

Egalitarianism and Competitiveness

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Egalitarianism and Competitiveness

*Björn Bartling, Ernst Fehr, Michel André Maréchal and Daniel Schunk**

Competition is a cornerstone of economic life because it promotes efficiency in various contexts. Individuals are often confronted with the decision whether to self-select into a competitive environment. An important example is occupational choice: a self-employed lawyer is in constant competition for clients, whereas a lawyer working as a civil servant in a public authority is not. Understanding who self-selects into competitive environments and who shies away from them is thus important. In this paper, we test the hypothesis that individuals with a preference for egalitarian outcomes are more reluctant to self-select into competitive environments. Our hypothesis is driven by (i) the observation that payoff inequalities among winners and losers arise as a natural by-product of competition and (ii) the empirical literature showing that a non-negligible fraction of people is willing to incur costs to reduce earnings inequalities (see, e.g., Christopher Dawes et al., 2007, or Ernst Fehr and Klaus Schmidt, 2006).

We analyze data from several economic experiments implemented in a household survey study with mothers of preschool children. We measure competitiveness by giving our subjects the choice between competing in a tournament or receiving a piece rate for a real effort task (for a similar design see Muriel Niederle and Lise Vesterlund, 2007). In addition, all participants went through a series of simple, binary distributional choices affecting their own earnings and those of another anonymous participant. They also participated in incentivized lottery choices. Finally, since our experiments are integrated into a household

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survey, we have a rich set of additional information about the participants, including socio-economic background and personality traits. Our data therefore allow for a within-person analysis of the relationship between social preferences and self-selection into competition, while controlling for a number of other potential factors.

We find a statistically significant negative relationship between preferences for egalitarian choices (choices that reduce favorable or unfavorable payoff inequality) and self-selection into competition. A preference for egalitarian outcomes can be based on two underlying motives: behindness aversion (aversion to negative payoff inequality) and aheadness aversion (aversion to positive payoff inequality). We categorize subjects according to these two motives and investigate the extent to which these motives are related to self-selection into competition. While we find a significantly negative relationship between aheadness aversion and self-selection into competition, we fail to find a significant relationship between behindness aversion and self-selection into competition. This second result contrasts with our hypothesis, which suggests that not only aheadness averse, but behindness averse subjects as well, are less competitive. We thus cannot confirm this part of our hypothesis. In addition, we find significant evidence that risk seeking and overconfident subjects, as well as those with higher task-related skills, self-select into competition. Finally, we provide evidence that competitiveness is also a matter of personality characteristics such as agreeableness.

Recent experimental studies examine the motives related to self-selection into different incentive schemes, e.g. Thomas Dohmen and Armin Falk (2006) and Sabrina Teysier (2008). Dohmen and Falk (2006), for example, analyze the choice between a fixed and a variable payment, which was either a piece rate, tournament, or revenue sharing scheme. They find that self-selection is multidimensional, being based on ability, preferences, overconfidence, gender, and personality. Specifically, they find that subjects who behave

reciprocally in a sequential trust game are less likely to self-select into tournaments. In contrast, our paper measures social preferences in a non-strategic setting instead of focusing on reciprocity. However, to the extent to which back-transfers in the trust game are based on aheadness aversion, the results in Dohmen and Falk (2006) are consistent with ours.

I. Experimental Design: Household Experiments

This paper is based on data from a larger pilot study that explores the feasibility of integrating economic experiments into the German Socio-Economic Panel (SOEP), a large representative survey of private households in Germany. The experiments were adapted to take the time, technical, and spatial constraints implied by moving from the standard laboratory environment to the field (daycare centers and the mothers' households) into account. The study was conducted between May and November 2008 by specially trained, experienced interviewers from the same professional survey company that collects the data for the SOEP. The sampling procedure was as follows. First, request letters were sent to a stratified random sample of 95 daycare centers in the metropolitan area of Munich (Germany), of which 23 agreed to participate. If a center participated, they forwarded information leaflets and consent forms to all mothers of 5 to 6 year old children at the center. In total, 118 mother and child pairs participated in the study. The data used in this paper is based on the sample of mothers only. The mothers went through a computer assisted personal interview in their households. In the first part, each mother filled out a survey about her child and about her own personality, cognitive abilities, and socioeconomic status. The experiments were conducted in the second part of the interview. To minimize the interviewer's influence, the laptop computer was turned towards the subjects during the experiment in such a way that the interviewer could not see the actual choices made. Feedback on the outcomes of the experiments was given at the end of the interview only. The earnings from the experiments were paid out with a check that was sent by mail.

