

Choosing interaction partners induces maximum effort
in the minimum effort game

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Abstract

The investigation of institutional arrangements to overcome coordination problems is of vital interest in economics. Experiments have shown that in a variety of environments people fail to coordinate on Pareto-efficient equilibria. Yet, outside the lab individuals seem to agree on rather efficient arrangements. The possibility to choose interaction partners is a natural feature of almost any interaction between individuals. Nonetheless this feature is largely neglected in the literature. An important type of coordination problem occurs in the minimum effort game. Each subject chooses an effort level and obtains a payoff which is determined by the lowest effort in the group. The game is characterized by multiple Pareto-ranked equilibria.

We examine the impact of endogenous interaction choice on behavior and welfare in the minimum effort game. In one treatment, E, subjects play the minimum effort game within their self chosen neighborhood, which is determined by two sided costless link formation. In treatment C, the minimum effort game has to be played with all group members. The results show that the choice of interaction partners leads to unanimous coordination on the payoff dominant equilibrium. Both the average and minimum effort levels are significantly higher in treatment E than in treatment C and quickly approach the maximum effort. Moreover, in treatment E both effort levels increase over time, whereas they decrease in treatment C. In C, subjects who happen to play above the minimum effort adjust their effort towards this minimum. In treatment E, subjects costly exclude players who chose the minimum effort, thereby creating an incentive for these players to increase their effort. This exclusion possibility indeed induces subjects to increase their effort level towards the highest effort possible. At the same time, subjects understand that from an efficiency point of view it is most beneficial to interact with all other group members. As a result, over time, all subjects interact with each other and choose the maximum effort level. Welfare is thus much higher in treatment E than in treatment C. Over time, it even approaches the optimal welfare level, which is defined as the welfare obtained when all subjects interact with each other and coordinate on the maximum effort level.