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Feedback and emotions in the Trust Game

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Abstract

We conduct an experiment on the impact of feedback in the Trust Game. In our treatment group, the Trustee has the opportunity to give feedback to the Investor (free in choice of wording and contents). The feedback option is found to reduce the share of Investors who sent no resources to the Trustee, while the impact on average behavior is less pronounced. The notion proposed by Xiao and Houser (2005, PNAS) according to which verbal feedback and monetary sanctions are substitutes is not supported. We use the PANAS-scale (Mackinnon et al., 1999) to capture change in subjects' short-run affective state during the experiment. Receiving feedback has an impact on the Investors' short-run affective state but giving feedback is not found to have an effect on Trustees' short-run affective state.

JEL-code: C91, D03, D63

Keywords: Trust Game, Feedback, Short-run affect, Emotions

1. Introduction

The vast majority of existing experimental studies does not permit subjects to communicate and those experiments that permit communication mostly introduce preplay communication only. In these experiments, subjects cannot voice their discontent or approval of other players' actions. In recent years, a number of studies introduced the possibility to give feedback in sequential games. Ellingsen and Johannesson (2008) present an experimental study that allows feedback in the Dictator Game. In their experiment, the amount the proposer allocates to the receiver is significantly higher when the receiver has the possibility to send a message to the proposer after having seen the proposed allocation. They provide the following rationale for this result: The dictators do not want to receive negative feedback because this reduces their utility. Thus, they transfer a larger share of their endowment to the receivers.[1] Xiao and Houser (2005) introduce the feedback option to the Ultimatum Game. They find that allowing feedback reduces the probability that receiver turns down an uneven offer made by proposer. Xiao and Houser offer the following rationale for this result: Humans have an innate preference to express their (negative) emotions in the case they are treated in an unfair way. In the Ultimatum Game without feedback option, the receiver has only one way to express their negative emotions and that is to turn down an unequal division of funds. When confronted with such an unfair offer, the receiver chooses this form of feedback even if it is costly to him because the positive utility from expressing his emotions outweighs the losses from turning down the small amount of money the proposer is willing to give him. Once the receiver is allowed to give feedback, he

[1] Xiao and Houser (2007) apply largely the same experimental set-up but do not allow comments to include threats or insults – a restriction absent in Ellingsen and Johannesson (2008). Unlike Ellingsen and Johannesson (2008), Xiao and Houser (2007) do not find the amount the proposer allocates to the receiver to differ significantly across treatments.

uses this – materially costless – form of feedback and turns down unfair offers less frequently (Xiao and Houser, 2005). In other words, giving negative feedback may be a substitute for imposing monetary sanctions. This result is in line with a rationale sometimes offered to explain why firms entertain hotlines for their customers: By allowing unsatisfied customers to call the hotline and let off steam, firms prevent them from cancelling the contract.

In this paper, we add to this strand of literature by introducing the feedback option to the Trust Game proposed by Berg et al. (1995)[2]. In this two-player game, the so-called Investor is given an initial endowment of 5 €. He has the option to send any part of this endowment to the second player (called the Trustee). The amount B is tripled on the way to the Trustee. The Trustee has the option to send any amount C of the 3B back to the Investor. He can keep the rest. We introduce a treatment in which Trustees can give feedback to the Investor. By giving feedback, the Trustee can express the way he feels about the amount B sent by the Investor. We compare the behavioral patterns in this treatment group to those observed in our control group with no feedback option. Following evidence on feedback options in Dictator Games (e.g., Ellingsen and Johannesson, 2008), we hypothesize that the amount B passed to the Trustee is higher in the treatment group where Trustees have the opportunity to give feedback than in the control group (no feedback option). With respect to the relationship between the Trustees' feedback and the amount C transferred back, we test the notion by Xiao and Houser (2005). In the context of the Trust Game, their argument implies that positive (negative) feedback is given instead of a high (low) ratio C/B. In addition, we argue that the Trustee's option to give feedback can be an independent source of utility for the Trustee: Expressing approval or disapproval of the Investors' behavior may generate an expressive utility (e.g., Hamlin and Jennings, 2011).

[2] The first definition of the Trust Game goes back to Kreps (1990). He describes the sequential prisoners´ dilemma as Trust Game.

To capture this expressive utility, we elicit subjects' subjects' short-run affective state before and after the experiment. We relate the change in short-run affective state to their decisions during the experiment (including the feedback sent). Thereby, we can test whether giving feedback has an impact on the way the Trustee feels. In addition, we can test whether receiving feedback has an impact on the way the Investor feels.

Our results can be summarized as follows: The feedback-option is used by more than 75 percent of all Trustees in the treatment group. Positive feedback is more frequent than negative feedback. Plain insults are rare. Instead, Trustee's frequently react to low amounts of B by criticizing the Investor for the lack of trust or willingness to share resources. We find only partial support for the hypothesis that the feedback option changes Investors' behavior. There is no significant difference in the amount B sent by the Investor between control group and treatment group. However, the share of Investors who transfer no money at all (B = 0) is significantly lower in the treatment group. We find no support for the notion that Trustees' comments and the share C/B sent back to the Investors are substitutes: positive (negative) feedback does not go along with lower (higher) shares of resources sent back to the Investor. With respect to the change in subjects' short-run affective state, our results do not support the notion that subjects witness an increase in utility when given the opportunity to voice their approval or disapproval of fellow-players' behavior. However, Trustees through their feedback can induce a change in short-run affective state among Investors. A side-result is noteworthy: We find that the amount B increases significantly in the Investors' preference for risk and in the level of his general trust.

The remainder of the paper is organized as follows. Section 2 presents the experimental set-up. Section 3 reviews the relevant literature before section 4 states our central hypotheses. The results are presented in section 5. Section 6 discusses the results and concludes.

2. Experimental set-up

We use the standard experimental set-up proposed by Berg et al. (1995). Two players play a one-shot game without knowing who the other player is. The roles are assigned at random and are called player 1 and player 2. Player 1 (the Investor) is given an initial endowment of 5 € and informed that he can transfer any part of this amount to player 2 (the Trustee). The experimenter triples the amount B transferred so that player 2 receives 3B. Player 2 can transfer any part of this amount back to player 1. The amount transferred back is denoted by C. Thus, in the end, player 1 has a payoff of 5-B+C while player 2 has a payoff of 3B-C. In the treatment group, player 2 has the opportunity to send a message to player 1 after having decided about the amount C to send back to player 1. This option is not available in the control group. All subjects are asked to fill in two questionnaires – one at the very beginning of the session and one immediately after players received the information about the final payoffs (see Figure 1). Subjects receive an extra payment of 2 € if they filled in both questionnaires completely.

[Figure 1 about here]

The interaction and the questionnaires are implemented in Z-tree, the Zurich Toolbox for Readymade Economic Experiments (Fischbacher, 2007). Instructions are handed out on paper so that players can refer back to them during the experiment (see Appendix B). To minimize social pressure or experimenter demand effects (Zizzo, 2010; Bischoff and Frank, 2011), we use sealed envelopes to pay subjects. The envelopes have been filled days before the subjects receive them.

