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Cultural evolution of power dynamics between workers and managers

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Abstract

We investigate how role-based power dynamics emerge between workers and managers in a collective foraging task. We recruited 223 participants, who repeatedly occupied either a forager role, or a manager role that coordinates the foragers' efforts. Foragers pay a tax to the manager, which instantiate a social dilemma: although higher taxes incentivize information acquisition to improve collective efficiency, self-interested players should prefer to push the tax toward its own immediate advantage. We operationalized this tension by eliciting participants' preferred tax rate. Contrary to an incentive-based account, managers' information investment was not associated with tax income and foragers' harvesting effort was not influenced by tax rate. Moreover, foragers consistently proposed about 28% tax while managers propose around 53%, even though both roles could have set it near 0 or 100%, respectively. Overall, the dynamics suggest convergence toward tax rates that reduce inequality between roles rather than toward self-interested behavior.

Keywords: social dilemmas; complex systems; collective intelligence