Self-Image Motives and the Supply of Work Effort:

Experimental Evidence from Uganda

Aisha Nanyiti[a] , Haki Pamuk[a], Erwin Bulte[a,*]

[a] Development Economics Group, Wageningen University, The Netherlands

* Corresponding author: Hollandseweg 1, 6700 EW Wageningen, erwin.bulte@wur.nl

Abstract: While the theory of self-signaling proposes that subjects engage in (costly) behavior to invest in (or preserve) a cherished self-image, the theory of motivated reasoning suggests they only need "the thinnest of veils" to justify selfish behavior and shed such behavioral imperatives. We set out to test self-signaling and motivated reasoning in a real effort experiment in peri-urban Uganda. During one stage of this experiment subjects have the opportunity to supply effort in a tedious (repeated) task, even if there are no obvious extrinsic and intrinsic motives for doing so. Patterns in the effort data are consistent with theoretical predictions of a self-image model: subjects provide costly effort even in the absence of conventional payoffs, and work harder if they were treated more generously and "fairly" during earlier stages of the experiment. This behavior was quite persistent across multiple experimental rounds.

Keywords: self-signaling, motivated reasoning, lab-in-field experiment, labor supply

JEL Codes: J33, M52, C92, C93.

1. Introduction

The supply of effort by workers is a classical research topic in economics, and the implications of asymmetric information and incomplete contracting (moral hazard and adverse selection) in labor markets have been studied in detail by generations of economists. Traditionally, economists emphasize the importance of extrinsic motivations, or (the expectation of future) monetary payoffs. The basic model rests on the assumption that workers prefer leisure over working, and are therefore prone to shirk in a context of imperfect information about worker performance. One of the key challenges for firms, therefore, is to provide appropriate (extrinsic) incentives to motivate workers to supply effort. However, most economists nowadays agree that the basic model of effort provision is presumably too simple to explain variation in effort levels observed in labor markets.

Richer models of effort provision may include intrinsic motives to work and social image concerns of workers (and possibly peer pressure). Intrinsic motives for the supply of effort include preferences for the payoffs of others, which may arise because of altruism, a desire for reciprocity, or guilt aversion.[1] Social image motivations refer to others' perceptions, and include reputation effects or gains in social approval. These different types of motives may interact, and produce complex behavioral patterns. For example, monetary incentives may backfire and undermine intrinsic or image motives for prosocial behavior (e.g., Gneezy and Rustichini 2000a,b; Fehr and Falk 2002, Gneezy et al. 2011), because they shift the decision frame of economic actors (Deci 1971, Heyman and Ariely

[1] The relevant literature includes, but is not limited to, Akerlof (1982); Battigalli et al. (2013); Battigalli and Dufwenberg (2007); Charness and Dufwenberg (2006); Charness and Gneezy (2008); Dufwenberg et al. (2011); Fehr and Schmidt (1999); Lundquist et al. (2009), Mellström and Johannesson (2008), and Pepper et al. (2015).

2004), or dilute the signaling value of prosocial actions — "is the person acting prosocially trying to do good or to do well?" (Benabou and Tirole 2006; Ariely et al. 2009).[2]

More recently, Benabou and Tirole (2006, 2011, 2016) have proposed a complementary behavioral theory that readily extends to the workplace. According to their theory of self-signaling, economic agents care about "who they are" and form beliefs about their own type or identity. Assuming past states are imperfectly accessible and that actions are more readily recalled (or documented) than the underlying motives, people may refer to their own past actions to learn about their deep preferences and social identity. If certain identities or self-images are more desirable than others – for example, most people presumably prefer to think of themselves as trustworthy, hard-working or generous individuals – then they may choose to signal behaviors associated with these types to themselves, in order to create or protect positive self-images (Bénabou and Tirole, 2006; Ellingsen and Johannesson, 2008). Since acting lazily in a workplace environment violates the self-image of being diligent and industrious, it becomes more difficult to uphold the cherished belief that one is, really, a hard-working individual after shirking. Self-signaling by avoiding lazy behavior is therefore one way to reduce cognitive dissonance and its discomforts.

In addition to avoiding undesirable behavior, the literature proposes an alternative approach to dealing with cognitive dissonance. Epley and Gilovich (2016) describe how "motivated reasoning" reduces tensions between identity-based behavioral rules and actual behavior, and can be used to rationalize undesirable behavior. To maintain a sense of coherence between one's actions and a valued self-image, agents may display information-averting behavior, or exploit uncertainties and ambiguities

[2] In a related analysis, Falk and Kosfeld (2006) study the interaction between a principal and agent where the principal can implement a minimum performance requirement. Such a control measure has a non-monotonic effect on agent performance, because agents perceive control measures as a signal of distrust – eroding the intrinsic motivation to act in the principal's interest. Average performance is higher in the absence of control, or when the principal relies on trust.

in the decision context to create "moral wiggle room" (e.g., Gino et al., 2016). Acting egoistically may be reconciled with a positive self-image ("I am a moral person") if the other person – the one adversely affected by the egoistic act – actually *deserved* to be treated badly. For example, acting lazily may be justified if the employer pays wages that are indecently low, or unfair.

We are the first to use an experimental approach to study self-signaling and motivated reasoning in a setting mimicking the workplace – a context in which beliefs about identity are important. We use a two-stage lab-in-the-field real-effort experiment in rural Uganda. In the first stage of our experiment, a principal (employer) and agent (worker) interact in the context of an ultimatum game. The principal offers a certain share of his endowment as a wage transfer to the agent, and the agent accepts or rejects this offer. If she rejects the offer, both subjects earn nothing in that experimental round. If she accepts the offer, the endowment is split among the subjects as agreed. In the second stage of the experiment, the agent is invited to sort beans in a tedious 4-minutes real effort task. Importantly, payoffs of *neither* the principal *nor* the agent vary with the quantity of beans sorted – eliminating traditional extrinsic and intrinsic motives to supply effort. However, this design does not eliminate the possibility to send the following signal to future selves: "I am not a free rider or slacker who happily accepts transfers without providing anything in return."

We use the theory of motivated reasoning to probe whether the level of effort, or the propensity to engage in costly self-signaling, varies with the wage offer of the principal. Specifically, the ultimatum stage of the experiment introduces variation in both the *level* of the agent's payment as well as variation in the "*gap*" between her earnings and those of the principal. Agents seeking to preserve a positive self-image as a hard-working and trustworthy person may be willing to supply effort even in the absence of any monetary payoff to anybody. But the theory of motivated reasoning predicts that agents only need the "thinnest of veils" to find an excuse for shedding such costly

identity-based actions – and instead act lazily (Benabou and Tirole, 2016; Epley and Gilovich, 2016; Gino et al., 2016). If this hypothesis holds, variation in the earnings structure implies variation in the degree to which it is costly to display behavior that violates one's positive self-image. Or rather, variation in the degree to which it is costly to avoid behavior that confirms one's positive self-image.

