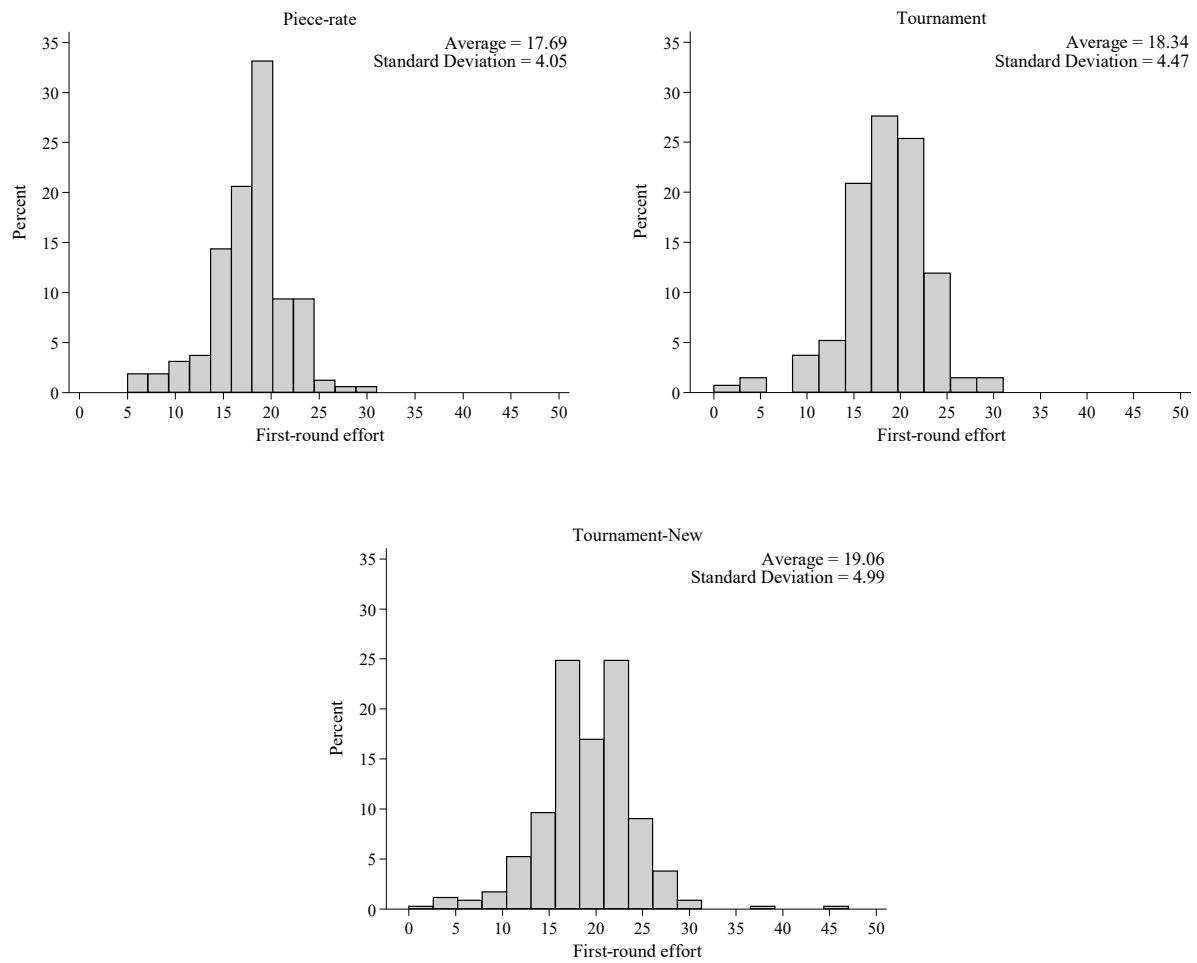# Online Appendix

# Inequality, Fairness and Social Capital

Dietmar Fehr, Hannes Rau, Stefan T. Trautmann, and Yilong Xu
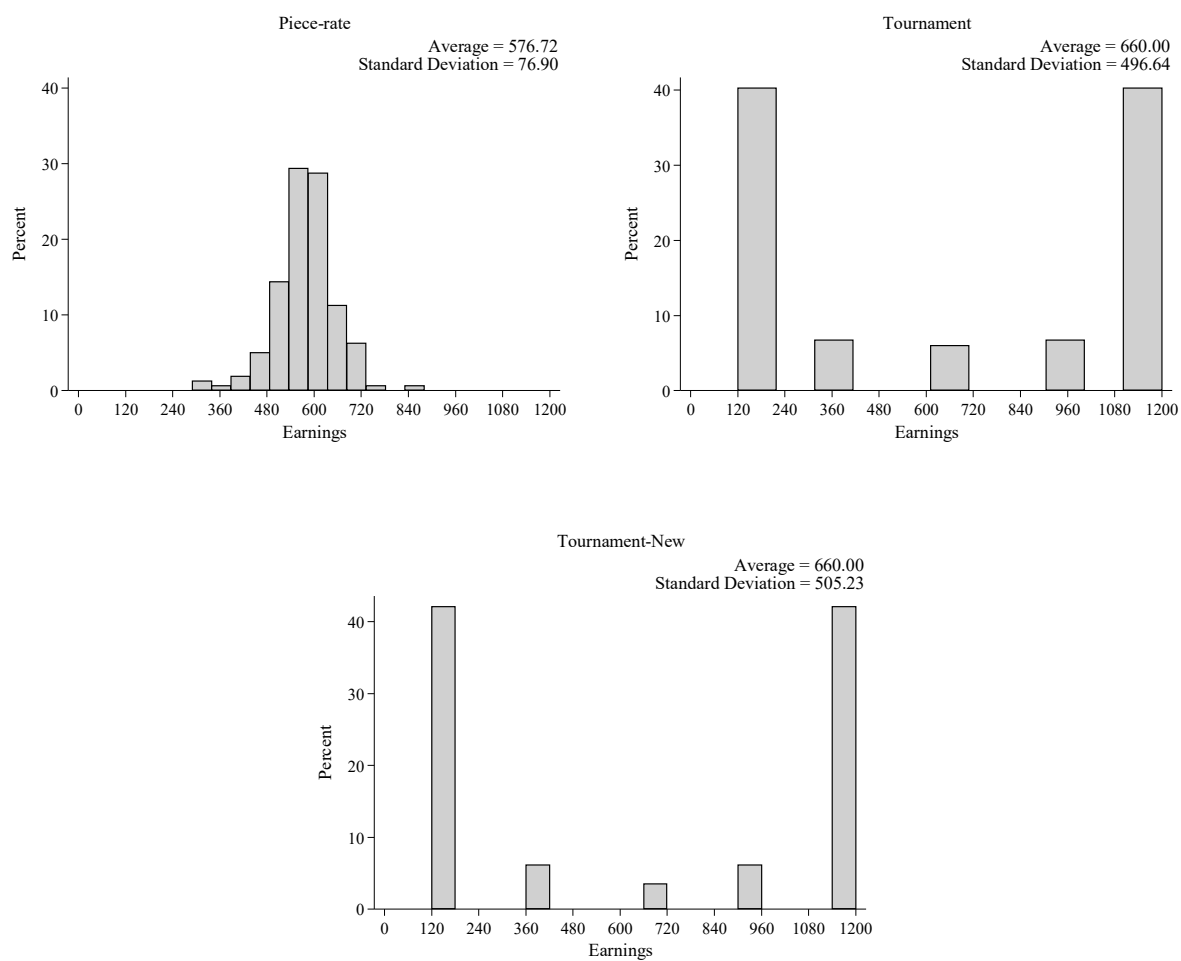
## A.1. Additional Figures

**Figure A1.** First-round effort distributions by condition



Notes: Distribution of effort levels in the first round of the slider task for each treatment separately.

