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STRONG RECIPROCITY AND NORMS OF COOPERATION: IS THERE CROSS-CULTURAL VARIATION?*

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Understanding individually costly collaboration for the benefit of collective welfare is a fundamental issue in the social and behavioral sciences. The problem arises because self-interest jeopardizes the realization of the collective benefits. Nevertheless we observe substantial human cooperation at all levels, from small groups to nation states. Several mechanisms exist that can explain (the evolution of) cooperation as a result of some form of self-interest (e.g., Axelrod (1984); Nowak (2006); Sigmund (2010)). In recent years, researchers have studied mechanisms that are not based on self-interest, but on "strong reciprocity" (Gintis (2000)). Numerous studies refute the assumption that people are predominantly selfish (Fehr et al. (2002)). Instead, many people are non-selfish "strong reciprocators". A strong reciprocator is prepared to sacrifice resources to be kind to those who are being kind (called 'strong positive reciprocity') and to punish those who are being unkind ('strong negative reciprocity'). The essential feature of strong reciprocity is a willingness to incur costs for rewarding fair and punishing unfair behaviour even if this is costly and provides neither present nor future material rewards for the reciprocator (Gintis, et al. (2005)). Numerous experiments have demonstrated that strong reciprocity can support more socially beneficial cooperation than theories based on self-interest predict. In this article I first describe the most important paradigm to study cooperation experimentally, present some results, and then show that there is important cross-cultural variation in cooperation.

An important tool to study strong reciprocity in the context of voluntary cooperation is the public goods game. This is an n-person game where n group members ($n = 4$, typically) are each endowed with 20 money units which they can invest into a group project (the 'public good') or keep for themselves (the 'private good'). All investments into the group project are increased by a factor larger than 1 (a typical factor is 1.6) and distributed equally among all four group members irrespective of their contribution. This constitutes a cooperation problem: investing everything into the group project is socially beneficial but individually costly because in material terms an individual is always better off investing nothing.

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This experiment is typically played under anonymity and often one-shot, and participants are paid according to their decisions. Under these conditions self-interest predicts no contributions. By contrast, strong reciprocity predicts contributions that will be higher the more people believe others will contribute. Numerous experiments (e.g., Croson (2007); Fischbacher and Gächter (2010); surveyed in Chaudhuri (2011)) support the strong reciprocity hypothesis over the self-interest prediction, although a substantial minority behaves selfishly. In a typical experiment, the public goods game is played repeatedly (with changing group members). Initially, people contribute about 10 money units out of their endowment of 20 but by the tenth repetition contributions reach very low levels. This result is consistent with the self-interest prediction but also with strong reciprocity, because strong reciprocators are 'conditional cooperators'—they only contribute if others contribute. But further experiments by Fischbacher and Gächter (2010) show that contributions decline because conditional cooperators reduce their contributions in response to others' free riding.

Strong reciprocity not only predicts that many people will be conditional cooperators ('strong positive reciprocity') but also that many people will be willing to punish free riders ('strong negative reciprocity') because they exploit the cooperators. Support for this hypothesis exists since the early days of experimental economics which showed that people are willing to reject unfair offers in bilateral bargaining games, even if this rejection results in zero payoffs for both players and thus constitutes costly punishment (Güth, et al. (1982); Roth, et al. (1991)). Support for the hypothesis that people will punish free riders even in anonymous one-shot public goods games was first provided byYamagishi (1986), Ostrom, et al. (1992) and later on by Fehr and Gächter (2000) and Fehr and Gächter (2002). The finding that people are willing to punish free riders has been replicated many times since (see Gächter and Herrmann (2009); Chaudhuri (2011); Balliet, et al. (2011) for surveys). Thus, by now there is substantial evidence that norms of cooperation are conditional on others' contributions and many people are willing to punish free riders.

An important question that arose in recent years is to what extent these results are generalizable across human cultures (Henrich, et al. (2010)). Earlier cross-cultural economic experiments, in particular the pioneering study by Roth, et al. (1991) who ran ultimatum game experiments in the USA, Japan, Israel and former Yugoslavia suggested that the cross-cultural variation is modest. This impression changed when anthropologists and economists ran bargaining experiments in small-scale societies around the world and detected much more variation in offers and rejection rates than ever observed in Western countries (Henrich (2001)). How general across cultures are therefore the results reported above that norms of cooperation are sustained by conditional cooperators who are willing to punish free riders in public goods games?

To answer this question Herrmann, et al. (2008) ran public goods experiments in sixteen subject pools in fifteen countries around the world. The countries are Switzerland, Germany, Denmark ('Protestant Europe'); the UK, USA, Australia ('English-speaking' cultures); Russia, Belarus, Ukraine ('Orthodox-Ex-Communist'); China, South Korea ('Confucian cultures'), Oman, Saudi Arabia ('Arabic cultures'), Turkey, Greece

('Southern Europe').[1] The results show that without punishment contributions decline to low levels everywhere, just as in many previous experiments, and differences between cultures are rather small (the cultural regions explain only 4 percent of the variance (Gächter, et al. (2010)). Strikingly different results emerge under punishment: cooperation levels vary greatly across subject pools, from almost full cooperation in the US-American subject pool to only 20 percent in Athens. The variance within cultures is much lower than between cultures, and cultural regions now explain 21 percent of the variance (Gächter, et al. (2010)).

As Herrmann, et al. (2008) and Gächter, et al. (2010) show, the reason for these large cross-cultural variation in cooperation patterns lies in people's punishment behavior: while people punish free riders very similarly in all subject pools, there is strong variation in how people punish cooperators: in some subject pools, typically those from Protestant Europe and from English-speaking countries, people do not punish cooperators. However, subject pools in the Orthodox/Ex-Communist countries, in the Arabic countries and in Southern Europe tend to punish cooperators substantially. Naturally, such 'antisocial punishment' is a great inhibitor of successful cooperation. Interestingly, the extent of antisocial punishment is strongly correlated with the strength of the Rule of Law in a country; the better law enforcement works in a society the lower is antisocial punishment.

The significance of this finding is that formal law enforcement and norms of cooperation are complements: better formal institutions strengthen social norms of cooperation and limit antisocial punishment (Herrmann, et al. (2008)). Thus, understanding antisocial punishment and how norms of cooperation are affected by formal institutions and culture (Tabellini (2008)) are important tasks for future research. More generally, economic experiments will play a fruitful complementary role in the endeavor to understand cultural influences on economic behavior (Guiso, et al. (2006)).

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[1] The cultural classification follows Inglehart and Baker (2000) and Hofstede (2001). See also Gächter, et al. (2010) for further details.

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