3. Related literature

The Trust Game has a unique Nash-equilibrium in which the Investor keeps the entire endowment (i.e. B = 0) because he anticipates that a rational self-interested Trustee will not transfer anything back (e.g. Zak et al., 2005; Di Cagno and Sciubba, 2010; Güth et al., 2015). The Pareto-efficient situation is characterized by the Investor transferring the full 5 € to the Trustee and the latter transferring 5 – 15 € back. In the original paper by Berg et al. (1995), 2 of 32 (6.25 %) Investors chose the Nash-equilibrium strategy in the control-group while 5 of 32 subjects (16 %) sent the full amount of 10 $. The average amount sent was 5,16 $. Among the 28 Trustees, who were sent more than 1 $, 12 returned 1 $ or less to their counterparts. The average amount sent back was 4.66 $. The literature knows a large number of studies running the Trust Game and variations of it (see the meta-study by Johnson and Mislin, 2011). These studies generally reproduce the major results by Berg et al. (1995). In addition, they show that the size of the factor by which the amount sent B is multiplied has a positive influence on the amount B sent while the size of the initial endowment has the opposite effect. A number of studies analyze the impact of ex ante communication on subjects' behavior in the Trust Game. They generally find that enabling the Trustee to send a message to the Investor before the latter makes his decision increases the amount B sent by the Investor even when the messages do not imply binding commitments by the Trustee (e.g., Fehr and Rockenbach, 2003; Charness and Dufwenberg, 2006; Buchan et al., 2006).

A number of studies focus on the factors explaining interpersonal differences in players' behavior. Houser et al. (2010) argue that Investor behavior may be driven by his attitude to risk rather than by his trust in other people. In a series of experiments especially designed to differentiate between these two factors, they find that interpersonal differences are driven by differences in the attitude towards risk while differences in general trust as measured by the World

Values Survey question do not prove significant. Müller and Schwieren (2012) show that subjects' personality has an influence on their behavior in the Trust Game. They use the NEO-PI-R inventory proposed by Costa and McCrae (1987) to capture the so-called Big-5 personality facets of the subjects participating in their experiment. They hypothesize that personality is especially relevant for the behavior of the Investors but less important for the Trustees' decision. They find that the neuroticism- and conscientiousness-facets have a negative impact on the amount sent by the Investor while the agreeableness-facet has a positive one.

Psychologists provide substantial evidence that the way subjects feel has an influence on the decisions they make (e.g. Dunn et al., 2012; Gambetti and Giusberti, 2012; Forgas and Tan, 2013). Laboratory experiments in this field generally use specific methods to actively evoke a certain emotional state among subjects (angry, happy, sad) and show how the decision in specific game-settings depends on the state evoked. Using the Trust Game, Myers and Tingley (2011) find that the emotional state of the Investor changes his behavior. In particular, anxiety has a negative influence on the amount he sends to the Trustee. In this paper, we take a somewhat different focus. Rather than evoking emotions and analyzing how they affect decisions, we want to learn more about the emotional reactions evoked by the behavior of other individuals. To this end, we analyze the Trustee's feedback and the change in short-run affect during the experiment.

Lately, experimental economists have started to use psychological scales to capture subjects (change in) mood resp. short-run affective state (e.g., Konow, 2010; Bischoff and Krauskopf, 2013). Short-run affect captures the way that an individual feels at the moment.[3]

[3] Affect is the supra-ordinate concept that includes mood and emotions (e.g. Kleinginna and Kleinginna, 1981; Marcus, 2000). An emotion is psychophysiological experience that is caused by an external impulse or sensation. Emotions can be "attributed do a concrete sensation or experience" (Steenbergen, 2010) while

While the precise relationship between the concepts of utility and affect is still disputed (e.g., Kahneman et al. 1997; Kimball and Willis 2006), it is reasonable to assume that a difference between the affective states reported before and after our experiment is causally related to subjects' experiences during the experiment. Konow (2010) runs an experiment based on variations of the Dictator Game to test for a warm-glow of giving (e.g., Andreoni, 1990). The basic hypothesis behind this approach is the following: If giving to others creates a feeling of warm glow, there must be a positive relationship between the amount given in the Dictator Game and the change in short-run affective state. His observations support this hypothesis: Giving has a positive impact on the donor's short-run affect if giving means a donation to an organization that helps children in need. Bischoff and Krauskopf (2013) use a similar set-up to test for a warm-glow of giving when the decision how much to give is made collectively. They find no evidence for a warm glow of giving collectively. At the same time, they find a positive relationship between the change in short-run affect and the amount an individual proposes for the collective donation.

Our paper also draws on psychological game theory proposed and first formalized by Geanakoplos, Pearce and Stacchetti (1989) and extended by Rabin (1993). Accordingly, the utility subjects draw from economic interaction with others does not only depend on the payoffs they receive but also on the own beliefs and the degree to which these beliefs are fulfilled. In the context of the Trust Game, the most important belief is the belief regarding the trustworthiness of others. Consider the situation of an Investor who has to compare the utility from two different situations: 1) He transfers no money to the Trustee and keeps the 5 € for private use; 2) He transfers the full 5 € to the Trustee and receives only one third of the tripled amount back

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mood is defined as a "general and pervasive feeling state" that exists without explicit reference to its sources (Marcus, 2000).

(i.e. 5 €). Judged merely by the payoffs, the Investor should be indifferent between both situations. According to the utility function proposed by Rabin (1993), however, this no longer holds. An Investor who strongly believes that people can generally be trusted will choose to transfer the full 5 € to the Trustee. He will be disappointed if he only gets back 5 € only. Thus, his utility is lower than if he had known that the particular Trustee is not trustworthy and had not transferred any money to him. The PANAS-scales provide a good way to analyze the impact of disappointed trust on subjects' utility.

Lately, economists have recognized the importance of expressive motives (e.g., Hamlin and Jennings, 2011). According to the theory of expressive behavior, expressive behavior is not instrumental in a sense that it aims at changing the environment in which the individual lives or improves its material position. Instead, individuals receive an increase in utility from the act of expressing their opinion. Expressive behavior is observed especially in cases where the behavior of others touches subjects' moral convictions or their feeling of identity. In the context of our experiment, giving feedback is a form of expressive behavior.

4. Hypotheses

1) Hypotheses regarding the Investors' behavior

Following the main results by Ellingsen and Johannesson (2008), we expect that the Investors in the treatment group will try to avoid the Trustees' "sharp tongue". Thus, we arrive at hypothesis P1:

H1: Investors in the treatment group transfer a larger amount B to the Trustees than Investors in the control group.

2) Hypotheses regarding the Trustees' behavior

With respect to the Trustee, two decisions can be analyzed: the amount C sent back and – in the treatment group – the feedback given. It is obvious to expect that C rises in the amount B the Trustee receives – partly because the maximal amount C = 3B. It is therefore more interesting to look at the ratio C/B for all pairs where B > 0. In case the Investor transfers the full 5 € to the Trustee, the latter can reach equal payoffs by transferring 7.5 € back (i.e. C/B = 1.5) For any amount of B < 5 €, the ratio C/B needed to reach equal payoffs is lower. The ratio that minimizes inequality in final payoffs is given by the following expression:

$$\left(C/B\right)^{EQ} = \min\left\{0; 2 - 2/5B\right\}$$

It is easy to see that the inequality-minimizing ratio $(C/B)^{EQ}$ increases in B. Assuming that subjects are inequality-averse, we arrive at the following hypothesis regarding the behavior of the Trustee:

H2: The ratio of C/B is a positive function of the amount B sent by the Trustee (in all cases where B > 0).

