

Sustaining today's resources for future users

July 9 2014, by Courtney Coelho

With sustainability a constant and global concern, the present-day users of both non-renewable and potentially renewable resources must take into account what will be left over for future generations. In a study in the July 11 issue of *Nature*, researchers devise an 'Intergenerational Goods Game' to determine what mechanisms can maintain cooperation with the future. Louis Putterman, chair and professor of economics, explains the study in a "News and Views" column in that issue.

He spoke with Courtney Coelho about the research and its implications.

Explain the results of the study that you write about.

In that study, participants were seekers of part-time employment in an online marketplace. They were told that part of their prospective bonuses would be passed along to another group provided they didn't keep too much for themselves. Each group had a pool of 100 units and they could take up to 50 units and still leave a pool to be passed on. If less than 50 units had been taken, the experimenter would replenish the pool to 100 and then pass it along to the next group. In some cases, each individual decided what they wanted to take, and in others, the group decided by vote what each would take, with the median proposal being decisive. In the instances where individuals made their own decisions, the researchers found that most decided to take 10 or less so that if everyone acted that way the resource would be replenished for another group. In the groups that voted, most also suggested that they take 10 or less. But the key finding was that if the individuals made the decision on their own, there were usually one or two who took more than 10, causing the

[sacrifice](#) that the majority made to be for naught because there's no resource replenished for the next generation.

Why is it important to understand this type of behavior?

The immediate application is to the environment and climate change. Intuitively, the idea is that in order for the population of the planet collectively to leave a sustainable resource base for future generations with a sustainable climate and environment, some sacrifices have to be made. And what they're studying is how many people are willing to make the sacrifice and under what institutional scheme that would be enough. The implication from this small-scale experiment is that most people are willing to make enough of a sacrifice to keep resource use down to where there will be a sustainable environment in the future. But if individuals are left completely free to do what they each want to do, there are unfortunately enough selfish individuals to tip the balance toward an environmental catastrophe. The good news is that if people can be assured that they're not the only ones making the sacrifice and the sacrifice is not for naught, there is more than enough willingness to make those sacrifices. Achieving that assurance requires that there be some sort of mechanism for making joint decisions, with some kind of institution that binds everybody.

What real-life scenario could this research be applied to?

It could be anything where we have environmental regulations that become binding on people. We can pass laws on how much coal can be burned and what fuel-efficiency standards need to be followed, and based on the experiment we should expect that there should be some individuals trying to get around these laws and use as much fossil fuels as

they can get their hands on. But those individuals can be controlled by the power of the regulators. You put in place fines and other deterrents, and despite this minority's anti-social or amoral way, it's then in their interests to follow the rules. Of course, this leaves out the nitty gritty of politics, ideology, and the disproportionate influence some hold today, but these things don't prevent there from being important insights to draw from abstract research like this study.

How did this study differ from previous research on resource sharing?

I don't know of any previous studies that have a similar design. What's very novel about this study is the mimicking of a multi-generational setting. There are a lot of studies of dilemma situations in which the individual interest and group interest are potentially opposed to each other, and those studies have shown that often many [individuals](#) are willing to cooperate if they believe that others are willing to cooperate. But they haven't been done in this intergenerational framework. What's interesting is that in the one-generation studies, one of the surefire solutions is to let the subjects vote on what each is supposed to do. The conflict between group and individual interest is almost magically washed away by voting. But the intergenerational thing is novel because future generations who would also be affected by the vote are not present. It requires some actual concern for the future or some moral weighing in for these [future generations](#) in order for the voting to be an effective solution and that's what's novel here. They are able to demonstrate at least in the experimental environment that that's present among hundreds of anonymous participants.

More information: * www.nature.com/nature/journal/...ull/nature13530.html

* www.nature.com/nature/journal/...ull/nature13510.html

Provided by Brown University

Citation: Sustaining today's resources for future users (2014, July 9) retrieved 9 April 2024 from <https://phys.org/news/2014-07-sustaining-today-resources-future-users.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.