

Pledging, Praising and Shaming: Experimental Labour Markets in Ghana

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Preliminary paper.

Abstract

Firm surveys have shown that labour management in developing countries is often problematic. This study presents results from gift-exchange game experiments conducted with students and entrepreneurs in Accra, Ghana. In this game, participants are allocated a role of employer or worker. Employers make wage offers to workers, who can then choose to accept or reject and what effort level to exert. We find that employers have significant problems making sure that their workers choose high effort when enforcement is no longer perfect. Increasing the wage improves the probability that the worker chooses high effort slightly, but this does not outweigh the increased probability of making a loss as an employer. As a result, incomes are quite unequal: most of the surplus is captured by the workers. This experiment allows employers in certain treatments to send a praising message or a shaming message to the worker after the choice of effort, and allows workers in certain treatments to make a conditional promise. The results indicate that praising messages indeed help to sustain cooperative behaviour (high effort provision) and reinforce reciprocity concerns. No significant effect for negative shaming messages can be found. The effect of promises is one-sided: it increases high effort provision, but does not significantly increase wage offers.

1 Introduction

Firm surveys have shown that the management of workers is problematic in developing countries, and in particular in sub-Saharan Africa (SSA). Exemplary of this are the higher supervisor-to-worker ratios, as found by Fafchamps & Söderbom (2006) in eight sub-Saharan African countries. The average ratio of managers to workers is around 0.39, compared to values around 0.25 in OECD countries, as found by Acemoglu & Newman (2002). Fafchamps & Söderbom (2006) also show that workers in SSA are

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less responsive to monitoring than workers in Morocco, suggesting that labour market management is indeed more problematic in this area of the world than in other areas.

Making sure that a worker exerts a high level of effort can be problematic, especially in situations where effort levels are directly observable or cannot be objectively verified in front of courts. Lacking economic institutions in developing countries often means that even when effort levels are observable and objectively verifiable, it is difficult to actually enforce these contracts. In the literature on economic institutions the quality of institutions is often linked to the level of economic growth (see e.g., North, 1990; Acemoglu & Johnson, 2000).

When employers cannot rely on the institutional framework to exert high levels of effort, finding other ways of doing so are essential. In this paper we conduct a laboratory experiment in a labour market setting with students and entrepreneurs in Accra, Ghana. We let them play an adjusted version of the gift-exchange game, which simulates economic exchange. We look at several ways that employers can motivate their workers: by giving them a higher wage, or by sending them a motivational message after the choice of effort. This motivational message can either be a praising message or a shaming message. Also we provide workers the opportunity to make a non-binding promise to exert high effort in the next period. All these forms of communication can be seen as “cheap talk”, as they do not affect the monetary payoffs of the participants directly (see e.g., Crawford, 1998).

Behavioural models, such as models incorporating inequity aversions, have emphasized the role of fairness and reciprocity (Fehr & Schmidt, 2002; Fehr & Gächter, 2010): fair behaviour of agent might be reciprocated with fair behaviour by another agent. In a labour market setting this implies that when an employer offers a higher wage, a worker will reciprocate this by exerting a higher level of effort. Previous experimental studies done in developed countries, such as the gift-exchange games done by Brown et al. (2004), find behaviour that is in line with the predictions of these fairness models. However, it can be questioned whether these results also hold with participants who have been exposed to a different institutional setting. Also, it can be questioned whether students, most of whom who have not managed workers before, are behaving in a similar way as entrepreneurs, who have experience in managing workers. In this study we let not only students but also experienced entrepreneurs participate.