**Figure A2.** Earnings distributions by condition

Piece-rate

Average = 576.72
Standard Deviation = 76.90

Tournament

Average = 660.00
Standard Deviation = 496.64

Tournament-New

Average = 660.00
Standard Deviation = 505.23

Notes: Distribution of total earnings in the slider task (in euro cents) for each condition separately. Earnings are denoted in euro cent.

## A.2. Balance Tests

This section provides balance tests to examine whether first-round winners and losers are similar in terms of observable characteristics. We have elicited subjects' age (continuous), major (economics/non-economics) and risk preferences (qualitative on a scale from 0 to 10). We find no indication of imbalance and results are summarized in Table A1.

**Table A1.** Balance tests on individual characteristics between 1st round winners and losers

|  | Piece Rate | | | Tournament | | | Tournament-NEW | | |
|---|---|---|---|---|---|---|---|---|---|
|  | 1st-round | | | 1st-round | | | 1st-round | | |
|  | winners | losers | p-value | winners | losers | p-value | winners | losers | p-value |
| **Age** | 23.2 (3.01) | 23.2 (4.41) | 0.35 | 24.1 (5.30) | 23.6 (5.95) | 0.12 | 23.4 (4.33) | 23.3 (4.43) | 0.36 |
| **Major = Economics** | 0.48 (0.50) | 0.51 (0.50) | 0.75 | 0.60 (0.49) | 0.58 (0.50) | 0.86 | 0.38 (0.49) | 0.38 (0.49) | 1 |
| **Risk attitudes** | 5.1 (1.98) | 5.5 (2.01) | 0.22 | 5.2 (2.11) | 4.7 (2.30) | 0.21 | 5.1 (2.05) | 5.0 (2.19) | 0.63 |

Notes: Entries are averages, standard deviation in parentheses, p-values are based on Mann-Whitney U test or Fisher's exact test for the binary variables.

## A.3. Effects of Stage-1 Condition on Beliefs

Tables A2 and A3 show beliefs in treatments *Piece rate* and *Tournament*, and *Tournament-NEW*, respectively.

**Table A2.** Effects of Stage-1 Condition on Trust Game Beliefs

|  | Participants | *Piece rate* | *Tournament* |
|---|---|---|---|
| Belief in trust by other | all | 63% (n=160) | 50%** (n=134) |
|  | successful | 58% (n=78) | 43%* (n=63) |
|  | unsuccessful | 68% (n=78) | 56% (n=63) |
| Expected amount returned by other | all | €5.85 (n=160) | €5.08** (n=134) |
|  | successful | €5.69 (n=78) | €4.36*** (n=63) |
|  | unsuccessful | €5.96 (n=78) | €5.60## (n=63) |

*Notes*: *,**,*** indicates significant difference between treatment; #,##,### indicates significant difference between successful and unsuccessful; at the 10%, 5%,1% level (Mann-Whitney U test for amounts returned, Fisher's exact test for trust). The total number of observations is *n=160* in *Piece Rate* and *n=134* in *Tournament* and we exclude subjects in pairs with equal stage-1 earnings in the analysis of successful and unsuccessful (*n=4* in *Piece Rate* and *n=8* in *Tournament*).

**Table A3.** Effects of Stage-1 Condition on Trust Game Beliefs – *Tournament-NEW*

|  | Participants |  | vs. successful | vs. unsuccessful |
|---|---|---|---|---|
| Belief in Trust by Other | All | 59% (n=342) |  |  |
|  | Successful | 55% (n=165) | 61% (n=82) | 48% (n=81) |
|  | Unsuccessful | 64%* (n=165) | 67% (n=81) | 62% (n=76) |
| Belief in Amount Returned by Other | All | €5.74 (n=342) |  |  |
|  | Successful | €5.95 (n=165) | €6.37 (n=82) | €5.57# (n=81) |
|  | Unsuccessful | €5.59 (n=165) | €5.69 (n=81) | €5.45 (n=76) |

*Notes*: *,**,*** indicates significant difference between successful and unsuccessful, and #,##,### indicates significant difference between successful partner and unsuccessful partner, at the 10%, 5%, 1% level (Fisher's exact test for trust, and Mann-Whitney U test for amounts returned). Unclassified participants (*n=12*, i.e., subjects in dyads with equal stage-1 incomes) are excluded when conditioning on successful and unsuccessful decision maker or successful and unsuccessful partner. This leads to different number of observations across cells, depending on stage-2 matches with unclassified subjects.

## A.4. Results without Berlin Data

In this section, we replicate our analysis of *Tournament-NEW* in Section 5 in our main text, excluding subjects from sessions conducted in Berlin. First, comparing behavior in *Tournament-NEW* and in *Tournament*, using simple probit and tobit regressions with a treatment dummy and controlling for location, as well as other standard covariates shows that individuals are significantly more likely to trust (*p=0.015*) their opponent and that they behave much more generous (*p<0.001*) in *Tournament-NEW* than in *Tournament*.

Table A4 reproduces Table 6 in our main text. Results are qualitatively the same for both trust and trustworthiness. For trustworthiness, we again find that the successful return more to another successful than the unsuccessful return more to another unsuccessful, yet the difference is statistically insignificant (€7.59 vs. €6.40, *p=0.14, possibly due to smaller sample size, n=88 vs. n=158*).

**Table A4**: Social Interaction Effects – *Tournament-NEW*

|  | Participants | vs. all | vs. successful | vs. unsuccessful |
|---|---|---|---|---|
|  |  | (1) | (2) | (3) |
| Trusting | All | 62% (n=202) |  |  |
|  | Successful | 61% (n=96) | 67% (n=46) | 56% (n=48) |
|  | Unsuccessful | 64% (n=96) | 63% (n=48) | 67% (n=42) |
| Amount returned | All | €6.45 (n=202) |  |  |
|  | Successful | €6.97 (n=96) | €7.59 (n=46) | €6.49$^{\#\#}$ (n=48) |
|  | Unsuccessful | €6.00 (n=96)$^{*}$ | €5.67$^{***}$ (n=48) | €6.40 (n=42) |

*Notes*: *,**,*** indicates significant difference between successful and unsuccessful; #,##,### indicates significant difference between successful partner and unsuccessful partner; at the 10%, 5%, 1% level, Fisher's Exact test for trust, and Mann-Whitney U test for amounts returned). Unclassified participants (*n=10*, i.e., subjects in dyads with equal stage-1 incomes) are excluded when conditioning on successful and unsuccessful decision maker or successful and unsuccessful partner. This leads to different number of observations across cells, depending on stage-2 matches with unclassified subjects.

Next, in Table A5 we reproduce our results reported in Table 7 in the main text without Berlin data. All results remain qualitatively the same, though the corresponding statistical tests are not as significant in some occasions due to larger noise in the smaller sample.

