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Moral Emotions and Partnership

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Abstract

Actual behaviour is influenced in important ways by moral emotions, for instance guilt or shame (see among others Tangney et al., 2007). Belief-dependant models of social preferences using the framework of psychological games aim to consider such emotions to explain other-regarding behaviour. Our study links recent advances in psychological theory on moral emotions to belief-dependant models in economics.

We find that – in addition to the positive effect of second-order beliefs and promises – individuals' disposition to guilt (their proneness to respond in an evaluative way to personal transgressions) is an important determinant of kind behaviour. This applies to private as well as public settings.

JEL classifications: C70, C91, D03, D82

Keywords: social preferences, other-regarding behaviour, experiments, psychological game theory, guilt aversion, shame, beliefs, emotions, partnership

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1 Introduction

The John Lewis Partnership is the third largest UK private company. The partnership is employee-owned and it aims to demonstrate that it can outperform companies with conventional ownership structures. For a partnership to excel, profit-sharing must have incentive effects that are lacking in those traditional relationships.

The idea that joint ownership can do much for incentives when the number of partners is large seems wrong on the face of it. After all, each partner bears the full cost of her own effort but reaps just a fraction of the benefit in a large employee-owned firm. Indeed, the John Lewis Partnership has over $70,000$ members.

In this paper, we ask what would happen, if we were to rule out payment on the basis of effort and rely entirely on work ethics. Under which conditions would work ethics operate? Of course, peer pressure and team spirit as motivation for workers have been discussed elsewhere. But the discussion is mostly loose; see Freeman and Weitzman (1987) or Kandel and Lazear (1992).

Our study examines experimentally how moral emotions – guilt and shame – affect unethical behaviour at work. Guilt and shame are two different ways in which people acknowledge an awareness that they have violated a norm or a value that they take to be important or significant. We call this way in which people acknowledge an awareness that they have done something wrong a moral emotion. Shame is concerned with saving or losing face; it is concerned with appearance. Guilt is a critical voice; it is our conscience. Obviously, people experience these emotions differently. We conjecture that people have different innate propensities to experience these emotions; we will measure these emotional traits before the experimental sessions, and will test whether individual traits play a role in partnership games (correlation analysis). In addition, our experimental design – a slight modification of Charness and Dufwenberg (2006) – will allow us to identify the effect of observability of an opportunistic action

(exposure effect).

Both guilt and shame could be effective forms of pressure. Shame is important as this emotion might guarantee that incentives are not weakened but strengthened as the size of the partnership increases. Guilt could be important as this emotion works even when members' actions are unobservable.

Few behavioural researchers have examined the relationship between moral emotions and unethical choice. The dearth of research on how guilt and shame affect work ethics might be due to confusion over how to measure individual differences in the proneness to experience guilt and shame. Scales that reliably identify proneness to guilt/shame are now available (Cohen et al., 2011).

We find a substantial and significant exposure effect (10% more cooperation) and that guilt proneness correlates with cooperation in the game. These results add to the insights from Charness and Dufwenberg (2006). They found that pre-play communication, in particular promises, foster trust and cooperation in a partnership. We find out more about the individual traits that make people cooperate in such a context.

The paper is organised as follows. Section 2 provides some background on the literature on moral emotions. In section 3 we describe the experiment and derive behavioural predictions. Results are presented in section 4 and section 5 concludes.

2 Background on Moral Emotions

Scholars in social psychology agree that the process from moral standards/norms to actual behaviour is influenced in important ways by moral emotions (see among others Eisenberg, 2000; Tangney and Dearing, 2002; Tangney et al. 2007). Individual differences in how people experience moral emotions likely play key roles in determining behaviour in real-life contexts. Moreover, actual behaviour is not necessary for moral emotions to matter as people can anticipate their likely emotional reactions when they consider behavioural alternatives.

(Tangney et al. 2007)

Among moral emotions shame and guilt are from the family of self-conscious emotions. They are evoked by self-reflection and self-evaluation, an awareness that one has failed or done something wrong. Both shame and guilt are characterised by feelings of distress arising in response to personal transgressions (see for instance Baumeister et al., 1994; Tangney and Dearing, 2002; Tangney et al., 2007; Wolf et al., 2010). In everyday conversation - but also in psychology - the terms "shame" and "guilt" are often used interchangeably. Attempts to differentiate between shame and guilt focus on two categories: a distinction based on i) whether the emotion-eliciting event is considered as a failure of self or behavior, and ii) the nature of the transgression (public versus private).

Lewis (1971) argues that shame is a negative evaluation of the transgressor's entire self that follows a moral transgression (*I* did that awful thing), whereas guilt is a negative evaluation of the transgressor's specific behaviour that follows a moral transgression (I *did* that awful *thing*). Guilt arises when one makes internal, unstable, specific attributions about one's actions leading to negative feelings about specific behaviours that one has committed, while shame arises when one makes internal, stable, global attributions about one's self leading to negative feelings about the global self (Tracy and Robins, 2004). According to Tangney et al. (2007) empirical research supports this differential emphasis on self versus behavior. They lead to very different emotional experiences and very distinct patterns of motivations and subsequent behavior. Generally, guilt is regarded as the more adaptive emotion as it motivates people to correct their mistakes and apologise for them. On the other hand, shame is considered to be often maladaptive (see for instance Tangney et al., 2007; or Stuewig et al., 2010) causing people to ignore the consequences of their transgression and withdraw (Tangney and Dearing, 2002).

Benedict (1946) distinguished shame and guilt by the type of situations that invoke them. A public context is associated with shame, a private one with guilt. Such a positive relationship between the reporting of shame and the extent of

public exposure of a wrongful act has been found by Combs et al. (2010) among others. However, the public/private distinction is not undisputed in the literature as Tangney et al. (2007) refer to empirical evidence that contradicts it.

The Test of Self-Conscious Affect-3 (TOSCA-3) by Tangney et al. (2000) is arguably the most widely used way to elicit proneness to guilt and shame. It consists of 16 real life scenarios in which something goes wrong. For each situation subjects are presented a list of possible reactions (among them a shame- and a guilt reaction) and for each they are asked to rate how likely they are to react in that way. The TOSCA-3 relies on the self-behaviour distinction between shame and guilt. Guilt responses are characterised by regret and negative behavior-evaluations (thinking "I made a mistake", for example), as well as repair action tendencies (like apologising). Shame responses are characterised by negative self-evaluations (thinking "I am a terrible person") and withdrawal action tendencies (e.g., hiding). Although the TOSCA-3 contains emotional as well as behavioural responses to transgressions it does not differentiate between them within the guilt/shame sub scales. Wolf et al. (2010) analysed whether evaluative responses can be differentiated from behavioral responses. Their results confirm a theoretical and empirical distinction.

