Pledging, Praising, and Shaming: Experimental Labour Markets in Ghana

Elwyn Davies | Marcel Fafchamps

January 2017

Stanford
Center for International
Development

Pledging, Praising and Shaming: Experimental Labour Markets in Ghana

Elwyn Davies* and Marcel Fafchamps**

*University of Oxford

**Stanford University[1]

January 2017

Abstract

Firm surveys have shown that labour management in developing countries is often problematic. Earlier experimental research (Davies & Fafchamps, 2017) has shown that managers in Ghana are reluctant to use monetary incentives to motivate workers. This paper presents the results from a gift-exchange game experiment in Ghana in which the worker can make a promise to the employer before a contract is offered (ex ante communication) and in which the employer can send negative or positive feedback to the worker after the worker has chosen effort (ex post communication). The results indicate that feedback can help sustain cooperate behaviour (high effort provision), but only if the wage offered is high enough. Feedback reinforces reciprocity concerns on the behalf of the worker. In particular positive messages (praising) leads to higher effort provision, no significant relation between negative feedback and effort can be found. Promises are related to higher effort, but do not necessarily lead to higher wages.

JEL classification   C71, D2, D86, E24, O16

1 Introduction

Monetary incentives, either implicit or explicit, are often seen as effective in encouraging employees to exert high effort (Prendergast, 1999; Dellavigna et al., 2016). However, it can be questioned to what extent such incentives are effective in countries where informal employment is the norm. Davies & Fafchamps (2017) showed that participants in a gift-exchange game were less likely to adopt wage incentives in Ghana than in the United Kingdom. Other studies have shown that monetary incentives can lead to a decrease in morale and effort, because workers dislike the implied income inequality (Breza et al., 2015, e.g.) or the negative externality they impose on others in case of relative pay incentives (Bandiera et al., 2005). In such environments, it could be more effective for employers to resort to other means of motivating their workers. A natural alternative is to motivate the worker in a different way, by for example providing feedback on their performance or to verbally agree on what level effort is put in, by for example letting the worker make a promise. Lab experiments have shown that promises ex ante (Charness & Dufwenberg, 2006; Vanberg, 2008) or providing a feedback message ex post (Masclet et al., 2003) can increase trustworthiness in a trust game.

This paper studies the use and effectiveness of feedback and promises as nonmonetary incentives in labour relationships in Ghana. Employment in Ghana is characterized by a by a huge informal sector: only 20.2 percent of the country's working population is in wage employment (Ghana Statistical Service, 2014). In informal employment, contracts are rare and many of the employment conditions are established verbally. Even though labour surveys have shown that many formal and informal firms in Ghana offer bonuses (Barr & Serneels, 2009), differentiating bonuses on the basis of performance is seen as controversial.[2] The ineffectiveness of individual and group piece rate incentives found by Bandiera & Fischer (2013) and the lack of usage of monetary incentives by employers in the Ghanaian experiments found by Davies & Fafchamps (2017) correspond with such a story.

The raises the question if nonmonetary social incentives could function as an alternative to monetary incentives. To test for this, we implement an amended version of the gift-exchange game (Fehr et al., 1993). In one treatment, we allow the employers to send either positive or negative feedback to the worker after the worker has exerted effort. The employer can choose from three prespecified positive feedback messages and three prespecified negative feedback messages. The employer can also choose not to send feedback. In another treatment we also allow the workers to make a promise about future effort to the employer.

---

[2]Many firms choose to give the bonus to all workers. Debrah & Mmieh (2009) describe the problems a large formal insurance company in introducing a bonus system. Bonuses were initially given to everyone and workers felt entitled to receiving them. Making these bonuses dependent on performance led to protests from long-serving staff who were underperforming. The CEO eventually succumbed to the pressure after two years and cancelled the scheme.

Our results show that allowing for promises and feedback does not increase average effort significantly. However, allowing for feedback does increase reciprocity on behalf of the workers. In the feedback treatments workers who received a high wage are more likely to exert high effort compared to the non-feedback treatments. Furthermore, we see that in particular positive messages are related to an increase in effort. Workers who have made a promise are also significantly more likely to exert high effort, provided the wage is high enough. This suggest that the success of communication as an incentive is very much dependent on the wage that is offered.

This paper is structured as follows. Section 2 of this paper discusses related literature. Section 3 presents the experiment and the treatments. Section 4 discusses the implementation of the experiment in Ghana. Section 5 presents the results. Section 6 concludes.

2 Related literature

Our study focuses on whether positive and negative feedback as well as promises can encourage cooperation. Earlier experimental studies suggest that communication can indeed be effective in increasing trust and cooperation, but the extent of the effect is often dependent on the type of communication that the experiment allows for as well as the social distance between the players. The behavioural reasons underlying this behaviour are often explained as a preference for people to avoid guilt, a preference for consistency or concerns about social approval. However, generally, communication incentives are found to be less effective than monetary incentives. We will now discuss this in more detail.

Promises and cheap talk   Even though promises are "cheap talk" and don't directly affect earnings, earlier studies found that they can increase cooperation. In trust game experiments that allowed for hidden actions, promises generally lead to increased levels of trusting and trustworthiness (Charness & Dufwenberg, 2006, 2010; Ismayilov & Potters, 2015). In these games a sender can choose whether she puts the responder in a position in which the responder can make a choice that is either very beneficial or costly for the sender. With some probability the reverse choice of the responder is implemented, giving the responder some level of plausible deniability when choosing the harmful option. Promises generally improve both the level of trust and the level of trustworthiness. Charness & Dufwenberg (2006) gave responders the possibility to write a non-binding message on a piece of paper before the game. This made senders more likely to trust the responder and also responders more likely to reciprocate.

We can think of several reasons why responders might prefer to keep to their promises. The first one, as argued by Charness & Dufwenberg, is people keep promises due to an aversion to the experience of

guilt. They show that making a promise shifts beliefs on the other side and therefore raises expectations of what choice the responder makes. Breaking these expectations leads to a feeling of guilt that people want to avoid by not breaking their promises. Another view for the effectiveness of promises is a desire of consistency and that making a promise commits you to keeping it. Vanberg (2008) randomly swapped some of the participants in a two-sided dictator game, putting them in the shoes of someone else who had exchanged messages with another participants. Even though the other party knew that a swap was possible, they were kept in the dark whether a swap was actually made and therefore beliefs and expectations were not changed. Nevertheless, participants predominantly only kept to promises they made themselves and not to promises made by the person in whose shoes they were put. They were mainly reluctant to break expectations that they set themselves, but not the ones set by others. Vanberg argues that this provides evidence that people are keeping to their promises out of concern for consistency.

The effectiveness of promises are found to be dependent on whether communication is constrained. In our experiment we use pre-specified "canned" messages. Earlier experiments have shown that such "canned" messages (e.g. "I promise to choose Roll", where "Roll" corresponds to the responder's reciprocating choice) are generally less effective than free-form messages (Charness & Dufwenberg, 2010; Brandts et al., 2014). Furthermore, other experiments have shown that trustworthy behaviour just does not follow from sending the message, but that it is important that the promise is received at the other side. Ismayilov & Potters (2015) show that receivers behave less trustworthy if they made a promise that was undelivered than if that promise was delivered. This could be interpreted that people do not necessarily have a preference to for consistency with respect to themselves, but they might have a preference to be perceived as consistent by the other party.

Feedback and social approval Positive and negative feedback gives an idea of whether the principal approves of the action of the agent after the choice has been made. Earlier studies of social approval find that this can increase contributions in a public goods game or effort in a gift-exchange game, as discussed below. Many of these studies test social approval by *revealing the identity of the participants* at the end of the experiment. Gächter & Fehr (1999) reveal the participants' identities and contributions after playing ten rounds of a public goods game and find that this increases contributions in the treatment where participants engaged in a group activity before the start of the experiment. Having a basic level of social familiarity with each other is key: the contributions in the treatment where identities are revealed but no group activity took place were not higher than in the treatment with full anonymity. Falk et al. (1999) reveal the identity of the participants in a gift-exchange game, by letting them play the

game face-to-face and letting them openly discuss the outcomes of the game in some of the treatments. They find only a weak effect of revealing identity on effort. Letting participants play each other repeatedly but anonymously is almost as effective. This suggests that reciprocity is more important than social approval.

When feedback is public, reputational concerns start playing a role. Rege & Telle (2004) conduct a similar experiment, but make the revelation of the contribution and identity more salient, by letting the participants open the envelop with their contribution in front of the entire group immediately after their choice. They find that even if the participants do not know each other before the start of the experiment, such a social approval incentive can increase contributions. Similar results have been found in studies in developing countries, where participants who had to reveal their contributions in front of a group significantly increased their contributions (e.g. Barr, 2001).

Another approach for testing for social approval is *allowing for feedback* after a choice is made, as we do in our experiment. Masclet et al. (2003) test the effectiveness of such a mechanism in a public goods game. In their experiment, participants can give each other "punishment points", which do not carry any monetary value. Even though these points do not have monetary consequences, they do lead to higher contributions. However, the contributions are lower than in the treatment where these punishment points have monetary consequences.

However, there could also be internal motivations to give feedback. It can function as a way of venting frustration and therefore mitigate the need to use costly punishment. Xiao & Houser (2005) showed that responders in an ultimatum game were less likely to costly reject low offers if they had the opportunity to convey their feelings through a message.

The paper closest to our setup is Cooper & Lightle (2013), who conducted a gift-exchange game with communication in the United States. In this experiment the workers could send a free-form message to the employers *after* the interaction. They found that communication increased both wages and effort. The increase in effort was mainly due to employers increasing their wages. Positive and negative responses were less effective than advice given by the worker to increase the wage. Our experiments differ from their design in three ways: first, feedback is sent by the employer and not by the worker; second, we allow for promises while their experiment only allowed for feedback (players were randomly rematched after each period, so no reputational effects could emerge); and third, our messages are pre-specified while their experiment allowed for free-form communication.
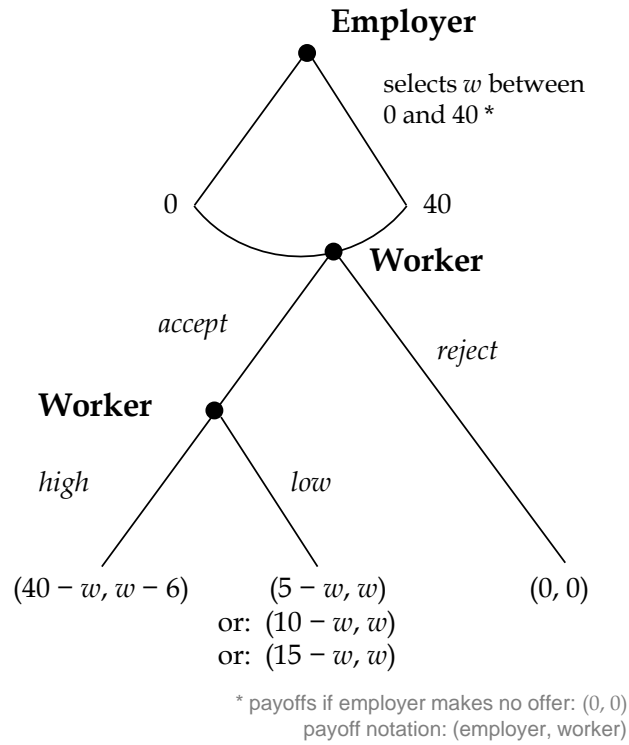
Employer

selects w between
0 and 40 *

0

40

Worker

accept

reject

Worker

high

low

$(40 - w, w - 6)$

$(5 - w, w)$
or: $(10 - w, w)$
or: $(15 - w, w)$

$(0, 0)$

* payoffs if employer makes no offer: $(0, 0)$
payoff notation: (employer, worker)

Figure 1: Extensive form representation of a single period in the game.