This hypothesis holds in both treatment and control group.

In the treatment group, Trustees have the possibility to give feedback to the Investor. We expect that negative feedback is more likely when B is low and positive feedback is more likely when B is high. Like in the Ultimatum Game experiments by Xiao and Houser (2005), feedback and the amount C are determined within a few seconds. Thus, it is reasonable to assume that they are related. This raises the question on the relationship between them: Are feedback and the amount C substitutes as the results of Xiao and Houser (2005) suggest? If so, we expect the following: Trustees who give positive feedback send back a lower share C/B than subjects who do not give positive feedback and Trustees who give negative feedback send back a higher share C/B than subjects who do not give negative feedback. In the latter case, Trustees use the

feedback as outlet to vent their anger. Generally, a substitutive relationship implies that positive (negative) feedback is given instead of a high (low) share C/B. This leads to the following hypothesis:

H3: There is a negative relationship between the "niceness" of the message and the ratio of C/B (after having controlled for B).

3) Hypotheses regarding the change in short-run affective state

We follow Bischoff and Krauskopf (2013) and use the short version of the Positive Affectivity Negative Affectivity Schedule (PANAS) proposed by Mackinnon et al. (1999) to measure the current affective state of subjects at the beginning of the experiment as well as immediately after subjects are informed about final payoffs (see Figure 1). The PANAS-concept provides subjects with a list of five adjectives that describe how one can feel and asks them to state the degree to which they feel this way right now on a 5-point scale.[4] The answers are aggregated to derive an indicator for subjects' affective state.[5] We subtract the PANAS-score reported at the beginning of the experiment from the one reported at the end to receive an indicator for the change in short-run affective state subjects witness during the experiment.

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4 Konow (2010) asks subject to express their current affect in the dimensions *elated – depressed* and *good mood – bad mood* (10 point Likert-scale). He adds the change in score across both dimensions to arrive at his indicator for change in short-term affective state. The main advantage of the PANAS indicators compared to the one used by Konow (2010) is that – by aggregating across a five items – the PANAS indicators provide a more reliable picture of the subjects' affective state.

5 The PANAS scale contains another five adjectives to measure negative affectivity. In this paper, we concentrate on analyzing the change in positive short-run affectivity.

For the Trustee, the change in short-run affective state is expected to depend on the amount B received. The theory of expressive behavior suggests that subjects receive a positive feeling from expressing their opinion about the behavior of others. The fact that only subjects in the treatment group have the possibility to show expressive behavior leads to our final hypothesis:

H4: The change in short-run affective state of the Trustee is higher in the treatment group than in the control group.

The Investor's short-run affective state is expected to rise in the ratio C/B. Furthermore, it is likely be influenced by the comment by the Trustee. Thus, we arrive at our next hypothesis:

H5: The change in short-run affective state of the Investor rises in the niceness of the comment he receives.

Finally, the logic of psychological games (see section 3) suggests that Investors who generally trust their fellow-citizens are in danger of being disappointed by the reaction of the Trustee. Thus, we hypothesize:

H6: The reaction of the Investor's change in short-run affective state to the ratio C/B is stronger for subjects who generally trust their fellow-citizens.

5. Results

5.1 Descriptive statistics

All sessions took place in the computer lab of the Faculty of Economics and Management at the University of Kassel, Germany. Between 16 and 32 students participated per session. The pairs of players were matched at random and the roles were assigned at random as well. Nine sessions were conducted with freshmen during their welcome week in October 2013. Each of these sessions involved subjects from one group of students running through the "welcome week" together. Thus, subjects knew that they were playing with one member of their "welcome-week" group though they did not know with whom. An additional eight sessions were run in November 2013 with students taking courses at the faculty of Management and Economics in different phases of studies. Here, subjects were recruited individually so they do not generally know the other participants. Approximately 45 % of the students recruited in November do not major in Economics and Management. Instead, they are enrolled in interdisciplinary programs like Business Engineering, Law and Economics or Business and Language studies. In total, 342 students (171 pairs) participated in the experiment and we arrive at 99 observations in the treatment and 72 observations in the control group.[6] Table 1 contains the descriptive statistics for the main variables by treatment (see also Appendix A).

[table 1 about here]

[6] Four pairs were excluded because Trustees transferred back the entire amount of 3B. These were extreme outliers.

5.2 Analyzing the Investors' behavior

We hypothesized that Investors in the treatment group want to avoid the "sharp tongue" of the disappointed Trustees and thus transferred more money to the Trustees than the Investors in the control group. Figure 2 shows the histograms of the amount B by treatment. Direct tests for differences in mean or median do not confirm this hypothesis (not even at the 10 percent level). On the other hand, comparing the share of Investors who transfer B = 0 € in treatment group (7 out of 99) and control group (13 out of 72) shows a significant difference (Bernoulli-Test, $p < 0.05$).

[figure 2 about here]

In a next step, we run regressions to explain the amount B transferred by the Investor. In doing so, we contribute to the evidence on the factors explaining interpersonal differences in Investors behavior. The regressions serve as an additional test for hypothesis H1. A treatment-dummy accounts for a possible treatment effect. In addition, we analyze the impact of risk preferences, trust and personality (see section 3). We use the question asked in the German SOEP-survey to capture subjects' attitude towards risk (Weinhardt and Schupp, 2011). The question reads: "How do you rate yourself: Are you generally a risk-loving person or do you try to avoid risks? Please rate own attitude on a scale from 0 to 10 with 0 representing "Not at all prepared to take risks" and 10 representing "very risk-loving". Two dummy variables RISK_AVERSE and RISK_LOVING were constructed. We coded all subjects stating a value below 3 as risk-averse and subjects stating of 8 or higher as risk-loving. We also asked subjects to express their general trust on a 4-point scale. For subjects approving or strongly approving the statement "In general, people can be trusted", the GEN_TRUST dummy takes on the value 1 (0 else). Furthermore, we follow Müller and Schwieren (2012) and elicit subjects' personality facets using the NEO-PI R inventory (german translation by Ostendorf, 1990). Based on two questions per personality trait, the degree to which a subject can be characterized by the trait –

e.g. the degree to which he has a neurotic personality – is expressed on a 10-point scale. We constructed dummy variables that take on the value 1 for subjects who score 8 or more points on a particular scale (0 else). Following Müller and Schwieren, we control for the three personality traits neuroticism, agreeableness and conscientiousness and include the corresponding dummies NEUROTIC, AGREEABLE, CONSCIENTIOUS. To accommodate the findings of Myers and Tingley (2011), we control for the influence of Investors' affective state at the beginning of the experiment by including the variable SRA_0 – the initial score on the scale of positive affectivity reported before the experiment. In addition, we introduce a FEMALE-dummy to control for subjects' sex. The field of studies is controlled for by introducing an ECON_MAN-dummy that takes on the value 1 for all students majoring in Economics and Management (0 else). Furthermore, we include the dummy variable WELCOME_WEEK that takes on the value 1 for subjects recruited during the welcome-week (0 else). Finally, the dummy variable EXP_PREVIOUS indicates whether subjects previously participated in economic experiments. Given that the endogenous variable – the amount B transferred by the Investor – is truncated at both ends, we use a tobit-regression model. The results are presented in table 2.

