Intermittent Sanctions and Cooperation in a Public Good Game

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ABSTRACT

That punishment plays a crucial role in sustaining cooperation in linear public good games is experimentally well documented as well as its detrimental effect on efficiency. We show that using an exogenous intermittent sanctioning schedule can improve cooperation and efficiency in the long run. Precisely, we manipulate both the frequency and randomness of punishment in a 50-period public good game. We compare a continuous reinforcement schedule in which audits and sanctions of deviations from the average contribution are implemented every period with a random reinforcement schedule in which higher sanctions are implemented on average every three periods. A regime shift occurs after 22 periods such that no audit and sanction are ever implemented. We recreate a highly ambiguous environment in that subjects are not informed on the exact probability of an audit of their contribution and they have therefore to form beliefs (that we elicit) on the risk of being audited and possibly sanctioned from their past experience.

While we find no difference in cooperation across treatments before the regime shift, after the regime shift intermittent sanctions leads to a much longer persistence of cooperation than the continuous reinforcement schedule. Additional manipulations of the frequency of audits and sanctions allows us to identify the minimum frequency for which the highest level of cooperation is sustained in the long run with a minimum cost of sanctions.

Keywords: Intermittent sanctions, belief, cooperation, public goods, experiment.

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