3 Design of the experiment

3.1 The gift-exchange game

The experiment is an adaptation of the gift exchange game and mimics labour relations in a principal agent setting. Participants are divided into workers and employers. Employers and workers are randomly matched to one other, in such a way that each employer is matched to one worker and each worker is matched to one employer. Each treatment consists of five or ten trading periods, in which the matched employer and worker can enter a labour contract with each other. The worker can choose two levels of effort: high effort or low effort. A higher level of effort is more beneficial to the employer, but comes at a higher cost to the workers. For the five or ten trading periods, the same employer and worker are contracting with each other. Each trading period consists of three stages: the contracting stage, the supply stage and the rehiring stage:

The contracting stage. In this stage the employer can choose to make an offer to the worker. The worker can then choose to accept or reject the offer. If the employer does not make an offer or the worker chooses to reject the offer, both the worker and the employer receive a payoff of zero points.

6

Effort level	low	high
Benefit to employer	5, 10 or 15	40
Cost to worker	0	6
Surplus	5, 10 or 15	34

Table 1: Payoff structure. The benefit to the employer is varied between sessions.

The supply stage. In this stage, the worker first receives the payment w from the employer and then chooses either a low or a high level of effort. A high level of effort is costly to the worker, but gives the employer a higher benefit. The choice of effort is not revealed to the employer until the end of the next stage.

The rehiring stage. If the worker accepts the offer, the employer is asked what wage she would offer if the worker chose low effort and what she would do if the worker chose high effort. The worker is asked what the minimum payment needs to be to accept the offer. If the offer of the employer matches the minimum desired payment, the worker and the employer will contract again with each other in the next period, skipping the contracting stage. If there is no match, contracting in the next period will happen as before. At the end of this stage the effort choice of the worker and the final payoffs are revealed.

A choice of high effort gives the employer a payoff of 40 points, from which the wage is deducted. The cost of providing high effort for the worker is 6 points, which is deducted from the wage. In case the worker chooses low effort, the worker does not lose any points, but the employer receives a lower payoff. This payoff is varied across the sessions, and is either 5, 10 or 15 points. Figure 1 shows an extensive-form representation of a single period in the game, and the payoffs are summarized in Table 1.

3.2 Treatments

The starting point of our experiment is treatment (1E), in which workers have a choice between providing high and low effort. To assess the effect of limited enforceability of contracts, we introduce control treatment (1C), in which workers can only choose high effort after accepting: in other words, a worker has to comply by choosing high effort.[3] This version of the game is equivalent to the ultimatum game. In both treatment (1E) and (1C) no communication between workers and employers can take place, apart from the offers posted.

---

[3]In Brown et al. (2004) employers can ask for other levels of effort than just high effort. This possibility is removed here, just like in perfect contracting treatments of earlier gift-exchange experiments, such as Fehr & Falk (1999)

Table 2: The four different treatment sequences.

Sequence no.	Game 1 (5 periods)	Game 2 (5 periods)	Game 3 (5 periods)	Game 4 (10 periods)	No. of participants
1	(1C)	(1C)	(1C)	(1C)	40
2	(1C)	(1E)	(1E)	(1E)	100
3	(1C)	(1E)	(1EM)	(1EM)	100
4	(1C)	(1E)	(1EMP)	(1EMP)	80

Note: Treatment (1C) is the control treatment, in which the worker can only choose high effort. In treatments (1E), (1EM) and (1EMP) the worker has the choice of both low and high effort. In treatments (1EM) and (1EMP) the employer can send a positive or negative feedback message to the worker. In treatment (1EMP) the worker can make a conditional promise.

In the third treatment, treatment (1EM), the employer can send a feedback message to the worker, after the worker's effort choice has been revealed. Three positive and three negative feedback messages are available, in varying degrees of strength. Some of the messages have a direct link with the previous action of the worker (e.g. "Thank you" or "Why did you do this to me?"), while the stronger messages allow the employer fully praise or shame the character of the worker in more general terms (e.g. "You are a very reliable person" or "I pity your children").[4] The messages are sent anonymously. The workers see the messages directly on their screens after they have been sent.

In the fourth treatment, treatment (1EMP), not only the employer, but also the worker can communicate by making a promise. This promise is made at the end of each period for the next period. The promise is predefined: "If you offer me a high payment, I will choose high effort." If a promise has been made, this is revealed to the employer. If no promise has been made, nothing is shown to the employer.

Besides this we vary the benefit of low effort provision to the employer, as an exogenous way of stimulating employers to make more varied wage offers. This benefit is either 5, 10 or 15 points (see also Table 1).

Each session consists of four subsequent treatments. The first three treatments consist of five trading periods, while the last treatment consists of ten trading periods. The exact treatment sequences can be found in table 2. After each treatment, the workers and employers are rematched randomly for the next five or ten periods.[5]

3.3 Predictions

Both feedback messages and promises are "cheap talk" in the sense that they do not directly influence the participant's monetary earnings. However, if we assume that participants have *preferences over processes* and not only care about the monetary payoffs but also about the way these payoffs are achieved,

---

[4]The messages available were selected from a wider range of messages to suit the Ghanaian context. They were set up in consultation with our local team, and were piloted in early sessions of the experiment.

[5]In the five or ten periods of the treatment, no rematching takes place: the worker keeps facing the same employer and vice versa. Random rematching also takes place for the practice rounds.

feedback and promises can influence behaviour. Guilt aversion or a preference for consistency deters workers who have made a promise from breaking that promise. We therefore anticipate that the possibility for promises increases conditional cooperation and reciprocity: workers who receive a high wage will be more likely to exert high effort when they have made a promise. Feedback can increase effort levels if workers care about the approval or disapproval by the employer.

Other potential channels could be that allowing some degree for communication makes the transaction less "impersonal". The feedback messages can make it more salient that the participants are playing with another human being. This realization can in itself increase reciprocity.[6] Furthermore, the text of the promise ("If you offer me a high payment, I will choose high effort.") strongly suggests conditional play by the workers and might prime some participants into playing conditionally.

4   Implementation

For this experiment, we invited 320 students and entrepreneurs from Accra, Ghana, to participate. Students were recruited from the main universities and polytechnic schools in Accra, and the entrepreneurs were recruited from participants of firm surveys conducted earlier. We used *LabBox*, a custom-made platform developed by one of the co-authors. Participants were given Android tablets running a custom-made HTML/JavaScript platform as participant terminals. A PHP web server was used to facilitate the communication between the participant terminals. All participants were able to read and write and extensive instructions were given to make sure that participants were comfortable with using the technology. The experiment was conducted in English, which is the main language of instruction at tertiary institutions in Ghana and often used in business interactions, especially within larger firms. Each session lasted for 1.5 to 2 hours and the average payoff was 30-35 cedis (about 10 dollars).

While making offers, employers are presented graphs indicating the potential consequences of their offers, showing the amount of points they and their worker would earn in case of low and high effort choice by the worker. Similarly, workers are shown graphs with the consequences for the payoffs when making the choice between high or low effort. The screens and exact instructions can be found in the Appendix.

Table 3: The average wage, the share accepted, compliance and the average earnings in the various treatments.

Treatment		Mean wage	Share accepted	Mean compliance	Mean employer's payoff	Mean worker's payoff
(1C)	Game 1	21.1	83.4%	100.0%	18.0	16.0
(1C)	Game 2	23.7	87.0%	100.0%	15.3	18.7
(1C)	Game 3	24.7	94.0%	100.0%	15.1	18.9
(1C)	Game 4	24.0	97.0%	100.0%	15.8	18.2
(1E)	Game 2	15.9	88.5%	36.1%	4.1	14.5
(1E)	Game 3	15.3	85.6%	32.7%	3.4	14.4
(1E)	Game 4	15.9	85.6%	34.1%	3.2	15.0
(1EM)	Game 3	15.5	87.6%	42.9%	6.6	13.7
(1EM)	Game 4	13.3	88.0%	38.0%	7.2	11.9
(1EMP)	Game 3	17.3	95.0%	33.2%	2.2	15.7
(1EMP)	Game 4	15.2	90.8%	35.5%	4.7	13.8

Note: The above figures are averaged over all five or ten periods in each game. *Compliance* is defined as whether a worker chose high effort. For the multilateral treatments, *Share accepted* indicates the share of offers that were taken up.
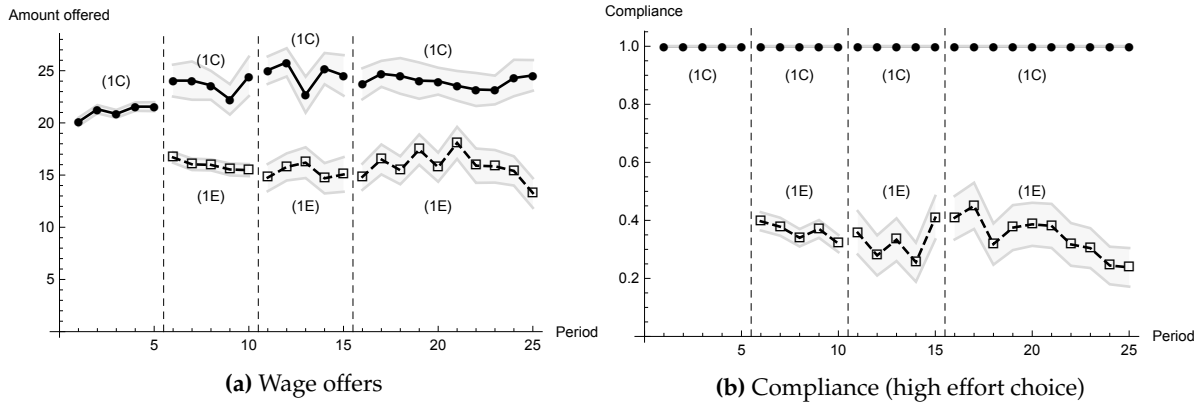

(a) Wage offers

(b) Compliance (high effort choice)

Figure 2: Average wage offers and compliance (i.e., high effort choice) for treatment (1C) and treatment (1E)

5 Results

5.1 Wages and effort when communication is not allowed

Just like earlier gift-exchange game experiments, we find that employers offer higher than minimum wages and a positive relationship between wages and effort. Table 3 shows the average wage, the share of accepted offers, the mean compliance with wages and the average employer's and worker's payoff. Compliance is defined whether a worker chooses high effort. We can see that both wages and the share of offers that are accepted drop when enforcement is no longer perfect. In games 2, 3 and 4 of treatment (1E) the workers choose high effort in 36.1%, 32.7% and 34.1% of the cases, which is significantly lower

