intentions and reciprocity (Dufwenberg and Kirchsteiger [12] , Falk and Fischbacher [13] Rabin [35]) where the other player's welfare is taken into account positevely or negatively depending on the perceived intentions (kind or unkind). The most appropriate model is still in debate (Charness and [8]). Some general principles can nevetheless be retained. Anonymity and privacy of action or increasing social distance may favor more selfish behavior (Kagel *et al.* [28] (verifier), Bohnet and Frey [5]) . Dawes et Thaler ([9]) conclude that group identity is a major factor promoting cooperation. Other studies (Murnighan and Saxon [30], Harbaugh *et al.* [22]) show that the notion of fairness is a social construct since selfishness is more pronouced for children than for adults. Thus, the behavior observed in lab games can tell us about the social construct of individuals and social norms abiding behavior which is a typical result of Henrich *et al.* paper [26]. The perspective taking in this paper is to explain the emergence of norms of behaviors in PD games from the perspective of three criteria which we suppose to be essential. To discuss the choice of these three criteria, we refer to the preceeding discussion and to the results of the paper of Henrich et al. [26]. They show that the ultimatum (UG) and public good (PG) games are played quite differently in 15 different tribs located in different part of the world. The tribs rank from society where the rejection in the ultimatum game is very rare although offers from the proposer are very low. In other groups, rejection rates are substantial although offers are fair (even hyper fair in one trib). Except two groups, offers are generally different from a maximising behavior of proposers given the rejection rate of responders showing that other factors come into consideration. The authors show that a large part of the observed variability in the behavior is explained by two factors : market integration and gains from cooperation. The fair norm is more probable in society with a high degree of market integration and large gains from cooperation. Privacy and anynomity is another factor of second importance implying a reduction in the proposed amount in the utimatum game. [1] We propose to identify three criteria which may explain inter group variablity one of which may also explain intra group variability. A first factor is the importance for a member of a community to adhere to the group. A member of a group may have the choice to stay outside the group. We will denote by H_i the idiosyncratic willingness to adhere to the group and represent it has the value of the group for an individual i independently of the cooperative behavior within the group. If $H_i < 0$ then it represents the value of an outside opportunity for a member of the group and a lower H should increase cooperation (to be tested). A second factor is G , the gain from cooperation. In a group where gains from cooperation are important, members should have a higher incentive to adhere to the group and to cooperate (to be tested). The third factor are the cost associates to joining the group. First there may be a moral or emotional cost, linked to the concept of prosocial emotions, imposed on individual when deviating from a socially desirable norm of behavior. We suppose that such a cost may be directly linked to the observality of members behavior (degree of privacy and anynomity) as well as to the social distance among members within the group. Second , there is the cost of cooperating for the production of a common public good. The relative strength of these cost and the degree of cooperation within the group will determine the cooperative behavior of the individual. Members of the group have an additive utility proportional to the fraction of members in the group. Cooperators

[1] The UG and PG games where identified by players with some everyday practices meaning that these were not abstract games for the tribs members.

bear a fixed cost, while free-riders bear a cost idiosyncratically proportional to the fraction of cooperators who have adopted [2]. Our paper explains cooperation from a purely consequentialist approach, by integrating an emotional factor which is more or less important depending on the other member's behavior in the group . Given an individual moral cost and its expectations of other behavior, he chooses an optimal utility maximising strategy. In turn, expectations correspond to the actual observed behavior in the group. However, as in reciprocity models we introduce a reference point (the norm) which actually conditions the type of payoff an individual faces. Last, closely related to our modeling there is a paper from [Riedl et Ule]. They set up a finite PD experiment where individuals could not discriminate in their action choice but can exclude others from their social environnments. They show that when the cost of exclusion is high (that is the outside opportunity are more attractive but less attractive than gain from cooperative behavior) and information is maximal (i.e.e all players observes all the actions of all other individuals even if no link exist between them) then cooperation attains its highest level. When an outside opportunity renders exclusion less costly but when joining the group is more attractive then it operates as a strong factor promoting cooperation. In general, the possibility of exclusion fosters cooperation compared to the no exclusion case.

Section 2 presents the model by considering two cases: random matching in section 2.1 and a population game in section 2.2. It is shown that an polymorphic equilibrium with cooperation and defection exist: players with high moral costs cooperate while those with low moral costs defect. The equilibrium with cooperative behavior depend on the distribution of moral cost in the society. Section 3 shows how the parameters H, G, C and the distribution of moral cost affect the equilibrium and compare it with what was expected from the literature on experimental economics.

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