Our main results are as follows. First, consistent with self-image considerations we find that agents voluntarily supply positive effort levels even in the absence of any conventional motives to do so (i.e., with an earnings structure based on lump sum transfers). Second, the salience of self-image interacts varies with the decision context, and our empirical results are consistent with motivated reasoning – agents work less hard when working in a context that morally "justifies" lazy behavior. This occurs when the principal is less generous, or when the division of the surplus is less equitable. Both higher and fairer wages accentuate worker effort, consistent with our predictions about the salience of self-image concerns. Importantly, we also find that self-signaling persists across rounds of experimental play (effort levels do not dwindle towards zero), and we document there is no "reverse link" between effort and future earnings or wage offers in the experiment – lagged effort by the agent in round t does not predict the principal's offer in round t+1. We also explain variation in the intensity of self-signaling, and find that gender and age matter: young men are especially prone to such behavior.

This paper is organized as follows. In section 2 we discuss the relevant literature, and introduce some notation to highlight the main ideas behind the empirical analysis. In section 3 we present our experimental set-up, and summarize our data. Section 4 outlines our identification strategy, and section 5 presents our empirical results. The conclusions ensue in section 6.

2. Conceptual Framework

A large literature on effort supply has highlighted the importance of extrinsic motives such as wages and bonuses (e.g., Gneezy and Rustichini, 2000a,b; Bellemare and Shearer, 2009) as well as the importance of intrinsic motives (e.g., Clark et al. 2010; Falk and Fehr, 2003; Falk et al. 1999). Theory by Akerlof (1982) showed that workers' effort may exceed minimum performance levels in exchange for higher wages. This is supported by experimental evidence, showing that behavior of employers and workers can take the form of gift exchange – high wages in return for high effort levels (Fehr et al., 1993 and Fehr et al. 1997). However, the persistence of the gift exchange effect over time has been debated (e.g., Gneezy and List 2006; Kube et al. 2012). The interaction between extrinsic and intrinsic motives, and especially the "crowding out effect" of the former on the latter, has been studied in some detail – monetary incentives may undermine incentives for voluntary donations or work (e.g., Benabou and Tirole 2003, Mellström and Johannesson 2008, Ariely et al. 2009).

Other factors also explain behavior of professionals on the work floor. Akerlof and Kranton (2005) show that the self-image of workers, and their ideals about how jobs should be done, can serve as an incentive in the work place. To motivate our work, we follow Bénabou and Tirole (2006, 2011, 2016), who model beliefs as assets. People care about their identity and infer their values and preferences from past behavior. The formation of beliefs about one's identity depends on "demand" and "supply" side considerations. "Demand" for a moral identity may follow from affective (or consumptive) benefits (Brunnermeier and Parker 2005) or from functional (instrumental) benefits (Battaglini et al. 2005). The "supply side" is characterized by imperfect memory of past motivations. Since past behavior is typically better recorded and more accessible than past motives, people tend to judge themselves by their own actions. This results in identity investments, where behavior today affects the formation of beliefs about one's morality tomorrow. Rich theoretical analysis demonstrates

that behavioral models based on identity investments and beliefs as assets explain a range of behaviors that are difficult to reconcile with more conventional economic models (Benabou and Tirole 2011).

The theory of self-signaling also speaks to behavior in the workplace, if people value certain work-related identities more than others. This is arguably the case, as evidence suggests many workers care about moral motives and provide effort out of a felt sense of duty. For example, Minkler (2004) presents survey evidence suggesting that moral motivations may be more widespread among US workers than any other motive for working hard.

To illustrate our main idea, we develop a simple principal-agent model. We have in mind an agricultural context with multiple years and two production seasons per year: a peak season (*H*) with high potential payoffs and a slack season (*L*) with low potential payoffs. When successfully matched with an agent (worker), at the end of the season the principal (landlord or employer) earns a gross season-specific payoff q_i, where $i=H,L$ and where $q_H>q_L$. To secure a match, the principal offers part of this endowment, w_i, to the worker. Upon accepting the offer by the agent, the principal's net monetary payoff are $q_i–w_i$. In case the agent refuses the offer, both parties earn nothing. Next, assume the agent has to decide how much effort to allocate to an arbitrary follow-up task. Importantly, in our stylized model (and experiment), *effort levels do not affect anybody's monetary earnings* – these payoffs depend only on how the fixed (season-specific) endowment is shared (see below).

We start by assuming a rather general utility function for both the principal and agent that includes, in addition to own monetary payoffs, measures of altruism and behindness aversion.[3] Per

[3] In the original Fehr and Schmidt model the specification is $u^p(x) = x_p - \beta_p max\{x_a - x_p, 0\} - \alpha_p max\{x_a - x_a, 0\}; w \neq L$. To make the exposition easier we assume $q_i - w_i > w_i - c_0$ which is in line with experimental data. Please see details below. We also assume that agents do not suffer utility loss from advantageous inequality.

season utility functions capturing intrinsic and extrinsic motives of principal p and agent a are given by:

$$u^p(q_i, w_i, \alpha, \beta) = q_i - w + \alpha_p w_i - \beta_p(2w - q_i - c_0) \quad \text{and} \tag{1}$$

$$u^a(q_i, w_i, e, \alpha, \delta) = w + \alpha_a(q_i - w) - \beta_a(q_i - 2w + c_0) - c_0 - c(e), \tag{2}$$

where α_j is the weight associated with payoffs of the partner (altruism), β_j is a scaling parameter converting inequality in earnings into a measure of utility, c_0 is a fixed cost of match-making for the agent (e.g. capturing commuting cost), e denotes work effort, and $c(e)$ captures the costs associated with supplying effort (with $c'(e) > 0$, and $c''(e) > 0$). In the absence of any benefits associated with the provision of effort – for neither the principal nor agent – (2) predicts that a utility-maximizing agent ends up at a corner solution: the optimal amount of effort chosen by this agent equals zero: $e^*=0$.

Next, consider an augmented utility function for the agent that includes a desire for a positive self-image. Specifically, assume that worker i believes the proper (or moral) response for a hard-working individual receiving transfer w_i is to supply effort, for example because withholding effort is associated with the behavior of a slacker or free rider.[4] The purpose of working is to alleviate the tension between actual behavior and an image-based behavioral imperative.

