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Wage Inequality and Team Production: An Experimental Analysis*

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Abstract

Numerous survey studies report that human resource managers curb wage inequality with the intent to avoid detrimental effects on workers' morale. However, there exists little controlled empirical evidence demonstrating that horizontal social comparisons and wage inequality have adverse effects on worker behavior. In this paper, we present data from a laboratory experiment that studies the impact of wage inequality on participation and effort choices in team production. Overall, we do not find evidence that wage inequality has a significant impact on either participation or effort choices.

JEL Classification: D20, D86, J54
Keywords: wage inequality, team production, social comparisons, wage compression, worker morale

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1 Introduction

Does wage inequality influence worker behavior? Numerous survey studies report that human resource managers curb wage inequality to avoid negative effects on workers' morale.[1] Bewley (1999) concludes that "The main function of internal [pay] structure is to ensure internal pay equity, which is critical for good morale."(p. 82) However, there exists little controlled empirical evidence demonstrating that horizontal social comparisons and wage inequality indeed have adverse effects on employee behavior. Without such evidence, the argument that wage compression is a profit-maximizing policy in response to workers' equity concerns remains debatable.

In this paper, we report data from a laboratory experiment that studies the impact of wage inequality on participation and effort choices in team production. In our experiment, subjects must first decide whether or not to engage in team production. If they join a team, they can contribute costly effort to produce some joint team output. In return they receive a wage payment. Wage payments increase in team output but they are also influenced by individual stochastic shocks. In our experiments, we vary the correlation of these wage shocks: in one treatment the shocks are perfectly positively correlated so that both team members always get the same wage ("Equal Wages"). In another treatment the shocks are perfectly negatively correlated so that wages always differ ("Unequal Wages"). The important feature of the experimental design is the following: for given team output expected wages and thus monetary incentives to exert effort are identical in both treatments, but expected wage inequality differs decidedly. In a formal model we explicitly show that if sufficiently many agents are inequity averse and suffer utility losses from wage inequality, we should observe a clear treatment effect: average effort levels should be lower and agents should be less keen in participating in team production. In contrast, if all agents are purely self-interested, the treatment difference should not affect effort and participation choices. We study the impact of wage inequality on subjects' team participation choices and effort levels by analyzing behavior across subjects in our two treatments. Overall, our experimental data cannot reject the null-hypothesis that expected wage inequality has no impact on either participation or effort choices.

[1] See, for example, Blinder and Choi (1990) and Campbell and Kamlani (1997).

Our paper complements several recent laboratory experiments that analyze horizontal social comparisons in employment relationships. In Abeler, Altmann, Kube, and Wibral (2008) workers exert effort which firms can then reward with discretionary bonus payments. They find that forcing firms to pay the same bonus to both workers reduces worker effort. The reason is that reciprocity considerations are violated when different effort levels lead to identical bonus payments, and agents who suffer from a violation of their reciprocity considerations subsequently withdraw effort. Maximiano, Sloof, and Sonnemans (2007) study a gift-exchange situation in which firms can offer several workers high fixed wages to induce them to reciprocate with high voluntary effort. They find that the reciprocity relationship between firms and workers is not affected by the number of workers per firm. However, the impact of wage inequality on workers' participation and effort decisions cannot be studied since they restrict firms to offer equal wages. Charness and Kuhn (2007) extend Maximiano, Sloof, and Sonnemans by allowing firms to offer different wages to different workers whose productivities differ. They find that workers' effort choices do not depend on co-workers' wages. In contrast to the seminal theoretical contributions by Akerlof (1982) and Akerlof and Yellen (1990), the experimental literature thus largely suggests that wage compression relative to productivity does not seem to be an optimal firm response to co-worker equity concerns.[2]

Our paper differs in important ways from the existing experimental studies. First, in our experiment we have no subjects acting as firms or principals who set wages. Vertical fairness concerns between firm and worker thus cannot overshadow horizontal social comparisons among workers. Second, the absence of a subject in the role of the principal who sets wages allows us to exogenously vary wage inequality in our treatments. In contrast, Charness and Kuhn implemented productivity differences to induce principals to pay different wages, and such productivity differences might justify wage differences. Third, in our experiment workers jointly produce output that is distributed among them. This payoff interdependence

[2]In a related experimental setting, Güth, Königstein, Kovács, and Zala-Mezõ (2001) find some evidence that principals compress wages to reduce wage inequality—even though they also conclude that agents' effort decisions do not seem to be driven by fairness concerns. However, in a recent experimental paper Gächter and Thöni (forthcoming) show that disadvantageous wage discrimination in three-person gift-exchange experiments does lead to lower effort.

should, if it has any behavioral effect, amplify horizontal social comparisons. Despite these design features, which were all implemented to foster horizontal social comparisons, our results corroborate the existing laboratory evidence that wage inequality does not have adverse behavioral consequences.

Our experimental study also contributes to a series of recent theory papers that investigate the impact of horizontal equity concerns on optimal contracts in moral hazard situations with multiple agents.[3] Two major effects of equity concerns emerge in this literature. First, agents with other-regarding preferences (such as inequity aversion as formulated by Fehr and Schmidt, 1999) must be compensated for expected wage inequality if their participation constraint is binding. Second, wage inequality affects agents' effort choices if by exerting more or less effort agents can reduce wage inequality. We do not explicitly test any particular one of the existing theory models. Rather, we concentrate on finding evidence for these two major effects that were formulated in this literature and that should (as we formally derive below) show up in our experimental setting if sufficiently many agents are inequity averse and compare wages. However, our data does not suggest that wage inequality has an impact on agents' participation decision, nor do we find that wage inequality affects effort choices.