---

[6]It should be noted that a large share of the subjects were unfamiliar with lab experiments. A way of testing this channel would be to allow for communication unrelated to the transaction in the game.
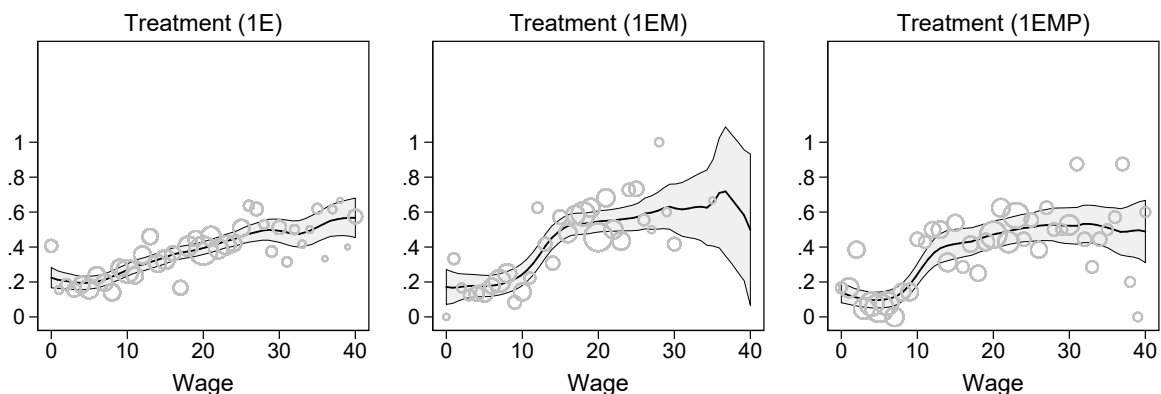
Figure 3: The relationship between wage and effort in treatment (1E), (1EM) and (1EMP). The dependent variable is share of compliance (i.e., high effort choice).

than the perfect compliance we see in treatment (1C). However, as in previous gift-exchange games, there is a pattern of positive reciprocity: effort is higher when wages are higher. Figure 2 shows the average amount offered and the average share of workers choosing high effort in treatment (1C) and (1E), breaking these figures down by period. The lower level of compliance at the end of treatment (1E) suggests that there are some end game effects.

Figure 3 shows the relationship between wage and high effort. Nevertheless, in treatment (1E), even for high wages, effort provision is low. For example, in treatment (1E), for offers higher than 23 points the average compliance rate is 40.4%. These offers can be seen as generous, because even when choosing high effort, the worker receives at least half of the surplus. This results in a unequal distribution of surplus: the workers capture most of the surplus. Making fair offers close to 23 points (which corresponds to an equal sharing of surplus if the worker chooses high effort) is costly for employers: offers between 20 and 25 points lead to an average loss of 4.7 points, while in the full compliance case this led to a profit of 18.8 points. We see that the introduction of effort choice is costly for both the employer, whose average income drops from 15.7 points to only 3.0, and for the worker, whose average income drops from 18.2 points to 15.0 points (see Table 3 for a breakdown by game). A *t*-test shows that the differences are highly significant ($p = 0.000$ in both cases). In this case, limited enforcement hurts both parties.

5.2 Positive and negative feedback

In treatments (1EM) and (1EMP) employers are given the possibility to send out feedback. They have a choice out of six pre-specified messages. In a majority of the cases employers make use of this opportunity. Table 4 shows the feedback messages sent by the employer following low and high effort. High

Table 4: Feedback messages sent in treatments (1EM) and (1EMP)

Feedback	Low effort	High effort
No feedback	20.7%	9.1%
Negative feedback		
"Why did you do this to me?"	30.2%	3.0%
"I pity your children"	6.5%	0.0%
"You are a disgrace to your family"	10.7%	0.7%
Positive feedback		
"Thank you"	22.9%	49.0%
"You are hardworking"	5.7%	17.6%
"You are a reliable person"	3.4%	20.6%
Total	100.0%	100.0%

Note: This table pools the observations from games 3 and 4 of treatment (1EM) and treatment (1EMP).
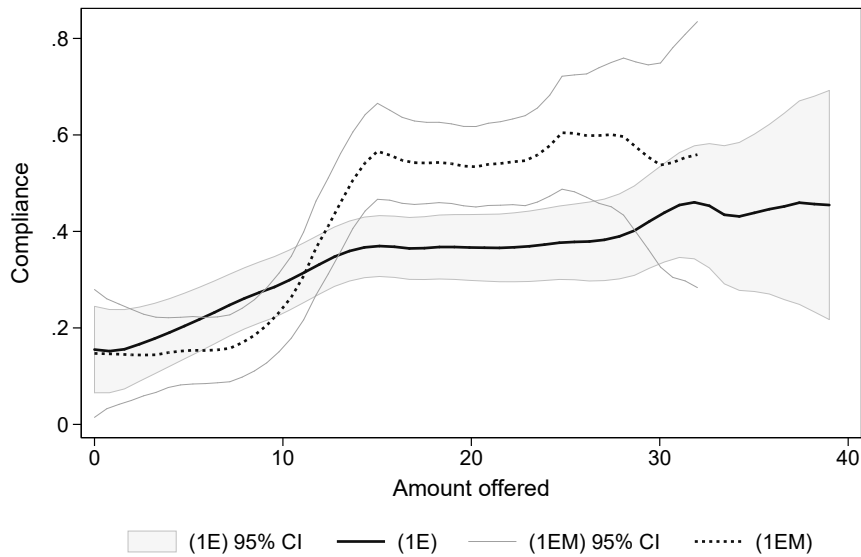

Figure 4: A local polynomial regression of compliance as a function of the wage offered. Compliance is defined as choosing high effort after accepting an offer. The figure compares the treatment with messages (1EM) with the treatment without messages (1E).

12

Table 5: Share of high effort choice in treatments (1C), (1E), (1EM) and (1EMP)

Period	Game 3						Game 4										
	1	2	3	4	5	All	1	2	3	4	5	6	7	8	9	10	All
Panel A. All offers																	
High effort choice in																	
... treatment (1C)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
... treatment (1E)	0.36	0.28	0.33	0.26	0.41	0.33	0.41	0.45	0.32	0.38	0.39	0.38	0.32	0.30	0.24	0.24	0.34
... treatment (1EM)	0.47	0.42	0.47	0.47	0.49	0.43	0.44	0.44	0.26	0.40	0.42	0.43	0.39	0.44	0.43	0.37	0.38
... treatment (1EMP)	0.34	0.36	0.31	0.34	0.31	0.33	0.43	0.45	0.29	0.47	0.36	0.43	0.26	0.34	0.30	0.21	0.35
Panel B. Above-median wages ($w_t \geq 16$)																	
High effort choice in																	
... treatment (1C)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
... treatment (1E)	0.33	0.27	0.33	0.26	0.53	0.34	0.39	0.50	0.45	0.37	0.40	0.39	0.50	0.44	0.26	0.31	0.38
... treatment (1EM)	0.58	0.46	0.63	0.58	0.65	0.58	0.48	0.70	0.33	0.68	0.52	0.65	0.50	0.56	0.60	0.50	0.56
... treatment (1EMP)	0.39	0.42	0.38	0.50	0.45	0.43	0.56	0.67	0.42	0.63	0.59	0.64	0.33	0.60	0.50	0.21	0.46
Panel C. Treatment (1EM)																	
% Sent positive feedback	0.55	0.53	0.55	0.45	0.50	0.52	0.43	0.55	0.33	0.50	0.43	0.50	0.45	0.50	0.53	0.53	0.47
High effort after positive msg	-	0.52	0.71	0.57	0.67	0.62	-	0.65	0.42	0.75	0.63	0.56	0.58	0.71	0.60	0.58	0.61
% Sent negative feedback	0.18	0.23	0.30	0.33	0.25	0.26	0.28	0.23	0.40	0.23	0.38	0.33	0.30	0.28	0.28	0.28	0.30
High effort after negative msg	-	0.33	0.11	0.17	0.46	0.27	-	0.20	0.00	0.29	0.22	0.36	0.18	0.10	0.20	0.18	0.19
Panel D. Treatment (1EMP)																	
% Made promises	0.50	0.45	0.43	0.73	0.68	0.56	0.68	0.68	0.63	0.73	0.60	0.73	0.65	0.70	0.63	0.63	0.66
High effort after promise	-	0.37	0.29	0.44	0.32	0.36		0.54	0.32	0.57	0.39	0.46	0.32	0.36	0.30	0.22	0.39
High effort after no promise	-	0.35	0.32	0.27	0.25	0.30	-	0.25	0.23	0.31	0.30	0.40	0.10	0.31	0.30	0.20	0.27

Note: The *All* column shows the average choice of high effort or the average share of workers or employers sending feedback or making a promise.

effort is followed by positive feedback in 87.2% of the cases, negative feedback in 3.7% of the cases and no feedback in 9.1% of the cases. This suggests that high effort generally is rewarded with a positive message. After low effort employers send negative feedback in 47.4% of the cases, positive feedback in 32.0% of the cases and no feedback in 20.7% of the cases. The high share of positive feedback following low effort is remarkable, but this could indicate a sarcastic or ironic response.

The average wages in the feedback treatments are similar to the other treatments. In treatment (1EM), the average wage offer is 15.5 and 13.3 points in games 3 and 4, while in treatment (1E), the average wage offers in games 2, 3 and 4 are 15.9, 15.3 and 15.9 points. These differences are not significant. The acceptance rates are very similar in the two treatments and not different significantly from each other.[7]

The rate of compliance is higher in treatment (1EM) than in treatment (1E). The share of high effort choices is 36.1%, 32.7% and 34.1% in games 2, 3 and 4 of treatment (1E) and 42.9% and 38.0% in games 3 and 4 of treatment (1EM). However, these differences are not significant.[8]

Figure 4 compares the relationship between compliance and wage for both treatments (1E) and (1EM). As can be seen in the figure, the relationship between wages and effort is *stronger* in treatment

---

[7]When averaging across all games, the average in treatment (1E) is 85.6% and in treatment (1EM) is 88.0%. A *t*-test of the differences yields a *p*-value of 0.263.

[8]A *t*-test yields $p = 0.112$ when comparing the game 3 values, $p = 0.451$ when comparing the game 4 values.

(1EM) than in treatment (1E): for low wage offers, high effort is less likely, but for higher wage offers, high effort has become more likely. This differential response could explain the lack of a significant overall effect of feedback. The decrease in high effort provision at low wages partially cancels the increase in high effort provision at high wages.

If we consider wages below and above the median (16 points) separately, we see that, compared to treatment (1E), high effort is about 4-7% less likely for below-median wages in treatment (1EM) than in treatment (1E), even though the differences are not significant.[9] However, for wages at or above the median we find a significant difference. High effort is 23.8% more likely in game 3 of treatment (1EM) compared to game 3 of treatment (1E). This difference is statistically significant at the 5% level ($p = 0.024$). The corresponding difference for game 4 is 15.0%, but this figure is statistically insignificant ($p = 0.151$).

Result 1. *Feedback leads to a stronger relationship between wages and effort. In game 3, for above-median wages, high effort is 23.8% more likely.*

These results suggest that reciprocity on the worker's side becomes stronger when feedback is possible. However, the lower difference for game 4 suggests that this effect wears off and decreases over time.

