

Democracy pays: Majority wants both punishment for tax evaders and things to go fine for themselves

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In relatively large communities, individuals do not always obey the rules and often exploit the willingness of others to cooperate. Institutions such as the police are there to provide protection from misconduct such as tax fraud. But such institutions don't just come about spontaneously because they cost money which each individual must contribute.

An interdisciplinary team of researchers led by Manfred Milinski from the Max Planck Institute for Evolutionary Biology in Plön has now used an experimental game to investigate the conditions under which institutions of this kind can nevertheless arise. The study shows that a group of players does particularly well if it has first used its own "tax money" to set up a central institution which punishes both free riders and tax evaders. However, the groups only set up institutions to penalise tax evasion if they have decided to do so by a democratic majority decision. Democracy thus enables the creation of rules and institutions which, while demanding individual sacrifice, are best for the group. The chances of agreeing on common climate protection measures around the globe are thus greater under democratic conditions.

In most modern states, central institutions are funded by public taxation. This means, however, that tax evaders must also be punished. Once such a system has been established, it is also good for the community: it makes co-existence easier and it helps maintain common standards. However, such advantageous institutions do not come about by

themselves. The community must first agree that such a common punishment authority makes sense and decide what powers it should be given. Climate protection is a case in point, demonstrating that this cannot always be achieved. But how can a community agree on sensible institutions and self-limitations?

The Max Planck researchers allowed participants in a modified public goods game to decide whether to pay taxes towards a policing institution with their starting capital. They were additionally able to pay money into a common pot. The total paid in was then tripled and paid out to all participants. If taxes had been paid beforehand, free riders who did not contribute to the group pot were punished by the police. In the absence of taxation, however, there would be no police and the group would run the risk that no-one would pay into the common pot.

Police punishment of both free riders and tax evaders quickly established cooperative behaviour in the experiment. If, however, tax evaders were not punished, the opposite happened and the participants avoided paying taxes. Without policing, there was no longer any incentive to pay into the group pot, so reducing the profits for the group members. Ultimately, each individual thus benefits if tax evaders are punished.

But can participants foresee this development? To find out, the scientists gave the participants a choice: they were now able to choose individually whether they joined a group in which the police also punish tax evaders. Alternatively, they could choose a group in which only those participants who did not pay into the common pot were penalised. Faced with this choice, the majority preferred a community without punishment for tax evaders – with the result that virtually no taxes were paid and, subsequently, that contributions to the group pot also fell.

In a second experimental scenario, the players were instead able to

decide by democratic vote whether, for all subsequent rounds, the police should be authorised to punish tax evaders as well as free riders or only free riders. In this case, the players clearly voted for institutions in which tax evaders were also punished. "People are often prepared to impose rules on themselves, but only if they know that these rules apply to everyone," summarises Christian Hilbe, the lead author of the study. A majority decision ensures that all participants are equally affected by the outcome of the vote. This makes it easier to introduce rules and institutions which, while demanding individual sacrifice, are best for the group.

The participants' profits also demonstrate that majority decisions are better: those groups which were able to choose democratically were more cooperative and so also made greater profits. "Democracy pays – in the truest sense of the word," says Manfred Milinski. "More democracy would certainly not go amiss when it comes to the problem of global warming."

More information: Christian Hilbe, Arne Traulsen, Torsten Röhl, and Manfred Milinski, Democratic decisions establish stable authorities that overcome the paradox of second-order punishment, *PNAS*, 23 December 2013. www.pnas.org/cgi/doi/10.1073/pnas.1315273111

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