The remainder of the paper is organized as follows. Section 2 develops a simple model of wage inequality in team production. The model allows us to formally derive our hypothesis on the impact of wage inequality on effort and participation decisions in our experimental team production game. Section 3 explains the experimental design and procedures in detail and states our hypothesis. Section 4 presents the results of our study. Section 5 concludes.

2 A Model of Wage Inequality in Team Production

Our experimental design, which is explained in detail in Section 3, is based on the following principal agent situation. A principal hires a team of two agents a and b to jointly increase the quality of a product. Agents can increase product quality $v(e_a, e_b)$ by simultaneously exerting costly effort $e_a \geq 0$ and $e_b \geq 0$. Product quality is strictly increasing in each agent's

[3]See, for example, Itoh (2004), Demougin, Fluet, and Helm (2006), Rey Biel (2008), Bartling (2010), Bartling and von Siemens (2010a, 2010b), and Neilson and Stowe (forthcoming).

effort, $v_1 > 0$ and $v_2 > 0$, and strictly concave in each agent's effort, $v_{11} < 0$ and $v_{22} < 0$. The cross derivative is zero, $v_{12} = 0$. Agents' common effort cost function c is strictly increasing and convex in effort, $c_1 > 0$ and $c_{11} > 0$. The product is sold in two different markets. The higher the product quality, the higher the sales in both markets. Sales in each market do not only depend on product quality but also on stochastic demand shocks θ_a and θ_b. These demand shocks are beyond the agents' control. The finite set Θ contains all possible combinations of demand shocks (θ_a, θ_b), and $f(\theta_a, \theta_b)$ is the probability with which a particular demand shock combination realizes.

Agents' effort choices or the quality of the product are not contractible, but wages can condition on sales in both markets. Each agent is held responsible for the sales in only one of these markets. Given the realized demand shocks, agent a's and b's wages are determined by $\theta_a\, v(e_a, e_b)$ and $\theta_b\, v(e_a, e_b)$, respectively.[4] The expected wage inequality is thus

$$\sum_{\Theta} |\, \theta_a - \theta_b |\, v(e_a, e_b)\, f(\theta_a, \theta_b). \tag{1}$$

It depends on product quality and therefore on agents' effort choices. Importantly, it also depends on the expected realizations of demand shocks. We consider a symmetric situation where

$$\sum_{\Theta} \theta_a\, f(\theta_a, \theta_b) = \sum_{\Theta} \theta_b\, f(\theta_a, \theta_b) \tag{2}$$

so that the expected demand shock is the same for both agents. We allow for demand shocks and thus agents' wages to be correlated. The correlation between demand shocks determines the expected wage inequality. This is the treatment variation in our experiment.

Agent's Preferences

Numerous experiments suggest that many people are not purely selfish but are also led by behavioral motivations like fairness or equity concerns. While individuals differ in the extent of their fairness or equity concerns, individual preferences are private information.[5] To capture these stylized facts, we assume that there are two types of agents called selfish (s) and

[4] This paper is not about optimal incentive contracts but the behavioral reactions to wage inequality in a given contractual environment. See, e.g., Bartling and von Siemens (2010a, 2010b) for an analysis of optimal incentive contracts for multiple agents with other-regarding preferences.

[5] See Camerer (2003) and Fehr and Schmidt (2006) for a survey of the literature.

inequity averse (i), and that individual preferences are private information. Let $\tau \in \{s, i\}$ denote an agent's type, let T be the type space, and let $\pi(\tau)$ be the probability with which each agent is of type τ.

We define selfish and inequity averse preferences as follows. Selfish agents maximize expected rents, where the expected rent of agent a is

$$\sum_{\Theta} \theta_a \, v(e_a, e_b) \, f(\theta_a, \theta_b) - c(e_a) \tag{3}$$

for given effort choices e_a and e_b. The utility functions of inequity averse agents are defined in the spirit of Fehr and Schmidt (1999). We assume that agents only compare themselves to other agents employed by the same principal.[6] If inequity averse agents compare wages and suffer from wage inequality, then the utility function of an inequity averse agent a is

$$\begin{aligned} &\sum_{\Theta} \theta_a \, v(e_a, e_b) \, f(\theta_a, \theta_b) - c(e_a) \\ &\qquad - \sum_{\Theta} \alpha \, \max\{\theta_b \, v(e_a, e_b) - \theta_a v(e_a, e_b), 0\} f(\theta_a, \theta_b) \\ &\qquad\qquad - \sum_{\Theta} \beta \, \max\{\theta_a \, v(e_a, e_b) - \theta_b v(e_a, e_b), 0\} f(\theta_a, \theta_b) \end{aligned} \tag{4}$$

for given effort choices e_a and e_b. Inequity averse agents thus care for their expected rents, just as selfish agents do. But in addition inequity averse agents suffer from wage inequality. The positive parameters α and β measure their suffering from disadvantageous and advantageous wage inequality, respectively. Following Fehr and Schmidt, the suffering from unfavorable wage inequality (envy) is more pronounced than the suffering from favorable wage inequality (compassion), thus α weakly exceeds β. Further, agents are not willing to burn money in order to reduce favorable wage inequality, thus β is smaller than one. The utility functions for agents b are defined analogously.