Result 2. *The possibility of feedback does not lead to significantly lower or higher offers. Positive messages are significantly related to higher wage offers in the next period.*

We now ask the question whether this is mainly driven by positive or by negative feedback. Table 5 shows that compliance is generally higher following positive feedback. However, this is not surprising, because positive feedback generally follows after a worker chose high effort in the previous round and these workers might be more likely to choose high effort again, for example because the employer keeps offering a high wage. We therefore not claim a causal relationship between positive messages and effort. To derive some meaningful conditional correlations, we control for other factors besides feedback influencing effort choice, such as the wage offered, and include worker fixed effects, which will absorb time-invariant characteristics of the worker.

Table 6 shows a linear probability model of high effort choice. Column (1) and (2) show the intention to treat regressions, including coefficients for whether the employer had the possibility of sending feedback. Column (3) and (4) include variables for whether feedback was actually sent and break this down into positive and negative feedback. In columns (2) and (4) we interact these terms with the wage.

---

[9]For game 3 high effort is 7.2% less likely for below-median wages in treatment (1EM), while for game 4 high effort is 4.2% less likely. However, these differences are not significant.

Table 6: Linear probability model of effort

Dependent variable: Choice of high effort in period t	(1)	(2)	(3)	(4)
Feedback possible?	0.0726	−0.0407	0.0194	−0.0194
	(0.0716)	(0.0630)	(0.0787)	(0.0792)
Negative feedback sent?$_{t-1}$			0.0242	−0.00892
			(0.0375)	(0.0635)
Positive feedback sent?$_{t-1}$			0.0802**	−0.0661
			(0.0363)	(0.0394)
Promise possible?	−0.0459	−0.0525	−0.0856	−0.0239
	(0.0757)	(0.0560)	(0.0841)	(0.0772)
Promise made?$_{t-1}$			0.102***	−0.000969
			(0.0158)	(0.0211)
Wage$_t$	0.00964***	0.00679***	0.00943***	0.00653***
	(0.00115)	(0.00111)	(0.00120)	(0.00115)
× Feedback possible?		0.00684***		0.00189
		(0.00220)		(0.00327)
× Negative feedback sent?$_{t-1}$				0.00251
				(0.00341)
× Positive feedback sent?$_{t-1}$				0.00918***
				(0.00308)
× Promise possible?		0.000310		−0.00366
		(0.00244)		(0.00283)
× Promise made?$_{t-1}$				0.00560***
				(0.00124)
Constant	0.223***	0.272***	0.197***	0.246***
	(0.0354)	(0.0333)	(0.0307)	(0.0310)
Observations	3,136	3,136	2,640	2,640
R-squared	0.058	0.063	0.064	0.075
Period dummies	Yes	Yes	Yes	Yes
Worker fixed effects	Yes	Yes	Yes	Yes
Session dummies	Yes	Yes	Yes	Yes

$^{*}\ p < 0.1$, $^{**}\ p < 0.05$, $^{***}\ p < 0.01$

Note: This is a linear probability model, with high effort as the dependent variable and worker fixed effects. Observations from treatments (1E), (1EM) and (1EMP) are included. Standard errors (in brackets) are clustered by session.

In all regressions there is a positive and significant coefficient for the wage. From Column (1) we can see that an increase of a wage offer by 1 point is related to an increase the probability of choosing high effort by 0.964 percentage points. The coefficient on the possibility of feedback by the employer is not significant. The coefficient of the interaction between the wage and whether feedback is possible is positive and significant. This confirms the earlier finding that the possibility of feedback is related to a *stronger* relationship between wage and effort.

In Columns (3) and (4) feedback is broken down in positive and negative feedback. We can see a differential pattern. Column (3) shows that receiving negative feedback is associated with a 2.4 percentage point higher probability of choosing high effort and positive feedback is related to a 8.0 percentage point increase in the probability of choosing high effort. Only the coefficient for positive messages is significant. When we include the interaction with wage in Column (4), we see that the interaction coefficient of wage and these terms is positive, but again only significant for positive feedback.

These coefficients suggest that especially positive messages play a role in strengthening reciprocity. However, as can be seen in Table 4, positive messages are mainly sent out when the worker already chose high effort. The results therefore suggest that for these relationships were the worker already exerted high effort, positive feedback makes the workers more likely to choose high effort *again*. Feedback therefore mainly seems to work as a positive reinforcement mechanism.

Negative messages are predominantly sent out following low effort. The lack of a significant coefficient for negative feedback therefore suggests that workers who already exerted low effort are not much more likely to choose high effort following negative feedback. However, workers are also not more likely to choose low effort following negative feedback. Negative feedback therefore seems to have little impact on the worker's behaviour.

Result 3. *Of the feedback sent, only positive feedback is significantly related to higher effort levels and a higher degree of conditional reciprocity on behalf of the worker.*

We now discuss how feedback influence wages offers. Table 7 shows a series of fixed effect regressions of wage offers. Columns (1) and (2) provide an intention-to-treat analysis. Column (3) and (4) include indicator variables whether positive or negative feedback was sent. From all regressions it follows that a rejection in the previous period is related to a higher wage in the next period. The next period wage is 1.1 to 2.2 points higher. High effort is also related to a higher wage in the next period: the coefficients suggest that the wage is 2.4 to 3.0 points higher. Including a lagged dependent variable does not change the variables significantly.

The coefficient for high effort, despite being significant, is small. This means that there is relatively

Table 7: The relation between wages, feedback and promises.

Dependent variable: Wage offer in period t	(1)	(2)	(3)	(4)
Wage offer$_{t-1}$		0.198***		0.198***
		(0.0413)		(0.0413)
Rejection?$_{t-1}$	1.169**	1.966***	1.445***	2.190***
	(0.442)	(0.388)	(0.497)	(0.428)
High effort?$_{t-1}$	3.000***	2.575***	2.995***	2.464***
	(0.561)	(0.467)	(0.613)	(0.504)
Feedback possible?	−0.680	−0.474	−1.324	−1.101
	(1.182)	(1.006)	(1.321)	(1.146)
Negative feedback sent?$_{t-1}$			0.912	0.569
			(0.732)	(0.660)
Positive feedback sent?$_{t-1}$			0.825**	0.981**
			(0.341)	(0.363)
Promises are possible?	1.353	0.841	1.302	0.842
	(1.190)	(0.922)	(1.254)	(0.974)
Promise made?$_{t-1}$			0.00606	−0.0817
			(0.338)	(0.290)
Observations	2,954	2,932	2,954	2,932
R-squared	0.582	0.600	0.582	0.601
Period dummies	Yes	Yes	Yes	Yes
Employer fixed effects	Yes	Yes	Yes	Yes
Session dummies	Yes	Yes	Yes	Yes

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Note: This is a linear regression, with the wage offer as the dependent variable and employer fixed effects. Observations from treatments (1E), (1EM) and (1EMP) are included. Standard errors (in brackets) are clustered on the session level.

little change in wages offered to workers that chose high effort and workers that chose low effort. This is surprising, especially if we take the difference in the employer's payoff into account. High effort yields the employer a benefit of 40 points, while low effort only yields the employer 5, 10 or 15 points, depending on the session.

The possibility of sending messages as feedback does in itself not significantly influence wage offers. The coefficients on whether feedback is possible and whether promises are possible are both statistically insignificant in Column (1). However, when we include variables to indicate a negative or positive message was sent, we see that negative feedback is related to wages of 0.6 or 0.9 points higher and positive feedback is related to wages of 0.8 to 1.0 points higher. Despite that the coefficient for negative and positive feedback have similar magnitudes, only the figure for positive feedback is significant.[10]

5.3 Promises

We next ask how promises affect these results. In treatment (1EMP) the workers can send out a pre-specified promise ("If you offer me a high payment, I will choose high effort."), in addition to the possibility for feedback by the employer. In 73.0% of the cases workers make this promise.

The possibility of making promises does not increase average effort. As we can see in Table 3, in game 3 of treatment (1EMP) the workers choose high effort 33.2% of the cases. This is lower than in the corresponding treatment (1EM) figure, 42.7%, and only barely higher than the share of high effort in game 3 of treatment (1E), which was 32.7%. None of these differences are significant.[11] Also the rate of acceptance does not differ significantly between treatment (1EMP) and treatment (1EM).

If we consider wages above and below the median separately, we do not find a significant difference in effort level either. For below-median wages ($w < 16$), the average share of high effort provision is 19.5% in treatment (1EMP) and 23.8% in treatment (1EM). For wages at or above the median ($w \geq 16$), the shares are 48.7% for treatment (1EMP) and 56.1% for treatment (1EM). These differences are not significant $p = 0.624$ and $p = 0.419$). This suggests that promises, at least in addition to feedback, do not lead to a stronger or weaker relationship between wages and effort. The linear probability model of high effort in Table 6 confirms this. Column (2) shows that the the coefficient of interaction term between the wage and whether promises are possible is not significant. The estimate is also small compared to the coefficient of interaction between wages and the possibility for feedback.

Result 4. *The possibility of sending out promises, in addition to feedback, does not significantly impact on average*

---

[10]These figures should not be given a causal interpretation, because the employer is both sending the message and subsequently setting the wage offer. There is scope for omitted variable biases: for example, a positive message could indicate that the employer deems the worker to be trustworthy, which in itself could lead to higher offers. In the regression we control for past effort choice, but this variable might not capture all relevant information to establish whether the employer deems the worker trustworthy.

[11]A *t* test comparing the shares in treatments (1EMP) and (1EM) yields $p = 0.146$.

wages and average effort or the relationship between wages and effort.

However, even though the *possibility* for making promises, on aggregate, does not affect effort, we might still see a difference in behaviour between workers who made a promise and workers who did not make a promise. In Column (4) of the linear probability regression of effort in Table 6, the coefficient of the interaction term of wage and having made a promise is positive and significant. This suggests that there is a positive correlation between making a promise and exerting high effort, at least when the wage is high enough. This might seem at odds with the lack of effect of promises we found earlier, but could suggest a sorting effect: for example, if promises are only made by the workers who, without the possibility for promises, were already responding conditionally to wages and the other workers do not make promises, then there is no overall change in behaviour, but the coefficient for the interaction term between wages and having made a promise will still be positive and significant.

Promises do not seem to affect wage offers significantly. In Table 7 the coefficients for whether promises are possible and whether a promise was actually made are not significant.

6   Discussion and conclusion

As in Davies & Fafchamps (2017), and confirmed in the experiments in this paper, the average level of worker's effort in this experiment is low. In Davies & Fafchamps (2017) participants acting as employers in our experiments Ghana were less likely to use wage incentives to motivate workers, compared to the United Kingdom, which contributed to the lower level of effort. In this paper we introduced the possibility for feedback as well as for promises in additional experiments run in Ghana, arguing that because of the high prevalence of informal employment in Ghana, social incentives could be more effective than monetary incentives. Communication, and in particular feedback, indeed seems to matter. Feedback increases conditional reciprocity on behalf of the worker. For higher wages, feedback, and in particular positive feedback, increases effort. This suggests that communication is not an substitute for monetary incentives, but rather a complement.

The absence of a separate effect for promises, even at high wages, could suggest that a motivation to avoid guilt or a motivation to be consistent across the choices have little role in influencing effort. However, we did not study promises in isolation of feedback, and it might very well be that promises in isolation have an effect.