Based on these insights Cohen et al. (2011) developed the Guilt And Shame Proneness scale (GASP), an innovative scale that incorporates the public-private and the self-behavior conceptualizations simultaneously, and additionally distinguishes evaluative responses from action orientations. They assume that private transgressions trigger feelings of guilt, while public transgressions trigger feelings of shame. Hence, their guilt scenarios are all set in the private domain, and the shame scenarios are always public situations. In total the GASP contains 16 real life scenarios. Subjects are asked to imagine they were in that situation and indicate the likelihood that they would react in the way described at the end of the scenario. For guilt there are 4 scenarios with negative behaviour-evaluations (NBE) and 4 scenarios with repair responses (REPAIR). For shame there are

4 scenarios with negative self-evaluations (NSE) and 4 scenarios for withdrawal responses (WITHDRAW). See Appendix A for details.

In economics belief-dependant models of social preferences are one approach to explain other-regarding behaviour. They use the psychological games framework of Geanakoplos, Pearce and Stacchetti (1989) which allows to consider various emotions or reciprocity by incorporating higher order beliefs and actions into the utility function. The underlying idea is that "[e]motions ... are triggered by beliefs" (Elster, 1998). Charness and Dufwenberg (2006) illustrate for the case of two persons (sender, recipient) in a mini trust game that the recipient's feelings of guilt depend on how much she believes the sender believes the recipient to play kind. That is, the more she believes the sender to be disappointed if she were to play unkind, the more guilt she would experience. If this psychological cost, the belief component multiplied by the payoff difference the sender would lose and weighted by the recipient's sensitivity to guilt, outweighs the material gain for the recipient of playing unkind, she would choose the kind option. Essentially, the recipient's decision of playing kind or unkind is influenced by the anticipated feeling of guilt that would result by playing unkind. Taking this modeled process of avoiding anticipated guilt back to the theory of moral emotions it seems reasonable that the ability to evaluate own behaviour (captured by the NBE sub scale of the GASP) should be indicative for kind behaviour. Evaluative responses to transgressions (i. e. high scores in the guilt-NBE sub scale) mean individuals "anticipate feeling guilty about their mistakes" (Cohen et al., 2011). Hence, in the guilt aversion framework the evaluative sub scale NBE should be most suitable to indicate kind behaviour.

Likewise, the evaluative sub scale for shame, negative self-evaluations (NSE), should be indicative for an ability to anticipate feeling ashamed after a (publically-exposed) transgression. Similar to the guilt aversion framework shame models in economics (see Tadelis, 2007; López-Pérez, 2010; or Ong, 2011) rely on such an ability to anticipate shame to predict kind behaviour.

3 Experiment

3.1 Participants and Procedures

The experiment took place at the laboratory of the Max Planck Institute of Economics in Jena, Germany. 384 participants were recruited among students from various disciplines at the University of Jena using the ORSEE software (Greiner, 2004). In each of the 12 sessions gender composition was approximately balanced and subjects took part only in one session. The experiment was programmed and conducted with the software z-Tree (Fischbacher, 2007) and took, on average, 60 minutes. The average earnings in the experiment have been €13.56 (including a €2.50 show-up fee and an additional €5 for the online questionnaire).

At their arrival at the laboratory subjects were randomly assigned to one of the computer terminals. Each computer terminal is in a cubicle that does not allow communication or visual interaction between the participants. Participants were given time to read the instructions. There was enough time to privately ask for clarifications about the instructions. Subjects had to answer several control questions before the experiment started in order to make sure that they understood the instructions properly.

At the end of the experiment subjects were paid in cash according to their performance. Privacy was warranted during the payment phase.

3.2 Design

A week before the actual lab experiment subjects participated in an online survey administered through an Internet platform. The aim of the survey was to assess subjects' general dispositions with respect to guilt and shame. For sessions 1-6 we used the TOSCA-3 by Tangney et al. (2000), and for sessions 7-12 we used the GASP of Cohen et al. (2011). As explained in section 2 the TOSCA-3 focuses on the self/behaviour distinction between shame and guilt. The GASP aims to distinguish as well between different types of shame/guilt,

namely evaluative responses (of self or one's own behaviour) and action orientations (withdrawal or repair).

In the lab subjects played the binary investment game, sometimes also called mini trust game, used by Charness and Dufwenberg (2006). Participant A first chose between an outside option (payoffs for A and B: 5 experimental currency units (ECU), 5 ECU) and the investment. Participant B was asked to choose between DON'T ROLL (defection) (payoffs: 0, 14) and ROLL (cooperation) which results in a 5/6 chance of success (payoffs: 12, 10), and a 1/6 chance of failure (payoffs: 0, 10) of the project, independently of whether A actually decided to invest. Neutral terms were used to label the decisions. See Figure 1 for the structure of the game. In sessions 7 to 12 subjects were instructed that after phase 1 (the game as described above), they would also play a second phase for which instructions would be provided after phase 1 ended. In phase 2 the game was played again but with different roles (As were now Bs and Bs played as As). No feedback about phase 1 was given before phase 2 started and subjects knew that they would not play again with the subject they faced in phase 1.

[Figure 1 about here]

Besides the role of moral emotions we are interested in the effects of i) exposing B's action to A, and ii) pre-play communication from B to A on the choice of B. Hence, our 3x2 design varied the *observability* (A only knew the outcome/payoff resulting from B's choice, or B's action was revealed to A or not), and what *type of message* participant B could send to A (no message, a pre-formulated one, a free-form message). Essentially, our design adds to the (5, 5) treatments of Charness and Dufwenberg (2006) a treatment with a pre-formulated message, and a condition that reveals the action of B to A.[1] We

[1] In our design only the sender is informed about the action of the recipient. It is a valid concern, whether this situation is already public enough for shame to play a role. The results in Tadelis (2007) indicate that this is indeed sufficient. Participants play a trust game variant and the experiment varies the extent to which the action of the trustee (cooperate or defect) is revealed. It is either i) kept private to the trustee, ii) revealed to the trustor, or iii) announced to the entire lab. Trustees cooperate significantly less often in the first condition than in the

followed Charness and Dufwenberg (2006) as closely as possible for the free-form message treatments. Our pre-formulated message treatment allowed Bs to complete the sentence "If participant A chooses 'IN', then I intend to select" with either ROLL or DON'T ROLL. Leaving it blank was not possible. The completed sentence was then transmitted to A before A had to make a decision.