2 Design of experiment

2.1 The gift-exchange game

The experiment is an adaptation of the gift exchange game, which mimics labour relations in a principal agent setting. Participants are divided in workers and employers. Employers and workers are randomly matched to each 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

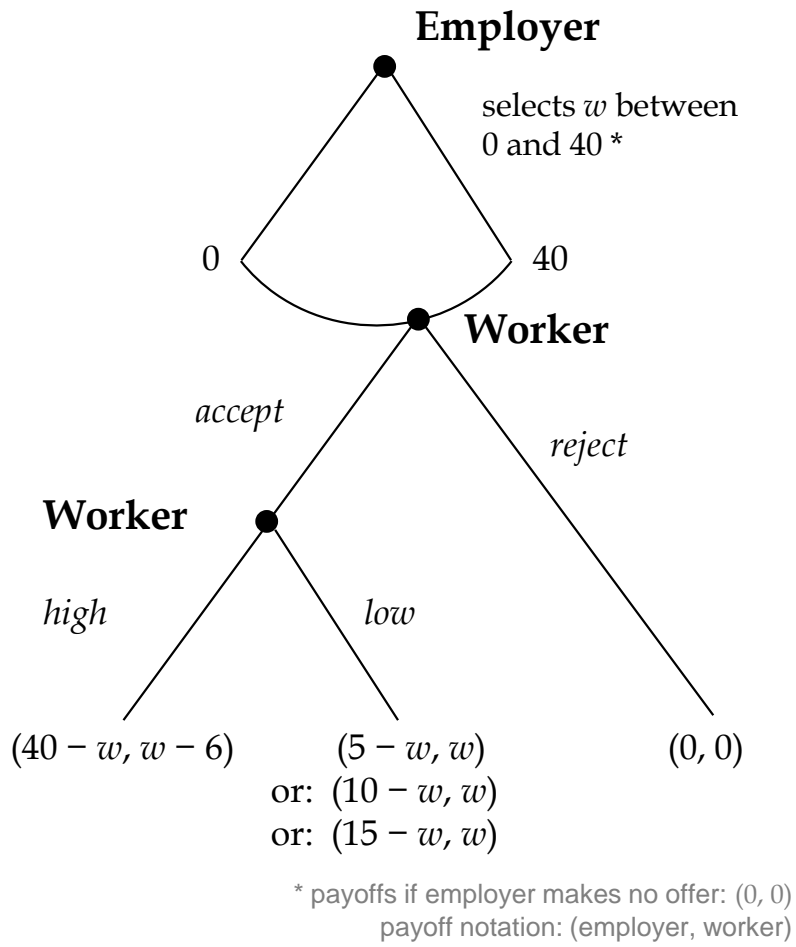


Figure 1: Extensive form representation of a single period in the game.

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.

matched employer and workers 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. No rematching of workers and employers takes place between periods in each treatment. 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.

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 accepted the offer, the employer is asked what she would do 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 yields 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.

Sequence no.	Part I (5 periods)	Part II (5 periods)	Part III (5 periods)	Part IV (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

Table 2: The four different treatment sequences. (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 conditional promise after receiving a message.

2.2 Treatments

The main treatment of the game is treatment (1E), in which workers have choice between providing high and low effort. To assess the effect of limited enforceability of contract, a control treatment (1C) is introduced, in which workers can only choose high effort after accepting: in other words, a worker has to comply with choosing high effort. This version of the game is in essence equivalent to the ultimatum game. In both treatments no communication between workers and employers, apart from the offers posted, can take place.

In the third treatment, treatment (1EM), the employer is allowed to send a message to the worker, after the payoffs have been realized and revealed. Three positive and three negative messages are available, in varying degrees of sincerity. 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 to more 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”).² The messages are shown to the worker immediately after they have been sent.

In the fourth treatment, treatment (1EMP), not only the employer can communicate, but also the worker can make a promise in return to a message sent by the employer. The text of 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 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.³

²The messages available were selected from a wider range of messages, set up in consultation with our local team, and were piloted in early sessions of the experiment. The messages were sent anonymously: both workers and employers do not know with which person they are playing, as each person is given a randomized identifier.

³In the five or ten periods of the treatment, no rematching takes place: the worker keeps facing the same employer and vice versa. Random rematching takes also place for the practice rounds.