We follow Benabou and Tirole's (2011) self-esteem model and augment the agent's utility function to enable self-signaling. Assume agents can send a signal about their own type by respecting the norm stipulating that effort should be supplied in response to receiving payment. We will augment the agent's utility function to include self-image benefits, $V(I)$.

[4] This behavioral response should not be interpreted as reciprocity, because positive effort levels do not make the principal better off. Fehr and Falk (2002) write that a reciprocal agent values the material payoffs of the principal, motivating either friendly or retaliatory behavior. Reciprocal behavior typically depends both on consequences (outcomes) as well as intentions of the other player – see Falk and Fischbacher (2006) for a theory of reciprocity.

$$u_k^a(q_i, w_i, e, \alpha, \delta) = w + \alpha_a(q_i - w) - \beta_a(q_i - 2w + c_0) - c_0 - c_k(e) + V(I), \quad (3)$$

where k denotes agent type. Assume there are two "types" of individuals in society – hard-working ones, or "the cherished type," with associated image-based utility v_h, and cost of effort c_h and lazy workers with associated image-based utility v_l and cost of effort c_l. Naturally we assume that $v_h > v_l$, and also that effort is less costly for hardworking agents than lazy agents (such that $c_h(e) < c_l(e)$ with $c_h'(e) < c_l'(e)$ and $c_h''(e) < c_l''(e)$). Define the population share of hard-working individuals by ρ. At the start of a period, during a "momentary insight into his true nature," an individual receives a signal about her type. At the end of the period, agents can remember this signal with probability φ (so that they forget with probability (1-φ)). If an agent forgot about her type, she refers back to her own behavior and tries to infer her type from past choices with respect to effort, e.

End of period expected utility associated with the agent's self-image is defined as follows:

$$V(\hat{I}) = \varphi[\rho v_h + (1-\rho)v_l] + (1-\varphi)\left[\hat{\rho}(e)v_h + \left(1-\hat{\rho}(e)\right)v_l\right]. \quad (4)$$

where $\hat{\rho}(e)$ is the probability that the agent has formed the belief to be of the hardworking type. The specification in (4) assumes that (lagged) effort serves as a signal of whether someone is hardworking, $\hat{\rho}'(e) > 0$. Supplying low levels of effort (or no effort at all) may thus inform the agent that she is of the lazy type. Motivated reasoning, however, implies the salience of respecting this norm varies with details of the payment received: "bad wages" create moral wiggle room justifying lazy behavior. Specifically, we assume salience of the norm is a function of (i) the level of the wage (or the size of the transfer), and (ii) the perceived fairness of the wage (based on how a surplus is divided between the principal and agent – refer to Hennig-Schmidt et al. 2010). The extent to which agents feel more morally-bound to behave in accordance with the imperative is increasing in the wage level (w) as well

as in the share of the total endowment offered to them (w/q).[5] We assume that the salience of the norm in a particular context translates into whether or not behavior in that context provides a reliable "signal" of one's type. Specifically, if the norm is not salient, agents may discount any signal of being a lazy individual.

We define $S = S(w, q)$ as an indicator function, taking the value of either zero or one. In case S=1, the signal must be considered informative.

$$S(w, q_i) := \begin{cases} 1, & w \geq \epsilon_w \; and \; \dfrac{w}{q_i - w} \geq \epsilon_q \\ 0, & w < \epsilon_w \; or \; \dfrac{w}{q_i - w} < \epsilon_q \end{cases}$$

where ϵ_w and ϵ_q are threshold levels for wage and fairness, independently distributed between agents, respectively assigned from cumulative distribution function G(w) and G(q), and publicly observable as well as verifiable. The case S=1 indicates that the signal is informative, or that the offered wage w was "sufficiently high" ($w > \epsilon_w$) and the proposed split of the endowment was "sufficiently fair" ($\frac{w}{q_i - w} > \epsilon_q$), Conversely, the case S=0 indicates outcomes where the signal is uninformative, creating moral wiggle room for the agent to behave lazy. Hence we can define the probability of receiving a signal that is informative, $\Pr(S = 1)$, as a function of wage and endowment, $\sigma(w, q) = \Pr(w \geq \epsilon_w \cap \frac{w}{q_i - w} \geq \epsilon_q)$, such that (i) $\sigma_w(w, q_i) > 0$ and (ii) $\sigma(w, q_H) < \sigma(w, q_L)$ (for given wage w and $q_H > q_L$).

We can now rewrite (4) as:

$$V(\hat{I}) = (\varphi + 1 - \sigma(w, q))[\rho v_h + (1 - \rho)v_l] + (1 - \varphi)\sigma(w, q)\left[\hat{\rho}(e)v_h + \left(1 - \hat{\rho}(e)\right)v_l\right]$$

[5] The assumption that an increasing share offered to the agent is "more fair" only makes sense if this share is less than half of the endowment, because in case the agent receives more than 50% of the endowment a further increase in the proposed wage will make the proposed allocation less fair. This condition is typically satisfied in our data – see below.

where we assume that, in case of an uninformative signal (with probability (1-σ)), the agent simply uses the population share ρ to estimate her probability of being of the hard-working type. Observe that identity-based payoffs as modelled above introduce the possibility for agents to work hard for informational purposes – to create a signal of one's type, and increase the chance of enjoying v_h.

Because the employer has a first-mover advantage, in equilibrium she offers the reservation wage to the agent. Normalize to zero agent's utility in case no match eventuates, so that the expected reservation utility of agent $k=\{h,l\}$ with $c_k(e)$ satisfies:

$$u_k^a(q_i, w_i, e) = w + \alpha_a(q_i - w_i) - \beta_a(q_i - 2w + c_0) - c_0 - c_k(e) +$$

$$(\varphi + 1 - \sigma(w, q_i))[\rho v_h + (1-\rho)v_l] + (1-\varphi)\sigma(w, q_i)\left[\hat{\rho}(e)v_h + \left(1 - \hat{\rho}(e)\right)v_l\right] \geq 0. \quad (5)$$

The equilibrium wage (w_i^*) is given by $w^* = \underline{w}(\alpha_a, \beta_a, c_0, \varphi, e, v_h, v_l)$ where $\underline{w_i}$ is the reservation wage such that $u_a\left(q_i, \underline{w}, e\right) = 0$. Given w^*, and q_i, the agent chooses the optimum effort level e_i^* satisfying the following first order condition:

$$c_k'(e^*) = (1-\varphi)\sigma(w^*, q_i)\hat{\rho}'(e)(v_h - v_l), \quad (6)$$

where we assume a positive equilibrium effort level exists, $e^* > 0$. Through comparative statistics we now readily obtain the following testable implications:

- $\frac{de^*}{dw^*} = \frac{(1-\varphi)\sigma_w(w^*, q_i)\hat{\rho}'(e)(v_h - v_l)}{c_k''(e)} > 0$: in the absence of monetary payoffs to effort, and for a given endowment level q_i, agents supply more effort if they receive a higher wage w_i;
- $\frac{de^*}{dq_i^*} = \frac{[\sigma(w^*, q_H) - \sigma(w^*, q_L)](1-\varphi)\hat{\rho}'(e)(v_h - v_l)}{c_k''(e^*)} < 0$: given $\sigma(w^*, q_H) < \sigma(w^*, q_L)$, the level of effort supplied by self-image preserving agents goes down if the wage offer is more unfair (i.e. given wage offer w_i, agents supply less effort if the total endowment q_i is larger).

We designed an experiment to test these predictions.

3. Experiment and data

We use data from a two-stage lab-in-the-field experiment organized at ten randomly selected villages in Mitiyana district, Central Uganda. This district is largely rural, with agriculture as the main economic activity. Households in the study area typically engage in crop cultivation on their own landholdings, or on small plots they rent in. While farm activity is mainly sustained by family labor, some household members also engage in off-farm activities to earn additional income for the household. Much of the output produced on the farm is for own consumption, with surpluses sold mainly on local markets. Social groups like burial societies, women groups, and vending groups are common in the district.

In each village, we randomly selected eighteen people to participate in the experiment. Per village we conducted three experimental sessions. After explaining the experimental protocol we randomly grouped participants into three groups of six persons. One randomly selected member per group was subsequently assigned the role of principal, and the other five members were agents. These roles were fixed throughout the experiment. In total, therefore, 30 employers and 145 workers participated in the experiment. The experiment took four "years" with two alternating agricultural "seasons" per year, or 8 seasons (experimental rounds) per session: four peak seasons with high endowments and four slack seasons with low endowments. All subjects were informed about the number of rounds, and were also told that the experiment was a one-time event (i.e. that the experimenter would not return to their village for additional experiments).

Depending on the season, principals could earn a high or low endowment: $(q_i) \in (q_h, q_l)$ for every successful match. The maximum number of matches per round equaled five per group, as there were five agents per principal (the minimum number of matches was obviously zero). To secure a

match, in the first stage, the principal offered one fixed "wage" to his five agents: $w_i \in [0, q_i]$. Each agent in the group individually accepted or rejected the (common) wage offer. A match ensued in case an agent accepted the wage offer, and the experimental earnings for the agent equaled the accepted wage minus a fixed cost: $w_i - c_0$. The experimental earnings of the principal were given by $(q_i - w_i)$. Payoff functions were public knowledge for all participants.

In the second stage of an experimental round, the agent was invited to engage in a real effort task: she received 500 grams of mixed yellow and maroon beans, and was invited to sort these beans based on color, for a period of four minutes, if she wished. Agents were reminded that neither their payoffs, nor those of the principal, were affected by the amount of effort supplied or the quantity of beans sorted. While all agents participating in the session were present in the same room, they enjoyed considerable privacy as they were spread out to attenuate competitive dynamics.[6] After the sorting stage, enumerators weighed the beans and recorded the number of grams sorted. Weighing of sorted beans was always done in front of the agent. The principal was never informed about the amount sorted by individual agents, nor were the other agents. After weighing, enumerators aggregated the quantities across agents and asked the principal to mix the sorted and unsorted beans again. Subsequently, new packs of 500 grams were prepared for the next season. After each round, enumerators informed the principal about the number of agents that accepted the wage offer. There was no direct communication between employers and workers: all communication was via the enumerator.

The earnings structure of the experiment was designed to eliminate the scope for reciprocal behavior. Moreover, individual workers could not signal their appreciation for generous offers to their principal by "working hard" as the principals only received the aggregate quantity of sorted beans by

[6] The principal was also present in the same room, but did not face the agents.

"their workers." While they had some sense of how much the five agents had sorted together, they did not receive detailed feedback about amounts sorted, and typically did not care about that either. The scope for reciprocity towards the experimental team was also quite limited: since sorted beans were mixed again at the end of each round, in the presence of the workers, workers knew they were not producing anything that was inherently valued by the experimenter. Of course, as in other lab-style experiments, it is also possible that the agent's behavior is affected by scrutiny (e.g. Levitt and List 2007). However, there is no reason to expect that effort motivated by the experimenter's scrutiny will vary with wages as predicted by the theoretical model.

Payments were made immediately after the experiment. At the end of the experiment, we paid players for one randomly picked round: agents randomly drew one out of eight rounds, and principals drew one outcome for payment out of their 40 experimental outcomes (eight rounds times five workers per round).[7] We used the following parameters to specify the payoff functions: $(q_h, q_l) =$ (UGS 20,000, UGS 5,000) and $c_0 =$ UGS 1,000.[8] Since stakes in the peak season were four times higher than in the slack season, a fair or inequality-averse principal should increase the wage offer to agents in the peak season.[9] Subjects were reminded of the size of the endowment at the start of every round. To make sure that subjects fully understood the instructions we played several trial rounds of the experiment.

<< Insert Table 1 about here >>

[7] In one of the villages we had five workers less and in one other village one worker missed one high round and two low rounds.

[8] USD 1 = 2,600 Uganda shillings (UGS) at the time of experiment.

[9] The same is true for a selfish principal suspecting that a sufficiently large share of her agents is inequality-averse and might reject "unfair offers".