3.3 Variables

The online survey prior to the lab experiment provided us with participants' *dispositions with respect to guilt and shame*. Since two different tests were used (TOSCA-3 for sessions 1-6, and GASP for 7-12) we centered the resulting values for the respective shame and guilt scales (the two shame/guilt sub scales in the GASP were added) in order to make the TOSCA-3 and GASP results comparable. We thus obtained a value for guilt proneness and another for shame proneness for all the data. Both tests contain 16 scenarios and subjects have to indicate how likely a series of possible responses are for them personally.

In order to elicit *action beliefs* we asked each participant about her first- and second-order action belief. For Bs this is the percentage of participants A who they believe on average chooses RIGHT (i.e., first-order belief τ_B^A), and the percentage - in her view - of participants A who on average expect participant B to choose RIGHT (i.e., τ_B^{AB}). Beliefs are collected as vectors of probabilities for the alternative choices with τ_k measuring the average belief of a player k. The "correctness" of the first-order beliefs will emerge from the comparison between beliefs and actual actions of participants A in the respective session. The accuracy of the second-order beliefs resulted from the comparison between second-order beliefs of B and first-order beliefs of participant A (e.g., τ_B^{AB} vs. τ_A^B). Beliefs were elicited in an incentive compatible fashion using a quadratic scoring rule (for an example, see Schotter and Sopher, 2007).[2] Great care was

others, but there is no difference between the second and the third condition. Based on these results there is already an effect, when only one other person is informed about an opportunistic action.

[2]Belief elicitation requires quite some additional instructions, especially when incentivising belief statements and even more so when allowing beliefs to be probabilistic (see Artinger et

taken to make sure that participants understood the procedure.

Besides participants' general dispositions with respect to guilt and shame – their traits – we also wanted to know in what state participants actually are after they made their choice. For this we asked them to answer the state shame and guilt scale (SSGS) of Tangney and Dearing (2002) after they made the decision (and before beliefs were elicited). The SSGS consists of 15 statements. Participants are asked to rate on a 5-point scale whether they feel this way not at all (1) or very strongly (5). Shame, guilt, and pride are the three items that are scored in the SSGS. This gives us a participant's *shame/guilt/pride state* after the choice (which could be opportunistic (DON'T ROLL) or kind (ROLL)). Relevant within the framework of belief-dependant models of guilt/shame would also be the guilt/shame one would have felt if the other option was chosen. For instance, the guilt that would have been experienced by playing opportunistic is affecting behaviour for the person that actually played kind. The more guilt an opportunistic choice means (compared to the guilt a kind choice implies), the more psychic costs such an opportunistic choice involves. We asked participants about these respective hypothetical shame/guilt/pride states in the post-experimental questionnaire. That means a participant who made a kind choice in the experiment was told to think back to the decision (s)he made as B, was reminded that (s)he selected DON'T ROLL, and was then told to imagine (s)he had chosen ROLL. Then the SSGS statements needed to be rated. Analogously, a participant who made an opportunistic choice was told to imagine (s)he had chosen DON'T ROLL and asked to rate the statements.

3.4 Behavioural Predictions

As illustrated in Battigalli and Dufwenberg (2009) belief-dependant models based on the psychological games framework of Geanakoplos, Pearce and Stacchetti (1989) allow for the analysis of decisions that are affected by emotions such as guilt or shame. In the following we derive behavioural predictions for

al. (2010) for a survey).

our experiment that are based on a belief-dependant model in the style of Battigalli and Dufwenberg (2007) and insights from research on moral emotions as described in section 2. Predictions 1 and 2 re-iterate the findings of Charness and Dufwenberg (2006) and others. Whether B makes a kind choice is positively correlated with her second-order beliefs, and also whether she promised A to ROLL. Predictions 3 to 5 are about the paper's main theme: the role moral emotions, guilt and shame, play in a partnership situation that features moral hazard. B's general dispositions with respect to guilt/shame should positively affect whether she makes a kind choice.

Following Battigalli and Dufwenberg (2007) *simple guilt* aversion predicts the following. Let τ_A^B be A's belief about the probability that B picks ROLL. Then τ_B^{AB} denotes B's belief regarding τ_A^B. In order to measure how much B thinks she hurts A by picking DON'T ROLL, we calculate the difference between A's payoff when B plays ROLL and when B plays DON'T ROLL (weighted by the second-order belief τ_B^{AB}): $10 \cdot \tau_B^{AB} - 0 = 10 \cdot \tau_B^{AB}$

How much this actually affects B is expressed by taking her proneness to guilt γ_B into account. Hence, if B selects DON'T ROLL, she therefore experiences guilt of $10 \cdot \tau_B^{AB} \cdot \gamma_B$. This psychological cost of guilt reduces B's material payoff of choosing DON'T ROLL. Given that B is rational she will prefer ROLL to DON'T ROLL if the following inequality holds (note that $\gamma_B = 0$ represents the model's special case of pure self-interest):

$$U_B^{DON'TROLL} = 14 - 10 \cdot \tau_B^{AB} \cdot \gamma_B \quad < \quad 10 = U_B^{ROLL} \tag{1}$$

Prediction 1: The higher B's second-order belief is, the higher is, ceteris paribus, the probability that B will choose ROLL.

Prediction 2: When B makes a promise to ROLL, B is, ceteris paribus, more likely to actually choose ROLL.

From equation 1 it follows that B's general disposition with respect to guilt γ_B should positively affect whether she makes a kind choice. In particular,

B's score in the GASP sub scale guilt-NBE should be a determinant of kind behaviour.[3]

> *Prediction 3: The higher B's proneness to guilt is, the higher is, ceteris paribus, the probability that B will choose ROLL.*

Battigalli and Dufwenberg (2007) also develop a second concept of guilt aversion, *guilt from blame*. While simple guilt expresses that people tend to dislike disappointing others, guilt from blame expresses that people tend to dislike intentionally disappointing others. Hence, it would make a difference, whether one's behaviour is revealed. Applied to our experiment, in case B makes an unkind choice, it matters for B, whether A finds out B's intention. This is the setting of our *action* condition, while there is uncertainty about B's choice in the *outcome* condition. Hence, in comparison to a situation with ex post uncertainty about B's choice, B is more likely to play kind under ex post certainty, because A can attribute his own payoff to B's behaviour.

> *Prediction 4: ROLL rates are, ceteris paribus, higher on average in the action than in the outcome condition.*

Economic models of *shame* (see Tadelis, 2007; Battigalli and Dufwenberg, 2009; Ong, 2011) also consider the ex post information structure, but they focus on the self. B dislikes to be thought of as a bad person. Hence, in case B makes an unkind choice, it matters for B, whether A finds out. Given an unkind choice our *action* condition ensures that A can make such negative inferences about B's self, while there is uncertainty about B's self in the *outcome* condition. In the vein of Battigalli and Dufwenberg (2009) we can suppose that B knows that A has perfect ex post information about B's potential choice of DON'T ROLL. Then, in comparison to equation 1, $\tau_B^{AB} = 1$ and proneness to shame

[3] As described in sections 2 and 3.3 we use two different tests to assess an individual's proneness to guilt/shame, the TOSCA-3 in sessions 1-6 and the GASP in sessions 7-12. The GASP allows us to distinguish evaluative responses to a transgression which are a better indicator for the ability to anticipate feeling guilty, see Cohen et al. (2011).