2.3 Predictions

Assuming subjects are purely self-interested and only care about their own payoff in points, classic game theory predicts that workers in the last period, after accepting the offer, will choose a low level of effort in all treatments where choosing low effort is possible. Employers will set an offer of zero points, so that the worker is indifferent between accepting the offer (and choosing low effort) and rejecting the offer. By backwards induction, we find that the subgame perfect equilibrium is for the employer to offer zero points every round and for the worker to accept all offers and choose low effort in every round. Messages and promises are purely “cheap talk” and do not convey any relevant information for the game play, and will not affect the subgame perfect equilibrium.⁴ The payoff each period for the employer is 5, 10 or 15 (depending on the treatment) and zero for the worker. The surplus (the sum of both payoffs) in this case is lower than what could be achieved, indicating that the subgame perfect outcome leads to an inefficient outcome. Furthermore, the outcome is unequal: all of the surplus is captured by the employer.

In the subgame perfect equilibrium of the control treatment (1C), which is essentially an ultimatum game, the worker will choose accept all offers of six or higher, and reject all offers of below six points, in all periods. The employer will offer six points in all periods.⁵ The payoff each period for the employer is in this case 34 for the employer (capturing all of the surplus) and zero for the worker. The outcome in this case is efficient, as the full surplus is realized each round, but also unequal: again, all the surplus is captured by the employer.

Previous experiments on ultimatum games and gift-exchange game did not find these equilibrium outcomes. In the ultimatum game offers tend to be higher than the bare minimum, often leading to an almost equal sharing of surplus (see e.g., Fehr & Gächter, 2010). In gift-exchange games it has been found that workers do choose effort levels below the lowest level of effort, as long as the offer of the employer is high enough. This has prompted the development of fairness models, in which it assumed that agents not only care about their own payoffs, but also about how their own payoff compares to the payoffs of other agents. Fehr & Schmidt (1999) introduce both considerations about advantageous and disadvantageous inequity aversion into the utility function,

$$U_i(x_i, x_j) = x_i - \alpha_i \max(x_j - x_i, 0) - \beta_i \max(x_i - x_j, 0), \quad (1)$$

where x_i is the payoff of person i , x_j is the payoff of person j , α_i is the coefficient of disadvantageous inequity aversion (when the other agent has a higher payoff than you) and β_i is the coefficient of

⁴Due to the discrete structure of the game, another subgame perfect equilibrium is one where the employers offer one point, and the workers accept only offers of one or higher and choose low effort after accepting. An offer of zero points is rejected by the worker.

⁵Again, due to the discrete structure, another subgame perfect equilibrium is where the the worker accepts all offers of seven and higher (and then chooses low effort), and reject those of six and lower; and the employer offers seven points in all periods.

advantageous inequity aversion (when you have a higher payoff than the other agent). When agents exhibit this type of preference structure, it is possible to sustain an equilibrium in which workers choose higher levels of effort. Brown et al. (2004) show that even if there is a group of agents that are purely self-interested ($\alpha_i = \beta_i = 0$), a “fair” equilibrium can be achieved: self-interested workers mimic the behaviour of “fair” workers to receive higher wage offers. In these equilibria agents cooperate conditionally on the other agent cooperating as well: workers reciprocate high wage offers by providing high effort, but retaliate low wage offers by providing low effort (which is costless to them) or rejecting the offer (which is potentially costly to them).

The possibility of sending positive or negative messages or the introduction of a conditional promise does not affect payoffs according to this framework, as this communication does not directly affect payoffs. However, communication might make the trading more “personal”, as workers get feedback on how the employer reacted to their offer. This could make the reciprocity concerns more salient in the game play. Furthermore, messaging and the breaking or upholding of promises could also affect personal well-being in a non-monetary way, which is an aspect not included in the previously mentioned utility functions.

The experimental literature on the impact of communication is inconclusive. Isaac & Walker (1988) show that practically unconstrained face-to-face communication decreases free-riding behaviour and increases competition. More limited forms of communication, such as only single letters or numbers, lead to smaller improvements (Duffy & Feltovich, 2002). Bracht & Feltovich (2009) conduct a trust game experiment, which is very similar in its setup to the gift-exchange game, where the senders can send either a message “Keep” (which corresponds to low effort provision in the gift-exchange game, as the worker does not give anything back) or a message “Split” (which corresponds to high effort provision). They do not find a significant impact of these cheap talk messages. Our experiment differs from this experiment in the sense that the message is sent after the responder (the worker) has made the effort choice, and that the messages provide information on how the employer experienced the effort choice by the worker.

