



# Norms in an asymmetric Public Good experiment



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## HIGHLIGHTS

- One-shot Public Good experiment with asymmetric endowments.
- Elicitation of normative beliefs (“What is ‘right’?”, “What do others think is ‘right’?”) and descriptive beliefs (“What will others do?”)
- A social norm does not emerge.
- Contributions are influenced by what is ‘right’ and the behavioral rule ‘Do what others do who are like me’.
- Rich players consider absolute contribution fairness as ‘right’ but practice relative fairness, while the exact opposite is true for poor players.

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## ABSTRACT

In a Public Good experiment we find that rich and poor players have different fairness considerations and that contributions are influenced but not determined by what they think is ‘right’ and by ‘what others do’ who are like them.

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## 1. Introduction

It is well-documented that the average behavior in Public Good experiments neither follows profit maximization (zero-contributions) nor welfare maximization (full contributions).<sup>1</sup> Instead, subjects contribute roughly 50% of their endowment in one-shot games or in the initial period of repeated games. Conditional cooperation experiments<sup>2</sup> find that this behavior often results from the intent to contribute similarly to the co-players. Fehr and Schmidt (1999) and Bolton and Ockenfels (2000) explain this by subjects’ inequality aversion concerning the payoffs. Another explanation is that people tend to follow norms concerning the contributions. However, in a symmetric setting it is indistinguishable whether subjects follow the rule ‘do what others do’ or whether they try to equalize payoffs. We address this issue by conducting a Public Good experiment with asymmetric endowments.

Another issue is that subjects might feel that even if a norm exists, others might not follow it. Reuben and Riedl (2013), for example, find that subjects do not contribute what they consider as “fair”, meaning they do not follow the norm. Elster (1989), Bicchieri (2006)

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<sup>1</sup> For overviews see Ledyard (1994), Sturm and Weimann (2006) and Chaudhuri (2011). Zelmer (2003) provides a meta-study on Public Good behavior.

<sup>2</sup> See for example Keser and Van Winden (2000), Fischbacher et al. (2001), Kocher et al. (2008).

and Young (2008) argue that for a social norm to exist, sufficiently many people must know about it and sufficiently many people must follow it. Our setting allows us to investigate this and other hypotheses. We elicit a player's individual norm (NORM) by asking for the 'right' contribution, his normative beliefs (NORM.BELIEF) by asking what he believes others consider as 'right' and his descriptive beliefs about others' contributions (PG.BELIEF). Murphy and Ackermann (submitted for publication) conduct a similar investigation using the SVO slider measure (a measure of social preferences related to the Liebrand (1984) ring test) to elicit subjects Social Value Orientation (SVO) and their SVO beliefs about others instead of normative beliefs. They find that decisions are influenced by the SVO and the beliefs about the co-players' actions.

Results from asymmetric endowment Public Good experiments are ambiguous. While Chan et al. (1996), Chan et al. (1999) and Buckley and Croson (2006) find that endowment heterogeneity leads to higher contributions, Cherry et al. (2005) and Anderson et al. (2008) find the opposite. We are especially interested in subjects' norms and beliefs concerning different player types, which is why we elicited all values for all existing player types.

## 2. Experimental design

In a classroom experiment subjects played a linear one-shot Public Good game in groups of  $n = 4$  players, that were either symmetric (SYM) or asymmetric with respect to endowment (ASYM.ENDOW). Player  $i$  faced the profit

$$\pi_i = E_i - c_i + 0.6 \sum c_j \quad (1)$$

where  $E_i$  is his endowment and  $c_i$  is his contribution to the Public Good.  $\sum c_j$  is the sum of all players' contributions. Players in the SYM treatment and RICH players were endowed with 35 lab dollars, POOR players with 23 lab dollars. Groups in the ASYM.ENDOW treatment consisted of two RICH and two POOR players. To reduce the attraction potential of focal points, endowments were chosen so that 50%-contributions were not an integer and not near a multiple of 5. After reading the instructions, subjects in the ASYM.ENDOW treatment were asked 7 questions concerning norms, normative beliefs, descriptive beliefs and their contribution to the Public Good:

1. What do you think is the 'right' contribution... (NORM)  
     ...for a RICH player?  
     ...for a POOR player?
2. What do you believe your fellow students on average think is the 'right' contribution... (NORM.BELIEF)<sup>3</sup>  
     ...for a RICH player?  
     ...for a POOR player?
3. What do you believe your fellow students will actually contribute? (PG.BELIEF)  
     RICH players will contribute...  
     POOR players will contribute...
4. What do you want to contribute? (PG)

Subjects in the SYM treatment answered only 4 questions as there was only one player type. For NORM.BELIEF and PG.BELIEF subjects received incentive compatible payments. If subjects' beliefs deviated less than 1 lab dollar from the actual mean they earned additional 4 Euros, for less than 2 lab dollars 2 Euros, for less than 3 lab dollars 1 Euro.<sup>4</sup> Furthermore, for each lab dollar earned in the Public Good game subjects earned 0.10 Euro as well as a lump-sum payment of 1.20 Euro.

Both the SYM and the ASYM.ENDOW treatment were conducted in an EARLY.INFO and in a LATE.INFO setting. In EARLY.INFO subjects were told about their player type and their participation in the Public Good game right from the beginning. In LATE.INFO they were informed after they had answered questions 1 to 3. Concerning the first three questions (NORM, NORM.BELIEF, PG.BELIEF), subjects in the LATE.INFO treatment are referred to as CLUELESS players as they do not know their own player type, yet.

Between PG.BELIEF and PG subjects answered a demographic survey that involved questions about age, gender, study, political orientation and where they grew up. Subjects were graduate and undergraduate students in economics or law. We conducted 4 classroom sessions with a total of 120 subjects that were randomly assigned to treatments and player types. 20 subjects were assigned to each player type and information treatment. One survey could not be used due to incomplete answers. Sessions lasted roughly 20 min. Subjects earned between 3.10 Euro and 15.10 Euro with an average of 7.55 Euro.

## 3. Results

### 3.1. Norms and beliefs

Table 1 shows the mean responses subjects gave for the player types in their treatment. Contributions of symmetric and RICH players are in line with results from other Public Good experiments.<sup>5</sup> However, POOR players contribute a significantly greater share of their

<sup>3</sup> Note that question 2 does not distinguish between what fellow RICH and fellow POOR students think is 'right'.

<sup>4</sup> In the ASYM.ENDOW treatment incentives were cut in halves since subjects gave twice as many answers.

<sup>5</sup> See Ledyard (1994) or Sturm and Weimann (2006).

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