



*Strengthening local capacity
in the economic analysis
of environmental issues*

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Collective Action and Other-regarding Behavior in Thailand: An Assessment of Games vs Reality

Altruism, trust, and cooperation are important social factors that must be taken into account by economists and policymakers. However, this type of “other-regarding” behavior can be difficult to measure and assess. It has also not been well studied in developing countries. To try and shed light on this important area, a new EEPSEA study has looked at other-regarding behavior in a part of Thailand that is a coastal erosion hotspot.

The study is the work of Rawadee Jarungrattapong from Thailand Development Research Institute and Suparee Boonmanunt from Mahidol University. It involved a series of experimental games designed to assess the various facets of other-regarding behavior. It then compared the results of these games to actual levels of cooperative behavior ‘in the field’. It found that the games, at least for this sample, were not able to generalize cooperative behavior in real life. It therefore recommends that further research is needed to provide more empirical evidence on the relationships between experimental games and other-regarding behavior.



A summary of EEPSEA Research Report No. 2014-RR2: ‘Altruism, Cooperation and Trust: Other-regarding Behavior and Collective Actions in Thailand’ by Rawadee Jarungrattapong and Suparee Boonmanunt. Comments should be sent to Rawadee Jarungrattapong, Thailand Development Research Institute, 565 Soi Ramkhamhaeng 39, Ramkhamhaeng Road, Wangthonglang, Bangkok 10310 Thailand.
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Other-regarding behavior

In daily life, people often act altruistically, and seemingly unselfish behavior is common among friends, family and, sometimes, even among strangers. As mentioned above, this kind of behavior is often classified as 'other-regarding' behavior. However, classical economic theory does not normally take such behavior into account. Many economic researchers are therefore very interested in it and the theoretical implications it may have for economics as a whole.

As a result, there has recently been a growing interest in testing and measuring people's other-regarding behavior using various games. These games include the dictator game, the trust game, and the public good game. The results of such games have been taken as a proxy measure for altruism, trust, cooperation or regard for others.

However, despite this on-going research, it is still unclear how consistent people are when they play such games and whether the results of the different games can be correlated in any way. It is also unclear to what extent the results of such games can be used to explain or predict actual behavior. What's more, as also mentioned above, most of the work on other-regarding behaviors has been carried out in developed countries, which means there is

little information available that is specifically relevant to developing economies.

Looking at other-regarding behavior in a developing country

The current EEPSEA study therefore set out to try and answer some of the questions about other-regarding behavior in the context of a developing nation. In particular, it looked at the validity of using 'games' to investigate this type of behavior. It was hoped that the results of the study would be of use to policymakers who might be interested in using such games to help them make decisions (for example, as a cost-effective way to choose likely communities for cooperative work).

The study compared the results of three games with the actual collective behavior of households in the Kok Kham sub-district of Thailand's Samut Sakhon province (Figure 1). The games were the trust game, the dictator game and the public good game; all had been developed through pre-tests with undergraduate students at Khon Kaen University.

The Kok Kham sub-district was selected as the study site because its villagers have acted collectively on various coastline conservation projects. Specifically, the villagers have built bamboo dikes (top right photo) and planted mangroves to

help alleviate coastal erosion. Some villagers have also participated in coastal surveillance work to prevent illegal fishing.

The study tried to link the results of the experimental games, which serve as a proxy of other-regarding behavior, with the real collective behavior of villagers in the study site. In addition, the study also tested how experimental factors (such as the order in which the games were played) affected results.

Study participants

Unlike many earlier studies on other-regarding behavior that used students as a participant pool, this study used data from a sample of "non-students" or villagers in rural Thailand to represent actual behavior. The study focused on Village Nos. 3 and 8 of the Kok Kham sub-district. Most of the households in these villages got their livelihoods from aquaculture and small-scale fisheries. In all, 96 participants from these villages were recruited for the study.

These participants were asked to play the dictator game, the trust game and the public good game, which measured their altruism, trust and cooperation behaviors, respectively. To see whether the order in which the games were played affected results, there were six 'game playing' sessions in which all 'orders of play' were trialed.



Figure 1. The study area at two villages in Kok Kham sub-district, Samut Sakhon province

Source: World Bank's *Thailand Environment Monitor 2006*; Google Earth, April 2014

Sixteen participants took part in each 'game playing' session.

The games

The dictator game examined the extent to which individuals will sacrifice a portion of their own entitlement for the direct benefit of others. In the game, participants (senders) were asked to decide how much of the THB100 (USD3.33) endowment given to them as part of the game would be transferred to the participants they are randomly and anonymously paired with (receivers). The amount they decide to send is a proxy of altruism. The game was played over two rounds, during which each participant was paired with a different person and took on the role of both sender and receiver.

The trust game was an extension of the dictator game. In this game, the amount that the senders decide to send is first tripled before being given to the receivers. The receivers then have to decide how much they will send back to the first mover (senders). This set up meant that the amount the first mover sent could be seen as an indication of the amount of trust they placed in the receiver to send some money back.