2.4 Experimental conduct

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 Android tablets running a custom-made HTML/JavaScript platform as participant terminals, supported by a PHP web server to facilitate the communication between the participant terminal. 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 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).

During the making of the 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.

3 Results

In the results we focus on three key indicators of the game: 1) the amount offered by the employer to the worker, 2) the acceptance rates (the percentage of offers that is accepted by the worker) and 3) the compliance rates (the percentage of accepted offers where the worker chooses high effort). Figure 2 shows these three indicators for the various treatments. Also we compare the earnings of the workers and the employers and the division of the surplus. The earnings of the workers and employer can be found in Figure 3. We make two comparisons: first, we look at the effect of limited enforcement, by comparing the full compliance treatment (1C) with the effort choice treatment (1E) and, second, we look at the effect of messages and promises, by comparing treatment (1E) with the messaging treatment (1EM) and the messaging and promises treatment (1EMP).

3.1 Effects of limited enforcement

When comparing the full compliance treatment (1C) with the effort choice treatment (1E) it can be noted 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 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).

When looking at acceptance rates, we see that 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).

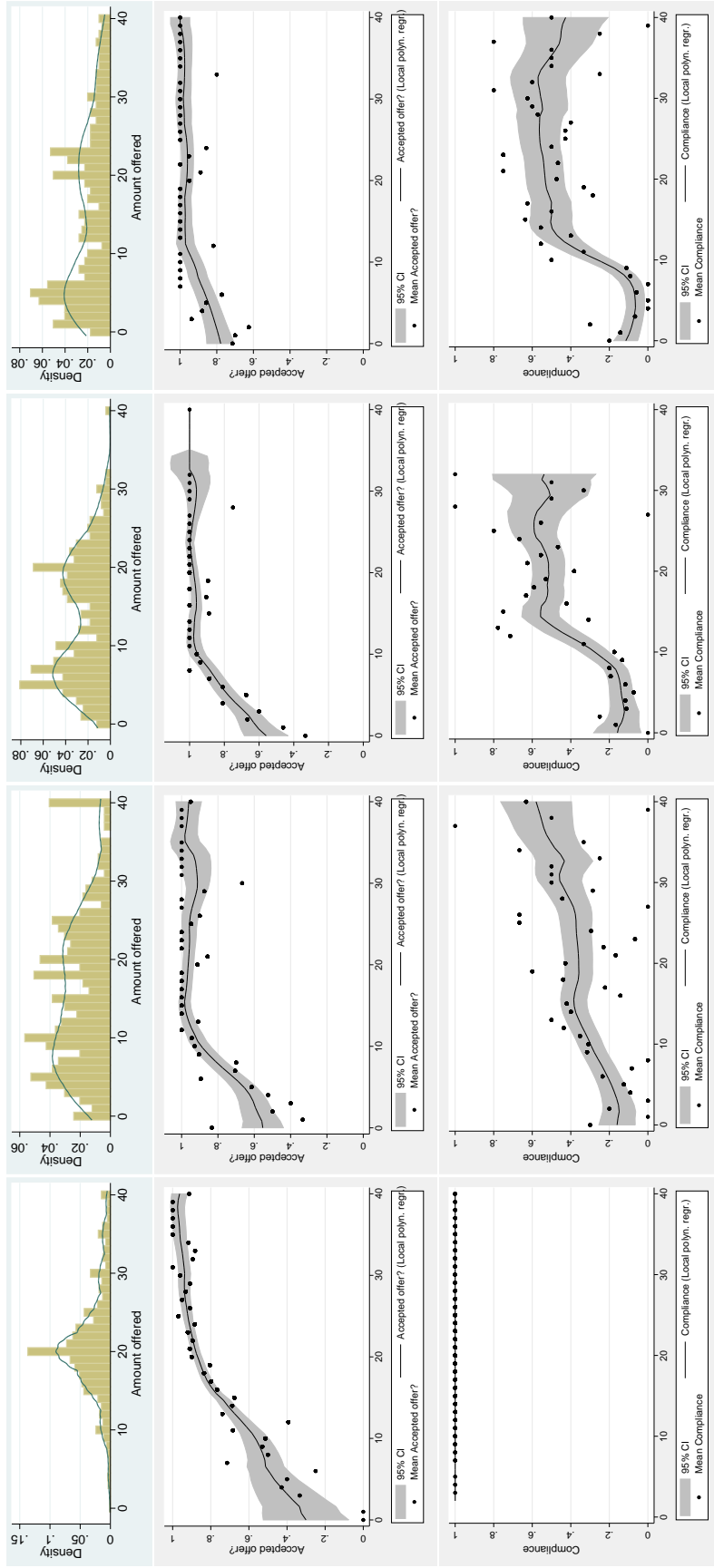
Compliance drops dramatically when workers have the possibility of choosing low effort: the percentage of workers choosing low effort in treatment (1E) is 34.1 per cent on average. We see that the introduction of effort choice is costly for both the employer, whose average income drops from 15.7 points to only 3.0, and for the worker, whose average income drops from 18.2 points to 15.0 points (see also Figure 3). A t-test shows that the differences are highly significant ($p = 0.000$ in both cases). This is a clear example of how limited enforcement hurts both parties in this particular type of exchange.