[table 2 about here]

The baseline model in column 1 contains all the exogenous variables except for the personality traits. These are added in column 2. Column 3 and 4 contain an additional model lacking some insignificant variables (with and without personality traits) to test the robustness of results. The regressions show that risk-loving Investors transfer significantly more resources to the Trustee than risk-neutral or risk-averse subjects. General trust also has a significantly positive impact on the amount B transferred. Personality traits do not produce significant coefficient estimators. Investors who are majoring in Economics and Management and/or who previously took part in economic experiments transfer significantly fewer resources. This result is in line

with previous experiments (e.g. Frank and Schulze, 2000; Fehr and List, 2004; Gächter et al., 2004; Lundquist et al., 2009). The treatment-dummy is weakly significant.[7] Thus, in sum, we find partial support for hypothesis H1.

5.3 Analyzing the Trustees' behavior

Next, we turn to analyzing the Trustees behavior. The analysis will proceed in three steps. In the first step, we take a look at the share C/B. Figure 3 presents the histogram for the ratio C/B for all Trustees that received a positive transfer (i.e. B > 0) by treatment. The distribution across treatments is quite similar.

[figure 3 about here]

To learn more about the factors driving C/B, we run multiple regressions. Hypothesis H2 states that there is a positive relationship between the amount B transferred by the Investor and the ratio C/B. Again, tobit regressions are used. All pairs in which the Investor sent an amount of B = 0 were excluded because the Trustee has no decision to make. The baseline model includes the dummy variables FEMALE, WELCOME_WEEK, ECON_MAN, EXP_PREVIOUS, SRA_0 and GEN_TRUST as controls (see table 3). A TREATMENT-dummy is introduced to test for a possible treatment-effect. The second model adds the three variables NEUROTIC, AGREEABLE, CONSCIENTIOUS to control for the impact of personality on the Trustees' behavior. Column 3 and 4 drop a number of insignificant control variables (with and without personality traits) as robustness check.

[table 3 about here]

[7] OLS-regression and treatment-specific regressions yield the same qualitative results. The regression tables are available with the authors upon request.

The results in table 3 support hypothesis H2: C/B increases in the amount B transferred. In addition, Trustees in teams recruited during the welcome week exhibit a higher ratio C/B than Trustees in other teams. A weakly significant and positive coefficient estimator is reported for the NEUROTIC variable. All other variables are insignificant. In particular, no treatment-effect is found.

In the second step, we turn to the feedback Trustees can give in the treatment group. Among the 99 Trustees in the treatment group, 40 subjects sent positive feedback, 21 sent negative feedback and 16 subjects sent neutral feedback. In messages coded as negative feedback, Trustees mostly criticized the Investor for not having had more trust and transferred more. Plain insults were found only in five cases. The average amount B preceding positive feedback is significantly higher (Wilcoxon rank-sum test, $p < 0.05$) and the average amount preceding negative feedback (Wilcoxon rank-sum test, $p < 0.01$) is significantly lower than the amount B preceding neutral or no feedback (see table 4).

[table 4 about here]

We construct the ordinal variable FB_NICENESS that takes on the value 3 for positive feedback, 2 if neutral or no feedback is given and 1 for negative feedback. The higher the value of FB_NICENESS, the nicer the feedback. We run ordered logit-regressions to learn more about the factors that drive Trustees' comment-setting behavior. Next to the amount B sent by the Investor, the baseline model in the first column includes the exogenous variables WELCOME_WEEK, GEN_TRUST, ECON_MAN, EXP_PREVIOUS, FEMALE, SRA_0 (see table 5). In column 2, the personality-related variables are added. Column 3 and 4 drop a number of insignificant control variables (with and without personality traits) as robustness checks.

[table 5 about here]

The regressions confirm the result in table 4. The niceness of the feedback increases in the preceding amount B. In addition, female Trustees give nicer feedback on average. All other variables are insignificant.

In the third step, we want to learn more about the relationship between the feedback given and the ratio C/B. Hypothesis H3 states that the two are substitutes and thus the relationship between C/B and FB_NICENESS is negative. As both variables are found to strongly depend on the B, the direct correlation between the two cannot be used to test this hypothesis. We use a SUR (seemingly unrelated regression) framework that accounts for the fact that the decision about C/B and FB_NICENESS are not independent and test for the correlation of the error terms in the regressions explaining the two variables (e.g., Judge et al., 1988). A negative correlation in error terms supports hypothesis H3. To have a meaningful test for the correlation in error terms, the method must assume that both variables have the same scale level. The model we apply handles both C/B and FB_NICENESS as if they were cardinal variables (e.g., Cameron and Trivedi, 2009). The SUR-regression results for C/B and FB_NICENESS are strictly in line with those reported in table 3 and 5 for the baseline models and the following ones.[8] The error-terms yield a significantly positive coefficient of correlation of between 0.2 and 0.3 (Breusch-Pagan-Lagrange multiplier test, $p < 0.05$) for all models. Thus, the result lends no support to hypothesis H3.

5.4 Analyzing the Trustees' change in short-run affect

In this section, we turn to analyze the change in short-run affective state of the Trustees (ΔSRA). ΔSRA is measured by the difference in the Trustees' average short-run-affectivity score at the end of the session and at the beginning of it. Figure 4 shows a histogram of the

8 Regression tables are available with the author upon request.

ΔSRA. The vast majority of subjects witnessed a change in short-run affective state during the experiment. For the median Trustee, ΔSRA = 0. Thus, Trustees do not witness a systematic increase in short-run affective state.

[figure 4 about here]

The main hypothesis H4 states that the Trustees' ΔSRA is larger in the treatment group because they have the opportunity to express their approval or discontent with the amount B received. To test for this, a univariate comparison across treatments is inappropriate because it neglects the differences in the Trustees' situation resulting from the Investors' behavior (see section 5.2). Thus, we run multiple regressions. Following the standard procedure in analyzing these scales (e.g., Konow, 2010), we interpret ΔSRA as a cardinal measure and apply OLS-regressions. The explanatory variables include the amount B the Trustee transferred, the ratio C/B, the TREATMENT dummy and the initial short-run affective state SRA_0 of the Trustee. The baseline regression model is found in the first column of table 6. In column 2, the variable FB_NICENESS is added. In column 3 and 4, we rerun the previous specifications using data for the treatment group only to see whether the general results are robust. Finally, the regressions are re-run using the amount C instead of the share C/B as exogenous variable (column 5 and 6).

[table 6 about here]

The Trustees' initial affective state has a significantly negative impact on the increase in his short-run affect experienced during the experiment. The Trustees' short-run affect is found to increase in the amount B received. The Trustees' decision as reflected in C/B is weakly significant and negative. Neither the FB_NICENESS variable nor the TREATMENT dummy produces a significant coefficient estimator. Thus, hypothesis H4 is not supported.