We recorded wage offers and effort (grams sorted) across rounds, and organized a short exit survey with questions about socio-economic and demographic characteristics. Table 1 summarizes key principal and agent characteristics and a balance test to verify whether random assignment "worked". Half of our subjects mainly derive their income from farming, and 40 percent of our subjects are women. Most subjects finished primary school and own a small area of land. The balance check indicates that randomization worked; there are no statistical differences between the two experimental groups in terms of the observables. On average, agents sorted 219 (218) grams in the slack (peak) season, and the average wage offer was UGS 2200 (5200), respectively. On average, therefore, the endowment is distributed much more fairly in the slack season than in the peak season. In the low season workers on average secured 44% of the endowment, but in the peak season the mean offer was only 26%. There was considerable variation in wage offers: the standard deviation was UGS 401 (1633) in the slack (peak) season. Acceptance rates were very high across the seasons: 92% for the slack seasons, and 95% for the peak seasons (statistically identical: p=0.54)

4. Identification

4.1 Self-image motivated effort and wage

We probe the relationship between wage offers, fairness and effort, and estimate the following model:

$$Effort_{jir} = \beta_0 + \beta_1 w_{ir} + \beta_2 q_h + \varepsilon_{jir} \quad (7)$$

where $Effort_{jir}$ is the number of grams of sorted beans for worker j, given endowment i and round r. Effort equals zero in case the worker does not accept the wage offered in that round, but may also equal zero for agents accepting the offer and subsequently refusing to do work that does not yield tangible benefits. Next, w_{ir} is the wage offer in round r, q_h is a dummy indicating "peak season

rounds" with high endowments, and ε_{jir} is the error term. The estimated coefficients β_1 and β_2 measure the effect of wages and endowments on effort.

We predict that for agents wishing to invest in creating or maintaining a positive self-image, high wages increase effort: $\beta_1 > 0$. In addition, the distribution of the endowment may be important. Our simple model predicts that, to maintain a positive self-image, agents will supply more effort if they feel a given endowment is more fairly (equally) shared. To test this hypothesis we consider coefficient β_2. For a given wage w a greater endowment q makes the allocation less equal (for $w < q/2$, as was typically the case in the experiment). Any positive effect of wages on effort is attenuated by self-image motives in high endowment period as, *ceteris paribus*, the wage offer is seen as less equal. All else equal, higher earnings for the principal are more likely to facilitate motivated reasoning by the agent – letting her "off the hook" and justifying lazy behavior. We also explore alternative measures of fairness, below, including one that is consistent with the theoretical model: $w/(q-w)$.

To check the robustness and stability of our estimates, we vary the specification of model (7) and use different estimators. We estimate simple Tobit model models for censored data outcome variables without controls, and check the robustness of the results by estimating OLS models. To control for learning effects we add year fixed effects to the specification. To control for unobserved village characteristics we also add village fixed effects. In an extra robustness analysis we control for unobserved principal characteristics by replacing village dummies by principal fixed effects. Finally, we control for agent characteristics by estimating models with agent fixed effects. In all models, we report heteroscedasticity robust standard errors clustered at the principal level.

4.2 Heterogeneity and time persistence of self-image motivated effort

How are self-image motives distributed in the population? Is self-image equally salient and important for all agents, or do some agents respond more strongly to high wages to protect their self-image? In the absence of prior empirical evidence to guide our specifications, we view this part of the analysis as exploratory. We estimate model (7) for different sub-samples of agents, distinguishing between social groups based on gender, age, education, and risk aversion (obtained via a hypothetical exit survey question). We next compare the coefficients of interest, β_1 and β_2 for these sub-samples.

We are also interested in the persistence of the self-image motive over rounds of experimental play. Earlier work has cast doubts on the persistence of gift exchange behavior over time, so it seems natural to ask whether self-image concerns lose salience after several rounds of experimental play. To address this issue we separately estimate (7) for "early years" (i.e. the first four seasons) and "late years" (the final four seasons) in the experiment. We compare estimated coefficients to assess whether the effects of wages and fairness on effort wane over time.

4.3 Reciprocity and reverse causality

One concern challenging our approach to identifying self-image motives is that agents may use their effort to "signal something" to the principal in an effort to manipulate future wages. For example, by working harder, they may invest in the (group) reputation of being trustworthy and hardworking, and therefore deserving of decent treatment (or high wage offers) in subsequent rounds. That is: effort by agents may invite reciprocal behavior by the principal. However, as mentioned, the scope for such signaling is limited.[10] It is unclear why the principal should care about effort supplied by his agents as this does not affect his payoffs. She also does not learn anything about individual effort, and only obtains a rough measure of aggregate effort (when mixing the bags for the next round) because he

[10] There is also no signalling to other agents, as agents are only informed about their own output – not that of others.

never receives an exact measurement of the number of grams sorted. Finally, the principal has to extend the same wage offer to his five agents, so agents seeking to signal have an incentive to free ride on the effort of other agents (any benefits from reputational investment will be shared with others).

Nevertheless, to test whether effort affects future wage offers we estimate the following model:

$$w_{rt} = \delta_0 + \delta_1 Totaleffort_{r-1,t} + \delta_2 Totaleffort_{r-2,t} + \delta_2 q_h + \varepsilon_{rt}, \quad (8)$$

where $Totaleffort_{ir-1}$ and $Totaleffort_{ir-2}$ capture lagged effort, or the total number of grams sorted by the five workers in the previous two rounds. We test whether $\delta_1 \neq 0$ and $\delta_2 \neq 0$ to assess whether there exists a reciprocal relationship between effort and wages.

5. Results

Table 2a summarizes our main results. Using various model specifications we ask whether wages and fairness explain variation in work effort. The first thing to observe is that the constant in the first model is different from zero. Our agents supply effort even in the absence of any material payoffs to themselves or their partner. Indeed, casual observations during the sorting stage of the experiment suggested that many agents worked hard to sort beans, occasionally at considerable discomfort to themselves. To assess whether the supply of effort is driven by self-image considerations we consider whether model predictions are supported by our data.

First, and consistent with our predictions, we consistently find that agents supply more effort when receiving a higher wage in the first stage of that round. The magnitude of this wage effect is robust across specifications: an increase in the wage by UGS 1 translates into 0.01 grams of extra beans sorted. The average wage offer (across peak and slack seasons) amounted to UGS 3,700, so the

average effect of wages on effort equals 37 grams, or some 17% of the average quantity sorted. Workers sort 3% percent (7.4 grams) more after a 10 percent increase in wage offers. This result robustly emerges across all specifications; for models based on OLS and Tobit estimators, and for models including or excluding village, principal, or agent fixed effects.

<< Insert Table 2a about here >>

Table 2a also reveals that, controlling for the wage that is offered to them, agents work less hard in "peak seasons" when the principal earns more. The wage offer was, on average, much "fairer" in the slack season (44%, or UGS 2,200 out of an endowment of UGS 5,000) than in the "peak season" (26%, or UGS 5,200 out of an endowment of UGS 20,000). This is consistent with the idea that unfair compensation schemes erode the necessity to invest in self-image concerns, as proposed by the theory of motivated reasoning. Agents appear to search for an excuse to act in their own self-interest and avoid costly actions to maintain a positive self-image – "If the other guy acts badly, so can I!"

