

Determinants of cooperation

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Motivation

In this project we are interested in studying the determinants of cooperation. More precisely, we want to see what decides an economic agent to choose a team remuneration scheme rather than an individual one. In order to answer our question, we need to think about what cooperation (or teamwork) implies so that we can control for each aspect.

- 1) Teamwork implies that I will be exposed to my partner's performance and his team-spirit. My payoff will depend on whether my partner is efficient and on whether he is trying his best for the team (rather than shirk)
- 2) Teamwork implies that my partner will be exposed to my performance and team-spirit.
- 3) Teamwork sometimes implies efficiency gains i.e. a team's production is sometimes (but not always) more than the sum of the individuals' productions.)

When making the decision to engage in teamwork, an economic agent may be influenced (positively or negatively) by each of these aspects. For instance, a given individual may be reluctant to be exposed to the team-spirit of his partner but not have a problem with being affected by his performance level (this would be the case of someone who does not want to be the victim of somebody else's lack of team-spirit but wouldn't mind helping a less able partner with good intentions) while another one may not want to be affected by his partner's performance even if he's working hard for the team.

Experimental design of main tasks

At each step, a participant i will be matched to another participant j and will have to perform a real-effort exercise for 5 minutes. She will then have to decide which proportion (x) of her performance she wants to contribute to the team task, the rest ($1-x$) being automatically contributed to the individual task, knowing that her matched partner has (or had at some point) to make the same decision (i.e. invest a proportion y of her performance to the team task, and a proportion $1-y$ to the individual task). The participant i 's payoff for the team task is: $1,2 * (\text{perf}_i * x + \text{perf}_j * y) / 2$ pts and her payoff for the individual task is: $(1-x) * \text{perf}_i$ pts. What varies across steps is the method used to match partners.

Step 1: Random matching. The participant has to perform the real-effort exercise for 5 minutes and then to decide which proportion of her performance to contribute to the team task vs the individual task, knowing she will be matched to *a random participant* from her session.

Step 1 provides us a baseline for the performances and contribution choices of our participants.

Step 2: "Same team-spirit" matching. The participant has to perform the real-effort exercise for 5 minutes and then to decide which proportion of her performance to contribute to the team task vs the individual task, knowing she will be matched to *the participant from her session who choose to contribute to the team task a proportion as close as possible to the proportion she chooses to contribute to the team task herself*.

The idea of Step 2 is that participant i cannot fear that participant j is taking advantage of him by not contributing as much to the team task as herself. Notice that participant i cannot either take advantage of participant j by contributing (in proportion) less than him. Still, participants i and j's performances may not be similar so that their contributions in absolute terms may be quite different.

Step 3: "Same performance" matching. The participant has to perform the real-effort exercise for 5 minutes and then to decide which proportion of her performance to contribute to the team task vs the individual task, knowing she will be matched to *the participant from her session whose performance is as close as possible to her own performance*.

In Step 3, both partners' performances are as close as possible so that participant i cannot fear being matched with a less (or a more) efficient partner. Even though both performances are similar, contribution choices of the two partners can be very different.

In order to control for possible order effects we randomize the order of these 3 first steps.

Step 4: Random matching-past performance. The participant has to perform the real-effort exercise for 5 minutes and then to decide which proportion of her performance to contribute to the team task vs the individual task, knowing she will be matched to *a random participant* from her session. This time, participant j's performance and contribution choices relevant to the team task payoff of participant i are his Step 1 performance and contribution choice.

The aim of this Step is to look at the contribution choice of participants when neither their performance nor their contribution choice can influence their partner's payoff. Indeed, Step 4 is really similar to Step 1 except that participant i's performance and contribution choice cannot affect participant j's payoffs.

Preliminary results

We are primarily interested in whether our participants choose different contributions (as a proportion of their performance) given the different matching methods used.

We regress the proportion contributed in the team account on the performance achieved, the sex of the participant, a “same contribution” dummy, hereafter *sc* (equal to 1 when *RealStep*=2 and to 0 otherwise) and a “same performance” dummy, hereafter *sp* (equal to 1 when *RealStep*=3 and to 0 otherwise).

The first result is that our subjects contribute more to the team account in the “same contribution” treatment than in the control treatment (*p*-value of *sc* < 0.01). It is also true but to a somewhat lesser extent that our subjects contribute more to the team account in the “same performance” treatment than in the control treatment (*p*-value of *sp* = 0.06).

Running separate regressions for men and women, we find that *sc* and *sp* are both positive and highly significant (both *p*-values = 0.01) in women’s regression while as far as men are concerned *sc* is positive and significant (*p* = 0.06) but *sp* is not significant at all (*p* = 0.79). Women are more willing to contribute to the team account both when their partner is of performance close to their own and when he/she contributes about the same proportion to the team. Men are only more prone to contribute to the team effort when they are assured that their teammate has the same team-spirit.

However, when running a single regression for all participants, the interaction terms *female*sc* and *female*sp* fail to reach significance. We could have expected a positive and significant coefficient of *female*sp* showing that women increase more their contribution to the team account between the control treatment and the “same performance treatment”.

We add *Belief*, *Belief*sc* and *Belief*sp* to the regressors. *Belief* is the answer to the question “What percentage of participants in your session has a random-matching performance inferior to yours? ». The more confident a subject is about his/her relative performance, the higher *Belief* will be. The main results from this regression are that both men and women tend to contribute more to the team in the “same-contribution matching” than in the “random matching” and that women and subjects who are confident in their relative performance contribute more to the team in the “same-performance matching”.