θ_B replaces proneness to guilt γ_B:

$$U_B^{DON'TROLL} = 14 - 10 \cdot 1 \cdot \theta_B \quad < \quad 10 = U_B^{ROLL} \tag{2}$$

In a situation with ex post certainty about the choice of B, assuming B's proneness to shame is not less than the proneness to guilt, B is more likely to play kind since the second-order belief ($0 < \tau_B^{AB} < 1$) is replaced by 1. B's general disposition with respect to shame θ_B should positively affect whether she makes a kind choice. Again, in particular B's score in the evaluative response GASP sub scale (shame-NSE) should be a determinant of kind behaviour.

Prediction 5: The higher B's proneness to shame is, the higher is, ceteris paribus, the probability that B will choose ROLL.

We collected general dispositions of invited participants one week prior to the actual experiment. During the experiment we collected their emotional responses, their guilt/shame states. This allows us to check whether general dispositions and measured emotional states experienced in the moment are indeed consistent.

Prediction 6: General dispositions (proneness to guilt/shame) of B are correlated with actual emotional states of B.

4 Results

4.1 Descriptive Analysis

Table 1 shows treatment comparisons with respect to B's decision to chose ROLL. The treatments that allow for the sending of a message have a significantly positive effect on the choice of B for the action (ranksum test, $p = .007$) as well as for the outcome condition ($p = .02$). There is no significant difference between the two message treatments, though.

Table 1: Cooperative choices of Bs by treatment

	outcome	action
NoMSG	16/48	20/48
PreFORM	27/48	33/48
FreeFORM	27/48	31/48

In the PreFORM condition participants could either make a promise to roll or they could say they would not roll. In the FreeFORM condition participants could write freely to A. These messages were categorised into promises (a clear statement that one intends to choose ROLL), cheap talk (messages without a clear promise), and empty messages (participants who decided not to write anything). See Table 2 for the distributions.

Table 2: Promises, cheap talk or no message at all

		promise to roll	cheap talk	no message	promise to not roll
Condition	PreFORM	90	n/a	n/a	6
	FreeFORM	57	25	14	n/a

While in the PreFORM condition 90 out of 96 participants made a promise (by simply clicking a button), only 57 out of 96 promised to roll in the FreeFORM condition. A substantial number of participants sent a message but did not include a promise (25) or decided not to write anything (14).

How did As react to these different approaches by B? Table 3 contains the data about the choices of As. 35% of As in the NoMSG condition chose IN, substantially less than when B made a promise to A (60% in the PreFORM, 75% in the FreeFORM condition). The difference between PreFORM and FreeFORM is significant at the 5%-level.

Table 4 presents the choices of Bs. 37% of them chose ROLL in NoMSG. In PreFORM 64% of those who made a promise to ROLL actually did so, while in FreeFORM 74% kept their promise. The difference between PreFORM and FreeFORM is not statistically significant. These rates are in line with the results

Table 3: Fraction of As who chose IN depending on B's message

	B's message	promise to roll	cheap talk	no message	promise to not roll
Condition	NoMSG	n/a	n/a	34/96	n/a
	PreFORM	54/90	n/a	n/a	0/6
	FreeFORM	43/57	16/25	2/14	n/a

in Charness and Dufwenberg (2006). In their 'no message' treatment 44% of Bs ROLLed, and in their 'message' treatment 56%/75% ROLLed when they made no/a promise (the exact comparison would be our FreeFORM/outcome treatment with a ROLL rate of 32%/72% when no/a promise was made).

Table 4: Fraction of Bs who chose ROLL depending on their message

	B's message	promise to roll	cheap talk	no message	promise to not roll
Condition	NoMSG	n/a	n/a	36/96	n/a
	PreFORM	58/90	n/a	n/a	2/6
	FreeFORM	42/57	11/25	5/14	n/a

We assessed subjects' general dispositions with respect to guilt and shame in the online survey prior to the actual lab experiment. This was done via the TOSCA-3 (sessions 1-6) and the GASP (sessions 7-12). Both tests contain 16 scenarios and subjects have to indicate how likely a series of possible responses are for them personally. The TOSCA-3 delivers a value for guilt and one for shame proneness. The GASP distinguishes between different concepts of guilt (Guilt-Negative-Behavior-Evaluation (NBE) and Guilt-Repair (REP)) and shame (Shame-Negative-Self-Evaluation (NSE) and Shame-Withdraw (WIT)). Table 5 contains descriptive statistics and correlations between the GASP sub scales. According to Cohen et al. (2010) the 4-factor structure of the GASP is best despite the high correlations between the factors. Figure 2 contains histograms of the GASP sub scales.

[Figure 2 about here]

Table 5: GASP sub scales: descriptive statistics and correlations

	mean	standard deviation	NBE	REP	NSE	WIT
NBE	4.85	1.21	1			
REP	5.39	.86	0.2669	1		
NSE	5.22	1.01	0.5106	0.2897	1	
WIT	2.38	.85	0.1884	-0.0215	0.4083	1

4.2 Regression

The choice of participants B consisted of selecting whether to cooperate (resulting in a payoff of 10 for both) or not (A receives nothing, B gets 14). Bs knew that i) they had to choose independently of whether A actually decided to invest or not, but ii) their choice only mattered when A chose right. As described before, this setup creates a situation where individuals who cooperate may do so because they want to avoid feelings of guilt (in the case of the *outcome* condition) and additionally shame in the *action* condition. With respect to the other condition – the type of message that B can send to A – we do not simply use treatment dummies. The descriptive analysis has shown that the option to make a promise via the message is not used by everybody. It is rather the content of the message – whether a promise has been made or not – that should have an effect on behaviour. We control for possible order effects in sessions 7 to 12.

Table 6 shows the results of two LPM regressions with heteroskedasticity-robust standard errors. The dependant variable is whether participant B cooperated (1) or not (0). Column I shows results for all observations ($N = 288$), and column II shows results for sessions 7 to 12 ($N = 192$) when the GASP was used as the test for guilt/shame proneness.