We have probed the robustness of this result by using two alternative proxies of "fair wage offers." The variable *Fair1* is defined as the ratio of the proposed wage offer divided by earnings for the principal [or *wage*/(*endowment* – *wage*)]. Higher values of *Fair1* are associated with more equal distributions (this is true for realizations of variable *Fair1* in the range [0,1], which is the typical outcome – very few wage offers exceed half the endowment). The variable *Fair2* is a dummy referring to wage offers exceeding 40% of the endowment. Note that, unlike our high season dummy, these fairness proxies may introduce multicollinearity problems as they incorporate the wage offer, which also enters as a separate variable. However, qualitatively we find the same regression results as before: the wage level is positively correlated with effort, and the same is true for wages that are more fair or more equal. Regression results are reported in Tables 2b and 2c.

<< Insert Tables 2b and 2c about here >>

Are self-image concerns equally relevant across all social groups? To answer this question we subdivided the population into subsamples, and repeated the analysis discussed above. To economize on space we only report the coefficients of interest in Panel A of Table 4, or those associated with the wage level and the endowment (additional results are available on request). Model estimates are based on an OLS specification that controls for "peak seasons," round dummies, and village fixed effects. Do higher wages invite a stronger behavioral response in some agents than in others? The regression results in the first column indeed support such a conjecture. Specifically, we find that especially agents that are male, young or poorly educated respond more strongly to wages. While we have no strong theoretical priors why self-image concerns are more salient for these social groups, we do observe that subjects with these characteristics are more likely to earn a livelihood by selling their labor on local labor markets (so that identity-based norms about proper working ethics may be especially relevant for them). The second column shows that young, poorly educated men are also the individuals who respond most strongly to the fairness of the proposed allocation.

<< Insert Table 3 about here >>

Panel B of Table 3 presents regression results for the early and late periods separately, to probe the persistence of self-image based considerations. Our point estimates of the wage effect are nearly the same for the first four seasons as for the final four seasons (β=0.006); agents increase their effort in response to higher wage offers during the entire experiment. It would be worthwhile to explore whether similar findings are obtained over longer time frames within a real "field setting." If so, self-signaling may prove to be more persistent than signaling to others in the context of gift exchange.

<< Insert Table 4 about here >>

As a final empirical test we check whether our experiment suffers from reciprocity and reverse causality – the agent working harder to induce the principal to extend more generous offers in the future. Regression results summarized in Table 4 reveal this is not the case. Across all specifications we find that wage offers are not significantly correlated with our measures of lagged aggregate effort.

6. Conclusions and discussion

In recent years, a series of theoretical studies have shown that prosocial behavior may, to some extent, be explained by a desire of subjects to create or maintain a positive self-image. Specifically, if subjects prefer to think of themselves as trustworthy or altruistic individuals, then it is "costly" to display behavior that suggests otherwise, as it implies a risk that future selves will reject positive self-images. Anticipating that future selves will refer back to past actions to infer something about one's deep preferences and beliefs, the current self has an incentive to behave in accordance with the desirable identity – respecting behavioral norms that follow naturally from such an identity. Acting egoistically today may hamper the production of credible beliefs about one's superior morality later. However, an important caveat is provided by the theory of motivated reasoning. While people prefer to think of themselves as beings with the highest moral standards, they may be tempted to search for excuses to justify egoistic acts – carefully selecting and interpreting bits and pieces of evidence from their environment that suit this purpose.

In this paper we introduce the theory of self-signaling to the workplace. Rather than focusing on prosocial behavior such as charity donations or voluntary provision of public goods, we zoom in on the supply of effort in a work-place type of environment. This implies that the desirable self-image or identity that we try to capture is associated with being hard-working and industrious (as opposed to being indolent and lazy). We invoke motivated reasoning to explain why wage levels and fairness may affect the supply of effort that is necessary to uphold a positive image of one-self in the workplace. By

choosing a certain effort level, subjects in our experiment can signal to their future selves that they are of the hardworking type. Our approach is consistent with survey-based evidence that suggests that moral motivations for hard working are prevalent among samples of workers.

To isolate the effect of self-image and self-signaling on effort we need to eliminate other factors determining effort. The most prominent factors are extrinsic motives (experimental earnings, respect in the community) and intrinsic motives such as altruism or guilt aversion. We therefore construct a two-stage experiment where the effort level of our agents does not in any sense affect anybody's payoffs. After the experiment's first stage (an ultimatum game) in which experimental earnings are fully determined, the agent in the ultimatum game is invited to engage in a measurable but pointless activity. Since individual effort during this task is not revealed to other experimental subjects, effort supply cannot be used for signaling in a conventional sense (i.e. signaling to others). Likewise, we believe it is unlikely that our results are driven by scrutiny by the experimenter – there is little reason to believe that the effects of scrutiny vary with wage levels or the fairness of proposed allocation as predicted by the theory of self-signaling.

Our empirical findings are consistent with predictions based on theories of self-signaling and motivated reasoning. Specifically, we find a persistent and positive relationship between wage levels and effort, even if effort does not provide any benefits other than as a signal to oneself of being hard-working. We also find that workers put in less effort when the proposed allocation of wages is less fair – providing them with an excuse to take it easy. Additional analysis reveals that especially male subjects that are young or poorly educated display this sort of behavior – exactly the same social group that is most dependent on wage labor to earn a livelihood. Interestingly, we also find that the association between wages and effort is persistent and does not fade out over time (not even after 8

rounds of bean sorting – a tedious job). The association cannot be explained by reverse causality: more effort does not invite higher wages.

The finding that self-signaling affects labor productivity may contain important lessons for employers – affecting both optimal hiring policies (i.e. targeting individuals more prone to invest in a positive self-image)[11] as well as the design of incentive regimes (fine-tuning earning structures to induce people to supply more effort). This is left for future research, as is research on how organizational structures (e.g. working in groups or individually, monitoring structure by the company) interact with self-signaling. We end this paper by observing that self-signaling might speak to a much broader set of issues that are potentially of interest to economists – inside and outside the workplace. Imperfect accessibility of past states implies people are to some extent able to produce their own beliefs about who they are. Both the value generated during the production process (the signaling) as well as the value of these beliefs themselves deserve more attention from empirical researchers.

References

Akerlof, G.A. (1982). Labor contracts as partial gift exchange. *The Quarterly Journal of Economics*, 543-569.

Akerlof, G. A., and Kranton, R.E. (2005). Identity and the Economics of Organizations. *The Journal of Economic Perspectives, 19*(1), 9-32.