5.5 Analyzing the Investors' change in short-run affect

Finally, we analyze the change in short-run affective state of the Investor. Figure 5 shows the corresponding histogram of the ΔSRA. The majority of Investors witness an increase in short-run affective state.

[figure 5 about here]

Again, OLS-regressions are used to explain the interpersonal differences in ΔSRA among Investors. The explanatory variables include the amount B the Investor transferred, the ratio C/B and the TREATMENT dummy. The initial short-run affective state SRA_0 is used as control variable. The results for the baseline regression model are reported in the first column of table 7. In column 2, we add the variable GEN_TRUST and the interaction GEN_TRUSTxC/B to test hypothesis H6. If this hypothesis is correct and the impact of C/B on the Investors' ΔSRA is stronger for Investors' who generally trust their fellow-citizens, we expect to see a positively significant coefficient estimator for the interaction term. Column 3 includes the variables FB_NICENCESS to control for the impact of feedback on the Investors' short-run affective state. Column 4 combines the variables used in column 2 and 3. Finally, column 5 uses the variables in column 3 but restricts the data to the treatment group only.

[table 7 about here]

The regressions show that the initial affective state SRA_0 and the amount B initially transferred have a negative impact on the Investors' change in short-run affect. The Investors' short-run affective state rises in the ratio C/B and in the niceness of the feedback received. The latter result supports hypothesis H5. In the treatment group, the increase in short-run affective state is significantly smaller. Finally, the performance of the interaction term GEN_TRUSTxC/B is significant in column 3 and weakly significant in column 4. Thus, hypothesis H6 is partly supported.

6. Concluding discussion

In this paper, we provide evidence on the impact of feedback in the Trust Game. We use the standard set-up proposed by Berg et al. (1995) and introduce a treatment in which the Trustee can give feedback to the Investor. We find some support for the notion that the Investor as potential recipients of feedback try to avoid the Trustees' "sharp tongue" by transferring a positive amount more frequently. Like in previous experiments, the feedback option has a significant impact on the frequency of behavior that is extremely contrary to social norms (i.e. giving nothing to the second player in Trust, Dictator, and Ultimatum Game) while the impact on average behavior is less pronounced (e.g., Xiao and Houser, 2005; 2007; Ellingsen and Johannesson, 2008).

As feedback and the share of money sent back to the Investor are decided upon simultaneously, we were interested to test whether they are substitutes. Based on evidence from an Ultimatum Game, Xiao and Houser (2005) argued that feedback is a form of expressing negative emotions that – if available – reduces subjects inclination to use costly monetary sanctions to express their discontent with socially inappropriate behavior. In our experiment, Trustees are not found to use negative feedback as an alternative for passing low share of resources back to the Investor or positive feedback as an alternative to passing back a high share. In other words, feedback and monetary sanctions are not found to be substitutes in our Trust Game. Instead, our results suggest that they may even be complements: Positive (negative) feedback is given on top of a high (low) amount C and not instead of it.

Like Konow (2010) and Bischoff and Krauskopf (2013), we elicit subjects' short-run affective state at the beginning and immediately after the experiment to learn more about how the experience during the experiment changes their affective state. We find that the Investors' short-run affective state is influenced by the Trustees' feedback. The nicer the feedback, the higher their affective state. At the same time, our results do not support the notion that Trustees who

have the opportunity to express their approval or disapproval with the Investor's choice of action witness an increase in utility. This result may be the consequence of the fact that we chose a between-subject rather than a within-subject setting. Thus, it should not be overemphasized. In future papers, it seems promising to make the same subjects go through both treatments and then use a difference-in-difference approach to test whether expressing one's opinion generates an increase in affective state. Despite the preliminary status of the conclusions that can be drawn from the change in short-run affect, our paper adds to Konow (2010) as well as Bischoff and Krauskopf (2013) in showing that eliciting subjects' short-run affective state in experiments can bring valuable additional insights.

There are a number of side-results that are noteworthy. First, our regressions in section 5.2 show that subjects' attitude towards risk and their general trust in other people has a positive influence on the Investors' willingness to transfer resources to the Trustee. The provoking result of Houser et al. (2010) according to which only the attitude towards risk matters is not confirmed by our results. Unlike Myers and Tingley (2011), we do not find evidence that the resources transferred by the Investor depends on the way he feels at the beginning of the experiment. Regarding the Trustee's behavior, our results support the notion that the Trustee's behavior is partly driven by inequality aversion. Our results also support the implication from psychological game theory according to which Investors witness a loss in utility when their trust in other subjects is disappointed by the Trustees. Finally, our results suggest that female Trustees give more positive feedback than their male counterparts. This result suggests that role-specific norms of appropriate behavior in social interaction are present.

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Appendix A: Descriptive statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
Investors (both treatments)					
ΔSRA	171	0.0456	0.5607	-1.4	1.4
B	171	2.8544	1.7676	0	5
WELCOME_WEEK	171	0.4327	0.4969	0	1
FEMALE	171	0.4327	0.4969	0	1
EXP_PREVIOUS	171	0.4620	0.5000	0	1
ECON_MAN	171	0.6842	0.4662	0	1
GEN_TRUST	171	0.5673	0.4969	0	1
RISK_LOVING	171	0.2632	0.4416	0	1
RISK_AVERSE	171	0.1988	0.4003	0	1
CONSCIENTIOUS	171	0.3860	0.4883	0	1
AGREEABLE	171	0.2105	0.4089	0	1
NEUROTIC	171	0.2573	0.4384	0	1
Trustees (both treatments)					
ΔSRA	171	0.1567	0.7038	-2	2
C	171	2.3541	2.6207	0	10
C/B	151	0.7326	0.5555	0	2
WELCOME_WEEK	171	0.4327	0.4969	0	1
FEMALE	171	0.4620	0.5000	0	1
EXP_PREVIOUS	171	0.5263	0.5008	0	1
ECON_MAN	171	0.7251	0.4478	0	1
GEN_TRUST	171	0.4795	0.5010	0	1
RISK_LOVING	171	0.2456	0.4317	0	1
RISK_AVERSE	171	0.1754	0.3815	0	1
CONSCIENTIOUS	171	0.4386	0.4977	0	1
AGREEABLE	171	0.1637	0.3711	0	1
NEUROTIC	171	0.2865	0.4535	0	1

Appendix B: Instructions

SCHEDULE

Welcome! Today you take part in an economic experiment.

The session consists of three steps (computerized).

(1) First we ask you to fill in a first questionnaire.

(2) Then the experiment takes place. In this experiment, you and another participant (your counterpart) have to make a decision. The counterpart is assigned to you at random. During the experiment you can earn between 0 € and 15 €. The exact payoff depends on your decision and the decision of your counterpart.

(3) Finally, we ask you to fill in a second questionnaire.

All participants fill in the same questionnaires and take part in the same experiment. We pay you an extra 2 € if you fill in both questionnaires completely.

The potential earnings are the same for all participants.

In front of you, your find a card with an ID-number. You need it to receive the payment after the experiment.

The experimental instructions will be handed out once every participant has finished the first questionnaire.

