

A Deduction Mechanism for Public Goods Provision: Theory and Experiment

We propose a simple commitment mechanism prior to a public goods contribution game. Each player simultaneously and independently proposes a deduction rate, the rate by which the return of the private consumption account will be reduced. The group deduction rate is determined by the minimum level of the proposed rates. In the two-stage game with linear payoffs, strategies are (weakly) dominant in every stage, and the first-best outcome is achieved in equilibrium, with a high enough group deduction rate being chosen. The mechanism can also improve welfare for non-linear games. We conducted a laboratory experiment with highly intelligent subjects from a top university to empirically investigate whether (and how) our counter-intuitive mechanism works. The experimental findings highlight the importance of the learning environment. Even with repeated play, many subjects kept choosing low deduction rates and so welfare was persistently low. However, with exogenously given examples of group deduction rates, subjects learnt fast and achieved efficient outcomes when they determined deduction rates endogenously. The opportunity of allowing subjects to use deducted resources to reward peers increased proposed deduction rates and contributions to some extent.