In a first experiment, we elicited social preferences using four simple binary choices that affected the participant’s income as well as that of another anonymously matched participant. The exact payoffs in the different games are shown in Table 1. The *prosociality* and the *costly prosociality game* consisted of choices between egalitarian and unequal distributions that favored the decision maker. Equalizing payoffs (i.e. increasing the other subject’s payoff to the egalitarian level) implied no financial cost in the *prosociality game*, while the decision maker had to incur costs to raise the other’s payoff in the *costly prosociality game*. In contrast, the unequal distributions favored the other subject in the *envy* and the *costly envy game*. The decision maker in the *envy game* can decrease the other subject’s payoff without incurring any cost to enforce an egalitarian outcome, while enforcing the egalitarian outcome was costly in the *costly envy game*. Each subject had to make all four choices (in a randomized order), but only one was determined randomly for actual payment at the end of the interview.

TABLE 1: Distribution games

Game	Distribution A	Distribution B
	self : other	self : other
<i>Prosociality</i>	10€ : 10€	10€ : 6€
<i>Costly prosociality</i>	10€ : 10€	16€ : 4€
<i>Envy</i>	10€ : 10€	10€ : 18€
<i>Costly envy</i>	10€ : 10€	11€ : 19€

In a second experiment, subjects could self-select into either a tournament or a piece rate payment scheme for a real effort task. The task was adapted from Niederle and Vesterlund (2007) and consisted of adding up series of three two-digit numbers for 90 seconds. First, each subject went through a 60 second practice round. Subjects were then asked to indicate

whether they thought they would perform better than another, randomly matched subject.¹ Subjects next chose between the two payment schemes. In the piece rate scheme, a subject was paid 2€ for every correctly solved exercise, while a subject in the tournament was competing against another randomly assigned participant of this study, and paid 6€ per correct answer in case she won against the other participant but nothing if she lost.² Each subject then had 90 seconds to solve as many of the exercises as possible. Paper and pencil were provided as a help, but the use of calculators was not allowed.

In a third experiment, we used the same procedure and protocol as Dohmen et al. (2007) to elicit risk preferences. Subjects made 20 choices between a lottery and a fixed payment. In the lottery, subjects could win 300€ or nothing with equal chance. The fixed payment increased from 0€ to 190€ by increments of 10€. Choices were made starting with the lowest safe payment of 0€. We use the switching point from the safe to the risky payment as measure of risk aversion: a lower switching point indicates higher risk aversion.³ We informed the subjects that one of their 20 choices would be selected randomly for potential earnings, and that another random device would decide with probability 1/9 whether the earnings from the lottery choice experiment would actually be paid out.

II. Experimental Results

While egalitarian subjects, i.e. those who consistently chose the egalitarian outcome, decided to compete in 55 percent of the cases, subjects who were not classified as egalitarian chose to compete in 72 percent of the cases. A Pearson χ^2 test rejects the null hypothesis of

¹ If an affirmative subject subsequently performed below average, we classified the subject as overconfident.

² Fehr et al. (2002) use a similar method to integrate sequential and interactive experimental games into a representative household survey.