Please note:

(1) We don´t elicit your name or student registration number. Your answers and decision in the experiment will be anonymous. They will be used for this study only and will not be disclosed to third parties. You will receive your payoff in a sealed envelope.

(2) Please read the instructions carefully.

Please note that the communication is not permitted during the experiment. If you have a question, please raise your hand and somebody of the team will approach you.

Please direct your eyes to the computer screen in front of you now.

Rules of the experiment

In the current experiment, two players play together. They are called player 1 and player 2.

The experiment comprises three stages.

1. In stage 1 (preparation stage), player 1 gets an endowment of 5 € from the experimenter, player 2 will not get an endowment.
2. In stage 2, player 1 has to decide, which amount B of his endowment he wants to transfer to player 2. Any amount between 0 € and 5 € can be transferred. The rest is for player 1 to keep.

   On the way to player 2 the amount B will be tripled, so player 2 gets three times the amount player 1 sent (3xB).
3. In stage 3, player 2 has to decide, which amount C of the 3xB received he wants to send back to player 1. Any amount between 0 € and 3xB € can be transferred back.

   Player 2 keeps the rest.

   (TREATMENT GROUP ONLY:)

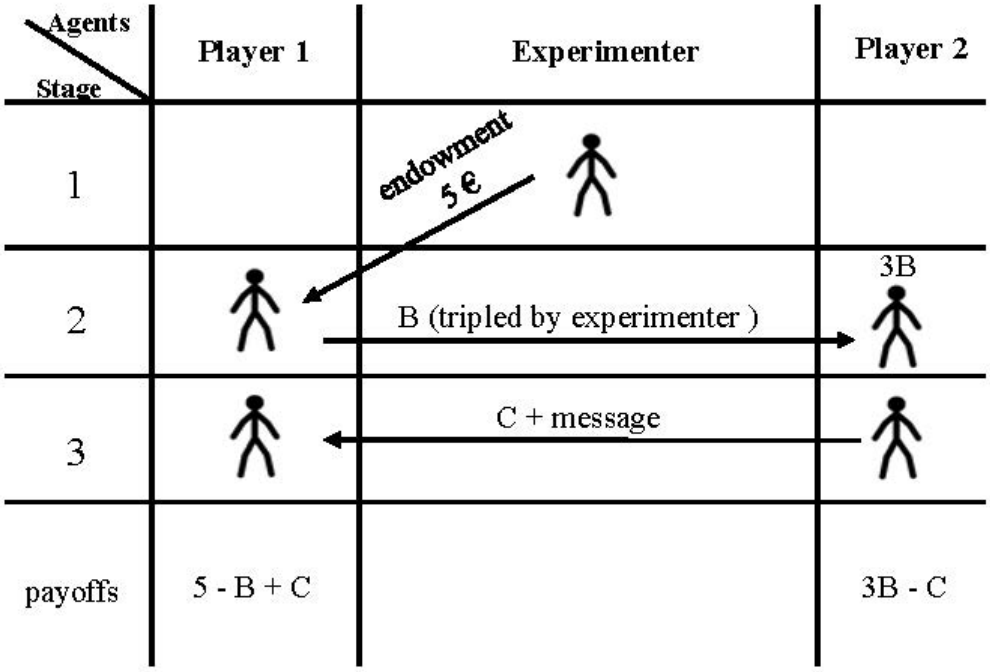
   After player 2 sees the amount B, he can send a message to player 1. When writing the message, player 2 is free in the choice of content and wording.

Die final payoffs are as follows:

- Player 1 gets 5 € - B + C
- Player 2 gets 3xB - C.

The following figure visualizes the rules of the experiment (Treatment group)

Figure: Rules of the experiment



If you have any questions, please raise your hand and we will approach you.

DECISION TASK

Please note:

Your counterpart is human and takes part in the same experiment simultaneously.

You will never find out who your counterpart is. Your counterpart will not find out either who you are.

Please remember:

Your decision during the experiment leads to real payoffs.
Player 1 will get 5 - B + C € in cash.
Player 2 will get 3xB – C € in cash.

Please direct your eyes to your computer screen again:

Please follow the instructions carefully. You will be informed whether you are player 1 or player 2. Please remember that communication with the other participants is not permitted. If you have a question, please raise your hand and somebody of the team will approach you.

FIGURES AND TABLES

Figure 1: Implementation of experimental set-up

Step	Activity	Medium
1	Subjects are introduce to the experimental session in general (without reference to the specific experiment)	Paper
2	Subjects fill in the first questionnaire (starting with PANAS-scales).	Computer
3	Subjects read the experimental instructions in general form.	Paper
4	Subjects are informed about their roles (Player 1 or player 2).	Computer
5	Players 1 decide about the amount B they want to send to players 2.	Computer
6	Players 2 decide about the amount C they want to send back	Computer
6t	Players 2 are given the opportunity to give feedback (treatment group only)	Computer
7	Players 2 are informed about the amount C sent back to them and are shown the feedback (treatment group only).	Computer
8	Subjects fill in the second questionnaire (starting with PANAS-scales)	Computer

Figure 2: Histogram of the amount B transferred by the Investor (by treatment)

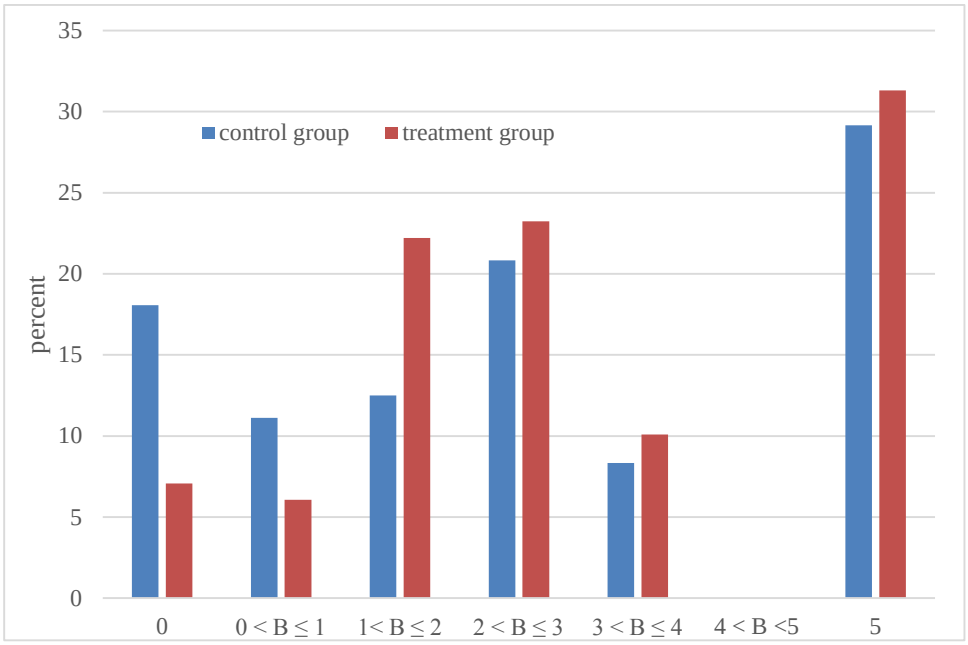


Figure 3: Histogram of the Trustees' C/B (by treatment)