Equilibrium Effort Choices and Utility Levels

In the following we derive agents' equilibrium effort and participation choices that arise when agents maximize expected utility. Since agents' preferences are private information, we solve

[6] von Siemens (2010) and von Siemens (forthcoming) discuss the formation of reference groups of workers with social preferences. See also the literature cited therein.

for the Bayesian equilibrium. Let e_τ^* and u_τ^* be the equilibrium effort choice and equilibrium utility level of an agent of type $\tau \in T$. Before we proceed to our theoretical result, note that our symmetry assumption (2) implies

$$\sum_{\Theta} \max\{\theta_a - \theta_b, 0\}\, f(\theta_a, \theta_b) = \sum_{\Theta} \max\{\theta_b - \theta_a, 0\}\, f(\theta_a, \theta_b) \tag{5}$$

and therefore

$$\sum_{\Theta} \max\{\theta_a - \theta_b, 0\}\, f(\theta_a, \theta_b) = \frac{1}{2} \sum_{\Theta} |\, \theta_a - \theta_b|\, f(\theta_a, \theta_b). \tag{6}$$

The utility function of inequity averse agents can then be simplified to

$$\sum_{\Theta} \theta_a\, v(e_a, e_b) f(\theta_a, \theta_b) - c(e_a) - \frac{1}{2}\,(\alpha + \beta) \sum_{\Theta} |\, \theta_a - \theta_b|\, v(e_a, e_b) f(\theta_a, \theta_b). \tag{7}$$

Equilibrium effort levels can therefore be found by maximizing the above expression, where both a selfish and an inequity averse agent a's effort choice is not affected by the other agent's effort choices because the cross derivative v_{12} is zero. Substitution of the equilibrium effort levels yields the equilibrium utility levels. We can summarize our results as follows.

Lemma (Bayesian Equilibrium)**.** *Suppose that there are selfish and inequity averse agents, that each agent's type is private information, and that $\pi(\tau) \in [0, 1]$ is the probability that an agent is of type $\tau \in T$. Then in a Bayesian equilibrium with interior solutions*

$$\begin{gathered} v_1(e_s^*, e) \textstyle\sum_\Theta \theta_a\, f(\theta_a, \theta_b) - c_1(e_s^*) = 0 \\ v_1(e_i^*, e)\Big(\textstyle\sum_\Theta \theta_a\, f(\theta_a, \theta_b) - \frac{1}{2}\,(\alpha + \beta) \sum_\Theta |\theta_a - \theta_b| f(\theta_a, \theta_b)\Big) - c_1(e_i^*) = 0 \end{gathered}$$

characterize the equilibrium effort choices of a selfish and an inequity averse agent a, respectively. Further,

$$\begin{aligned} u_s^* &= v(e_s^*, e_\tau^*) \textstyle\sum_T \sum_\Theta \theta_a\, f(\theta_a, \theta_b)\, \pi(\tau) - c(e_s^*) \\ u_i^* &= v(e_i^*, e_\tau^*) \textstyle\sum_T \sum_\Theta \theta_a\, f(\theta_a, \theta_b)\, \pi(\tau) - c(e_i^*) \\ &\quad - v(e_i^*, e_\tau^*)\, \tfrac{1}{2}\,(\alpha + \beta) \textstyle\sum_T \sum_\Theta |\theta_a - \theta_b| f(\theta_a, \theta_b)\, \pi(\tau) \end{aligned}$$

describe the respective equilibrium utility levels. The equilibrium effort and utility levels are defined analogously for agent b.

The intuition for the result is as follows. A selfish agent a simply maximizes his expected rent (3). When choosing his effort level, he therefore trades off his marginal effort costs and

the expected marginal increase in his wage. The expected marginal increase in his wage only depends on the expected value of θ_a. His optimal effort choice does not depend on the distribution of θ_b, where in particular the expected difference $E|\theta_a - \theta_b|$ in demand shocks has no impact.

An inequity averse agent a's utility (4) depends on the expected wage inequality (1). The latter is affected by product quality and therefore by agents' effort choices. However, it also depends on the expected difference in demand shocks. If demand shocks are perfectly positively correlated and always identical in size, there cannot arise any wage inequality. Even if agents dislike wage inequality, their behavior is identical to agents who maximize expected rents. But if demand shocks differ, then $E|\theta_a - \theta_b|$ exceeds zero. If agent a dislikes wage inequality, he chooses a lower effort level to reduce expected wage inequality.

Agents' equilibrium utility levels depend on the expected product quality, and thus on the other agent's expected equilibrium effort choice. Since the equilibrium effort of inequity averse agents is negatively affected, both a selfish and an inequity averse agent a's equilibrium utility is decreasing in the expected difference in demand shocks $E|\theta_a - \theta_b|$. Yet in contrast to an inequity averse agent, a selfish agent a's equilibrium utility is not affected by wage inequality per se. Given the same expected effort levels, the equilibrium utility of an agent a is thus independent from the expected difference in demand shocks if he is selfish, whereas it is decreasing in the expected difference in demand shocks if he is inequity averse. All the above arguments equally hold for agent b.

3 Experimental Design

In this paper we want to investigate whether - due to horizontal social comparisons and an aversion to wage inequality - agents adapt their effort and participation choices in response to changes in expected wage inequality. The experiment includes two games that were played sequentially. First, subjects participated in a team production game. There were two different treatments of the team production game: with and without wage inequality. We are interested in whether wage inequality influences effort provision and participation decisions in team production settings. This question can be addressed by analyzing behavior across subjects

Table 1: Effort Levels and Effort Costs.

effort level	1	2	3	4	5	6	7	8
effort cost	0.00	1.00	3.00	6.00	9.00	13.00	17.00	22.00

in our two treatments of the team production game. Second, subjects played a risk game, which enables us to control for risk aversion in our regression analysis.[7]

Team Production Game

Our experimental design of the team production game is a version of the theoretical set-up in Section 2 with discrete effort choices. This allows us to use our lemma to formulate our hypothesis with regard to treatment differences.