As discussed in Section 2, a preference for social approval is often suggested as an underlying motive for why feedback can function as an effective way to encourage higher effort. However, we find that feedback is mainly effective at high wage levels. At low wage levels, there is no significant difference

in the choice of effort. This begs the question why workers would be less receptive to social approval incentives when facing an employer offering a low wage. The literature on social approval suggest that it is important to take into account who the social approval is coming from (see e.g., Gächter & Fehr, 1999). In our experiment the social distance between the worker and the employer does not play a role, since the worker and employer are interacting anonymously. However, the actions of employers could reveal something to the worker about their personality or identity, and this could make the worker care more about gaining their approval. An example would be that a worker observing a high wage sees the employer as being of a "noble" or a "just" personality type, with whom the worker would like to identify (see e.g., Akerlof & Kranton, 2000).

Another interpretation of the results is that feedback reduces the uncertainty surrounding distributional concerns. A worker with distributional concerns does not only care about their own utility but also about the utility of others. However, if the worker faces imperfect information regarding the other employer's utility, feedback allows the worker to learn about the preferences of the employer. Receiving a positive feedback message indicates that the worker is behaving in line with the employer's interest.

Alternatively, the increase in effort after a positive message could be a result of positive reciprocity. If the worker gains utility from simply receiving a positive message, then reciprocity models suggest that the worker is more likely to reciprocate. However, the credibility of the message is important. If we analyze "sarcastic" messages (positive messages that follow after low effort) and include these in the linear probability regression of Table 6, we find that these messages are not effective in increasing effort.

Another question is how anonymity influences our results. Earlier experimental studies indicate that social approval incentives became more effective when there is some degree of social familiarity (Gächter & Fehr, 1999) or when there is a face-to-face interaction (Rege & Telle, 2004; Falk et al., 1999). Real life employment situations are far from being anonymous and particularly in informal unemployment social networks play an important role. Nevertheless, many firm surveys still suggest that despite the higher degree of social proximity between workers and employers in many developing countries, worker management is problematic (Bloom & Van Reenen, 2007).

A further unexplored issue is how feedback can function when it is more public. Praising and, in particular, shaming are often inherently public. Part of the deterrence effect of shaming is that other people know. A relevant question here is whether publicly shaming someone of an action, which does not only tell third parties about the action itself but also how the action was perceived by the other party, is more effective than just spreading the information on the action.

References

Akerlof, G. A. & Kranton, R. E. (2000). Economics and Identity. *Quarterly Journal of Economics*, 115(August), 715–753.

Bandiera, O., Barankay, I., & Rasul, I. (2005). Social preferences and the response to incentives: Evidence from personnel data. *Quarterly Journal of Economics*, 120(3), 917–962.

Bandiera, O. & Fischer, G. (2013). Can "Good" HR Practices Be Exported? Evidence from a Field Experiment in Ghana. *IGC Working Paper*, (F-6021-GHA-1).

Barr, A. (2001). Social Dilemmas and Shame-based Sanctions: Experimental results from rural Zimbabwe. *CSAE Working Paper*, (11).

Barr, A. & Serneels, P. (2009). Reciprocity in the workplace. *Experimental Economics*, 12(1), 99–112.

Bloom, N. & Van Reenen, J. (2007). Measuring and Explaining Management Practices Across Firms and Countries. *Quarterly Journal of Economics*, 122(4), 1351–1408.

Brandts, J., Charness, G., & Ellman, M. (2014). Let's talk: How communication affects contract design. *Working Paper*.

Breza, E., Kaur, S., & Shamdasani, Y. (2015). The Morale Effects of Pay Inequality. *Mimeo.*

Brown, M., Falk, A., & Fehr, E. (2004). Relational Contracts and the Nature of Market Interactions. *Econometrica*, 72(3), 747–780.

Charness, G. & Dufwenberg, M. (2006). Promises and partnership. *Econometrica*, 74(6), 1579–1601.

Charness, G. & Dufwenberg, M. (2010). Bare promises: An experiment. *Economics Letters*, 107(2), 281–283.

Cooper, D. J. & Lightle, J. P. (2013). The gift of advice: Communication in a bilateral gift exchange game. *Experimental Economics*, 16(4), 443–477.

Davies, E. & Fafchamps, M. (2017). When No Bad Deed Goes Punished: Relational Contracting in Ghana versus the UK. *NBER Working Paper*.

Debrah, Y. A. & Mmieh, F. (2009). Employment relations in small- and medium-sized enterprises: insights from Ghana. *The International Journal of Human Resource Management*, 20(7), 1554–1575.

Dellavigna, S., List, J. A., Malmendier, U., & Rao, G. (2016). Estimating Social Preferences and Gift Exchange at Work. *Working paper*.

Falk, A., Gächter, S., & Kovács, J. (1999). Intrinsic motivation and extrinsic incentives in a repeated game with incomplete contracts. *Journal of Economic Psychology*, 20(3), 251–284.

Fehr, E. & Falk, A. (1999). Wage rigidity in a competitive incomplete contract market. *Journal of Political Economy*, 107(1), 106–134.

Fehr, E., Kirchsteiger, G., & Riedl, A. (1993). Does Fairness Prevent Market Clearing? An Experimental Investigation. *The Quarterly Journal of Economics*, 108(2), 437–459.

Gächter, S. & Fehr, E. (1999). Collective action as a social exchange. *Journal of Economic Behavior & Organization*, 39(4), 341–369.

Ghana Statistical Service (2014). *Ghana Living Standards Survey Round 6 (GLSS 6). Labour Force Report*. Technical report.

Ismayilov, H. & Potters, J. (2015). Why do promises affect trustworthiness, or do they? *Experimental Economics*, 19(2), 382–393.

Masclet, D., Noussair, C. N., Tucker, S., & Villeval, M.-C. (2003). Monetary and Nonmonetary Punishment in the Voluntary Contributions Mechanism. *American Economic Review*, 93(1), 366–380.

Prendergast, C. (1999). The Provision of Incentives in Firms. *Journal of Economic Literature*, 97(1), 7–63.

Rege, M. & Telle, K. (2004). The impact of social approval and framing on cooperation in public good situations. *Journal of Public Economics*, 88(7-8), 1625–1644.

Vanberg, C. (2008). Why Do People Keep Their Promises? An Experimental Test of Two Explanations. *Econometrica*, 76(6), 1467–1480.

Xiao, E. & Houser, D. (2005). Emotion expression in human punishment behavior. *Proceedings of the National Academy of Sciences of the United States of America*, 102(20), 7398–401.

A   Appendix

B   Additional graphs and figures
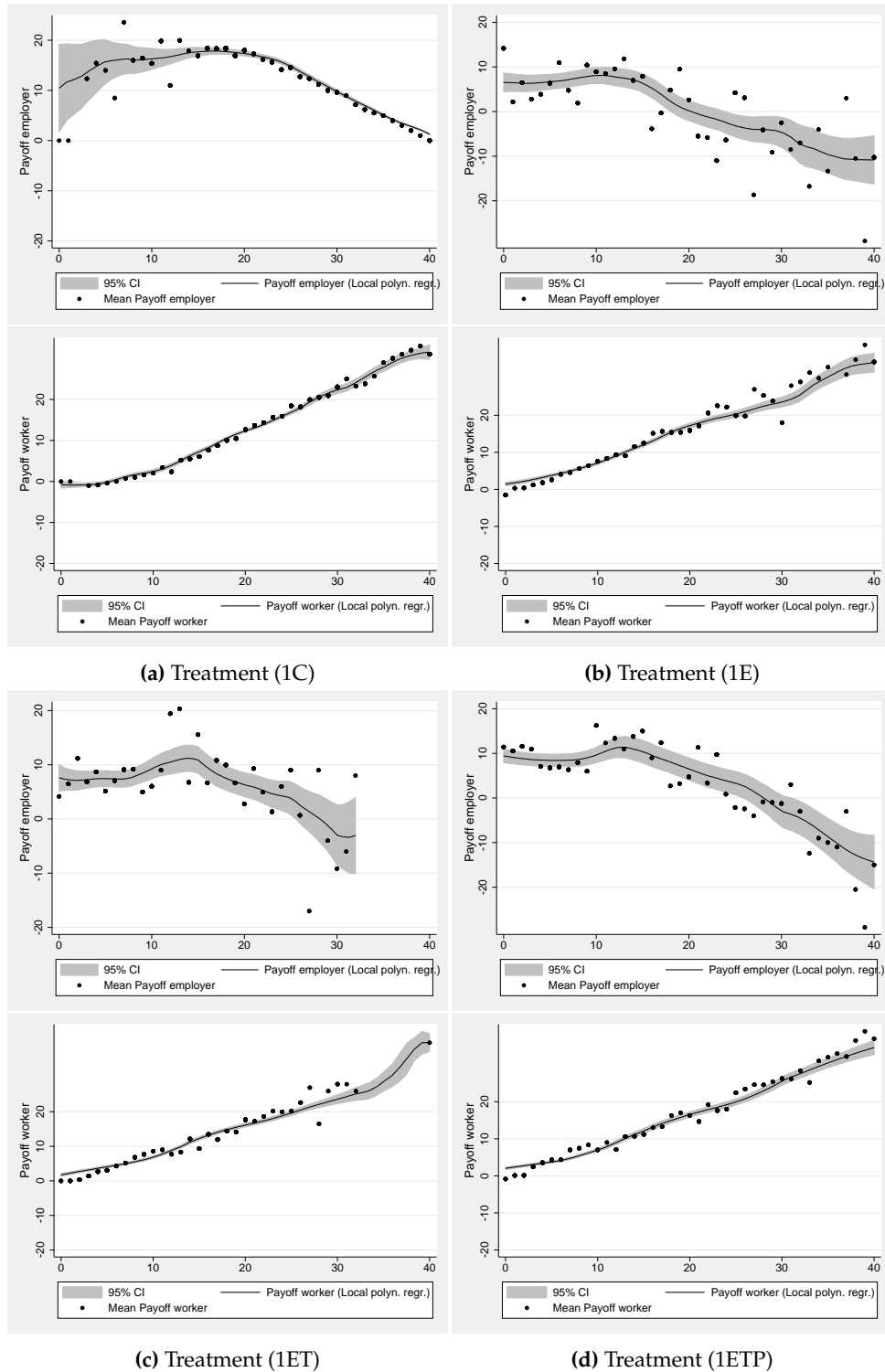
B.1   Payoffs of workers and employers

(a) Treatment (1C)

(b) Treatment (1E)

(c) Treatment (1ET)

(d) Treatment (1ETP)

Figure 5: The payoffs of workers and employers, and the offers made by employers in the four treatments.