In I and in II the coefficients for the second-order belief as well as for whether a promise was given are positive and highly significant. This is in line with predictions 1 and 2. Whether A is informed of B's action also has a positive effect, although to a lesser extent in II, which confirms prediction 4. Dispositions to shame/guilt (measured using the TOSCA-3 test) do not seem to matter in

Table 6: Impact on the Cooperation Rate

DV: cooperation	I: all observations		II: only GASP	
	coeff.	st.error	coeff.	st.error
2nd order belief	.6134	.1117 ***	.5204	.1419 **
promise	.2128	.0466 ***	.234	.0529 ***
action	.0864	.0273 ***	.07	.034 *
disp2guilt	.0001	.0054	.0518	.0149 **
disp2shame	.0002	.0051	-.0155	.0199
econ	.1218	.075	.0789	.0809
female	-.1136	.0544 *	-.1427	.0704 *
age	.0215	.0098 *	.026	.0121 *
period	-.0245	.0679	.0058	.0779
participations	-.0183	.0088 *	-.0215	.0077 **
constant	-.2541	.2977	-.3332	.3228
N	288		192	
R squared	0.25		0.24	

significance levels: $***=1\%, **=5\%, *=10\%$

I. In II (sessions 7 to 12, use of GASP) the coefficient of the disposition to guilt is positive and significant at the 5%-level. None of the control variables is significant at the 5%-level, except the previous participations in allocation game experiments. It appears that the GASP does in fact provide a better measure for aspects of guilt that influence behaviour.

In Table 7 we take a closer look at the sessions where the GASP was used. We include the 4 sub scales of the GASP. We also distinguish between the *outcome* condition (the signal about B's choice is noisy, only guilt should matter) in column I, and the *action* condition (A gets a clear signal about B's choice, the context is more public and shame may matter as well) in column II.

Coefficients for the second-order beliefs as well as for whether a promise was given are still positive and highly significant in both I and II. In the outcome condition (column I) the coefficient for the negative behaviour-evaluation is positive and significant at the 5%-level. The coefficients of the other sub scales do not seem to be different from zero.[4] These results are in line with prediction 3, i. e., an individual's proneness to guilt appears to be a substantial determinant

[4]These results do not change if only one GASP sub scale is used in the regression. NBE is highly significant, while NSE has a positive coefficient but is not significantly different from zero. REP and WIT have negative coefficients (not significantly different from zero).

Table 7: GASP observations

DV: cooperation	I: outcome		II: action	
	coeff.	st.error	coeff.	st.error
2nd order belief	.481	.1707 ***	.5732	.178 ***
promise	.3004	.0954 ***	.2082	.1005 **
Guilt (NBE)	.088	.0366 **	.1282	.0494 ***
Guilt (REP)	-.0213	.0431	-.0567	.0667
Shame (NSE)	-.043	.0591	.0527	.0703
Shame (WIT)	-.0752	.0583	-.0359	.0585
econ	-.0924	.142	.1737	.1213
female	-.1289	.1021	-.2123	.1029 **
age	.0312	.0184 *	.0117	.0125
period	-.0357	.1001	.0077	.0947
participations	-.0237	.0144	-.0154	.0203
constant	-.2838	.5943	-.4437	.5137
N	96		96	
R squared	0.29		0.31	

significance levels: $***=1\%, **=5\%, *=10\%$

of kind behaviour. However, we do not find support for prediction 5. There is no indication of an effect of an individual's proneness to shame. Interestingly, the coefficient for whether a promise was given is smaller in the action condition, despite the fact that making a promise and then playing unkindly means getting caught out lying, albeit in anonymity.

4.3 Analysis of Emotional States

In sessions 7 - 12 participants were asked about their shame/guilt/pride states via the SSGS i) after they made their decision, and ii) in the post-experimental questionnaire regarding the hypothetical choice they did not make in the experiment. In the framework of guilt aversion it would make sense that the difference between the guilt one anticipates to feel when choosing ROLL, and the guilt one expects to experience when choosing DON'T ROLL affects behaviour. The first measures the guilt after one disappoints the other, the second should not result in a lot of guilt feelings and may serve as a baseline. Table 8 shows the averages of shame, guilt and pride scores of participants split by the decision they just made. Wilcoxon rank-sum tests confirm that there is a significant dif-

ference (1%-level) between participants who chose ROLL ($N = 98$) and those who picked DON'T ROLL ($N = 94$). As expected, a choice of ROLL leads to significantly more pride, and significantly less guilt and shame than a choice of DON'T ROLL.

Table 8: Average SSGS scores after the decision

	B decided to ...	
	ROLL	DON'T ROLL
Shame	5.51	8.67
Guilt	6.43	10.34
Pride	18.65	14.52
N	98	94

Table 9 shows the averages of the shame/guilt/pride scores when participants were asked to answer the SGSS in the post-experimental questionnaire regarding the hypothetical choice they did not make in the experiment. Again, the data is split: by the decision they were asked to imagine (the one they did not take in the experiment).

Table 9: Average SSGS scores for the hypothetical decision

	B was asked to imagine the choice was ...	
	ROLL	DON'T ROLL
Shame	6.40	12.17
Guilt	7.51	13.81
Pride	15.13	11.59
N	94	98

In order to measure the shame/guilt/pride states of participants we compute the difference between their SSGS score for DON'T ROLL and the one for ROLL. This variable intends to express the extent of shame/guilt/pride a person experiences when playing opportunistically instead of kindly. Of course, it is partly based on a hypothetical component, but nevertheless it provides us with a measure of the emotional state a participant anticipates to be in, when playing opportunistically.

The correlations between the shame/guilt/pride states and also the dispo-

Table 10: Correlations between states (from SSGS) and dispositions (from GASP)

	shame	guilt	pride	NBE	REP	NSE	WIT
shame	1						
guilt	0.8375	1					
pride	-0.6432	-0.6967	1				
NBE	0.3002	0.2844	-0.2402	1			
REP	0.0717	0.0911	0.0281	0.2669	1		
NSE	0.2446	0.2608	-0.1988	0.5106	0.2897	1	
WIT	0.0997	0.1776	-0.0904	0.1884	-0.0215	0.4083	1

sitions from GASP are in table 10. There is a very high positive correlation between shame and guilt states, and a high negative one between shame/guilt and pride states. It does not seem participants had different guilt or shame feelings or were able to distinguish between shame and guilt in the very moment of making their decision. Comparing the state measures elicited right after the decision to participants' dispositions elicited separately prior to the experiment gives us an indication whether participants' shame/guilt proneness actually has an effect on their shame/guilt state in the situation of the experiment. As both shame and guilt states are significantly correlated with the evaluative response sub scales (NBE and NSE), it appears that there is indeed a clear link between the general ability to anticipate shame/guilt and the shame/guilt measure taken in the moment the decision is made. This confirms prediction 6. The correlation of the shame and guilt states with the action orientation sub scales (REP and WIT) is not significant at the 5%-level.