Two participants form a team of two agents. Agents a and b can exert effort e_a and e_b to generate team output $v(e_a, e_b) = 40 + 10\,(e_a + e_b)$. Wages are $\theta_a\, v(e_a, e_b)$ and $\theta_b\, v(e_a, e_b)$ where θ_a, $\theta_b \in \{0.20, 0.50\}$. We did not include a third participant in the role of a principal to eliminate vertical social comparisons. Moreover, this allows us to exogenously vary the agents' contractual environment. We implemented two treatments, "Equal Wages" and "Unequal Wages," which differ in the correlation of θ_a and θ_b. In treatment "Equal Wages" there is perfect positive correlation such that with equal probability either $\theta_a = \theta_b = 0.20$ or $\theta_a = \theta_b = 0.50$. In treatment "Unequal Wages" there is perfect negative correlation such that with equal probability either $\theta_a = 0.20$ and $\theta_b = 0.50$ or $\theta_a = 0.50$ and $\theta_b = 0.20$. Hence, in treatment "Equal Wages" wages are always equal whereas in treatment "Unequal Wages" wages are always different. Importantly, an agent's expected wage is $0.35\, v(e_a, e_b)$ in both treatments. Agent a's expected monetary payoff is given by $E\,\theta_a v(e_a, e_b) - c(e_a)$. An agent's effort can be any integer between 1 and 8. Effort costs are convex and given in Table 1. The team production function is such that in both treatments a purely self-interested agent's optimal effort level is 5.00, independently of the other agent's effort choice.

In addition to the team production decision, we elicited (i) an agent's willingness to participate in the team production game, and (ii) his belief about the other agents' effort contribu-

[7] We also conducted a trust game but do not use the data in this paper.

tions in case of team production. The participation decision was elicited as follows. Instead of playing the team production game, subjects could receive a fixed income between 0 and 100 experimental points (possible incomes in the team production game lie between 4 and 78). Before subjects knew the amount of the fixed income, they had to indicate the minimal fixed income (participation cutoff) such that they would opt for the fixed income and not for the team production game. The higher the stated participation cutoff, the more a subject values entering team production. After the decision, a random draw determined in each team whose participation decision was relevant.[8] If the amount fell short of the stated amount of the relevant subject, the team production game was played and effort choices determined the payment of the subjects. If the randomly determined fixed amount was equal to or exceeded the relevant subjects's stated amount, the fixed income was paid out to both subjects and the team production game was not played. The experimental procedure thus elicits a subject's willingness to participate in the team production game in an incentive compatible way. The higher the elicited amount, the higher a subject's willingness to participate in the team production game. Finally, we elicited each subject's belief about the average effort of all other subjects for the case that teams are formed.[9] The belief was incentivized: if it matched the actual average effort (rounded to the next integer), a subject received additional 50.00 experimental points. All three decisions, the effort decision, the participation decision, and the belief were elicited simultaneously (on the same input screen).[10]

The team production game was played repeatedly for 15 rounds with changing partners (stranger treatment). In each session we used matching groups of 8 subjects. It was made clear in the instructions that only one, randomly chosen round would determine the monetary

[8] Alternatively, we could have used the rule that a team was formed whenever the random draw exceeded the stated amounts of both team members. However, this could result in confounding selection and screening issues. For example, by setting a cutoff of 35 a subject can ensure that it never forms a team with another subject that sets a cutoff of less than 35. With our specification of the team formation decision we eliminate these complications.

[9] We did not ask subjects for the effort contributions of the respective other subject in their team to reduce hedging motives. Otherwise, subjects might have reported a downward biased belief to insure themselves against the case in which the other subject chooses a low effort.

[10] All three decisions could be interrelated, where in particular the belief about the other team member's effort affects a subject's participation decision. By eliciting all decisions simultaneously, we avoided that subjects might, for example, regret their participation decision when thinking about their belief.

payoffs related to subjects' effort and participation choices, while another randomly chosen round determined the monetary payoffs related to subjects' stated beliefs.[11] Further, these payoffs would be paid at the end of the experimental session, and both rounds would be known only at the end of the session. However, feedback was given at the end of each round: first, subjects got to know whether a team was build. Second, in case of team production subjects were informed about the respective other agent's effort and about the realization of the wage lottery. Hence, at the end of each round each subject knew – for the case that the round would be chosen to be payoff relevant – his payoff and the payoff of the other subject with whom he was matched in that round. We did not provide feedback on the average effort contributions of all subjects.

Theoretical Predictions

Given this experimental design, our lemma yields the following predictions. Suppose all agents are selfish. Then agents' equilibrium effort choices and willingness to join a team do not depend on the expected difference in demand shocks $E|\theta_a - \theta_b|$. Average effort and participation choices are therefore the same in treatments "Unequal Wages" and "Equal Wages." Instead, suppose many agents suffer strongly from wage inequality. If the expected difference in demand shocks $E|\theta_a - \theta_b|$ increases, then (i) agents' average equilibrium effort choice decreases, and (ii) their average equilibrium willingness to join a team decreases. Average effort and participation choices are thus lower in treatment "Unequal Wages" than in treatment "Equal Wages." This suggests the following testable hypothesis.

