Who should pay the price?

May 14 2015

Social dilemmas, in which an individual profits from selfishness, unless the whole group chooses the selfish option, have long provided an academic challenge. A new study publishing in *PLOS Computational Biology* theoretically analyzes the effects of incentives and meta-incentives on resolving social dilemmas. Soka University researcher Dr Isamu Okada and colleagues devise and analyze a replicator dynamics model of the extended public good games to solve the issue.

The authors explain that the meta-incentives encouraging rewards given to co-operators in social dilemmas significantly prevent cooperative incentive-non-providers who shirk their duty to provide incentives to others, or the second-order free riders.

The authors focused on one human trait, a linkage, which means individuals who are willing to provide incentives would automatically provide meta-incentives as well.

Allowing a reward-to-reward linkage, rather than a punishment system, can resolve the social dilemma without any social costs for formal incentive systems.

"Unexpectedly, the role of the reward system in resolving social dilemmas is significant," says Okada. "We would apply it to real social and biological situations in the absence of the strong institutions by analyzing the efficiency of incentives required for keeping cooperation."

More information: Okada I, Yamamoto H, Toriumi F, Sasaki T

(2015) The Effect of Incentives and Meta-incentives on the Evolution of Cooperation. *PLoS Comput Biol* 11(5): e1004232.DOI: 10.1371/journal.pcbi.1004232