(a) Wage offers
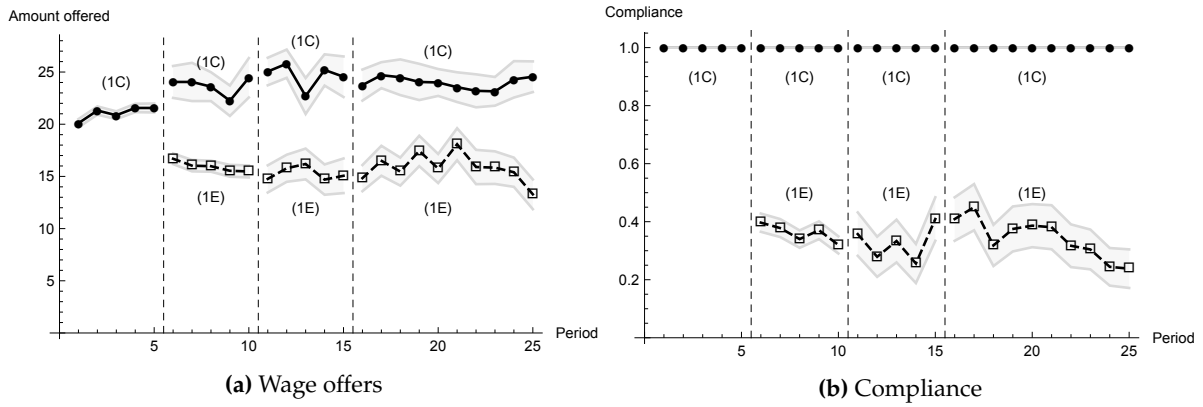
(b) Compliance

Figure 6: Average wage offers and compliance for treatment (1C) and treatment (1E)

(a) Employer's earnings

(b) Worker's earnings
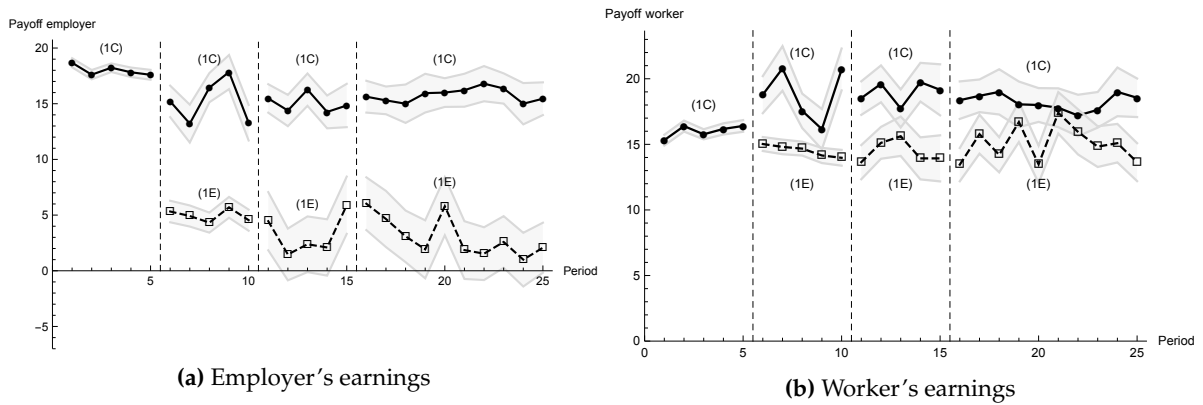
Figure 7: Average earnings in treatment (1C) and (1E)

B.2 Further analysis of the impact of incomplete contracting

Figures 6 and 7 show the average wage, average compliance and the payoffs for each period of each game. We see that the offered wages are lower than in the perfect enforcement treatment. However, we do not find a significant difference in acceptance rates, apart from the last game. This could be related to the lower wages, which are linked to lower acceptance rates. The average compliance rate is low and appears to decrease over time. This low level of compliance leads to a highly unequal distribution of the surplus, where workers capture most of it.

Amounts offered The bottom graphs of Figure 8 shows the distribution of offers. When comparing the full compliance treatment (1C) with the effort choice treatment (1E) we see that in the case of the control treatment a substantial part of the offers lie around 20 points. A clear single peak pattern can be seen here, while in the effort choice treatments two peaks in the distribution of amounts offered appear: one around five or six points and one around 20 points. The peak around 20 point corresponds to a scenario where the surplus is almost equally shared between workers and employers (the amount

25

corresponding to an exactly equal sharing of surplus if the worker chooses high effort is 23 points). In case of the full compliance (1C) model, these offers are in line with the predictions made by the fairness models and reject the predictions of the model assuming perfectly self-interested agents.

At an offer of five or six points and a choice of low effort most of the surplus is captured by the worker (depending on whether the cost of low effort is 5, 10 or 15 points). When accepting an offer of five or six points, it is not (strictly) profitable for a worker to choose high effort, because a high effort offer will cost the worker six points. Employers offering this amount are probably anticipating that the worker is choosing low effort in the next round. Still, the offer is higher than what a purely self-interested worker would need to accept the offer (zero or one), indicating that either the employers still care about fairness at these low wage levels or that they anticipate that the worker will still care about this (and reject an offer that is too low).

Acceptance of offers   The top graphs in Figure 8 show the relation between wage and acceptance of the offer. When looking at acceptance rates, we see that for the same wage acceptance rates are higher in the effort choice treatments, especially for offers above 10 points: here almost all offers are accepted. The model assuming solely self-interested subjects predicts that any offer of six or higher in case of full compliance treatments and any offer of zero or higher in case of the effort choice treatments should be accepted by the worker. We find that participants still reject offers above these levels. Acceptance rates are higher for the effort choice treatments. This is in line with predictions from the fairness models, as workers now can punish low offers costlessly by accepting them and then choosing low effort. This is of course not possible in the full compliance treatment (1C).

Effort choice   This is discussed in further detail in the main text.
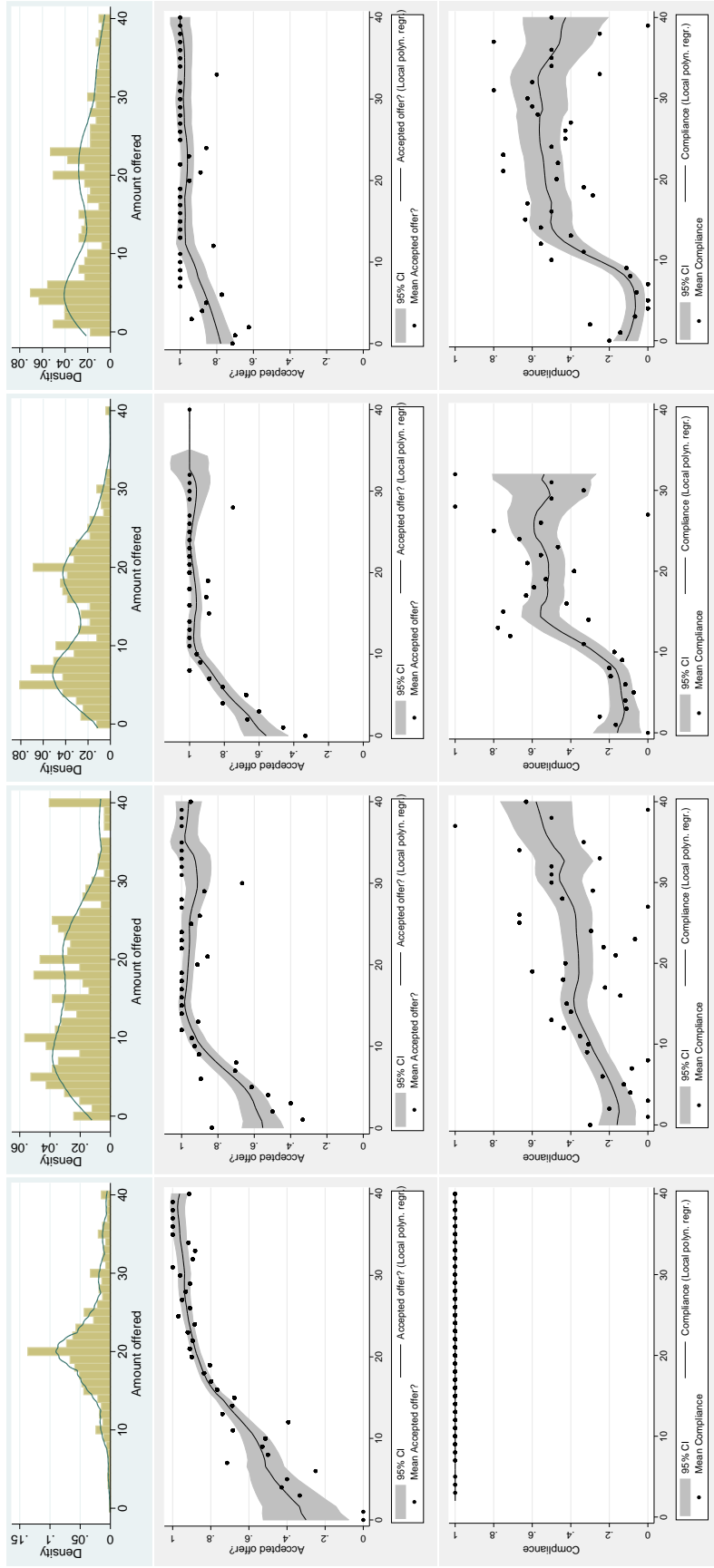
Figure 8: Acceptance rates, compliance (choosing high effort) and offers made by employers in the four treatments. Only results from Part IV (the last part in the sequence, see table 2) are shown. The horizontal axis shows the amount offered by the employer.

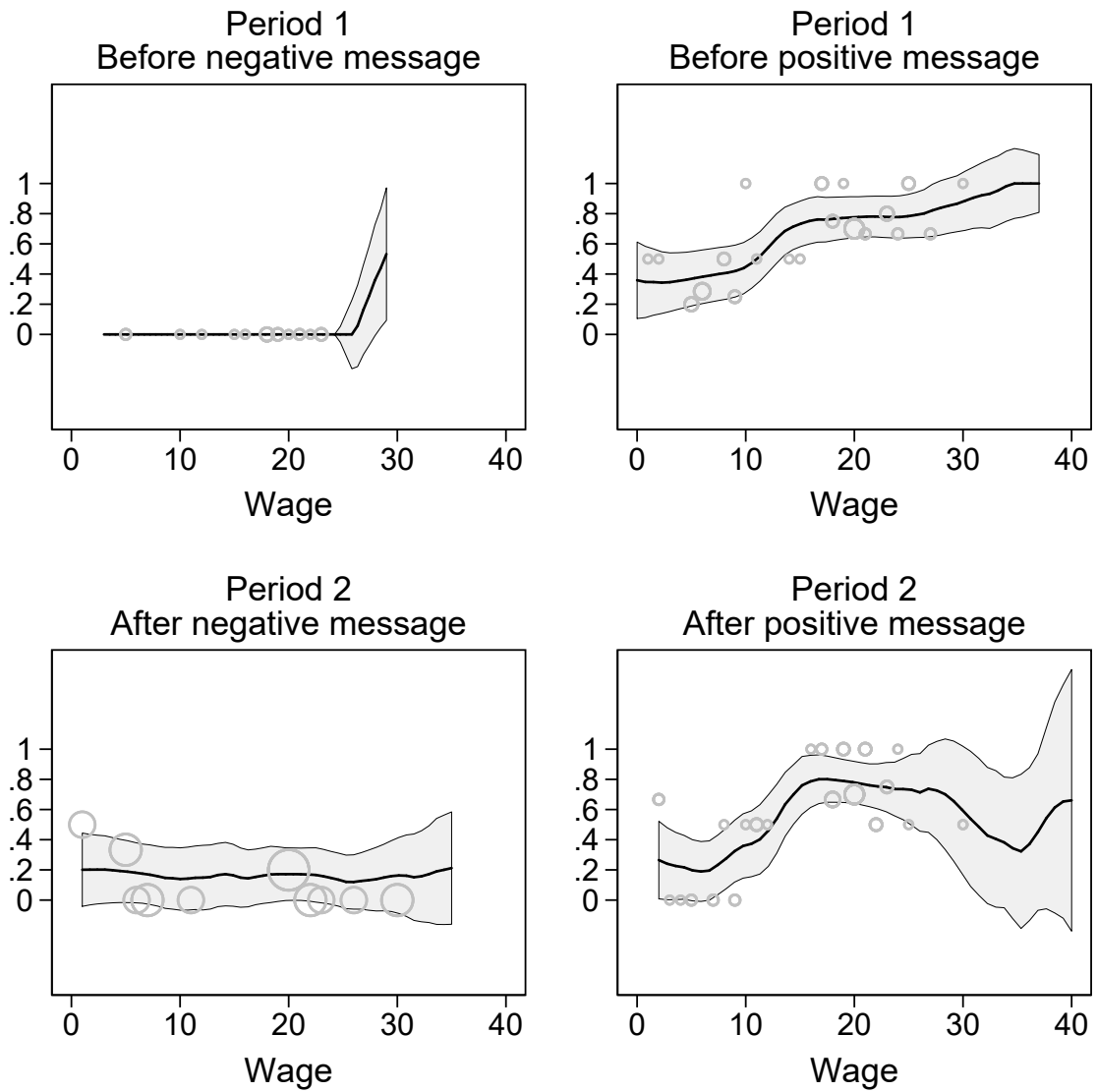27

B.3 Messaging and the wage-effort relationship

Figure 9: The wage-effort relationship before and after a positive and negative message, in treatment (1EM).