Ariely, D., Bracha, A., and Meier, S. (2009). Doing good or doing well? Image motivation and monetary incentives in behaving prosocially. *The American Economic Review, 99*(1), 544-555.

Battaglini, M. R. Benabou and J. Tirole, 2005. Self-control in peer groups. *Journal of Economic Theory* 123, 105-134

[11] For example, Benabou and Tirole (2011) speculate that people who "deep down, are insecure about who they are (…) are the most prone to costly identity-affirming behaviors; adolescents are perhaps the prime example". Alternatively, it may be worthwhile to hire workers with lots of identity-relevant capital, as these individuals stand to gain most from identity-affirming investments ("escalating commitment").

Battigalli, P., and Dufwenberg, M. (2007). Guilt in games. *The American Economic Review, 97*(2), 170-176.

Bellemare, C., and Shearer, B. (2009). Gift giving and worker productivity: Evidence from a firm-level experiment. *Games and Economic Behavior, 67*(1), 233-244.

Benabou, R. and Tirole, J. (2003). Intrinsic and extrinsic motivation. *Review of Economic Studies* 70, 489-520

Benabou, R., and Tirole, J. (2011). Identity, morals, and taboos: Beliefs as assets. *The Quarterly Journal of Economics, 126*, 805-855.

Benabou, R. and Tirole, J, (2016). Mindful economics: The production, consumption and value of beliefs. *Journal of Economic Perspectives* 30(3), 141-164

Bénabou, R., and Tirole, J. (2006). Incentives and prosocial behavior. *The American Economic Review*, 1652-1678.

Brandes, L., and Franck, E. (2012). Social preferences or personal career concerns? Field evidence on positive and negative reciprocity in the workplace. *Journal of Economic Psychology, 33*(5), 925-939.

Brunnermeier, M. and J. Parker, 2005. Optimal expectations. *American Economic Review* 95, 1092-1118

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

Charness, G., and Gneezy, U. (2008). What's in a name? Anonymity and social distance in dictator and ultimatum games. *Journal of Economic Behavior and Organization, 68*(1), 29-35.

Clark, A. E., Masclet, D., and Villeval, M. C. (2010). Effort and comparison income: Experimental and survey evidence. *Industrial and Labor Relations Review, 63*(3), 407-426.

Clark, A. E., and Oswald, A. J. (1996). Satisfaction and comparison income. *Journal of public economics, 61*(3), 359-381.

Deci, E. (1971). Effects of externally mediated rewards on intrinsic motivation. *Journal of Personality and Social Psychology* 18, 105-115

Dufwenberg, M., Gächter, S., and Hennig-Schmidt, H. (2011). The framing of games and the psychology of play. *Games and Economic Behavior, 73*(2), 459-478.

Ellingsen, T., and Johannesson, M. (2008). Pride and Prejudice: The Human Side of Incentive Theory. *American Economic Review, 98*(3), 990-1008.

Epley, N and Gilovich, T. (2016). The mechanics of motivated reasoning. *Journal of Economic Perspectives* 30(3), 133-140

Falk, A., and Fehr, E. (2003). Why labour market experiments? *Labour Economics, 10*(4), 399-406.

Falk, A., Fehr, E. and Fishbacher, U. (2008). Testing theories of fairness--intentions matter. *Games and Economic Behavior* 62, 287-303

Falk, A. and Fischbacher, U. (2006). A theory of reciprocity. *Games and Economic Behavior* 54, 293-315

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

Falk, A., and M. Kosfeld (2006). The hidden cost of Control. *American Economic Review* 96(5), 1611-1630

Fehr, E., and Falk, A. (2002). Psychological foundations of incentives. *European Economic Review, 46*(4), 687-724.

Fehr, E., Gächter, S., and Kirchsteiger, G. (1997). Reciprocity as a contract enforcement device: Experimental evidence. *Econometrica*, 833-860.

Fehr, E., Kirchsteiger, G., and Riedl, A. (1993). Does fairness prevent market clearing? An experimental investigation. *The Quarterly Journal of Economics*, 437-459.

Fehr, E., and Schmidt, K. M. (1999). A theory of fairness, competition, and cooperation. *Quarterly Journal of Economics*, 817-868.

Gino, F., Norton, M. and Weber R. (2016). Motivated Bayesians: Feeling moral and acting egoistically, *Journal of Economic Perspectives* 30(3), 189-212

Gintis, H., Bowles, S., Boyd, R., and Fehr, E. (2003). Explaining altruistic behavior in humans. *Evolution and Human Behavior, 24*(3), 153-172.

Gneezy, U., and List, J. A. (2006). Putting behavioral economics to work: Testing for gift exchange in labor markets using field experiments. *Econometrica, 74*(5), 1365-1384.

Gneezy, U., Meier, S., and Rey-Biel, P. (2011). When and why incentives (don't) work to modify behavior. *The Journal of Economic Perspectives, 25*(4), 191-209.

Gneezy, U., and Rustichini, A. (2000a). Pay enough or don't pay at all. *Quarterly Journal of Economics*, 791-810.

Gneezy, U. and Rustichini, A. (2000b). A fine is a price. *Journal of Legal Studies* 29(1), 1-18

Hennig-Schmidt, H., B. Rockenbach and A. Sadrieh (2010). In search of workers' real effort reciprocity: A field and laboratory experiment. *Journal of the European Economic Association* 8(4), 817-837

Heyman, J. and D. Ariely (2004). Effort for payment: A tale of two markets. *Psychological Science* 15(11), 787-793

James, H. S. (2005). Why did you do that? An economic examination of the effect of extrinsic compensation on intrinsic motivation and performance. *Journal of Economic Psychology, 26*(4), 549-566.

Kube, S., Maréchal, M. A., and Puppe, C. (2012). The currency of reciprocity: Gift exchange in the workplace. *The American Economic Review, 102*(4), 1644-1662.

Levitt S. and List, J.A. (2007). What do laboratory experiments measuring social preferences reveal about the real world?" *Journal of Economic Perspectives* 21: 153-74

Lundquist, T., Ellingsen, T., Gribbe, E., and Johannesson, M. (2009). The aversion to lying. *Journal of Economic Behavior and Organization, 70*(1), 81-92.

Mellström, C., and Johannesson, M. (2008). Crowding out in blood donation: was Titmuss right? *Journal of the European Economic Association, 6*(4), 845-863.

Minkler, L. (2004). Shirking and motivations in firms: Survey evidence on worker attitudes. *International Journal of Indistrial Organization* 22, 863-884

Pepper, A., Gosling, T., and Gore, J. (2015). Fairness, envy, guilt and greed: Building equity considerations into agency theory. *Human Relations*, 0018726714554663.