In the effort choice treatments the highly unequal distribution of surplus is remarkable: the worker 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.

Even though higher offers seem to encourage higher levels of effort, there is still a large share of workers choosing low effort, even when excluding the last period. For offers higher than 10 points, the average compliance is 40.4%, meaning that 69.6% of the workers choose low effort. Even for offers of 23 and higher, where always at least half or more of the surplus is given to the worker, even if the worker chooses high effort, workers only choose high effort in 43.9% of the cases. This is not unsurprising from the perspective of the model with purely self-interested agents or from the perspective from the fairness models if we assume workers have low β_i values (and hence care less about fairness than about their own payoff). The main surprise is that we still see a substantial number of offers with these amounts made. As we will see later on in the regressions adjustment of offers to low effort provision is present, but surprisingly low.

3.2 Effects of messages and promises

In this section we will compare the standard effort choice (1E) treatment with the effort choice treatments with messages (1EM) and messages and promises (1EMP), first by considering the differences in averages and then examining this further by using regressions. When employers are given the pos-



(a) Treatment (1C)

(b) Treatment (1E)

(c) Treatment (1ET)

(d) Treatment (1ETP)

Figure 2: 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.

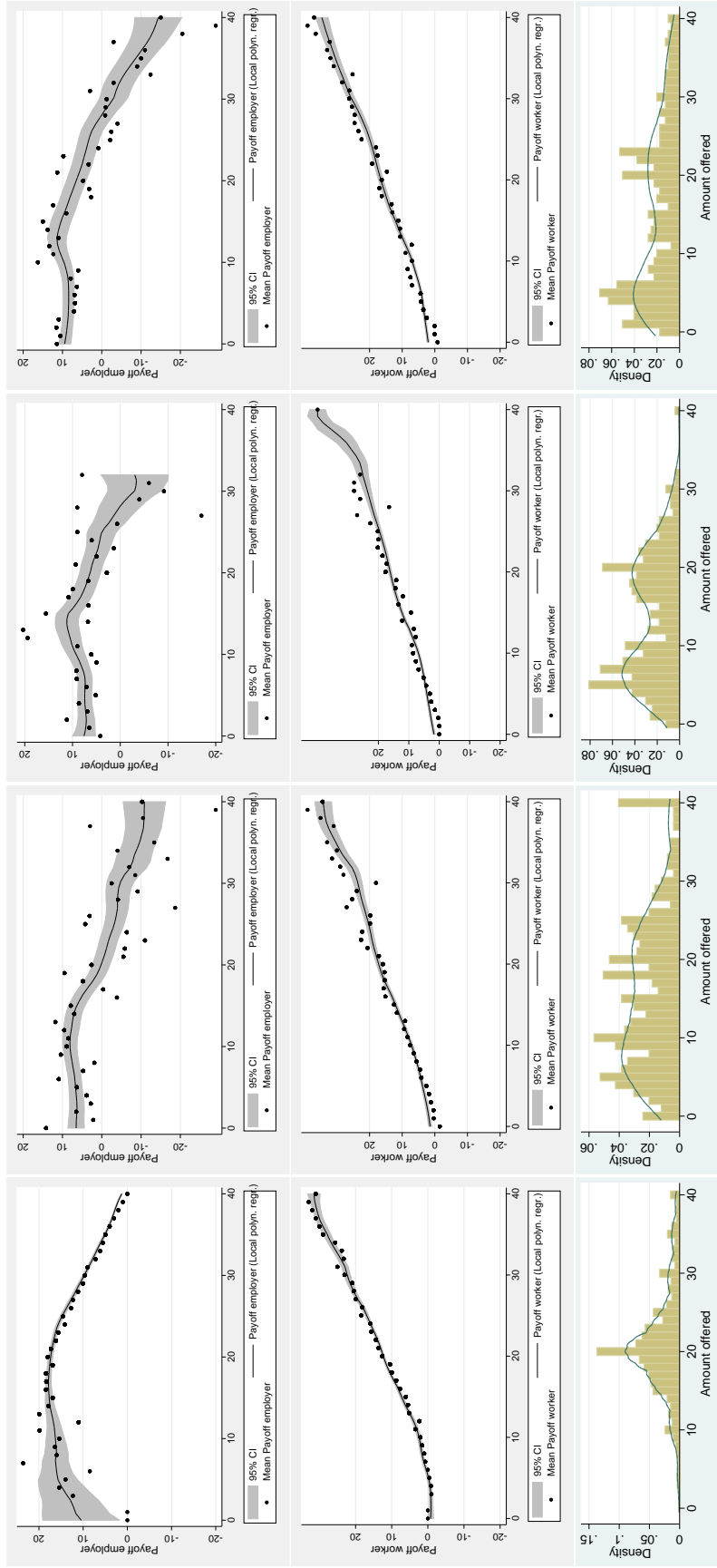


Figure 3: The payoffs of workers and employers, and the offers made by employers in the four treatments.

Message sent	Low effort	High effort
No message	20.7%	9.1%
Negative		
“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		
“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%

Table 3: Messages sent after low and high effort provision in the (1EM) and (1EMP) treatments, aggregated over all periods.