**Table A5**: Determinants of Trust and Amounts Returned – *Tournament-NEW*

| | Trust | Trust | Amounts Returned | Amounts Returned |
|---|---|---|---|---|
| Successful | -0.028 (0.07) | 0.091 (0.08) | 120.72 (66.76)$^*$ | 100.06 (51.06)$^*$ |
| Successful Partner | 0.03 (0.07) | -0.050 (0.08) | 17.24 (66.68) | -20.23 (50.39) |
| Belief in trust by other | | 0.580 (0.07)$^{***}$ | | 16.08 (58.64) |
| Belief in amount returned by other | | 0.049 (0.01)$^{***}$ | | 97.31 (58.64)$^{***}$ |
| N | 184 | 184 | 184 | 184 |

*Notes*: Marginal effects from probit regressions for Trust and Tobit regressions for Amounts Returned with robust standard errors reported in parenthesis. Amounts are coded in cents. All regressions control for gender, session size, inequality, and location. Belief in amount returned by other scaled to 100 cents (so does the corresponding standard errors).

**A.5. Power Analysis: Trust and Trustworthiness**

In this section, we conduct a post-hoc power analysis for our main results reported in Table 3 and Table 6 in the paper. Below, we report the *minimum detectable effect size (MDE)* for a given power (*80%*), significance level (*0.05*), and the sample size (*N*).[1] Note that we calculate the MDE only for comparisons that support our main results (Results 1-3). As trust is a binary decision in our case, we can simply calculate the MDE by using the proportion of trust in one condition and using the sample sizes in the two groups. To calculate the MDE for trustworthiness, we need to make some assumptions about the standard deviation (SD). We approach this issue in two ways. First, we calculate the MDE using the observed standard deviation from our sample (average proportion of returns 0.36, SD 0.21). Second, we draw on information of a Meta study on trust games by Johnson and Mislin (2011). Specifically, we use information on the average proportion of returns (0.38, SD 0.094) from a subsample of 53 experiments that were conducted in Europe (N=7,596). Obviously, the standard deviation taken from these studies is substantially lower than in our sample as it is based on a much larger sample size. The MDE based on the Meta study serves as a lower bound for the effect size.
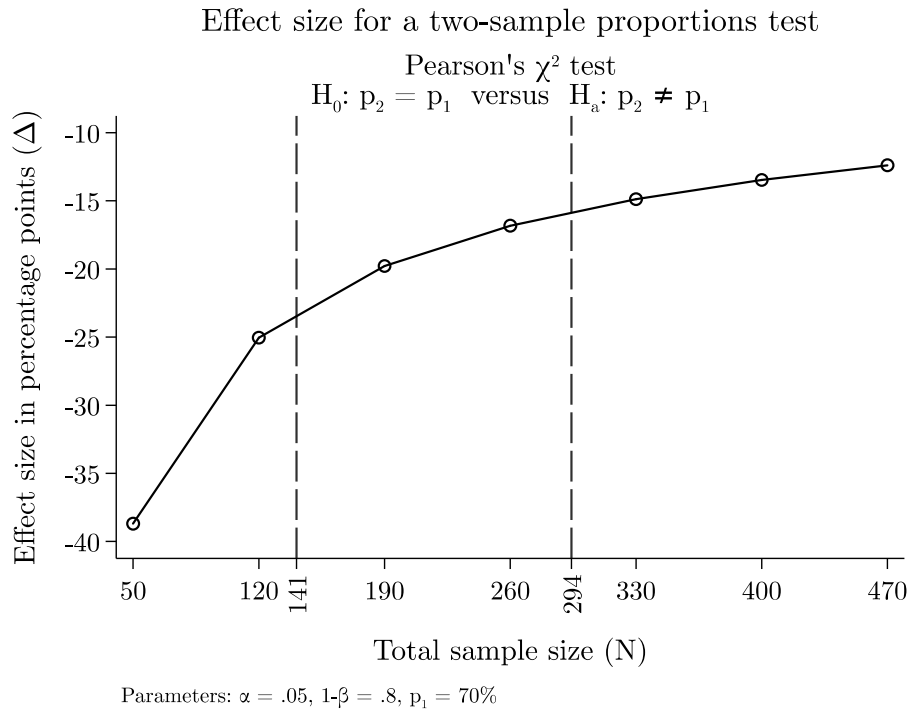
Table 3 compares trust and trustworthiness between the *Piece-rate* and the *Tournament* condition and between the successful and the unsuccessful. The MDE for the proportion of trust when comparing *Piece Rate* and *Tournament* is 16 percentage points, as evidenced in Figure A3, while the observed effect size is 18 percentage points. Comparing the successful and unsuccessful over the two conditions, our sample size is n = 141 each, and the MDE is for both comparisons 23 percentage points. The realized effect sizes are 22 and 15 percentage points for the successful and unsuccessful, respectively. The MDE for trustworthiness is €1.16 based on our sample standard deviation and the lower bound is €0.55 (see Figure A4). Our observed effect size is in between the two MDE with €0.91. Looking at the unsuccessful our sample size is again n = 141 and the lower bound for the MDE is €0.81 and €1.68 when based on the standard deviation taken from our sample. The realized average difference in the amount return is €1.90, and thus well above the MDE in both cases. Finally, we have also reported in Table 3 that, in the Tournament condition, unsuccessful participants returned €1.45 less on average than the successful participants at 5% significance level. The sample size is n = 126, and the lower bound for the MDE is €0.85 and €1.78 when based on the standard deviation taken from our sample.

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[1] We do not calculate the observed ex-post power using the observed treatment effect, as this is simply a mapping of the observed p-value (see e.g., Hoenig and Heisey, 2001; Gelman and Carlin, 2014).

Next, we look at the results presented in Table 6. First, we note that for the comparison of the proportion of trust between the successful and unsuccessful (n = 330, 66% vs. 64%), the MDE is 14 percentage points. Similarly, comparing trust for pairs of successful subjects with pairs of unsuccessful subjects (n=158, 68% vs. 62%), the MDE is 20 percentage points. In both cases, we observe substantially smaller effect sizes. Second, the MDE for comparing trustworthiness of the successful and unsuccessful (n = 330) is €1.09 (lower bound €0.52, see Figure A4), while the observed effect size is €1.19. Moreover, examining the situation when the newly paired partner is a successful participant only, our sample reduces to 163. Figure A4 indicates that the effect size should be at least €1.56 (lower bound €0.75). The realized average difference in the amount returned between the unsuccessful and the successful (€1.49) is a bit below the MDE based on our sample characteristics. Finally, we calculate the effect size when comparing the amount returned by the participants in the successful-successful dyad, versus unsuccessful-unsuccessful dyad. The sample size is n = 158, resulting in a MDE of €1.58 (lower bound €0.76). Again, our realized difference (€1.33) is a bit below the MDE.
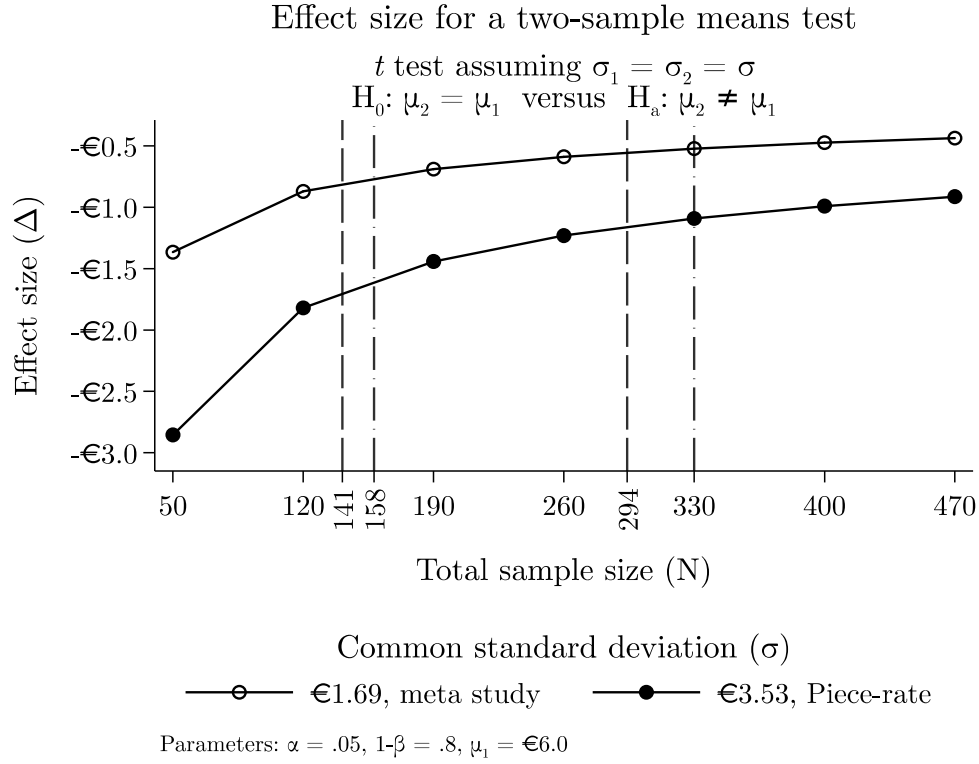
Taken together, our analysis reveals that the realized effect sizes are above the MDE thresholds for our main results based on the whole sample, i.e., when we do not distinguish between successful and unsuccessful. For the subsample analyses of successful and unsuccessful, the realized effect sizes are always above the lower bound MDE and cluster around our upper bound MDE.