³ Whenever a subject switched from the lottery to the fixed payment the interviewer asked the subject if she also preferred all higher fixed payments. If she agreed, the interviewer completed the table, otherwise she could continue filling out the table. None of the subjects had multiple switching points.

independence between egalitarianism and choosing to compete ($p=0.06$). To investigate the extent to which this finding can be attributed to aheadness or behindness aversion, we further classify egalitarian subjects into aheadness and behindness averse types. Subjects are aheadness averse if they consistently choose the equal distribution in the *prosociality* and in the *costly prosociality game*; they are behindness averse if they prefer the egalitarian distribution in the *envy* and in the *costly envy game*. While aheadness averse subjects chose to compete in 55 percent of the cases, subjects who made the unequal choice in both *prosociality games* chose to compete in 87 percent of the cases. A Pearson χ^2 test rejects the null hypothesis of independence between aheadness aversion and choosing to compete ($p<0.01$). We also find that behindness averse subjects chose to compete less often (59 percent) than subjects who chose the unequal distribution (67 percent) in both envy games. However, Pearson χ^2 tests suggest that this association is insignificant ($p=0.46$). We summarize our results in the following.

Result 1: *Egalitarian subjects self-select less often into competitive environments. This finding is primarily driven by aheadness averse subjects.*

We complement the nonparametric statistics with a regression analysis, controlling simultaneously for other factors that potentially influence self-selection into competition. We use Probit models and regress the choice for competition on dummies indicating whether the subject is egalitarian, aheadness averse, or behindness averse. We include an indicator for egalitarian subjects in the specifications reported in columns (1) and (2) of Table 2. Both specifications include our risk aversion measure, the overconfidence dummy, performance in the practice round (as a proxy for task-related ability), as well as a number of additional socio-economic control variables as indicated in the caption of Table 2. Column (2) additionally controls for cognitive skills and the Big Five personality dimensions. Consistent with the nonparametric tests, we find that the coefficient for *Egalitarian* is highly significant.

Ceteris paribus, a person with median characteristics in the explanatory variables is about 30 percent less likely to self-select into competition if she made the egalitarian choice in all four games. Columns (3) and (4) of Table 2 include dummies for aheadness and behindness averse subjects. Our results are consistent with the nonparametric results and show a very strong association between aheadness aversion and the decision to shy away from competition, but they provide no evidence for an association between behindness aversion and self-selection into competition.⁴ Furthermore, our regression results show that while more risk averse subjects are less likely to compete, overconfident subjects are more likely to compete. Both results make sense because the tournament involves more risk, and because overconfident subjects attach a higher subjective probability to winning the tournament. It is crucial to control for task-related ability differences because egalitarian individuals could be less able and thus less willing to compete. We used each individual's performance during the practice round as a control and found that its coefficient is always positive and highly significant, showing that more able people are significantly more likely to compete. Moreover, cognitive skills are related to behavior in various economic experiments (see, e.g., Daniel Benjamin et al. 2006, or Shane Frederick 2005). Potential correlations between cognitive skills and subjects' competition decisions could thus result in a spurious relationship between social preferences and self-selection into competition. We therefore include cognitive skills as a control variable in the model specifications reported in columns (2) and (4) of Table 2, but find no significant relationship between cognitive skills and the tendency to compete.⁵

⁴ Alternatively, we also estimated models where we include variables indicating the degree of egalitarianism (measured from 0 to 4), aheadness aversion (0-2), and behindness aversion (0-2), measured as the number of choices that correspond to the respective type classification. The conclusions from all these models are identical to those drawn from the four specifications presented below.

⁵ Cognitive skills were assessed using the German version of the "symbol correspondence test" (see Uwe Tewes, 1991), a sub-module of the non-verbal section of the widely used Wechsler Adult Intelligence Scale.

TABLE 2: Regression models

	(1)	(2)	(3)	(4)
Egalitarian	-0.297** (0.137)	-0.287** (0.135)		
Aheadness Aversion			-0.579*** (0.129)	-0.672*** (0.132)
Behindness Aversion			-0.048 (0.136)	-0.002 (0.139)
Risk Aversion	-0.033*** (0.011)	-0.034*** (0.012)	-0.036*** (0.010)	-0.039*** (0.012)
Overconfidence	0.520*** (0.149)	0.582*** (0.161)	0.560*** (0.136)	0.637*** (0.143)
Ability	0.111*** (0.036)	0.088*** (0.032)	0.136*** (0.037)	0.124*** (0.038)
Cognitive Skills		0.009 (0.007)		0.009 (0.007)
Extroversion		0.001 (0.013)		0.001 (0.017)
Conscientiousness		0.024 (0.020)		0.034 (0.022)
Agreeableness		-0.035* (0.018)		-0.054** (0.023)
Openness		-0.002 (0.016)		0.004 (0.020)
Neuroticism		-0.018 (0.017)		-0.019 (0.019)
Obs.	117	117	117	117
Pseudo R ²	0.352	0.400	0.391	0.452