Stanca, L., Bruni, L., Corazzini, L. (2009). Testing theories of reciprocity: Do motivations matter? *Journal of Economic Behavior and Organization* 71, 233-245

Tables

Table 1: Summary of principal and worker characteristics

Variable	Mean Employers (1)	Mean Workers (2)	Balance check: p-values (3)
Land ownership (acres)	2.62	3.78	0.24
Farm size (acres)	2.25	2.51	0.52
Farm output (million shillings)	1.01	1.11	0.67
Casual workers employed	2	2	0.60
Age	38.13	40.88	0.32
Women	0.43	0.40	0.68
Major occupation-farming	0.50	0.56	0.56
Primary education	0.97	0.92	0.35
Post primary education	0.27	0.38	0.24

Table 2a: Wages, fairness and effort.

	Effort					
	(1)	(2)	(3)	(4)	(5)	(6)
Wage offer	0.011**	0.010**	0.009*	0.006**	0.007**	0.007**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
High endowment	-31.59**	-30.27*	-26.62*	-19.69*	-20.63*	-20.21
	(15.83)	(15.01)	(15.20)	(11.08)	(11.40)	(12.07)
Constant	192.79***	196.48***	178.86***	161.22***	160.70***	243.58***
	(15.15)	(14.38)	(14.42)	(10.79)	(5.15)	(5.49)
N	1,157	1,157	1,157	1,157	1,157	1,157
R-squared	0.00	0.02	0.04	0.15	0.23	0.53
Method	Tobit	OLS	OLS	OLS	OLS	OLS
Time FE	NO	NO	YES	YES	YES	YES
Village FE	NO	NO	NO	YES	NO	NO
Employer FE	NO	NO	NO	NO	YES	NO
Worker FE	NO	NO	NO	NO	NO	YES

We report coefficient estimates from Tobit and OLS models. Robust standard errors, clustered at principal level, in parentheses. $^{***}p < 0.01, ^{**}p < 0.05, ^{*}p < 0.10$.

Table 2b: Robustness analysis 1 based on alternative fairness proxy

	Effort					
	(1)	(2)	(3)	(4)	(5)	(6)
Wage offer	0.006**	0.005**	0.005*	0.003**	0.004**	0.004**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Fair1	31.42**	29.90**	26.10*	19.70*	24.88*	24.61*
	(15.83)	(13.81)	(14.05)	(10.12)	(12.24)	(12.94)
Constant	192.79**	180.89***	165.59***	151.53***	147.46***	230.50***
	(15.15)	(20.91)	(20.58)	(12.81)	(8.54)	(9.09)
N	1,157	1,157	1,157	1,157	1,157	1,157
R-squared	0.00	0.02	0.05	0.15	0.24	0.53
Estimator	Tobit	OLS	OLS	OLS	OLS	OLS
Time FE	NO	NO	YES	YES	YES	YES
Village FE	NO	NO	NO	YES	NO	NO
Employer FE	NO	NO	NO	NO	YES	YES
Worker FE	NO	NO	NO	NO	NO	YES

Robust standard errors, clustered at principal level, in parentheses. $*** p < 0.01, ** p < 0.05, * p < 0.10$.

Table 2c: Robustness analysis 2 based on alternative fairness proxy

	Effort					
	(1)	(2)	(3)	(4)	(5)	(6)
Wage offer	0.008**	0.007**	0.006*	0.004**	0.004**	0.004*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Fair2	25.52**	24.61**	20.98*	13.66*	10.52	10.34
	(12.03)	(11.62)	(12.06)	(8.00)	(7.43)	(7.83)
Constant	175.58**	179.84***	165.55***	152.82***	152.94***	235.97***
	(21.00)	(20.22)	(20.42)	(12.73)	(7.20)	(7.64)
N	1,157	1,157	1,157	1,157	1,157	1,157
R-squared	0.00	0.03	0.05	0.15	0.23	0.53
Estimator	Tobit	OLS	OLS	OLS	OLS	OLS
Time FE	NO	NO	YES	YES	YES	YES
Village FE	NO	NO	NO	YES	NO	NO
Employer FE	NO	NO	NO	NO	YES	YES
Worker FE	NO	NO	NO	NO	NO	YES

Robust standard errors, clustered at principal level, in parentheses. $*** p < 0.01, ** p < 0.05, * p < 0.10$.

Table 3: Heterogeneity and time persistence of the self-image motive

	Wage offer	High Endowment
Panel A: Worker characteristics		
Female	-0.00	4.35
	(0.00)	(11.35)
Male	0.01***	-38.26***
	(0.00)	(9.30)
Young	0.01**	-26.77**
	(0.00)	(11.08)
Old	0.00	-8.38
	(0.00)	(10.27)
Post-primary	0.00	-5.14
	(0.00)	(12.32)
Below post-primary	0.01***	-29.92***
	(0.00)	(9.77)
Risk averse	0.01**	-11.64
	(0.00)	(10.65)
Panel B: Late vs. Early rounds		
Early rounds	0.01**	-19.94*
	(0.00)	(11.44)
Late rounds	0.01**	-20.24**
	(0.00)	(10.19)

Dependent variable is effort. Robust standard errors, clustered at principal level, in parentheses. $^{***}p < 0.01, ^{**}p < 0.05, ^{*}p < 0.10$. *We control for round and village fixed effects in all specifications.*

Table 4: Effort and wages: checking for reverse causality

	Wage offer			
	(1)	(2)	(3)	(4)
Sum of grams sorted (L.1)	0.37	0.39	0.62	0.11
	(0.54)	(0.54)	(0.62)	(0.59)
Sum of grams sorted (L.2)	0.14	0.09	0.27	-0.00
	(0.50)	(0.54)	(0.50)	[0.45]
High endowment	3,092.04***	3,092.78***	3,105.52***	3,077.83***
	(272.62)	(274.61)	(285.00)	(306.51)
Constant	1,721.06**	1,688.18**	980.73	438.97
	9707.34)	(698.36)	(846.78)	(462.27)
N	180	180	180	180
R-squared	0.619	0.620	0.688	0.827
Time FE	NO	YES	YES	YES
Village FE	NO	NO	YES	NO
Employer FE	NO	NO	NO	YES

We report coefficient estimates from OLS models. Robust standard errors, clustered at principal level, in parentheses. $^{***}p < 0.01$, $^{**}p < 0.0{,}5$ $^{*}p < 0.10$.