**Figure A3.** Power Analysis for the proportion of trust

Effect size for a two-sample proportions test

Pearson's $\chi^2$ test

$H_0$: $p_2 = p_1$   versus   $H_a$: $p_2 \neq p_1$



Parameters: $\alpha = .05$, $1\text{-}\beta = .8$, $p_1 = 70\%$

Notes: The figure plots the minimum detectable effect size (MDE) for trust as a function of the sample size, given 80% power $(1 - \beta)$ and 5% significance level $(\alpha)$. $p_1$ $(p_2)$ is the proportion of trust in the control (treatment) group. We use the proportion of trust (71%) in the piece-rate condition to calculate the MDE. We add two reference lines (dashed) to indicate our sample sizes for various tests. For instance, at n=294, the corresponding MDE is -16 percentage points. In other words, the difference between the proportions of trust in the treatment group must be at least 16 percentage points lower than in the control group to have 80% power.

**Figure A4.** Power Analysis for trustworthiness

## Effect size for a two-sample means test

$t$ test assuming $\sigma_1 = \sigma_2 = \sigma$

$H_0: \mu_2 = \mu_1$ versus $H_a: \mu_2 \neq \mu_1$



Common standard deviation ($\sigma$)

  —○—  €1.69, meta study      —●—  €3.53, Piece-rate

Parameters: $\alpha = .05$, $1\text{-}\beta = .8$, $\mu_1 = €6.0$

Notes: The figure plots the minimum detectable effect size (MDE) for returned amounts in the trust game (trustworthiness) as a function of the sample size, given 80% power $(1 - \beta)$ and 5% significance level $(\alpha)$. We assume that average amount returned is €6.0 in the control group and that treatment and control have the same standard deviation. We plot two different scenarios: we use the standard deviation of the amount returned (€1.69) from the meta study (Johnson and Mislin, 2011) indicated by hollow circles and the observed standard deviation in our Piece-rate condition indicated by solid circles (results remain qualitatively the same if use the whole sample). We add four reference lines (dashed) for the subsamples to which we refer to in the main text. For instance, with the full sample (n=330), the corresponding MDE is -€0.52 and -€1.15 to have 80% power, when the $\sigma = 1.69$ and $\sigma = 3.53$ respectively. In other words, the difference in the amount returned between the treatment- and the control-group must be at least €0.52 and €1.15 (in absolute terms) when $\sigma = 1.69$ and $\sigma = 3.53$ respectively.

## A.6. Alternative specification of the successful and unsuccessful

We present here an alternative specification for successful and unsuccessful, which allows us to keep income differences constant. Specifically, we classify subjects as successful if their stage-1 earnings were 1200 (i.e., the maximum amount) and as unsuccessful if their stage-1 earnings were 120 (i.e., the minimum amount). Consequently, we drop n=26 observations in *Tournament* and n=54 observations in *Tournament-New*. In the Tables below, we show that all results reported in the main text are robust to this alternative specification.

Table A6 reproduces Table 3 in our main text. We examine the difference in the proportion of trust, as well as the amount returned between the conditions *Piece-rate* and *Tournament*. We also test whether the behaviours of the successful and the unsuccessful are different within each treatment.

**Table A6**: Social Interaction Effects of Payment Mechanism

|  | Participants | *Piece Rate* |  | *Tournament* |  |
|---|---|---|---|---|---|
| Trusting | All | 71% | (n=160) | 53%*** | (n=134) |
|  | Successful | 71% | (n=78) | 46%*** | (n=63) |
|  | Unsuccessful | 71% | (n=78) | 54%* | (n=63) |
| Amount returned | All | €6.41 | (n=160) | €5.50** | (n=134) |
|  | Successful | €6.30 | (n=78) | €5.93 | (n=63) |
|  | Unsuccessful | €6.55 | (n=78) | €4.48##,*** | (n=63) |

*Notes*: *,**,*** indicates significant difference between treatment; #,##,### indicates significant difference between successful and unsuccessful; at the 10%, 5%,1% level (Fisher's exact test for trust and Mann-Whitney U-test for amounts returned). The total number of observations is *n=160* in *Piece Rate* and *n=134* in *Tournament* and we exclude dyads with equal stage-1 earnings in the analysis of successful and unsuccessful (*n=4* in *Piece Rate* and *n=8* in *Tournament*). We also exclude subjects in *Tournament* who earned in between €12.00 and €1.20 (n=18).

Table A7 reproduces Table 6 in our main text. Results are qualitatively the same. The proportion of trust within dyads of unsuccessful participants is substantially lower than in dyads of successful participants, though not statistically significant (55% vs. 71%, *p=0.12, Fisher's exact test*). For trustworthiness, we also find a sizable difference of generosity within the group of unsuccessful people versus the group of successful people (€5.52 vs. €7.96, p<0.01, Mann-Whitney U test).

**Table A7**: Social Interaction Effects – *Tournament-New*

| | Participants | vs. all | | vs. successful | | vs. unsuccessful | |
|---|---|---|---|---|---|---|---|
| | | (1) | | (2) | | (3) | |
| Trusting | All | 65% | (n=342) | | | | |
| | Successful | 68% | (n=144) | 71% | (n=56) | 69% | (n=67) |
| | Unsuccessful | 62% | (n=144) | 61% | (n=67) | 55% | (n=56) |
| Amount returned | All | €6.61 | (n=342) | | | | |
| | Successful | €7.37 | (n=144) | €7.96 | (n=56) | €6.98$^{\#}$ | (n=67) |
| | Unsuccessful | €5.74$^{***}$ | (n=144) | €5.48$^{***}$ | (n=67) | €5.52$^{*}$ | (n=56) |

*Notes*: *,**,*** indicates significant difference between successful and unsuccessful; #,##,### indicates significant difference between successful partner and unsuccessful partner; at the 10%, 5%, 1% level, Fisher's exact test for trust, and Mann-Whitney U test for amounts returned. Unclassified participants (*n=54*, i.e., those with a stage-1 income between €12.00 and €1.20) are excluded when conditioning on successful and unsuccessful decision maker or successful and unsuccessful partner. This leads to different number of observations across cells, depending on stage-2 matches with unclassified subjects.