Figure 10: The wage-effort relationship change after no message (treatment (1E)), a negative or positive message (treatment (1EM)), given that the worker chose high effort in the previous period.
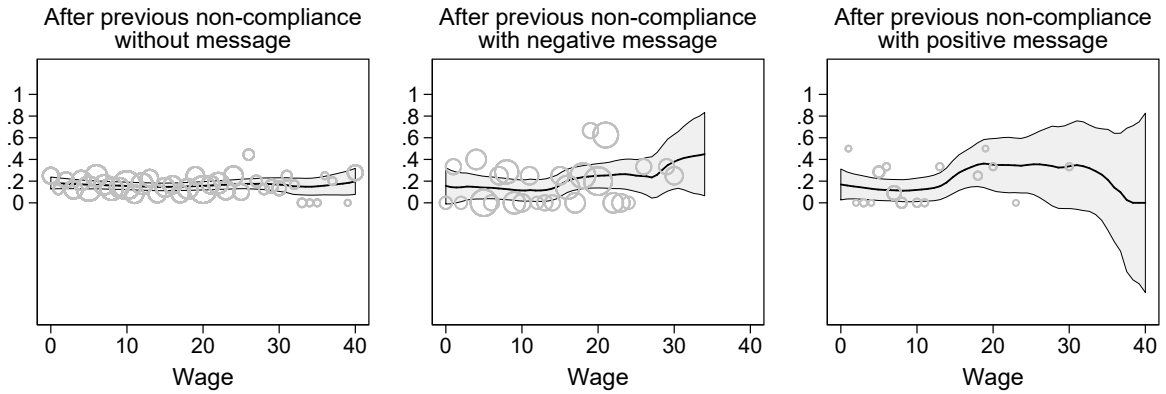

Figure 11: The wage-effort relationship change after no message (treatment (1E)), a negative or positive message (treatment (1EM)), given that the worker did not chose high effort in the previous period.

C Instructions

C.1 Screens

Participants used tablets to make their choices. In Figure 12 shows the offer screen for the employer. The user can both slide the slider or use the plus and minus buttons. A popup appears while adjusting the offer (see Figure 13), showing the payoffs for the worker and the employer.
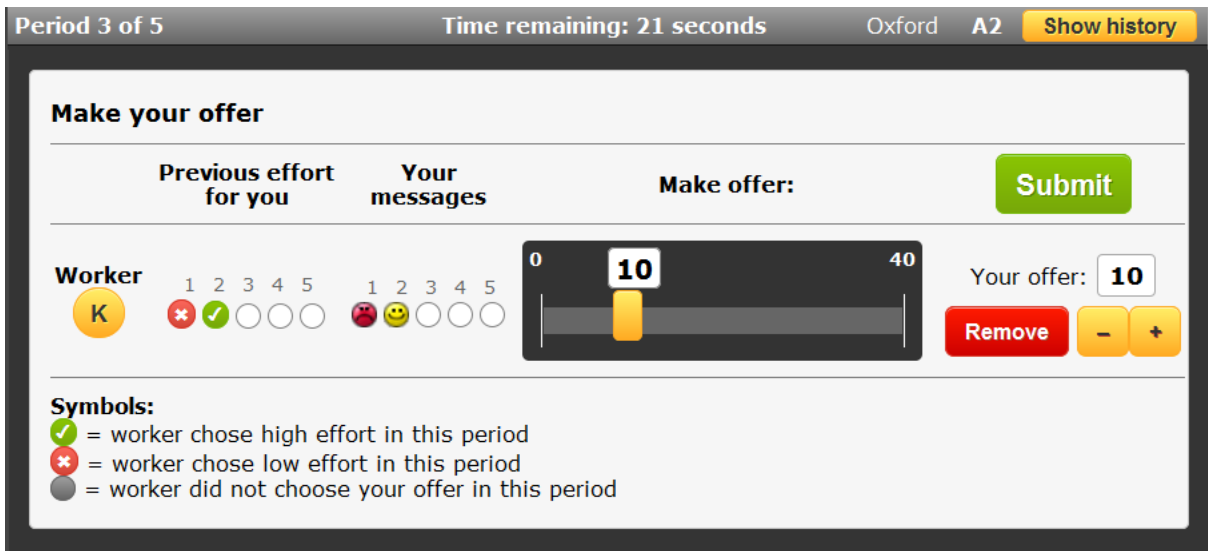
Make your offer

	Previous effort for you	Your messages	Make offer:		Submit

Worker K   1 2 3 4 5   ❌✅○○○   1 2 3 4 5   😠😊○○○   0   10   40   Your offer: 10   Remove − +

Symbols:
✅ = worker chose high effort in this period
❌ = worker chose low effort in this period
⚪ = worker did not choose your offer in this period

Figure 12: Employers make offers.

Make your offer

	Previous effort for you	Your messages	Make offer:		Submit

Worker K   1 2 3 4 5   ❌✅○○○   1 2 3 4 5   😠😊○○○   0   10   40   Your offer: 10   Remove − +

If the worker chooses...	You:	The worker:
low effort:	5	10
high effort:	30	4

Symbols:
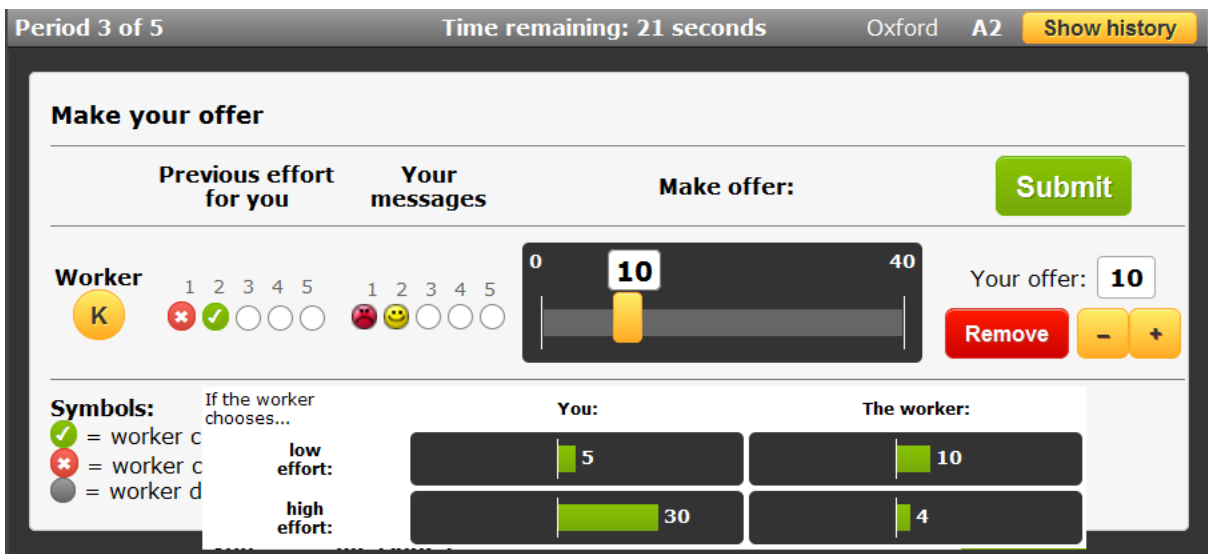✅ = worker c
❌ = worker c
⚪ = worker d

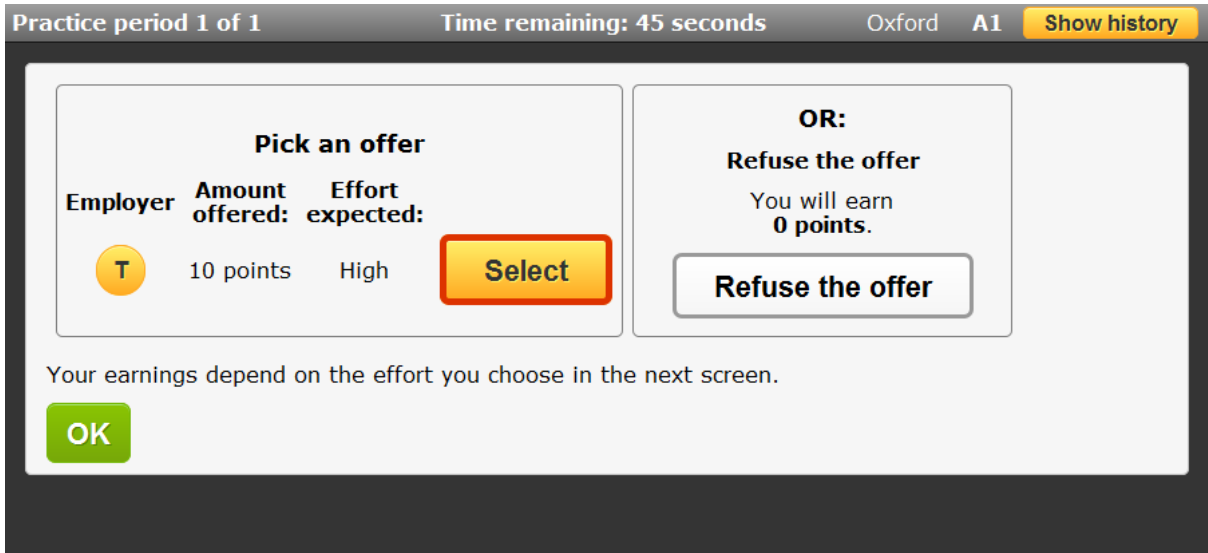**Figure 13:** The pop-up indicating potential payoffs.