sibility of sending out messages, they do use this possibility in most cases, as can be seen in Table 3.⁶ Workers also use the possibility of sending out promises: in 73.0% of the cases a promise is sent out. The amount of promises made seems to be fairly constant across the periods in the game.

The amount offered by the employer is similarly twin-peaked in the different treatments, as can be seen in the top row of Figure 2. The average acceptance rates are not significantly different across treatments ($\mu_{(1E)} = 85.6\%$, $\mu_{(1EM)} = 88.0\%$, t -value: -1.121 , p -value: 0.263), even though the acceptance rate is significantly higher in the case of the messaging treatments for low offers below 10 points ($\mu_{(1E)} = 66.8\%$, $\mu_{(1EM)} = 77.0\%$, t -value: -2.136 , p -value: 0.033). We do not find significant differences between the treatment with messages and the treatment with messages and promises.

The average rate of compliance (the rate of workers choosing high effort after accepting an offer) differs not significantly between the standard effort choice treatment (1E) and the effort choice with messages treatment (1EM) ($\mu_{(1E)} = 34.1\%$, $\mu_{(1EM)} = 38.0\%$, t -value: -1.17 , p -value: 0.239). We do find different compliance rates for offers above 10 points: in the (1EM) treatment the average compliance rate is 53.8%, while it is 40.4% in the (1E) treatment (t-test of the difference: t -value: -3.196 , p -value: 0.0015). We do not find a significant difference between compliance rates for offers below 10 points (p -value: 0.2631). Compliance between the messages and promises treatment do not differ significantly on average, as well as for offers higher than 10 or 15. However, we do find significant lower levels of compliance with low offers in the treatment with promises: for offers under 10 points compliance in the (1EM) treatment is 14.6% and in the (1EMP) treatment 7.35% (t-test of the difference: t -value: 1.977 , p -value = 0.0490).

