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No Pain, No Collective Gain

By Mary Beckman
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A society that runs on the contributions of a few altruistic individuals while leaving the rest of its citizens alone may seem attractive, especially to those of us with lazier tendencies. So why haven't most human societies adopted this model? A new simulation suggests that a group's members reap the most benefits when everyone cooperates--and freeloaders are duly punished.

The simulation, set up by economist Bettina Rockenbach of the University of Erfurt, Germany, and colleagues, involved the creation of two virtual worlds. The first--a sort of freeloaders' paradise--allowed people to cooperate as much or as little as they wanted. Participants started out with a limited number of tokens that represented money, which they could add to the communal pool. Everyone knew the tokens would gain interest and that the investment would be split up equally at the end of 30 rounds of play. The more players who invested, the more money everyone got back, regardless of whether they themselves contributed.

The second world was set up in much the same way, but in this simulation, players could punish freeloaders for not contributing. Chastised freeloaders had to give up some of their tokens, and the punishers themselves sacrificed a token each time they flagged a deadbeat. Eighty-four college students were allowed to pick a world to join, and they could change their minds after each round.

In the first round, two-thirds chose to enter the freeloaders' paradise. At first, this worked out: Participants in deadbeat heaven earned 16% more on average than participants in the other world. But the success turned sour in later rounds as more and more participants started slacking off, diminishing the net payoff. Meanwhile, the punishing world was growing more lucrative as the censured freeloaders started to contribute. By the end of the game, everyone from the freeloaders' paradise had jumped ship to the punishing world.

Interestingly, freeloaders in the undisciplined world quickly became punishers in the disciplined one. "This means freeloaders aren't a genetically hard-wired type. Their behavior depends on the culture," says Rockenbach, whose team presents its results 7 April in [Science](#).

The experiment shows that cooperative societies can evolve as long as noncooperation can be penalized. "It's a pretty powerful result that hasn't been shown before," says economist William Harbaugh of the University of Oregon, Eugene. Most of us take part in this game every day, he adds: "We all join institutions in which we get punished if we don't pull our weight," such as our jobs.

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