Hypothesis (Wage Inequality and Team Production)**.** *Average effort choices and participation cutoffs are lower in treatment "Unequal Wages" than in treatment "Equal Wages."*

To illustrate the treatment difference that is predicted under the assumption of inequity averse agents, we have numerically computed average equilibrium effort choices and average utility from participating in the team production game for different degrees α and β of inequity aversion and for different fractions $\pi(i)$ of inequity averse agents. The numbers in Tables 2 and 3 refer to the treatment "Unequal Wages" and can be derived directly from the expressions in our lemma using the parameters of our experimental implementation of

[11] We chose different rounds for paying beliefs and effort and participation choices to further reduce subjects' hedging possibilities. See footnote 9.

Table 2: Average Equilibrium Effort Choices Unequal Wages.

	Level of Envy α					
Fraction $\pi(i)$	0.00	0.40	0.80	1.20	1.60	2.00
0.00	5.00	5.00	5.00	5.00	5.00	5.00
0.20	5.00	4.60	4.60	4.40	4.40	4.20
0.40	5.00	4.20	4.20	3.80	3.80	3.40
0.60	5.00	3.80	3.80	3.20	3.20	2.60
0.80	5.00	3.40	3.40	2.60	2.60	1.80
1.00	5.00	3.00	3.00	2.00	2.00	1.00

Average equilibrium effort choices given level of envy α and fraction of inequity averse workers $\pi(i)$ in the treatment "Unequal Wages." The level of compassion β is assumed to be zero.

the theoretical set-up. In these tables the coefficient β is set to zero, but Tables 6 and 7 in the appendix show that compassion, i.e. $\beta > 0$, only increases the predicted treatment differences. In treatment "Equal Wages" the effort level is always 5.00 and the utility from participating is always 40.00 for all values of α and $\pi(i)$. Hence, the difference between the numbers in the tables and an effort level of 5.00 or an average utility level of 40.00 is the predicted treatment difference. From the tables it can be seen that the higher the degree α of inequity aversion and the higher the fraction of inequity averse agents in the population, the lower the average effort level, the lower the average utility from participating in the team production game, and thus the larger the predicted treatment differences.[12]

Risk Game

After the team production game, we elicited a measure of subjects' risk aversion in a simplified version of Holt and Laury (2002). Subjects had the choice between a lottery that paid with equal probability either 1 or 100 experimental points or a fixed payment. The experimental procedure elicits a subject's certainty equivalent of the lottery in an incentive compatible way. The higher the elicited amount, the less risk averse the subject. The measure of risk aversion that is used in our regression analysis equals 100 minus the elicited certainty equivalent.

[12]Effort only weakly decreases, because in the experiment effort choices are discrete.

Table 3: Average Equilibrium Participation Choices Unequal Wages

	Level of Envy α					
Fraction $\pi(i)$	0.00	0.40	0.80	1.20	1.60	2.00
0.00	40.00	40.00	40.00	40.00	40.00	40.00
0.20	40.00	38.10	36.70	35.30	34.10	32.90
0.40	40.00	35.80	33.10	30.30	27.90	25.70
0.60	40.00	33.00	29.10	24.80	21.50	18.30
0.80	40.00	29.70	24.70	18.90	14.90	10.70
1.00	40.00	26.00	20.00	12.60	7.80	3.00

Average equilibrium participation choices given level of envy α and fraction of inequity averse workers $\pi(i)$ in the treatment "Unequal Wages." The level of compassion β is assumed to be zero.

Procedural Details

The experiment was computerized with the software "z-Tree" (Fischbacher, 2007). Subjects were students from the University of Munich, Germany. Economics and psychology students were not eligible to participate. 44 and 48 subjects participated in our treatments "Unequal Wages" and "Equal Wages," respectively We had two sessions for each treatment, where in three sessions all subjects turned up. In these sessions subjects were divided into matching groups of 8 subjects. Four subjects did not show up in one of the sessions. To ensure that all other matching groups have equal size, we were left with one matching group of only 4 subjects. Since the size of this matching group is rather small to exclude reputation effects, we exclude these subjects from the ensuing empirical analysis. Subjects received written instructions including comprehension questions that had to be answered correctly before the experiment began. An English translation of the instructions can be found in the appendix. Sessions lasted for about two hours. Each experimental point was converted into Euro 0.10 (about \$0.16 at the time of the experiment) at the end of the session. On average, subjects earned Euro 24.75 (about \$38.86), including a show-up fee of Euro 4.00 (about \$6.28).

4 Results

We summarize subjects' average behavior in Table 4. In both treatments effort contributions are close to 5.00, which is the equilibrium effort under the assumption that all agents are selfish. On average subjects contributed 5.17 in treatment "Equal Wages" and 4.89 in treatment "Unequal Wages." Subjects' average valuation of the team production game (participation cutoff) is equally similar in both treatments; it is 48.20 in treatment "Equal Wages" and 49.64 in treatment "Unequal Wages." Subjects contribute slightly more and are slightly more eager to join teams if wages are equal. However, the differences are very small and Wilcoxon rank sum tests show that there is no statistically significant treatment effect; the p-values are 0.27 and 0.47 for effort and participation choices, respectively.[13] Subjects' participation choices should clearly depend on their beliefs concerning the other subjects' effort contributions. The same might hold with respect to subjects' effort if some subjects are conditional cooperators, that is, they only contribute if they believe that their colleagues do the same. If average beliefs are lower in treatment "Equal Wages" then this could reduce the treatment effect. However, subjects' average belief is only slightly different: it is 4.78 in treatment "Unequal Wages" and 4.84 (that is, actually higher) in treatment "Equal Wages." A Wilcoxon rank sum test shows that the difference in beliefs is not statistically significant (p-value of 0.65).