These results seem to suggest that introducing the possibility of messaging does affect the provision of high effort by workers, but only when a high enough offer is made. As this messaging does not affect monetary payoffs directly (“cheap talk”), including the relative payoffs, conventional fairness

⁶Remarkable is that positive messages are not only sent out after a worker has chosen high effort, but that in a third of the cases a positive message is sent out after choosing low effort. This could indicate a sarcastic or ironic response.

Dependent variable:				
Amount offered	(1)	(2)	(3)	(4)
Prev. high effort?	3.000*** (0.561)	2.575*** (0.467)	2.995*** (0.613)	2.464*** (0.504)
Prev. rejected?	1.169** (0.442)	1.966*** (0.388)	1.445*** (0.497)	2.190*** (0.428)
Msg possible?	-0.680 (1.182)	-0.474 (1.006)	-1.324 (1.321)	-1.101 (1.146)
Negative msg?			0.912 (0.732)	0.569 (0.660)
Positive msg?			0.825** (0.341)	0.981** (0.363)
Promise possible?	1.353 (1.190)	0.841 (0.922)	1.302 (1.254)	0.842 (0.974)
Promise made?			0.00606 (0.338)	-0.0817 (0.290)
Prev. amount offered		0.198*** (0.0413)		0.198*** (0.0413)
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

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

Table 4: Determinants of amount offered. The standard errors are clustered by session.

models predict that this should not make a difference. However, these results seem to indicate that there is some interaction going on between messaging and reciprocity: workers seem to care more about fairness when they receive messages from the employers.

Fixed-effect regressions reveal similar patterns. In Table 4 shows a series of regressions, with employer fixed effects, with the amount offered as dependent variable. The previous level of effort of the worker is significant for the wage offer made in the next period. This effect, however, is small: only 3 points. A worker that has chosen low effort before will face an offer that is three points lower, while the difference of payoff for the employer between low and high effort is large (25, 30 or 35 points, depending on whether the benefit of low effort is 15, 10 or 5 in this particular session). This indicates that the adjustment of the amounts offered to effort levels is low, and could in part explain why the payoff levels of many employers in the experiment are so low. The question remains why employers do not lower their wages further.

The coefficient of a rejected offer in the previous round is positive and significant at a 1% level. This is in line with expectations: a previously rejected offer could indicate that the worker requires a higher offer in order to accept. Furthermore, the coefficient of the amount previously offered is significant as well, indicating that there is some level of persistence in wages.

Giving employers the possibility to send messages and workers the possibility to make promises

Dependent variable: Choice of high effort	(1)	(2)	(3)	(4)
Msg possible?	0.0726 (0.0716)	-0.0407 (0.0630)	0.0194 (0.0787)	-0.0194 (0.0792)
Negative msg?			0.0242 (0.0375)	-0.00892 (0.0635)
Positive msg?			0.0802** (0.0363)	-0.0661 (0.0394)
Promise possible?	-0.0459 (0.0757)	-0.0525 (0.0560)	-0.0856 (0.0841)	-0.0239 (0.0772)
Promise made?			0.102*** (0.0158)	-0.000969 (0.0211)
Amount offered	0.00964*** (0.00115)	0.00679*** (0.00111)	0.00943*** (0.00120)	0.00653*** (0.00115)
× Msg possible?		0.00684*** (0.00220)		0.00189 (0.00327)
× Negative msg?				0.00251 (0.00341)
× Positive msg?				0.00918*** (0.00308)
× Promise possible?		0.000310 (0.00244)		-0.00366 (0.00283)
× Promise made?				0.00560*** (0.00124)
Constant	0.223*** (0.0354)	0.272*** (0.0333)	0.197*** (0.0307)	0.246*** (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

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

Table 5: A linear probability model of high effort choice, after a worker has accepted an offer. The standard errors are clustered by session.

does not seem to have a significant effect, in all regressions. When making the distinction between the type of message sent, we see in regressions (3) and (4) that there is a positive and significant effect of sending out a positive message in the previous round on wages, even when controlling for the effort chosen by the worker. Sending out a positive message and increasing the wage in the subsequent period seem to be complementarities. The coefficient of sending out a negative message is positive as well, but is not significant at the 10% level.