## A.7. Experimental literature on inequality and competition

Table A8 presents laboratory experiments that study questions regarding the effect of competition and inequality on social interaction. We concisely summarize the key study aspects and the social interaction effect. If there exist any such effects, we indicate whether they are driven by the behavior of the successful/rich or the unsuccessful/poor.

**Table A8:** Overview of experimental studies

| | Treatments | Stage 1 | Stage 2 | Social interaction effect |
|---|---|---|---|---|
| Anderson et al. (2006) | Public / private show up fee | High / low show-up fees as inequality *"priming"* | Trust game | Private: Trust (−), driven by the *successful*; Public: Trust (=). |
| Sadrieh and Verbon (2006) | High skewed treatment | Randomly endowed *"earnings"* to create inequality | Public goods game | Contribution (+), driven by the *unsuccessful*. |
| Buckley and Croson (2006) | Inequality | Randomly endowed *"earnings"* to create inequality | Public goods game | The successful contribute similar amount of income in absolute term; The unsuccessful contribute more in relative terms. |
| Brandts et al. (2009) | Rivalry/non-rivalry treatment | Prisoner's dilemma game (with a competitive setting in rivalry treatment) that creates inequality as *"priming"* | The circle test (similar to a dictator game) | "Generosity" towards others who they interacted before (−), driven by *unsuccessful*. |
| Harbring (2010) | Competition game | Inequality as "priming" via a competitive game. | Trust game | Trust (−), unclear who drives the results. |
| Hargreaves Heap et al. (2013) | High / low inequality | Randomly endowed *"earnings"* to create inequality. | Trust game (standard trust game or a labor market setting) | Trust (−) in market context and Trust (=) in standard trust game; trustworthiness (−) in both settings, driven by *both* the successful and the unsuccessful. |

**Table A8:** Overview of experimental studies (*continued*)

| | Treatments | Stage 1 | Stage 2 | Social inter-action effect |
|---|---|---|---|---|
| Smith (2011) | Inequality | Randomly endowed "*earnings*" to create inequality | Trust game | Trust and trustworthiness (=) because the *successful* trust less but return more, while the *unsuccessful* do the opposite. |
| Greiner et al. (2012) | High / low inequality | Randomly endowed "*earnings*" to create inequality | Modified trust game (1st period only) | Trust (−), driven by *both* |
| Nishi et al. (2015) | Visible/ non-visible wealth difference under three levels of inequality. | Randomly endowed "*earnings*" to create inequality | Cooperation game | Cooperation (−), driven by the *successful* when inequality is visible. Inequality itself is not sufficient to drive this result, visibility is the key driver. |
| Brandts and Riedl (2017) | Direct, indirect, and no competition | Competitive double-auction market, payoffs as "*earnings*" to create inequality. In the absence of competition, randomly endow subjects. | Public goods game | Contribution (+) when no direct competition in stage 1, driven by the *successful*. Contribution (−) with direct competition, driven by *both*. |
| Falk (2017) | High vs. low social status. | Relative status info revealed, as "*priming*" of social status. | Electric shocks to others for personal gain | Incidence of shocking others is higher when high/low status group interact, driven by *both*. |
| Friedrichsen (2017) | Inequality | Randomly endowed "*earnings*" to create inequality. | Consumers with different initial wealth choose between socially responsible product and a cheaper alternative. | The unsuccessful choose the socially responsible products significantly more than the successful; no baseline available to compare overall effect due to inequality. |

**Table A8:** Overview of experimental studies (*continued*)

| | Treatments | Stage 1 | Stage 2 | Social inter-action effect |
|---|---|---|---|---|
| Lotito et al. (2017) | High vs. low inequality | Competitive real-effort task (admin tasks), as inequality "*priming*" | Public goods game | Contribution (−): partial info on income / performance. Contribution (+) if full info. No competition effect, results driven by information about inequality. |
| Bejarano et al. (2018) | Inequality as a result of random shock or endowed inequality vs. equality as a baseline. | Randomly endowed "*earnings*" to create inequality vs. inequality as a result of a random shock. | Trust game | Trust (−): the successful trust less if inequality is due to a random shock that makes the second-mover poor. Trustworthiness (−): the unsuccessful return less regardless of the source of inequality. |

Notes: Studies in chronological order. In column Stage 1, "priming" indicates that stage-1 game payoffs either prime a winner/economically successful or loser/economically unsuccessful mindset and that they are not used as an endowment for the stage-2 game (i.e., payoffs in the two games are independent). "Earnings" indicate that the amount of money earned/randomly assigned to the subjects in the stage-1 game is used as the endowment of the stage-2 game. In column Social interaction effect, "(−)", "(=)", and "(+)" denotes a decrease, no effect, and increase of socially desirable interaction such as trust, cooperation, and contribution to public goods. Entries with n/a indicates not applicable because no relevant information is available.

# References

Anderson, L. R., J. M. Mellor, and J. Milyo (2006). Induced heterogeneity in trust experiments. *Experimental Economics*, *9*(3), 223–235.

Bejarano, H., J. Gillet, I. Rodriguez-Lara (2018). Do Negative Random Shocks Affect Trust and Trustworthiness? *Southern Economic Journal* 85, 563–579.

Brandts, J., A. Riedl, and F. van Winden (2009). Competitive rivalry, social disposition, and subjective well-being: An experiment. *Journal of Public Economics*, *93*(11), 1158–1167.

Brandts, J. and A. Riedl (2017). Market Interaction and Efficient Cooperation. *Working paper,* Barcelona GSE Working Paper Series, nr. 868.

Falk, A. (2017). Status Inequality, Moral Disengagement and Violence. *Working paper,* DIW discussion paper.

Friedrichsen, J. (2017). Is Socially Responsible Production a Normal Good?, *Discussion Papers of DIW Berlin* 1644, DIW Berlin, German Institute for Economic Research.

Gelman, A., and J. Carlin (2014). Beyond Power Calculations: Assessing Type S (Sign) and Type M (Magnitude) Errors. *Perspectives on Psychological Science*, 9(6), 641-651.

Greiner, B., A. Ockenfels, and P. Werner (2012). The dynamic interplay of inequality and trust—An experimental study. *Journal of Economic Behavior & Organization*, *81*(2), 355–365.

Harbring, C. (2010). On the Effect of Incentive Schemes on Trust and Trustworthiness. *Journal of Institutional and Theoretical Economics*, 166, 690–713.

Hargreaves Heap, S. P. H., J. H. W. Tan, and D. J. Zizzo (2013). Trust, inequality and the market. *Theory and Decision*, *74*(3), 311–333.

Hoenig, J. M., an Heisey, D. M. (2001). The abuse of power: The pervasive fallacy of power calculations for data analysis. *American Statistician*, 55, 1–6.

Lotito, G., M. Migheli, and G. Ortona (2017). Competition, Information and Cooperation. Working paper, Torino.

Sadrieh, A., and H. A. A. Verbon (2006). Inequality, cooperation, and growth: An experimental study. *European Economic Review*, *50*(5), 1197–1222.