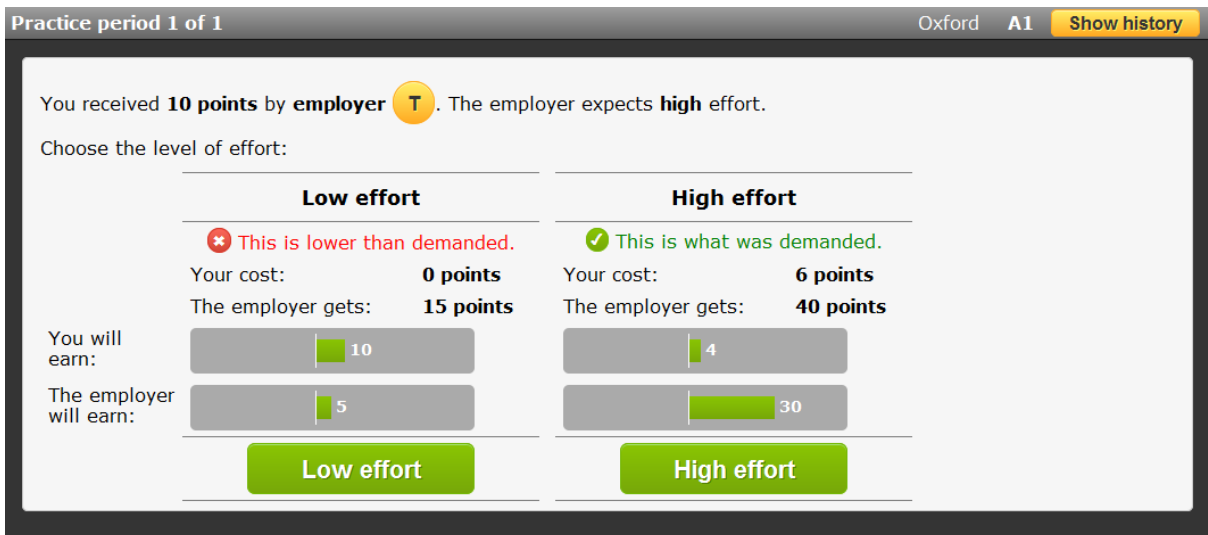**Figure 14:** Workers choose to accept or reject the offer.

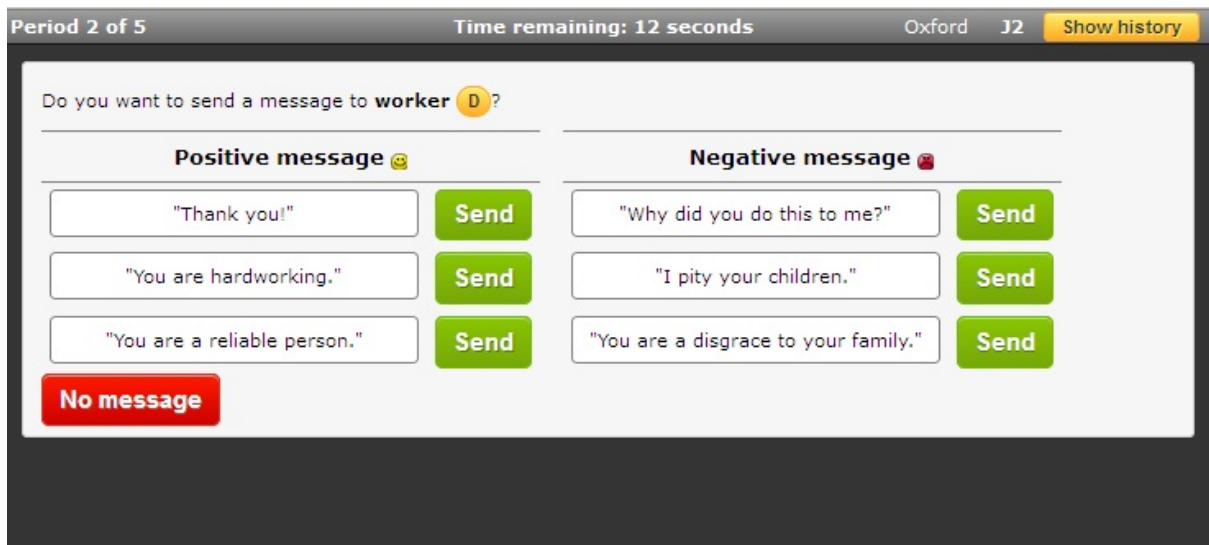**Figure 15:** Worker chooses the level of effort.

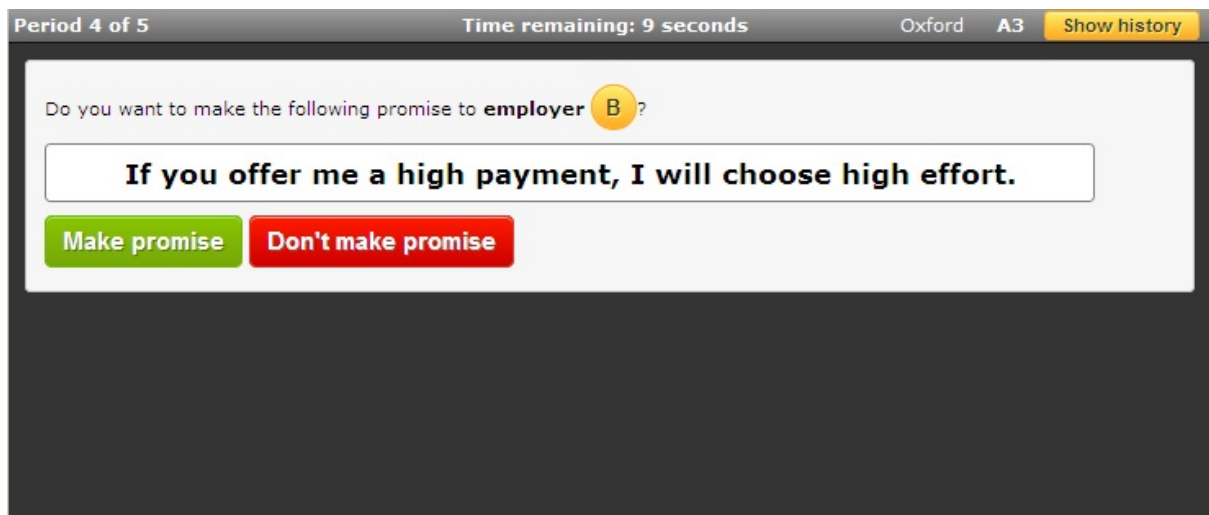**Figure 16:** Messages in the (1EM) and (1EMP) treatments.

Figure 17: Promises in the (1EMP) treatment.

C.2 Script

Below is an excerpt of the script used in the experiments. First, we make sure that participants feel comfortable using the tablets, without going through the details of the game. After this, we explain the game in an interactive way, without using the tablets. Finally, we let the participants practice the game for two periods on the tablets, before starting the first treatment.

"Good morning. / Good afternoon. My name is Elwyn Davies. I am a researcher at the University of Oxford. This is Martin Černý, who is also working on this project. Besides this, we have *(insert names of local team)*.

Welcome to this session of the experiment. This experiment is part of a wider study done by the University of Oxford on Ghanaian entrepreneurship and firms. The goal is to see how people behave in a virtual marketplace. Please remain silent during the entire duration of the experiment and keep your mobile phones switched off. I don't want to hear any mobile phones during this session.

During this session you will earn points. These points will be converted to Cedis at the end of the session. 100 points is equal to five Cedis. If you arrived on time, you will earn 10 cedis in addition to this.

I will explain more about this experimental session later on. First, I will talk about how to use the tablet. You will use the tablet to make choices in this experiment. Please have a look at your tablet and read the message. If you are done reading, press OK.

Make sure to touch the screen gently. Do not press it too hard.

(Wait.)

We are now going to practice how to make offers. In this game you will be either an employer or a worker. Employers make offers to the workers. I will talk about that more later on. First we will practice how to make an offer.

Please press somewhere on the gray bar. You will see a number appear. You can select a number between 0 and 40. Please try to select different numbers: 0, 5, 10, 15 and so on. Try to change from 0 to 5, or from 32 to 37. And then change the number again.

You can use the plus and minus signs to change the number. Please try this as well.

If you don't want to make an offer, you can click on *Remove*. The number then disappears. You can get the number back by clicking on the bar. Please try this as well.

If you have any questions, please ask them. We will come to your desk to answer them.

(Wait until everybody is done.)

I will now talk about the experiment itself and what we are going to do. Some of you will be employers, some of you will be workers. We will determine by chance which role you get. Each period the employers start by selecting the payment they would like to offer to the workers. You have to select a number on the gray bar. The workers then choose to accept or reject the payment. If they reject this payment, both get zero points. If the worker accepts the offer, the worker will get paid the amount and will then work for the employer. The worker is working hard for the employer, and this gives a profit of 40 points to the employer. Working hard is tiring for the worker, so the worker will get less, and lose 6 points. But of course, the worker received a payment from the employer.

Let's give you an example. Suppose I am an employer, and Martin is a worker. Workers are indicated by a letter. You cannot tell who in the room this worker is, but it is somebody in this room. Let's assume

that Martin is worker A. **(Show the sign of worker A)** I am an employer and can make an offer to Martin, by selecting a number between 0 and 40. **(Ask somebody in the public.)** Can I get a number between 0 and 40 from you? **(Write down the number)**

Ok, I am now going to make an offer of X points to Martin. Martin, do you accept or reject this offer?

(Martin rejects.)

Martin rejects, we now both get 0 points.

Now let's say he accepts the offer.

(Martin gets the offer and keeps it.)

I pay him the X points and he is going to work for me. That gives me a profit of 40 points. But I have paid him X points. So how much have I earned?

(Ask public and check understanding.)

Martin was working hard, and that is tiring for him. He lost 6 points, but got my payment of X points. So how much has he earned?

(Ask public and check understanding.)

So I have earned ... points and Martin has earned ... points.

Please let us know if you have any questions about this. **(Walk around and check understanding with participants.)**

As long as you touch the bar, you can see graphs on top of the screen. These graphs show you how much you can earn if the worker accepts the offer. Please change the number, and see how the graphs change as well. Green means that you are earning money, red means that points will be deducted. Try to offer X points, and check the graphs. These numbers are the same as we just calculated together.

(Initialize the main game by pressing the Start button on the admin screen.)

We will now tell you whether you are a worker or an employer. Please press OK to continue. We will first play two rounds of practice. No points can be lost or earned. Please press OK to continue. If you see a waiting screen, please wait. You will see this screen a couple of times during the experiment. You will have to wait until everybody is finished making their choices.

(Wait until everybody has clicked OK twice)

We are now in the first practice period. If you are an employer, please make an offer by selecting a number on the gray bar. And then press Submit. Make sure to do this before the time runs out.

(Wait until the workers can choose.)

Now the workers can choose to accept or reject the offer. If you want to accept the offer, press Select. Then click OK. For this practice round, make sure to accept the offer, so that you know how this works. Make sure to do this before the time runs out. If you have accept an offer, we will ask you how many

points you need in the next round to accept the offer. For example, if you select 30, you will accept all offers of 30 and higher, and reject the offers of 29 and lower. We will also ask the employers what they would like to offer to you. If both of you agree, you will automatically accept the offer in the next period. If you don't accept, the employer will make you an offer again in the next period, just as before. **(At the end of the practice period.)** We will now play for real points, that will be converted to Cedis at the end of the session. Press *I am ready* to continue. If you have any questions, please raise your hand and we will come to your desk to answer them."