The public good game determined the extent to which individuals would contribute to a public account (which would benefit everyone). The game was played in groups of eight. Each group member decided how much of an endowment of THB50 (USD1.67) to keep for themselves and how much to give to the public account. The amount of money that ended up in the group's public account was then doubled and divided equally among the group's members. In this way, the amount participants contributed to the public account gave an indication of their approach to cooperative behavior.

After the participants had played all three games, they were asked to fill out a survey questionnaire



Bamboo dikes to deal with coastal erosion were constructed through collective action in Kok Kham sub-district, Samut Sakhon province, Thailand

covered the participants' demographic characteristics, their trust attitude, and their past trust behavior. The questionnaire also looked at the participants' risk preference and asked about the community collective action projects that they had taken part in (i.e., bamboo dike building, mangrove afforestation, and coastal surveillance to prevent illegal fishing). The latter was cross-checked with information on actual participation in collective coastal conservation activities based on the official records of the Upper Gulf of Thailand Conservation Network (UGTCN).

Game results

Interestingly, the study found positive correlations among the results of the three games, implying that people with more trusting behavior tended to be more altruistic and cooperative (and vice-versa). There was only limited evidence that the order in which the games were played had any effect on results of the dictator game and the public good game; however, the order of play seemed to have an effect on the result of the trust game.

The study participants gave an average of 35.7% of the maximum amount that could be sent to the receivers in the dictator game,

comparable with the average sending rate of 36.2% during the sessions wherein the game was played first (Table 1). This sending rate was more than that of the student-participants in earlier studies on other-regarding behavior. This suggests that rural villagers might be more motivated to be altruistic than students – perhaps because they interact with people in their communities and know each other.

The average amount sent in the trust game was 39.7% of the maximum amount that could be sent. This result was slightly lower than that of previous studies. However, the average sending rate when the game is played first is 49.2% (Table 1). The amount sent in the trust game was observed to be lower (27.3%) when it was played after the dictator game. However, when the ordering was reversed, the amount sent in the trust game was higher (52.0%). There seemed to be no clear reason for individuals sending significantly less amounts in the trust games when these were preceded by the dictator games (and more when the ordering was reversed). One possible reason may be that in the dictator game, people did little or nothing to earn their endowments but just kept an average of THB66 of their THB100 windfall. Observing this may have prompted them to

Table 1. Amount sent/contributed for each game by contributors and non-contributors in collective actions

Games	No. of participants	% of maximum amount that could be sent/contributed				
		Average		Median		
	Whole sample	First game only	Whole	First game only	Whole	First game only
Dictator game						
Non-contributors	66	24	36.2	37.0	40.0	40.0
Contributors	30	8	34.5	33.8	30.0	35.0
Total	96	32	35.7	36.2	40.0	40.0
Trust game						
Non-contributors	66	21	36.0	47.1	30.0	50.0
Contributors	30	11	47.8	53.2	40.0	50.0
Total	96	32	39.7	49.2	30.0	50.0
Public good game						
Non-contributors	66	21	54.4	51.1	50.5	47.5
Contributors	30	11	62.1	63.5	65.0	70.0
Total	96	32	56.8	55.3	55.0	60.0

Note: The endowment was THB100 for the dictator game and the trust game, and THB50 for the public good game.

be reluctant to give up much of their own money in the trust game that followed. This was because in the trust game, it was more risky to get the sent amount back from the receivers, making it harder to decide on the amount to send.

The contribution rates in the public good game, the proxy of cooperation, were similar to earlier studies on other-regarding behavior. Participants in this game contributed an average of 56.8% of the maximum amount that could be sent, which is comparable to the average of 55.3% if the game is the first one played (Table 1).

Comparing games and real life

When the results of the games were compared to people's decisions to participate in actual cooperative activities, the study found that there was little

correlation between the two. Indeed, there was no significant difference in the amount of money sent in the dictator and trust games by those who had and had not taken part in cooperative activities. In addition, there was no significant difference in the amount contributed in the public good game by people who had and had not taken part in cooperative activities. What's more, the answers that participants gave to the trust questions in the study survey did not appear to predict participation rates in actual cooperative activities.

There are some potential reasons why participation in the coastal conservation activities undertaken by many of the study participants might not be a good proxy for their other-regarding behavior. This may, in turn, go some way in explaining why there was no correlation between game results and actual participation in these activities.

Firstly, the coastal conservation activities might not be purely for the 'public good' since some villagers might get direct, personal benefits from them. Secondly, some villagers might have thought that the activities were ineffective towards preventing coastal erosion and therefore did not take part for that reason. Thirdly, the decision to work collectively in a community may be dependent on other 'historical' factors (e.g., on the types of relationships that existed between people). Lastly, the size of the study sample may have been too small.

Recommendation

Despite these considerations, the results of the study do suggest that the three standard games used in this study might not be able to generalize cooperative behavior in real life. As an understanding of 'other-regarding' behavior is so important, the study therefore recommends that further research should be done to provide more empirical evidence on the relationships between games and behavioral choices.

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