Smith, A. (2011). Income inequality in the trust game. *Economics Letters*, *111*(1), 54–56.

## A.8. Instructions (Translated from German)

*The following instructions are for the Tournament condition (with fixed dyads). The instructions for the Piece Rate condition (with fixed dyads) and Tournament-New condition (with new partner in part 2) are identical, except for the changes marked in brackets [ ], { }. The reward scheme as well as the time limit per round in the slider task is different in the tournament conditions than in the Piece Rate condition. In addition, the section "Time limit in the slider-task" does not exist in the Piece Rate condition.*

<u>*Note:*</u> *At the beginning of the experiment, only instructions for the first part of the experiment were distributed.*

## **Instructions (Part 1)**

Welcome to the experiment and thank you very much for your participation!

Please switch off your mobile now and do not communicate anymore with other participants. If you have any questions, please raise your hand, we will come to your seat and answer them individually.

In this experiment, you might earn a considerable amount of money, which you will receive in cash at the end of the experiment. The details of your payment will be explained in more details below.

Your personal information and decisions during the experiment will be treated anonymously and will not be linked to your identity.

## **General Information**

The experiment consists of two parts, which are both done on the computer and are identical for all participants. Additionally, all participants have the same instructions.

In the first part of the experiment, you will perform a so-called "slider-task" on your computer. **In this part, you form a group of two with some participant in this room. With the very same participant, you will also interact in the second part of the experiment, for which separate instructions will be provided later.**

{*Tournament-New condition*: In the first part of the experiment, you will perform a so-called "slider-task" on your computer. **In this part, you form a group of two with some participant in this room. In the <u>second part</u>, you will interact with <u>different, randomly chosen participant</u> from the experiment, who participated in the same first part of the experiment as you did. For the second part, separate instructions will be provided later.** }

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You can earn points in both parts of the experiment. The points earned from both parts will be added up, converted into Euros, and paid out at the end of the experiment.

The rate of conversion for the payment is: **100 Points = 1 Euro**.

### Procedure of the slider-task

The slider-task consists of <u>four paid rounds</u> in total (plus one practice round).

Your goal in each round is to put <u>a larger number</u> of the sliders to the target position within the given time limit <u>than the other participant</u> in your group. If you succeed in doing so, you would be the <u>winner</u> of this round.

(*Note: It does not matter how large the difference actually is, it only matters who of you positioned more sliders correctly.*)

The target position of the sliders locates exactly in the middle of the bar. You can reach this position by moving the sliders to the left or right by using the mouse. At the beginning of each round, all sliders are located at the left edge.

[*Piece Rate condition*:

Your goal in each round is to put as many of the sliders to the central position of the bar as possible. For this, you have a time limit of 120 seconds in every round.

You can reach the target position by moving the sliders to the left or right by using the mouse. At the beginning of each round, all sliders are located at the left edge. ]

**Initial position:**



The current position of the slider is shown to the right of the bar by using values from 0 to 100. The slider is correctly positioned when the number shows a value of exactly 50.

**Target position:**



You can move each slider as often as you like, but you may neither use the keyboard nor the mouse wheel for doing so.

*Note, again, that each slider only counts as 1 point when it is placed exactly in the middle of the bar, which means that the current position is exactly 50.*

**Earnings in the slider-task:**

**In each of the four rounds, the winner of the round is awarded with *300 points*. The loser receives *30 points*.**

*(In case of a tie where both players have the same number of correctly positioned sliders, the computer randomly determines the winner for this round).*

Your **earnings from the part 1** of the experiment are **the sum of points you collect in the four rounds** of the slider-task (excluding the practice round).

*(If, for example, you position more sliders correctly than the other player in one of the four rounds and less in the other three rounds, then you receive $300 + 3 * 30 = 390$ points for the first part of the experiment)*

[*Piece Rate* condition:

For completing the task, you receive in **each round a base payment of 50 points.** Additionally, you get **a bonus of 5 points for each correctly positioned slider**. Your earnings from part 1 of the experiment correspond to **the sum of points you collect in the four rounds** of the slider-task (excluding the practice round).

*(If, for example, you position 20 sliders correctly during one round, then you receive for this round $50 + 20 * 5 = 150$ points)* ]

**Time limit in the slider-task**

**[this section is relevant only for conditions *Tournament* and *Tournament-New*]:**

In the <u>first</u> round that counts towards your final earnings, both participants in a group have the same time limit of <u>120 seconds</u>.

In the second round, the winner of the first round gets an additional 8 seconds (which means the time limit is 128 seconds in total) and the loser receives 8 seconds less (which means the time limit is 112 seconds in total). Analogously, in the third round the winner of the second round receives an additional 6 seconds (to his second round time limit), which are subtracted from the loser's time in the second round. In the fourth round, according to the same scheme, the additional time for the winner is 4 seconds (again subtracted from the loser's 3<sup>rd</sup> round time).

*(If, for example, you are the winner of rounds 1 and 2 and the loser in round 3, then your time limit for the fourth round equals* $120 + 8 + 6 - 4 = 130$ *seconds. Analogously, the other participant's time limit equals* $120 - 8 - 6 + 4 = 110$ *seconds.)*

Are there any questions at this moment?

If not, the program will start with some short control questions for a better understanding of the experiment. After all participants have completed those questions correctly, the first part of the experiment will start on the computer.

## End of the Instructions (Part 1)

## <u>Instructions</u> (Part 2)

Part 2 of the experiment begins now.

In this part, you interact with the very same participant with whom you also formed a group in the first part of the experiment.

{*Tournament-New* condition:

In this part, you interact with a different participant than before. This participant was randomly chosen from the other participants in the lab with whom you were not paired with in part 1. Before you make any decisions, both of you will learn about each other's points earned in the first part of the experiment. }

One of you will be in the role of player 1 and the other one in the role of player 2. In the following situation, players 1 and 2 make their decisions one after another: At the beginning player 1 is allocated <u>an amount of 600 points, which s/he can either transfer to player 2 or not</u>. If s/he decides not to transfer the amount, the game ends immediately and player 1 receives the amount of 600 points as the payoff for this part. In this case, player 2 receives nothing for this part and thus collects 0 points.

If player 1 decides to transfer her amount of 600 points to player 2, <u>this amount gets tripled</u> by the experimenter. Thus, in this case, player 2 receives 1.800 points. Now player 2 can return an integer amount between 0 and 1.800 points to player 1. This transfer will <u>not </u>be tripled.

