



SG Seminar

# The role of loners, reputation and punishment: The evolution of cooperation in the Optional Public Goods Game.

**Abstract** Problems of cooperation are commonly simplified to the choice between defection and cooperation, although in many situations an individual could opt out or walk away from a situation. This problem can be studied through the optional public goods game. The introduction of the “Loner” strategy, allows players to withdraw from the public goods game, radically changing the dynamics of cooperation in social groups and leading to sustained cooperator-defector-loner cycles. We analyze the optional public good game through a behavioural experiment and agent-based models. In the experimental, we exploit the incentive differences between games to characterize the behaviour of loners and to assess how it differs from that of cooperators and defectors. We extend the

theory of the optional public goods game with an agent-based models. We introduce a reputation dynamics in the form of social norms that allow agents to condition both their participation and contribution decisions to the reputation of their peers. We find that a social norm imposing a more moderate reputational penalty for opting out than for defecting, increases cooperation. When punishment is also possible, the two mechanisms work synergically under all norms that do not punish loners too harshly.

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**When:** Thursday  
2 December 2021  
16:00 - 17:30

**Where:** ETH Zürich  
Rämistrasse 101  
HG E23

More information available at  
[www.sg.ethz.ch](http://www.sg.ethz.ch)