Notes: The table reports Probit marginal effect estimates (standard errors in parentheses) evaluated at the medians of all covariates. The dependent variable is a dummy variable indicating whether the subject has chosen to compete. Age, age squared, cohabitation status, employment details, educational details, household income, household income squared, household size, and home ownership are included as additional controls. Significance levels are denoted as follows: * p<0.1, ** p<0.05, *** p<0.01. The regressions contain only 117 observations since one subject did not want to take part in the lottery choices.

We summarize these findings as follows.

Result 2: *Less risk averse and overconfident subjects as well as those with higher task-related skills are more likely to self-select into competitive environments.*

We finally include the Big Five personality dimensions *Extroversion*, *Conscientiousness*, *Agreeableness*, *Openness*, and *Neuroticism* in our regression analysis (see columns (2) and (4)).⁶ Table 2 shows that selection into competition is also a matter of personality: subjects scoring high on the personality characteristic *Agreeableness* are less likely to self-select into the tournament. *Agreeableness* is associated with characteristics such as altruism, trust, modesty, and pro-social attitudes (see William G. Graziano and Nancy H. Eisenberg 1997; Graziano et al. 2007). These findings are summarized in our last result.

Result 3: *Subjects scoring high on the Big Five personality trait Agreeableness are less likely to self-select into competitive environments.*

III. Conclusion

We integrated economic experiments into a household survey study and analyzed the relationship between social preferences and competitiveness in a sample of mothers of preschool children. We tested the hypothesis that egalitarian subjects are less inclined to self-select into competitive environments, which can produce winners and losers and thus potentially large payoff inequalities. Controlling for a number of psychometric and socio-economic factors, we find a strong and statistically significant negative relationship between egalitarian choices and self-selection into competition. Exploring the extent to which this result can be linked to aheadness or behindness aversion, we find that aheadness aversion is the main motive explaining our results. In contrast, we find no significant relationship

⁶ A fifteen item version of the Big Five questionnaire was used (Max Dehne and Jürgen Schupp 2007). Subjects could indicate how much they agreed (on a seven point Likert scale) with statements about their personality.

The score for each trait was computed by adding up the responses to the three questions capturing each trait.

between behindness aversion and self-selection into competition. We speculate that two opposing behavioral forces associated with feelings of behindness aversion may explain this latter result. On the one hand, behindness averse people dislike having less than others and therefore shy away from competition. On the other hand, behindness aversion could be a driving force of the desire to enter a competition, because the underlying feelings of envy might only exist in people who have a desire to match with others. Our study further shows that several additional factors are related to the decision to compete. Less risk averse and overconfident subjects, as well as subjects with higher task-related skills self-select more often into competitive environments. Moreover, the Big Five personality trait *Agreeableness* was found to be correlated with self-selection into competition.

Interestingly, a growing literature demonstrates systematic gender differences in competitiveness (for a survey see Rachel Croson and Uri Gneezy, forthcoming). For example, Niederle and Vesterlund (2007) find that 73 percent of men but only 35 percent of women decide to compete in a tournament. The literature also finds that women (i) are more risk averse and behave more in a more egalitarian manner than men (see James Andreoni and Lise Vesterlund, 2001; Ernst Fehr, Michael Naef, and Klaus Schmidt, 2006; Croson and Gneezy, forthcoming) and (ii) consistently score higher on *Agreeableness* in Big Five personality tests (Paul Costa et al., 2001; David Schmitt et al., 2008). Combining our results with these findings on gender differences, we propose the hypothesis that gender differences in distributional preferences and personality traits can at least partly explain observed gender differences in competitiveness. A rigorous test of this hypothesis is left for future research.

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