The above results are confirmed by our regression analysis. Table 5 reports the results from random effects models that allow for unobservable individual differences in subjects' effort contributions (Effort) and participation cutoffs (Participation). In all regressions we treat observations of individuals of the same matching group as separate clusters. Thus, standard errors are based on the assumption that effort decisions and participation choices are independent across matching groups but we allow for dependent observations within matching groups.[14] This seems reasonable as subjects never interact with or receive information about subjects in other matching groups (we did not give feedback on average contributions). EqualWages is a dummy variable that takes on value one in our treatment "Equal Wages." Baseline regressions (1) and (4) regress subjects' effort contributions and participation choices on the treatment dummy. There is no significant treatment effect.

[13] Decisions of the same subjects in the team production game are not independent. Moreover, subjects within a matching group interact so that their behavior could be jointly affected by group effects. We therefore perform all non-parametric tests on the distributions of matching group averages.

[14] All our results hold if we do not cluster on matching groups.

Table 4: Summary Statistics and Non-Parametric Tests.

	Unequal Wages (average)	Equal Wages (average)	p-values[a]
Overall			
Effort	4.89	5.17	0.27
Participation Cutoff	49.64	48.20	0.47
Belief	4.78	4.84	0.65
High Beliefs			
Effort	5.29	5.65	0.04**
Participation Cutoff	50.50	50.01	0.47
Low Beliefs			
Effort	4.13	4.04	0.47
Participation Cutoff	47.99	43.94	0.36

[a] p-values from a Wilcoxon rank sum test based on the distribution of matching group averages. In the subsamples High or Low Beliefs, we compare matching group averages based on observations with beliefs above or below the overall average belief. The number of matching groups and thus the number of observations is in all cases $N = 11$. Significance at the 1%, 5%, and 10% level is denoted by ***, **, and *, respectively.

A subject's participation cutoff should clearly be higher, i.e. participation is more attractive, the higher the expectation of the effort of the other team members. It should however decrease in the subjects' risk aversion: setting a lower participation cutoff increases the probability of getting a fixed wage and thus helps to avoid the risk with respect to wage fluctuations caused by the team partner's unknown effort choice and the stochastic shocks. We find both conjectures supported by the data. Regression (5) in Table 5 shows a coefficient of 1.46 with p-value of 0.03 and a coefficient of 0.26 with p-value of 0.00 for Belief and Risk Aversion, respectively. The treatment effect remains to be statistically insignificant.

Overall, our data cannot reject the null-hypothesis that expected wage inequality has no impact on subjects' behavior in the team production game.

Table 5: Effort and Participation Choices in Production Phase.

	(1)	(2)	(3)	(4)	(5)
	Effort	Effort	Effort	Participation	Participation
EqualWages	0.28	0.25	-0.61	-1.44	-0.87
	(0.25)	(0.10)	(0.44)	(0.56)	(0.73)
Belief		0.60***	0.50***		1.46**
		(0.00)	(0.00)		(0.03)
Belief×EqualWages			0.18		
			(0.23)		
Risk Aversion					-0.26***
					(0.00)
Constant	4.89***	2.04***	2.48***	49.64***	29.26***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
R^2(within)	0.00	0.16	0.16	0.00	0.01
R^2(between)	0.02	0.39	0.39	0.01	0.22
R^2(overall)	0.01	0.24	0.25	0.00	0.10

Random effects model with clustering on matching groups. Number of observations N=1320. p-values in parentheses. Significance at the 1%, 5%, and 10% level is denoted by ***, **, and *, respectively.

Conditional Cooperation

There is strong empirical evidence for the existence of conditional cooperators (Fischbacher, Gächter, and Fehr 2001; Gächter and Thöni 2005). In a team production setting, a team member benefits from the effort contribution of other team members. Conditional cooperators should then exert the more effort, the more they expect other team members to exert effort. Regression (2) in Table 5 confirms the importance of conditional cooperation: there is a highly significant positive relationship between effort contributions and beliefs (coefficient of 0.60 with p-value of 0.00). Recall that in our setting, the profit maximizing effort choice of a purely self-interested agent does not depend on the other team member's effort.

We next computed average effort levels and participation cutoffs for every matching group, this time only considering observations with beliefs above or below the total sample's average belief of 4.81. We report these averages in Table 4. For low beliefs, effort levels and partic-

ipation cutoffs are very similar in both treatments and the differences are not statistically significant (p-values of 0.47 and 0.36). For high beliefs, there is no treatment effect on participation cutoffs (p-value of 0.47). However, effort levels in the treatment "Equal Wages" are significantly higher than in the treatment "Unequal Wages" (p-value of 0.04). If the relationship between belief and effort contributions is a sign of conditional cooperation, this suggests that for subjects with above average beliefs, wage inequality might reduce conditional cooperation. We analyze such an interaction effect between beliefs and the treatment dummy in regression (3) in Table 5. The interaction variable Belief×EqualWages has no statistically significant effect on effort levels (p-value of 0.23), suggesting that there is at least no linear effect of the treatment variation on conditional cooperation.[15] To summarize, we find some evidence that wage inequality might harm conditional cooperation, but our evidence is too weak to be conclusive. Further evidence is needed to explore these potential, more subtle adverse effects of wage inequality on worker behavior.

5 Conclusion

In this paper we report on a laboratory experiment that investigates the impact of wage inequality on participation and effort decisions in team production. The data suggest that wage inequality has no significant behavioral effects. These results are in line with recent laboratory experiments that call the importance of horizontal social comparisons in labor relationships into question.