The situation is illustrated in the following diagram:

**Player 1** ———————————————— **Player 2 receives 1.800 points**

transfers the amount

sends X points back

keeps the amount

**Player 1 receives 600 points**

**Player 2 receives 0 points**

**Player 1 receives X points**

**Player 2 receives 1.800 - X points**
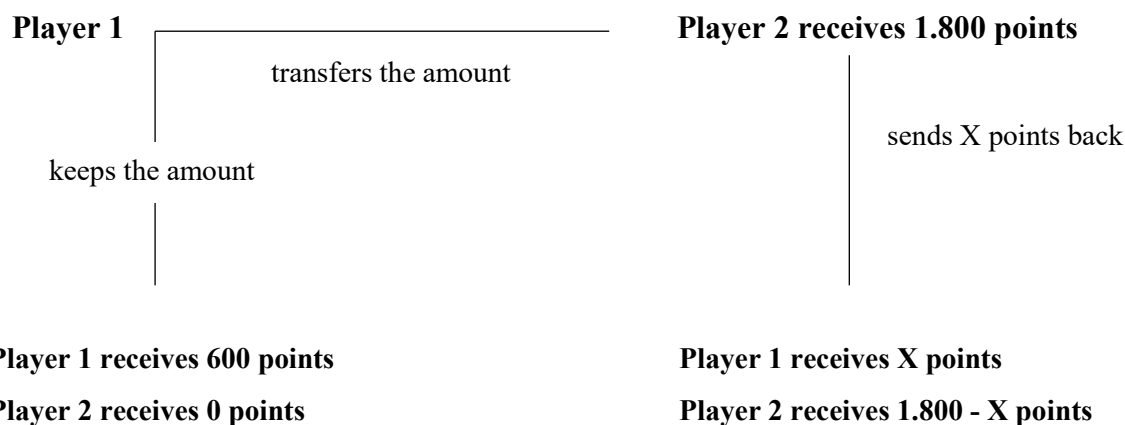

Who ultimately takes which role is <u>randomly</u> determined by the computer. In the experiment, both players will make the decisions for <u>both possible roles</u> before the computer randomly determines which role you eventually play. That means, you first decide if you want to transfer the amount of 600 points or not in case you are assigned the role of player 1. Then, you decide how many points you want to send back, conditional on player 1 transferring the 600 points to you, when you are assigned the role of player 2. Afterwards, the computer will randomly determine with an equal chance which role is relevant for your payoffs on the basis of these decisions.

The actual decision will be taken on the computer. There, you will see again a short description of the situation and the payoffs involved. These are the same values as described above.


**End of the Instructions (Part 2)**

## A.9. SCREENSHOTS:

In what follows, we provide screenshots of experiment. Note that these screenshots were not part of the instructions distribution to the subjects.

*After all participants had finished reading, the program started on the computer. The participants first answered some short control questions and then, before performing the slider-task, evaluated on a scale from 1-10 how fair they perceived the mechanism described above regarding the scheme determining time limit and points award for the winner and losers in a group (see the screenshot below). We also collect subjects' demographics such as their gender, age, and program of study, etc.*

*Next, participants started with the slider-task, which looked as follows:*



*After each round, and at the end of part 1, participants received feedback about their performance and their own and their partner's earnings in part 1.*

*After personally experiencing the slider-task themselves, participants were asked to evaluate again on a scale from 1-10 how fair they perceived the mechanism determining the winner's and loser's time and money bonus:*
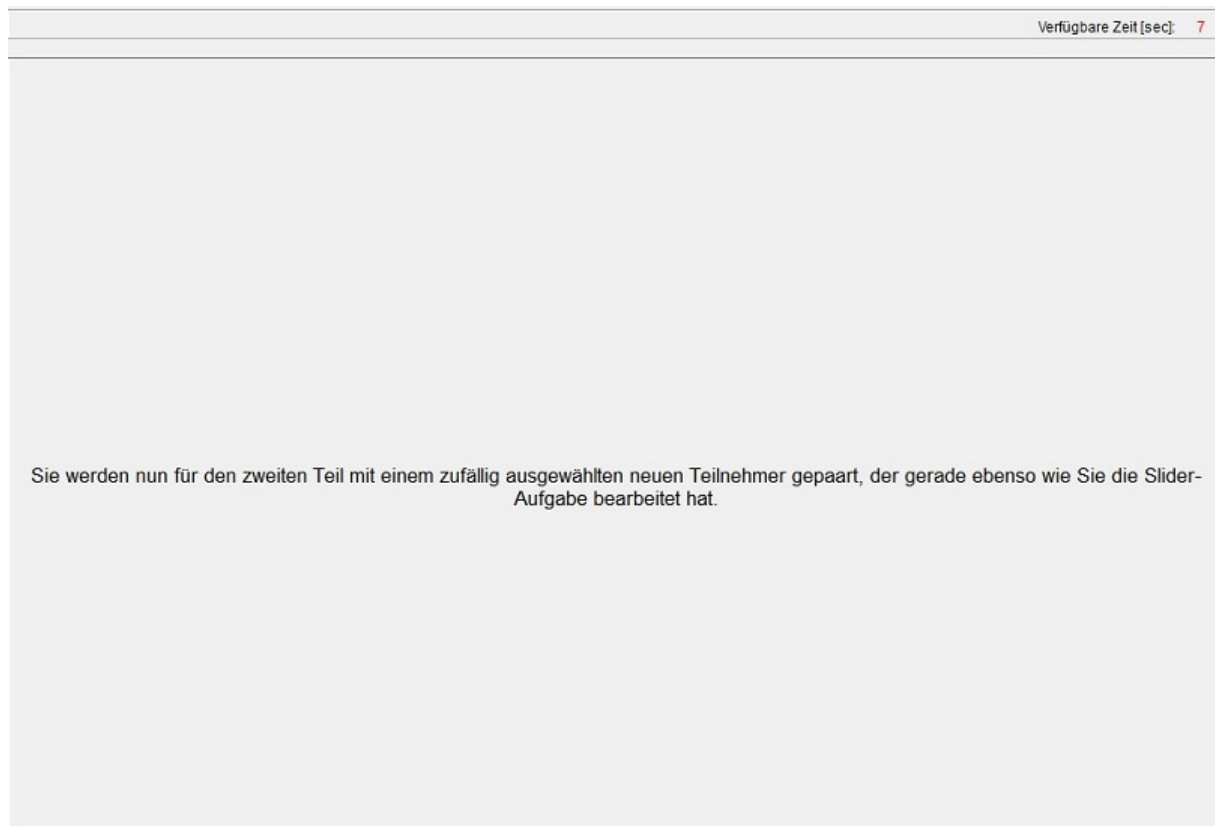