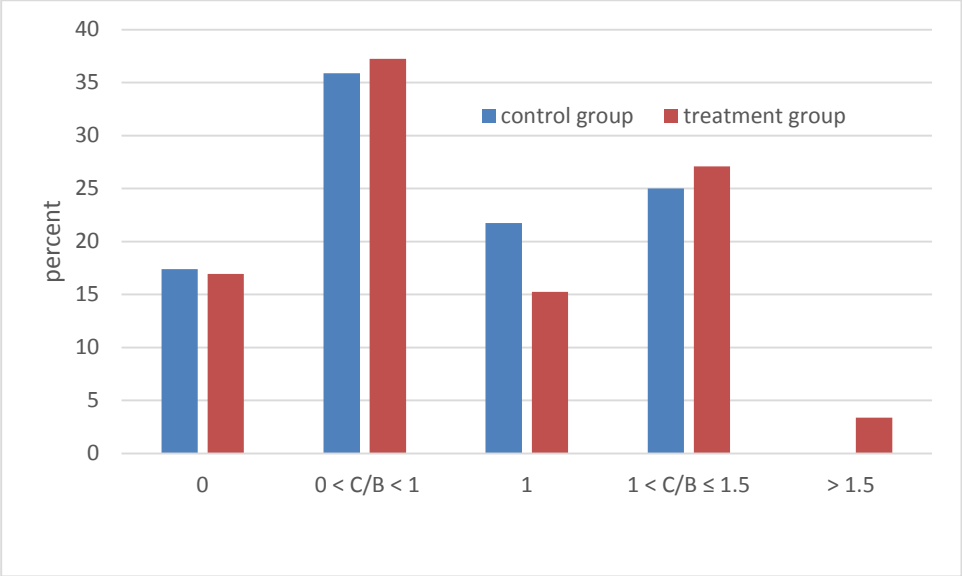


Figure 4: Histogram of the Trustees' ΔSRA (by treatment)

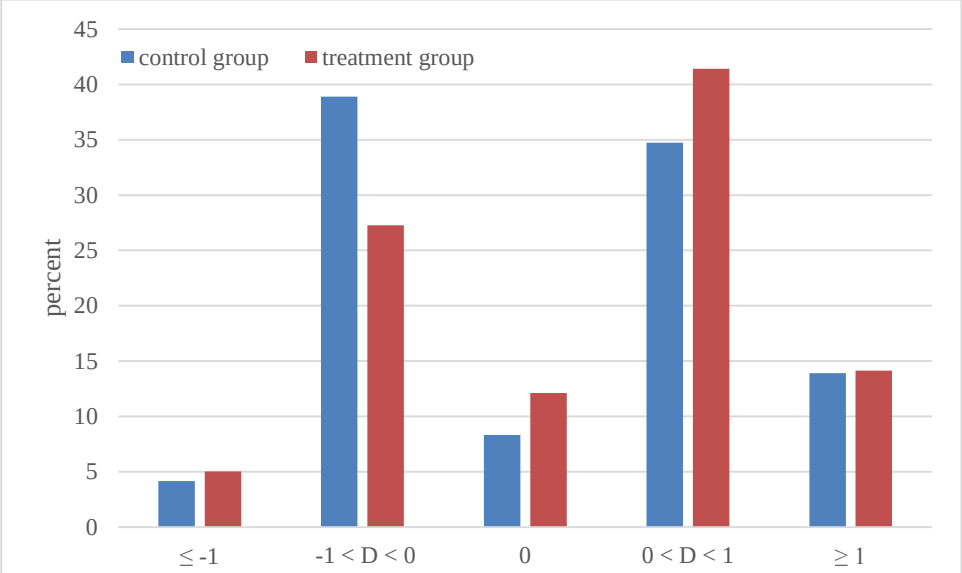


Figure 5: Histogram of the Investors' ΔSRA (by treatment)

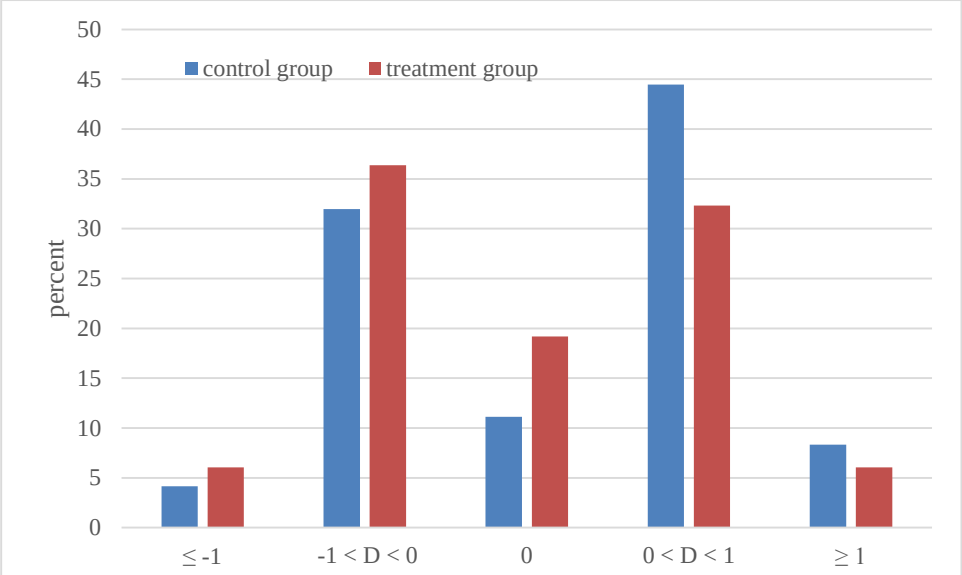


Table 1: Descriptive Statistics

Treatment	Control group (no feedback option)	Treatment group (feedback option)	All
pairs of Investor and Trustee	72	99	171
average B	2.64	3.00	2.85
average C	2.15	2.50	2.35
average ΔSRA (Investor)	0.156	-0.03	0.05
average ΔSRA (Trustee)	0.12	0.19	0.16
female participant [percent]	46.50	43.40	44.70
average age (Investor)	23.29	23.55	23.44
average age (Trustee)	22.82	22.88	22.85