In particular, Charness and Kuhn (2007) study a gift-exchange setting with one principal and two agents whose productivites differ. They find that effort is highly sensitive to own wages but detect little or no response of effort to co-worker wages. Their experimental design, however, has three features that might attenuate horizontal social comparisons. First, the existence of a subject in the role of a principal induces vertical comparisons. These might overshadow horizontal social comparisons. Second, while an agent is in a direct exchange relation with the principal, there is no interaction among the agents. It is thus not clear

[15] Moreover, stated beliefs are endogenous so that it is not clear whether there exists a causal relationship from beliefs to effort contributions. Individuals might not have a good idea what other individuals contribute. Their best guess might then be their own effort contribution. Further, individuals might express the belief that others do not contribute more than they do to justify their own effort contributions.

why the agents should compare themselves to each other. Third, the agents differ in their productivites, which might justify wage differences. Our experimental design addresses these concerns. First, we have no subjects acting as principals who are setting wages. Vertical fairness concerns thus cannot overshadow horizontal social comparisons. Second, in our experiment workers jointly produce output, which should induce participants to see the other team member as a salient point of comparison. Third, team members are ex-ante identical, i.e. no productivity difference might justify unequal wage payments. Despite the elimination of the features that might dampen the effects of horizontal social comparisons, our results support Charness and Kuhn's finding that wage inequality does not have an adverse effect on effort choices. Moreover, we also included a participation decision in our experimental design. Even if effort choices do not decline in reaction to wage inequality, subjects might still find it less attractive to join a team that is characterized by wage inequality. We again fail to find such a pattern in the data.

Human resource managers believe that workers' perceptions of fairness affect productivity (Bewley 1999). Why do our results not confirm this belief? One explanation is that wage inequality does not have an adverse effect on worker morale (as suggested by the experimental evidence) and that the frequent reference to fairness norms is an attempt to strengthen workers' position in union wage bargaining. For example, Kole and Lehn (2000) describe wage bargaining in the wake of the merger of two firms in the oil industry. Referring to fairness norms, employees of the firm that paid lower wages prior to the merger negotiated a substantial pay increase. While the increased wage costs severely reduced the profitability of the merger, it remains unproven that an adverse reaction on worker morale had occurred had the management not given in to the wage adjustment.

Another explanation for the absence of an effect of wage inequality on worker morale is that our experimental setting does not display the relevant inequality. In our production environment, each subject had the same chance of getting the high or the low wage, i.e. team members were ex-ante identical. If subjects only dislike ex-ante but do not care about ex-post wage inequality, social comparisons would have no effect in our treatment with unequal wages.

Finally, the experimental design might simply have failed to establish the respective other team member as a relevant reference point. In real live work environments, social interactions are often on a long-term basis and they are certainly much more intense compared to anonymous laboratory interactions. Indeed, some labor market field experiments - maybe because they are more capable of establishing a natural work environment - do find effects of wage inequality on worker behavior.[16] In sum, our results suggest that more research is needed to consolidate our understanding of the effects of horizontal social comparisons on worker behavior in labor relationships.

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[16] See Cohn, Fehr, and Schneider (2010) and the papers cited therein.

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Appendix (Tables)

Table 6: Average Equilibrium Effort Choices Unequal Wages.

	Level of Envy α					
Fraction $\pi(i)$	0.00	0.40	0.80	1.20	1.60	2.00
0.00	5.00	5.00	5.00	5.00	5.00	5.00
0.20	5.00	4.60	4.40	4.20	4.20	4.20
0.40	5.00	4.20	3.80	3.40	3.40	3.40
0.60	5.00	3.80	3.20	2.60	2.60	2.60
0.80	5.00	3.40	2.60	1.80	1.80	1.80
1.00	5.00	3.00	2.00	1.00	1.00	1.00

Average equilibrium effort choices given level of envy α and fraction of inequity averse workers $\pi(i)$ in the treatment "Unequal Wages." The level of compassion β is assumed to be zero for all α smaller than 0.80; β is assumed to be 0.50 for all larger values of α.

Table 7: Average Equilibrium Participation Choices Unequal Wages.

	Level of Envy α					
Fraction $\pi(i)$	0.00	0.40	0.80	1.20	1.60	2.00
0.00	40.00	40.00	40.00	40.00	40.00	40.00
0.20	40.00	38.10	35.00	33.70	32.60	31.50
0.40	40.00	35.80	29.70	27.20	25.20	23.20
0.60	40.00	33.00	24.00	20.30	17.60	14.90
0.80	40.00	29.70	17.90	13.20	9.90	6.60
1.00	40.00	26.00	11.40	5.70	2.10	-1.50

Average equilibrium participation choices given level of envy α and fraction of inequity averse workers $\pi(i)$ in the treatment "Unequal Wages." The level of compassion β is assumed to be zero for all α smaller than 0.80; β is assumed to be 0.50 for all larger values of α.

Appendix II (Instructions)

Welcome to Our Laboratory and
Thank You Very Much for Your Participation!

From now on please do not communicate with the other participants

General Procedure

Today we would like to conduct three different experiments. In these experiments, economic decision making is studied. You can earn money by participating. Your earnings will be paid out to you in cash at the end of the experiments.

You will get separate instructions for each of the three experiments. You already hold the instructions for the first experiment in your hands. We will distribute the instructions for the two other experiments later (both are significantly shorter). The three experiments are independent. Your decisions in one experiment thus do not have any consequences in the other experiments.

Whenever you have a question, please raise your hand. One of the experimenters will then come to your place to answer your questions.