*Then, instructions for part 2 of the experiment were distributed.*

*After every participant had read the instructions, the experiment continued on the computer with the second part. Before participants made their decisions, they had been reminded that they interact with the same partner in the part 2 (in the Tournament condition and the Piece Rate condition) or that they interact with a new partner (in the Tournament-New condition) than before. Additionally, they received feedbacks about the income of the other player earned in part 1 of the experiment.*
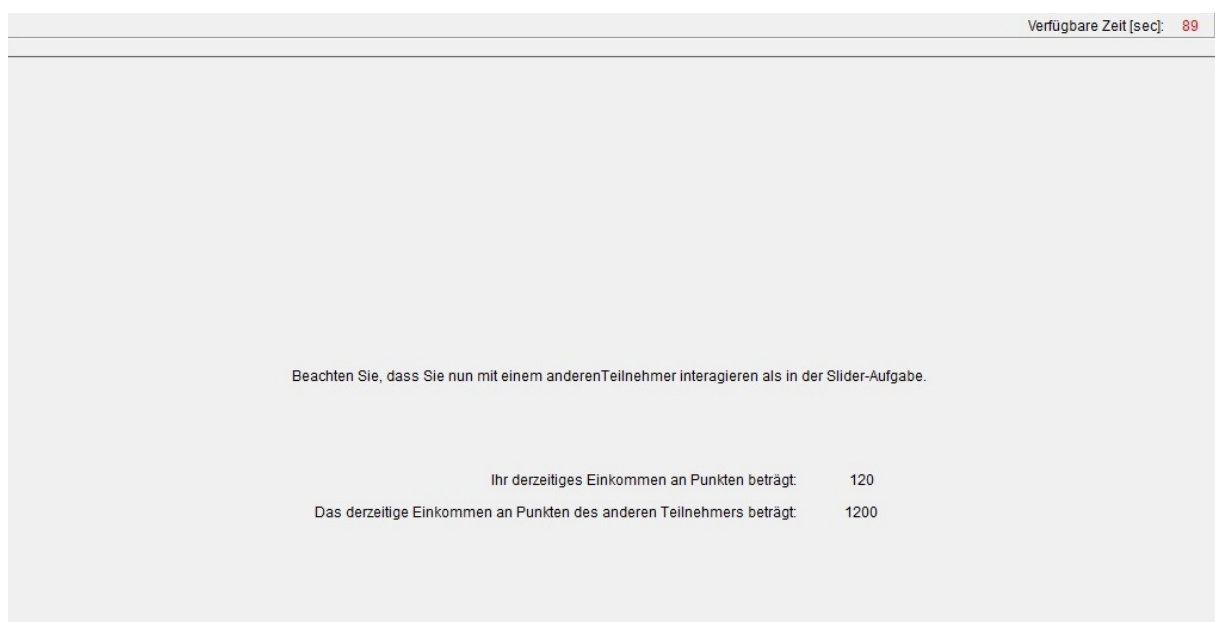
*The following screenshot is taken at the beginning of Part 2 in conditions Tournament and Piece Rate, in which participants are shown their own earnings and the earnings of their (same) partner in part 1.*
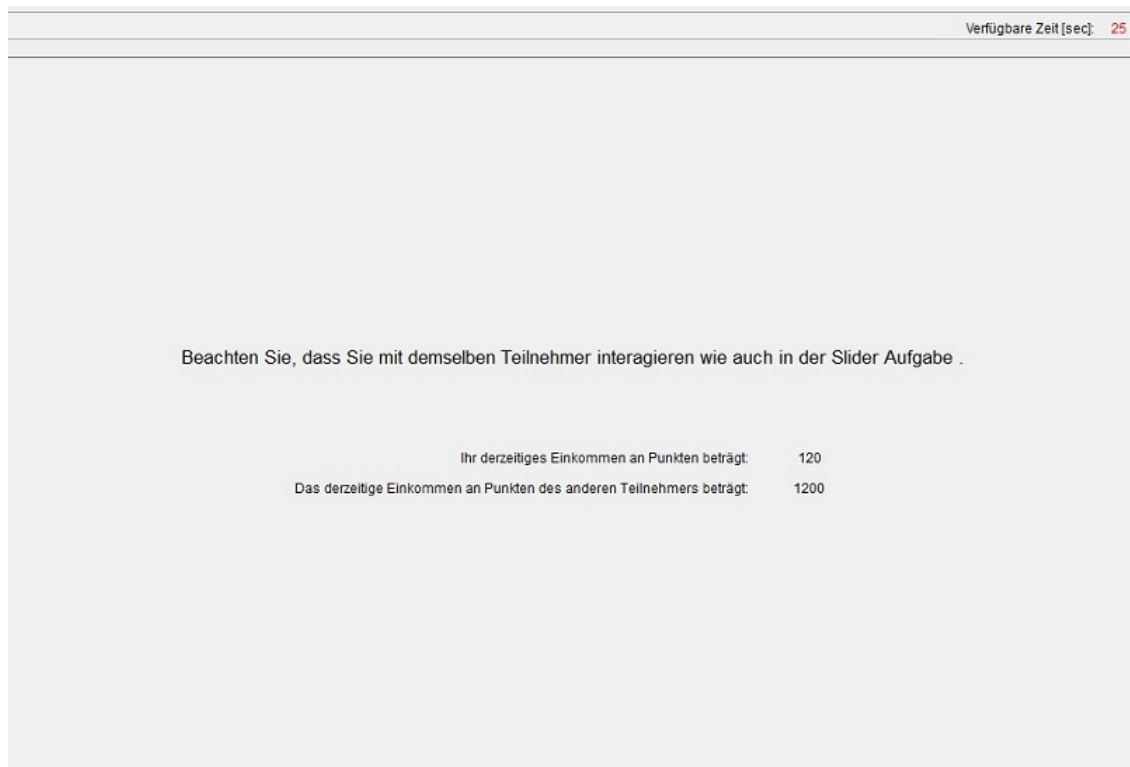
*The following two screenshots show the presentation in the Tournament-New condition. The first screen reminds the participant of the pairing with a new partner.*



Verfügbare Zeit [sec]: 7

Sie werden nun für den zweiten Teil mit einem zufällig ausgewählten neuen Teilnehmer gepaart, der gerade ebenso wie Sie die Slider-Aufgabe bearbeitet hat.

*The second screen shows participants their own part 1 earnings and the part 1 earnings of the NEW partner.*



Verfügbare Zeit [sec]: 89

Beachten Sie, dass Sie nun mit einem anderenTeilnehmer interagieren als in der Slider-Aufgabe.

Ihr derzeitiges Einkommen an Punkten beträgt: 120

Das derzeitige Einkommen an Punkten des anderen Teilnehmers beträgt: 1200

*The following two screenshots show the presentation of choices in the Trust Game as well as the elicitation of beliefs about the behavior of the other player. After reading the general instructions of the game, subjects made their decisions role-wise:*

*First as being in the role as trustor (player 1):*

*Belief elicitation: "Do you think the other player in your group has chosen to transfer the amount of 600 to you in the role of player 1?"*

Sie haben eine Anfangsausstattung von 600 Punkten.

Der andere Teilnehmer mit dem Sie eine 2er Gruppe in diesem Spiel bilden, hat eine Anfangsausstattung von 0 Punkten.

Der Betrag, den Sie dem anderen Spieler senden wird mit dem Faktor 3 multipliziert.

Der andere Spieler entscheidet dann im Anschluss darüber, welchen Betrag er an Sie zurücksendet (dieser wird dabei nicht verdreifacht).

Möchten Sie Ihre Anfangsausstattung in Höhe von 600 Punkten an den anderen Spieler transferieren?    ○ Ja, ich möchte den Betrag senden.
○ Nein, ich möchte den Betrag nicht senden.

Glauben Sie, der andere Spieler in Ihrer Gruppe hat sich dafür entschieden in der Rolle als Spieler 1 den Betrag 600 an Sie zu transferieren?    ○ Ja
○ Nein

*Then for the role as trustee (player 2):*

*Belief elicitation: "How many points do you think the other participant would send back in this situation in the role of player 2?"*

Nehmen Sie an, Sie befinden sich in der Rolle des zweiten Spielers, der eine Anfangsausstattung von 0 Punkten hat.

Sie bilden eine 2er Gruppe mit einem Spieler, der eine Anfangsausstattung von 600 Punkten hat.

Nehmen Sie an dieser Spieler hat Ihnen den Betrag in Höhe von 600 Punkten gesendet.

Dieser Betrag wurde mit dem Faktor 3 multipliziert, so dass Sie nun einen Betrag von 1800 Punkten erhalten.

Wie viele Punkte möchten Sie an diesen Teilnehmer zurücksenden? Bitte wählen Sie eine Zahl zwischen 0 und 1.800 (Dieser Betrag wird nicht verdreifacht).    [       ]

Was denken Sie, wie viele Punkte würde der andere Teilnehmer in dieser Situation in der Rolle als Spieler 2 zurücksenden?    ○ 0---300
○ 301---600
○ 601---900
○ 901---1.200
○ 1.201---1.500
○ 1.501---1.800