4.4 Discussion

In addition to the positive effect of second-order beliefs and promises, confirming the results in Charness and Dufwenberg (2006), we also find that individuals' disposition to *guilt* (their proneness to respond in an evaluative way to personal transgressions) is an important determinant of kind behaviour. This result is in line with Cohen et al. (2011) who developed the GASP and also tested its predictive validity. In a series of questionnaires guilt-NBE is the sub scale that

predicts cooperative and ethical behaviour.

*B*s in the action condition are more likely to take the kind choice replicating the exposure effect reported in Tadelis (2007). However, it seems that the driving force of kinder behaviour when A is informed about B's action is not *shame*. We find strong evidence for the effect of proneness to guilt (in the outcome as well as the action condition), but we do not find evidence of an effect of proneness to shame in the action condition. What does this mean for economic models of shame, like, for instance, Tadelis (2007) or Ong (2011), that rely on the private/public distinction between guilt and shame motives? Insights from social psychology indicate that also the behaviour/self domain matters (as, for instance, considered in Battigalli and Dufwenberg, 2007; López-Pérez, 2010). Our results suggest that shame (measured as a self-focused reaction to a moral transgression in a public context) has no significant impact on kind behaviour, while guilt (measured as a behaviour-focused reaction to a moral transgression in a private context) has a significantly positive effect, independent of the context. It seems that the ability to anticipate guilt – measured as evaluative behaviour-related responses, i. e., the GASP sub scale guilt-NBE – is the moral emotion that can affect behaviour no matter whether the context is private or public. Shame's lack of influence on cooperation in a two-player game has also been noted by de Hooge et al. (2007), while they find a significant effect of guilt. They used priming, participants were asked to report a personal experience in which they felt very guilty/ashamed, rather than looking at individual differences in guilt/shame proneness. These findings support the concept of guilt from blame in Battigalli and Dufwenberg (2007) as a motivation when behaviour is observable.

The other factor of our experimental design is the extent of *pre-play communication*. In the baseline condition, pre-play communication is not possible. In the FreeFORM condition, B could transmit a message to A before both play the game. In the PreFORM condition, B could make a pre-formulated promise to A. The literature suggests that communication might matter in one-shot co-

operation games with unique equilibrium (e.g., Dawes et al., 1977; Sally, 1995). We confirm this finding. The existing literature also suggests that promises might matter in these games (e.g., Ellingsen and Johannesson, 2004; Charness and Dufwenberg, 2006). Our results confirm this finding as well. A small set of publications suggests that scripted messages are less effective than free messages (Charness and Dufwenberg, 2010; Lundquist et al., 2009). We confirm this finding with a qualification: when promises are made in the FreeFORM treatments, they are indeed more effective. However, promises are less frequent in FreeFORM than in PreFORM. Overall, the effect is not clear. Finally, we do not find an interaction between the extent of pre-play communication and the other factor of our design, the observability of the action (exposure effect).

A frequent critique of belief-dependant models, first brought forward by Vanberg (2008), is that a *false consensus effect* may be the reason for the correlation between beliefs and behaviour, and not a causal relationship from beliefs to behaviour as belief-dependant models suggest. Results in Ellingsen et al. (2009) hint at the relevance of such alternative explanations. However, Bellemare et al. (2009) control for false consensus effects (which turn out to be substantial), and find that guilt aversion is still significant. Other studies that test the false consensus effect but still find evidence that beliefs cause behaviour include Fischbacher et al. (2001), Croson and Miller (2004), Frey and Meier (2004), Reuben et al. (2009) and Costa-Gomes et al. (2010). Hence, it seems reasonable to assume that a causal relationship between beliefs and behaviour exists. In any case the focus of our study is on the effect of moral emotions, not on beliefs.

5 Conclusions

In this study we investigated the effect of the moral emotions guilt and shame in a partnership situation. Like Charness and Dufwenberg (2006) we use a principal-agent game to model such a partnership. It resembles a work context

that is marred by hidden action. The partners could maximise overall benefit if they trusted/cooperated. But since the principal cannot bind the agent to cooperate, there is an incentive for the agent to make an opportunistic choice. While Charness and Dufwenberg (2006) focus on pre-play communication in order to show how beliefs (via promises) can foster cooperation, our interest is mostly in the individual differences with respect to moral emotions and how they affect the tendency to behave kindly or opportunistically.

We used the recently developed Guilt And Shame Proneness scale (GASP), Cohen et al. (2011), to measure participants' dispositions to guilt and shame. The GASP's innovation compared to existing scales is that it incorporates the public-private and the self-behaviour conceptualizations of shame and guilt simultaneously, and additionally distinguishes evaluative responses from action orientations. This finer measure turns out to be important in order to pinpoint what determines kind behaviour in our experiment.

Only the GASP's guilt-NBE sub scale, which accounts for evaluative behaviour-focused reactions to a moral transgression in a private context, seems to matter for cooperative behaviour (in addition to second-order beliefs and promises). Guilt-NBE can be interpreted as the ability to "anticipate feeling guilty about their mistakes" (Cohen et al., 2011). Since avoiding anticipated guilt is one of the driving mechanisms in the guilt aversion framework it seems natural that the ability to evaluate own behaviour (captured by the GASP's guilt-NBE sub scale) is indicative for kind behaviour. In this sense our results complement Charness and Dufwenberg (2006) who find a positive relationship between second-order beliefs and kind behaviour, the other driving mechanism in the guilt aversion framework.

In the action condition of the experiment we allow the principal to observe the action of the agent. Such increased exposure in a more public context can be associated with shame, see for instance Tadelis (2007) or Ong (2009). While we do find a significant exposure effect, shame proneness measured by the GASP does not seem to predict kind behaviour. It appears that guilt-NBE,

the GASP measure of evaluative behaviour-related responses, is the main driver of cooperation independently of the variation in observability (action/outcome condition), that is, a public/private context. Hence, our results suggest that in a public setting it is rather a behaviour-related process, as expressed in the concept of guilt from blame by Battigalli and Dufwenberg (2007), instead of a self-related process like shame that motivates cooperation.

These insights about the underlying processes leading to kind behaviour stress the role moral emotions play in a partnership context. Individuals with a high ability to anticipate guilt are the ones with whom to form a partnership. When actions are not contractable, the general disposition to guilt appears to be a reliable factor to limit opportunism. Being able to observe actions increases cooperation, but guilt seems to drive this effect as well.

