

New experiments challenge economic game assumptions

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Too much confidence is placed in economic games, according to research by academics at Oxford University.

While traditional economic and evolutionary theory predicts that people will typically seek to maximise their own success, the results of

economic games have shown people to be much more altruistic than expected.

But a series of experiments carried out by evolutionary biologists at Oxford found that people are just as generous towards computers, which cannot benefit materially from cooperation, and that simply misunderstanding the game may lead to altruism in many cases.

The results are published in the journal *Proceedings of the National Academy of Sciences (PNAS)*.

Lead author Dr Max Burton-Chellew, of Oxford's Department of Zoology, said: 'Game theory can be used to predict how a self-interested and rational person will behave in social situations. However, economic games, in which people have to make decisions on how to allocate money to themselves and others, have consistently shown that these predictions fare poorly. In particular, it seems that people are overly generous and altruistic, and appear to be primarily motivated by concerns of fairness rather than maximising income. As a result, various theories of "[social preferences](#)" have since been developed to explain the results.'

The idea behind these 'social dilemma' games is that because they involve making genuinely costly decisions - for example, giving up money (albeit money handed out by the experimenter) - they reveal what people really want and care about, or 'prefer'.

Dr Burton-Chellew said: 'The interpretation of such costly decisions is that they reveal genuine preferences that can be measured in the laboratory. This has led to the conclusion that there are different social-types of people that can be reliably classified in the lab, and that most people care about fairness so much that they are even willing to forego their own success to help others. These people are known as "[conditional](#)'

[cooperators](#)", and the results primarily come from one type of experiment called the public-goods game, which aims to model how cooperative people are when in a group - for example, how willing they are to pay taxes to help society.

'In this game, players have some money that they can either keep for themselves or partially or fully donate to a group project. Because many people appear to try to match the contributions of their group mates - known as "conditioning" - it has been argued that they are willingly sacrificing their own income in order to be fair and equalise income among the group.

'In contrast, traditional economic models and public policy have often assumed people are self-interested "free-riders" that won't contribute at all.'

It has been argued that this distribution of social-types could be used to tailor local policies. Thus, in places with large numbers of fair-minded people, policies should highlight the cooperation of others to stimulate further cooperation, whereas in locales with many free-riders, policies should aim at punishing non-cooperation to deter free-riders.

The Oxford research involved setting up public-goods games of varying complexity with humans and computers, and solely humans.

Dr Burton-Chellew said: 'We found that many of the so-called conditional cooperators are confused and do not seem to understand the public-goods game, appearing to think that being generous towards others will make them [money](#). We primarily demonstrated this by having them play with computers, which cannot benefit from this cooperation, and showing that people behaved the same way regardless.

'The upshot of this is that these games are not reliably measuring

motivations and therefore may not be informative of real-world behaviour. This has obvious policy implications, as well as implications for our understanding of the evolution of social behaviour. Furthermore, it casts doubt on the idea that there are fundamentally different social-types of people. I think it is more useful to focus on when and where [people](#) cooperate, rather than identifying who does and does not cooperate, especially in the artificial world of the lab.

'In short, I would argue that there is too much confidence placed in the results of these [economic games](#); too much confidence in their ability to measure social preferences.'

More information: Conditional cooperation and confusion in public-goods experiments, Maxwell N. Burton-Chellew, *PNAS*, [DOI: 10.1073/pnas.1509740113](#) , www.pnas.org/content/early/2016/01/15/1509740113

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