Table 2: Tobit regressions to analyzing the Investors´ behavior

VARIABLES	(1)	(2)	(3)	(4)
TREATMENT	0.832*	0.880**	0.741*	0.786*
	(0.424)	(0.424)	(0.422)	(0.421)
WELCOME_WEEK	0.822	0.840		
	(0.536)	(0.538)		
GEN_TRUST	0.947**	1.139**	0.988**	1.175***
	(0.438)	(0.462)	(0.423)	(0.445)
RISK_LOVING	1.762***	1.831***	1.810***	1.865***
	(0.511)	(0.522)	(0.512)	(0.521)
RISK_AVERSE	-0.886	-0.930	-0.918*	-0.909
	(0.547)	(0.576)	(0.547)	(0.577)
ECON_MAN	-1.399**	-1.403**	-0.849*	-0.831*
	(0.578)	(0.584)	(0.454)	(0.452)
EXP_PREVIOUS	-1.084**	-1.035**	-1.278***	-1.252***
	(0.428)	(0.433)	(0.419)	(0.422)
FEMALE	-0.406	-0.403		
	(0.422)	(0.456)		
SRA_0	0.294	0.320		
	(0.375)	(0.385)		
NEUROTIC		0.231		0.0777
		(0.530)		(0.510)
AGREEABLE		-0.622		-0.558
		(0.539)		(0.536)
CONSCIENTIOUS		-0.319		-0.405
		(0.455)		(0.428)
CONSTANT	2.278*	2.219*	3.083***	3.164***
	(1.242)	(1.251)	(0.546)	(0.568)
SIGMA	2.514***	2.499***	2.532***	2.517***
	(0.201)	(0.200)	(0.203)	(0.202)
pseudo-R^2	0.0658	0.692	0.600	0.633
χ^2-Stat	41.56***	43.66***	37.89***	39.92***
N	171	171	171	171

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3: Tobit regressions to analyzing the Trustees´ behavior

VARIABLES	(1)	(2)	(3)	(4)
B	0.178***	0.175***	0.174***	0.172***
	(0.0326)	(0.0329)	(0.0325)	(0.0330)
TREATMENT	0.0464	0.0519	0.0217	0.0422
	(0.0996)	(0.1000)	(0.0980)	(0.0988)
WEL-COME_WEEK	0.461***	0.475***	0.394***	0.406***
	(0.119)	(0.119)	(0.0973)	(0.0970)
GEN_TRUST	0.0794	0.0794		
	(0.0974)	(0.0977)		
ECON_MAN	-0.135	-0.147		
	(0.134)	(0.133)		
EXP_PREVIOUS	-0.0917	-0.106		
	(0.0978)	(0.0974)		
FEMALE	0.0975	0.0433		
	(0.0976)	(0.103)		
SRA_0	0.0669	0.0615		
	(0.0789)	(0.0783)		
NEUROTIC		0.197*		0.194*
		(0.117)		(0.111)
AGREEABLE		-0.0305		0.00930
		(0.130)		(0.128)
CONSCIENTIOUS		0.0566		0.0676
		(0.0990)		(0.0991)
CONSTANT	-0.280	-0.294	-0.0873	-0.183
	(0.300)	(0.301)	(0.147)	(0.167)
SIGMA	0.568***	0.562***	0.575***	0.568***
	(0.0373)	(0.0369)	(0.0378)	(0.0373)
pseudo-R^2	0.134	0.1435	0.1187	0.1292
χ^2-Stat	40.68***	43.55***	36.03***	39.21***
N	151	151	151	151

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4: Type of feedback and the preceding amount B

type of feedback	Number of Trustees ____ (average amount B preceding feedback)	
	non-neutral feedback	no or neutral feedback
positive	40 (3.88 €)	38 (2.91 €)
negative	21 (1.53 €)	

Table 5: Ordered logit-regressions to analyzing the Trustees´ feedback-niceness

VARIABLES	(1)	(2)	(3)	(4)
B	0.775***	0.788***	0.772***	0.784***
	(0.150)	(0.151)	(0.144)	(0.145)
WELCOME_WEEK	0.275	0.279	0.178	0.177
	(0.486)	(0.497)	(0.423)	(0.438)
GEN_TRUST	0.499	0.520		
	(0.457)	(0.462)		
ECON_MAN	-0.223	-0.226		
	(0.539)	(0.571)		
EXP_PREVIOUS	0.180	0.187		
	(0.424)	(0.445)		
FEMALE	1.214**	1.252***	1.150**	1.178**
	(0.476)	(0.475)	(0.457)	(0.473)
SRA_0	-0.148	-0.159		
	(0.376)	(0.375)		
NEUROTIC		0.0168		0.0292
		(0.459)		(0.446)
AGREEABLE		-0.358		-0.354
		(0.655)		(0.661)
CONSCIENTIOUS		-0.497		-0.472
		(0.433)		(0.420)
CONSTANT (1)	0.904	0.671	1.137**	0.933
	(1.235)	(1.263)	(0.517)	(0.593)
CONSTANT (2)	3.226**	3.028**	3.434***	3.266***
	(1.285)	(1.308)	(0.618)	(0.685)
pseudo-R^2	0.1873	0.1957	0.1798	0.1876
Wald-χ^2-Stat	31.72***	36.31***	33.00***	36.34***
N	99	99	99	99

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6: OLS-regressions to analyzing the Trustees´ ΔSRA

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
SRA_0	-0.329***	-0.275***	-0.329***	-0.275***	-0.355***	-0.311***
	(0.0716)	(0.0867)	(0.0719)	(0.0874)	(0.0676)	(0.0831)
B	0.238***	0.252***	0.238***	0.251***	0.271***	0.296***
	(0.0314)	(0.0397)	(0.0328)	(0.0428)	(0.0314)	(0.0462)
C/B	-0.159*	-0.204*	-0.159*	-0.206*		
	(0.0859)	(0.112)	(0.0874)	(0.116)		
FB_NICENESS			0.00150	0.00471		0.00314
			(0.0841)	(0.0856)		(0.0822)
TREATMENT	-0.00395		-0.00434		-0.0120	
	(0.0911)		(0.0940)		(0.0835)	
C					-0.0410*	-0.0563*
					(0.0211)	(0.0290)
CONSTANT	0.570**	0.396	0.567**	0.389	0.535**	0.347
	(0.242)	(0.295)	(0.280)	(0.328)	(0.217)	(0.300)
adjusted R^2	0.3363	0.3607	0.3318	0.3534	0.4199	0.4167
F-Stat	20.00***	18.12***	15.89***	13.43***	31.76***	18.50***
N	151	92	151	92	171	99

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7: OLS-regressions to analyzing the Investors´ ΔSRA

VARIABLES	(1)	-2	-3	(4)	(5)
SRA_0	-0.254***	-0.290***	-0.262***	-0.280***	-0.285***
	(0.0701)	(0.0845)	(0.0693)	(0.0718)	(0.0712)
B	-0.0615**	-0.0943**	-0.0787***	-0.0615**	-0.0770***
	(0.0280)	(0.0364)	(0.0288)	(0.0278)	(0.0288)
C/B	0.519***	0.489***	0.493***	0.326***	0.325***
	(0.0770)	(0.0981)	(0.0771)	(0.121)	(0.120)
GEN_TRUSTxC/B				0.304**	0.267*
				(0.149)	(0.149)
GEN_TRUST				-0.166	-0.138
				(0.132)	(0.132)
TREATMENT	-0.222***		-0.263***	-0.213***	-0.250***
	(0.0816)		(0.0829)	(0.0810)	(0.0827)
FB_NICENESS		0.174**	0.157**		0.141*
		(0.0731)	(0.0739)		(0.0742)
CONSTANT	0.747***	0.367	0.530**	0.920***	0.706**
	(0.240)	(0.293)	(0.258)	(0.252)	(0.275)
adjusted R^2	0.2733	0.3411	0.2905	0.2853	0.2979
F-Stat	15.10***	12.78***	13.28***	10.98***	10.09***
N	151	92	151	151	151

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1