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6 Figures

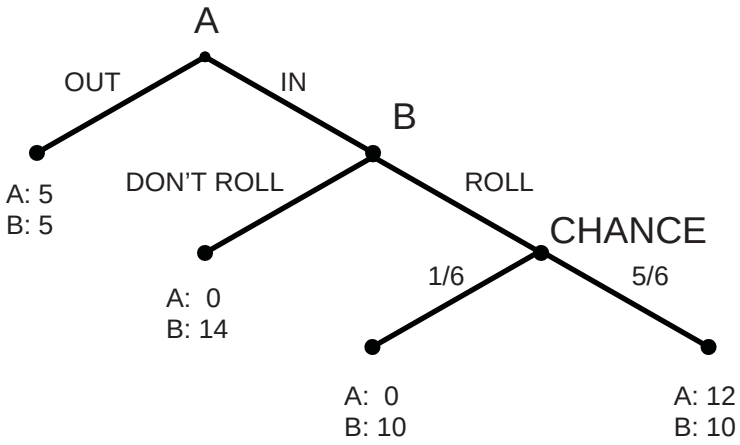
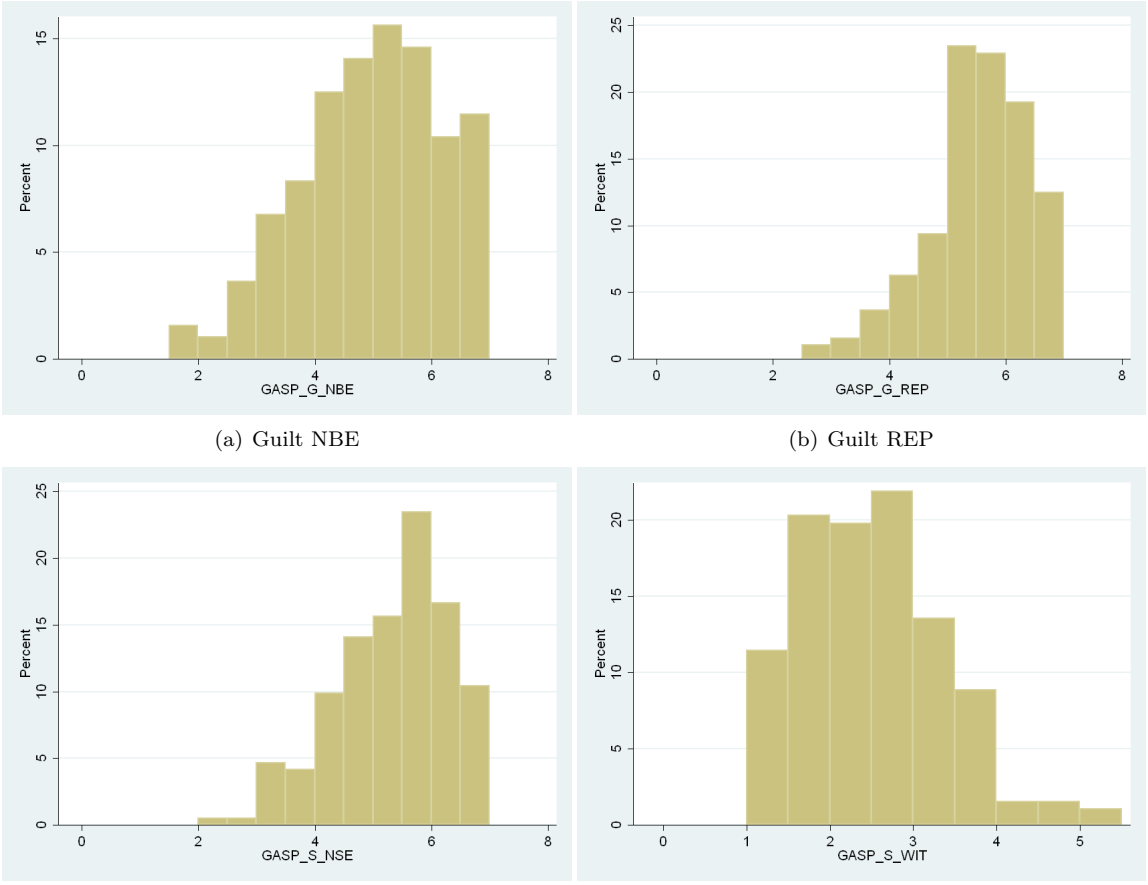


Figure 1: Structure of the game



(a) Guilt NBE

(b) Guilt REP

(c) Shame NBE

(d) Shame WIT

Figure 2: Histograms of the GASP sub scales ...

Appendix

A. Guilt and Shame Proneness Scale (GASP)

Instructions: In this questionnaire you will read about situations that people are likely to encounter in day-to-day life, followed by common reactions to those situations. As you read each scenario, try to imagine yourself in that situation. Then indicate the likelihood that you would react in the way described.

Very Unlikely (1), Unlikely (2), Slightly Likely (3), Unlikely (4), About 50% Likely (5), Slightly Likely (6), Very Likely (7)

1. After realizing you have received too much change at a store, you decide to keep it because the salesclerk doesn't notice. What is the likelihood that you would feel uncomfortable about keeping the money?

2. You are privately informed that you are the only one in your group that did not make the honor society because you skipped too many days of school. What is the likelihood that this would lead you to become more responsible about attending school?

3. You rip an article out of a journal in the library and take it with you. Your teacher discovers what you did and tells the librarian and your entire class. What is the likelihood that this would make you would feel like a bad person?

4. After making a big mistake on an important project at work in which people were depending on you, your boss criticizes you in front of your coworkers. What is the likelihood that you would feign sickness and leave work?

5. You reveal a friend's secret, though your friend never finds out. What is the likelihood that your failure to keep the secret would lead you to exert extra effort to keep secrets in the future?

6. You give a bad presentation at work. Afterwards your boss tells your coworkers it was your fault that your company lost the contract. What is the likelihood that you would feel incompetent?

7. A friend tells you that you boast a great deal. What is the likelihood that you would stop spending time with that friend?

8. Your home is very messy and unexpected guests knock on your door and invite themselves in. What is the likelihood that you would avoid the guests until they leave?

9. You secretly commit a felony. What is the likelihood that you would feel remorse about breaking the law?

10. You successfully exaggerate your damages in a lawsuit. Months later, your lies are discovered and you are charged with perjury. What is the likelihood that you would think you are a despicable human being?

11. You strongly defend a point of view in a discussion, and though nobody was aware of it, you realize that you were wrong. What is the likelihood that this would make you think more carefully before you speak?

12. You take office supplies home for personal use and are caught by your boss. What is the likelihood that this would lead you to quit your job?

13. You make a mistake at work and find out a coworker is blamed for the error. Later, your coworker confronts you about your mistake. What is the likelihood that you would feel like a coward?