Table 5 shows a linear probability model regression, with worker fixed effects, with choice of high effort as the dependent variable. The coefficient of amount offered significant and positive: an increase of a wage offer by 1 point seems to increase the probability of choosing high effort by 0.964%. The coefficients on having the possibility of sending messages and promises are both negative in most re-

gressions, but not significant at a 10% level.

However, when we interact being in a messages treatment with the amount offered, we find a positive and significant effect (see regression (2)). This again seems to indicate that messages only seem to matter for offers that are already fair. The coefficient of being in a treatment with promises interacted with the amount offered is positive, but not significant at a 10% level.

In regression (3) we consider the distinction between positive and negative messages and look at whether the person has made a promise. The coefficient of having received a positive message is positive and significant at a 5% level. This means that having received a positive message in the previous round increases the probability of choosing high effort with 8.0%. We do not find a significant effect of having received a negative message in the previous round, and the coefficient is small (2.4%).

When interacting these terms with the amount offered in regression (4), we again find that significant coefficients only can be found in the interacted terms. The interaction coefficient of having received a positive message with amount offered is significant at a 1% level and positive: the positive message increases the probability of choosing high effort with 0.92% per point increase in wage. The non-interacted term is negative, but no longer significant. This seems in line with our earlier findings that messaging especially matters for higher offers, and that there is little role of messaging for lower offers.

The coefficient of having previously made a promise on high effort choice is positive and significant in regression (3): a promise increases the probability of high effort choice by 10.2%. Again, this effect disappears when we include the interaction term in regression (4): the term becomes negative and non-significant. The interacted term is now positive and significant. This indicates that participants do keep to their promises to a certain extent at higher wages. This in line with the actual text of the conditional promise, which stipulates that the worker will choose high effort when the offer is high enough.

4 Discussion and conclusion

In our experiments we find that introducing the option for the workers to choose low effort, effort levels decrease dramatically. In more than a majority of the cases workers choose the lower level of effort, even when high offers are presented to them. This indicates that imperfect enforcement causes problems for labour management, which is in line with observations from firm surveys done in sub-Saharan African countries, including Ghana. This imperfect enforcement seems to lower income for both the workers and the employers: both parties lose out.

In these experiments employers are offered a couple of possibilities to encourage higher levels of effort. First, they can raise the wage. This has a positive effect on high effort provision, which is in line with earlier studies done in developed countries, e.g. by Brown et al. (2012). However, higher offers

also make the employers more vulnerable for defecting workers, and it turns out that this actually lead to income losses. The distribution of the surplus is very unequal in the effort choice treatments, and this differs from findings in earlier laboratory experiments done in developed countries. It seems that raising the wage only is not sufficient to encourage high effort provision. These results also hold when excluding the last period of the game (in which there is no future interaction between the worker and employer anymore).

The second option for the employer is to send the worker feedback, which is available in some treatments. We find that positive messages reinforce the choice of high effort, but only when the wage is sufficiently high. The significance of positive messages seem to suggest that positive messages seem to reinforce reciprocity concerns. The positive message also has an effect on the sender of the message: the wage offered by the employer who sent out the message increases. Remarkably, we do not find a significant effect of sending out a negative message.

We also gave workers the possibility of making a promise to the employer. We found that these promises increase the probability of high effort provision, but only if the offer is high enough, which is in line with the conditional promise text. However, the promise does not affect the wage offer made by the employer in a significant way.

Some of the behaviour we saw in this experiment differed from previously described behaviour documented in developed countries. This requires further investigation, but seems to signal that we cannot take for granted that behaviour measured in developed countries laboratories holds in other settings as well.⁷

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⁷In our experiment we also let entrepreneurs participate, alongside the group of students. Initial results, not presented in this preliminary version yet, seem to indicate that they are more generous than students, but that this effect is not significant.

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