14. At a coworker's housewarming party, you spill red wine on their new cream-colored carpet. You cover the stain with a chair so that nobody notices your mess. What is the likelihood that you would feel that the way you acted was pathetic?

15. While discussing a heated subject with friends, you suddenly realize you are shouting though nobody seems to notice. What is the likelihood that

you would try to act more considerately toward your friends?

16. You lie to people but they never find out about it. What is the likelihood that you would feel terrible about the lies you told?

B. Experimental Instructions

Welcome and thanks for participating in this experiment. In this experiment you can earn a certain amount of money, which depends on your and the other participants' decision. **Hence, it is important that you read the following instructions carefully.**

Please note that these instructions are only meant for you and that you are not allowed to exchange any information with the other participants. Similarly, during the entire experiment it is not allowed to talk to the other participants. If you have any questions or concerns, please raise your hand. We will answer your questions individually. Please do not ask your question(s) aloud. It is very important that you follow these rules; otherwise we have to stop the entire experiment. Please also turn of your mobile phone now. Welcome and thanks for participating in this experiment.

General Procedure

The experiment takes about 60 minutes and consists of two parts. You will be making several decisions in each of those parts. Those will be explained to you briefly on the screen.

Only **one** of the two parts will be chosen randomly for your final payoff. You will be paid in cash according to the decisions you have made in the relevant part of the experiment. The exact procedure according to which your payoff is calculated is explained below. While you are making a decision for yourself, simultaneously other participants will also make decisions, which can possibly generate payoffs for you.

During the experiment you can earn money. Your payoff will be calculated

in ECU (Experimental Currency Units) with 1 ECU = 0,75 EURO. At the end of today's session your earnings will be converted into EURO and you will be paid in cash. In addition you receive 2,50 Euro as a show-up fee and can earn another 5 Euro for completing an online questionnaire.

After you completed a questionnaire, the experiment will be finished and you receive your payoff.

Again the procedure as an overview:

1. Reading of the instructions, test questions (at the end of the instructions)
2. First part
3. Reading the instructions for the second part
4. Second part
5. Questionnaire
6. Payoff and end of the experiment

Details of the experiment

For this experiment there will always be two participants interacting with each other. They will be called participant A and participant B. Whether you are participant A or participant B will be determined randomly at the beginning of the experiment. Therefore it is very important for you to **familiarise yourself with both roles.** The following decision situation **will only be played once**, hence, there will only be one round.

Decision Situations

In this game participant A will make a decision first. He/She can choose either option OUT or IN.

- The choice of OUT implicates the following payoff: 5 ECU for participant A and 5 ECU for participant B.

- If participant A chooses opportunity IN, the payoffs of both participants will be determined by participant B.
  - Participant B can then also choose between two options:
    - A decision of DON'T ROLL implicates the following payoff: 0 ECU for participant A and 14 ECU for participant B
    - A decision of ROLL implicates that:
      - ... with a probability of 1/6 (roughly 17%) participant A will receive 0 ECU participant B will receive 10 ECU.
      - ... with a probability of 5/6 (roughly 83%) participant A will receive 12 ECU and participant B will receive 10 ECU.

Participant B will be always asked for his/her decision, regardless if participant A has chosen OUT or IN.

The following chart illustrates game 1 and the payoffs which arise:

Hence, your payoff always depends on the decisions of both participants, A as well as B. **At the end of the experiment you will learn about the other participant's decision (IN/OUT for A or DON'T ROLL/ROLL for B) as well as how much you earned in this decision situation.**

Message from B to A

Participant B has the possibility of sending a message to participant A, before A chooses either IN or OUT. Every participant B will be given enough time to type in his/her message on the computer.

- You are free to compose any content you like, but please be aware that you are not allowed to provide any hints which can be used to identify your name, seat number, gender or your appearance.
- You are not obliged to type in a message. This is optional.
- Typing/Sending a message will not amount in any costs for participant B.

- The message does not constrain B to act according to the message's content.
- A chooses between IN or OUT only after B has sent the message.

Please also be aware of the information regarding typing and submitting the message, which will be given during the experiment.

Estimates

Other than the choice of your actions you will be asked for

- your expectation regarding the other participant's action
- your estimates of the other participants' expectations regarding your own action.

Expectations of the other participant respectively

As either participant A or B you will be asked about your expectations concerning the decisions of participant B or A. This will happen during the experiment. Additionally you will be asked to give an estimation regarding the expectation of participant B or A concerning your own decision.

You are able to split your estimates in different intervals. Please indicate the estimated probability with a value between 0 and 100 and be aware that all probabilities must result in a total of 100.

You can earn money with these estimates (up to 4 ECU per estimate). **The closer you are to the real amount the more you earn.** Therefore it is important for you to read the instructions carefully.

Example for stating your estimates

You are working as a bouncer at a bar. Your boss will be with you at 11pm and wants to know the percentage of female guests. 100 people will have gone into the bar by 11pm.

You have paid close attention and know that there are 47 men and 53 women among the guests.

Your 'estimation' regarding the share of men and women should be as follows:

In the experiment, you will not know about the exact share, of course. You are being asked to estimate it. Generally, it works the same way, though.

Payoff

The amount you earn from these estimates depends on how close your estimates are to the real amount from this experiment. The closer you are to the real amount, the more you earn. **You can earn up to 4 ECU per estimate.** The real value is, as far as possible, defined by considering all participants.

In any case, it is best for you to try and indicate your real estimations. After the experiment, you can ask the experimenters about how your earnings from these estimates are calculated in detail, if you like.

Your payoff from the experiment

Your payoff from this experiment is constituted by the decision situation and the estimates. The according earning will be paid in cash to you directly after the end of the experiment, i.e. after you completed the following questionnaire. .

Comprehension questions:

Which role do you play in this part of the experiment?

o participant A

o participant B

o it has not been decided on yet

Participant A chooses IN and participant B chooses ROLL. Which payoffs could possibly result from this situation?

o Participant A: 0 ; Participant B: 14

o Participant A: 12 ; Participant B: 10

o Participant A: 10 ; Participant B: 10

o Participant A: 0 ; Participant B: 10

Which payoffs result for participant A and B if A chooses IN?

o Participant A: 0 ; Participant B: 14

o Participant A: 12 ; Participant B: 10

o Participant A: 5 ; Participant B: 5

o Participant A: 0 ; Participant B: 10

You are participant A and decide for the option IN. After the experiment you learn that you received 0 ECU. Can you infer from that, whether B chose DON'T ROLL or ROLL?

o yes

o no

How many rounds will be played in part 1?

o 1

o 2

o 5

o 15