During the experiments, you and the other participants are asked to make decisions. Both your decisions and the decisions of the other participants determine your earnings according to the rules as explained below.

The experiments last roughly two hours. For simplicity we only use male terms in the instructions.

Earnings

In the experiments we do not talk about Euro but experimental points (EP). At the end of each experiment these experimental points are exchanged into Euro. The exchange rate is

10 Experimental Points = 1 €

Your total earnings are the sum of your payments in all three experiments. In addition you will get a show-up fee of 4 € that is independent of your decisions.

Anonymity

During the experiments you will never receive any information concerning the identity or the earnings of the other participants, and the other way around. We analyze only the aggregate data from the experiment and never connect your name to the data. At the end of the experiment you have to sign a receipt certifying that you have received your earnings. This is necessary for our internal accounting.

Technical aids: At your desk you will find a pen. Please leave this pen on your desk after the experiment.

Experiment 1

Rounds

The experiment consists of 15 rounds. In each new round you will be randomly and anonymously matched to another participant (in the following called team colleague).

Overview over your decisions in each round

In each round you can earn experimental points. How many experimental points you get depends on your decisions and possibly also on the decisions of your team colleague. Chance also plays a role.

In each round you and your team colleague make three decisions:

1. Both of you decide whether you prefer a **fixed number of experimental points as wage** or whether both of you want to form a **production team**. In a production team you can earn experimental points.
2. For the case that a production team is formed, both decide how much **effort** they want to contribute. Contributing effort is costly but also generates some joint team output. The higher the team output, the more experimental points you will earn as a **wage**.
3. Both of you make a guess about the average effort that all other participants in the experiment contribute to their production teams for the cases in which these production teams are formed.

Your decisions in detail

In the following we explain in detail all three decisions and their consequences for the number of experimental points that you can earn in the course of the experiment.

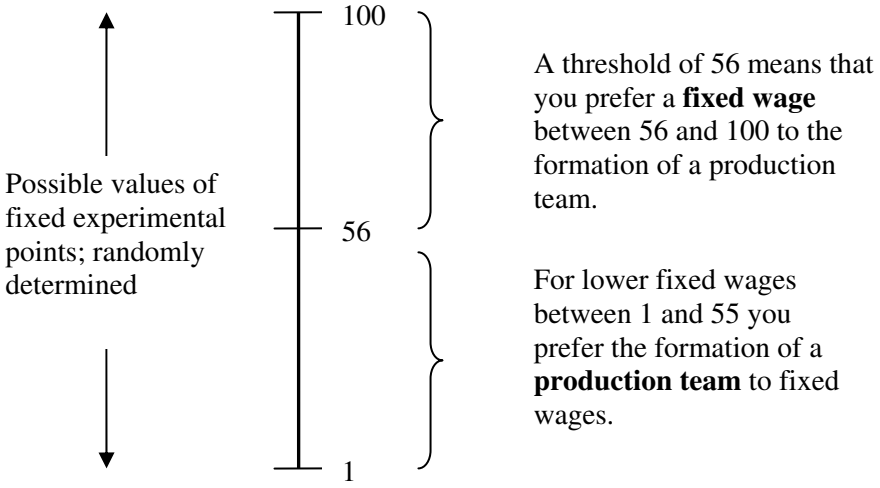
1. Your Team Formation Decision

In each round you get either a fixed number of experimental points as wage, or you and your team colleague form a production team. The exact number of experimental points that you can earn in a production team depends on your effort and the effort of your team colleague. Later you will learn more about the effort choices and the connected wages.

In each round you and your team colleague must decide whether you want to form a production team, or whether you prefer a fixed number of experimental points as wage. You can condition this decision on the value of the fixed wage. This is explained in the following.

The fixed wage can be between 1 and 100 and is determined anew in each round by a random draw. Each value is equally likely. Before you learn the fixed wage for a given round, you have to decide for which

values of the fixed experimental points you want to form a team, and for which values you prefer the fixed points as wage. To this end you must decide, how many fixed experimental points you have to get at least so that you prefer the fixed number of experimental points over the formation of a production team. **Your threshold value must be between 1 and 100.** A threshold of 56, for example, means that you prefer any fixed wage between 56 and 100 to the formation of a production team, and that for fixed wages between 1 and 55 you prefer to form a team. The following graphic illustrates this:



When you think about your threshold, you should ask yourself the following:

Would I prefer a fixed wage of 100 to the formation of a production team?

If yes, you should ask yourself:

Would I prefer a fixed wage of 99 to the formation of a production team?

If yes, you should ask yourself:

Would I prefer a fixed wage of 98 to the formation of a production team?

And so on.

You continue until you get to a fixed wage at which you just prefer the fixed wage. In the (arbitrary) example above this value is 56. This means that at a value of 56 you just prefer the fixed wage to the formation of a production team, but for a lower fixed wage of 55 (and all values below) you prefer the formation of a production team.

We ask you to determine the value at which you just prefer the fixed wage to the formation of a production team.

Please enter this threshold value at the place marked with an arrow on the following computer screen:

[SCREEN SHOWN]

Only after you made your decision you will learn the realization of the fixed wage for this round. If the realized value is below your threshold, then you opt for the formation of the production team. If the realized fixed wage is above (or equal to) your threshold, then you opt for getting the fixed number of experimental points.

Whether or not a production team is formed depends either on your threshold or on the threshold of your team colleague. Whose decision is relevant is randomly determined in each round. The important point is that your decision about the threshold can be relevant for determining whether a production team is formed or not. You should thus think carefully about your decision in each round.

An example: Your threshold is 20. By a random draw the fixed wage is determined to be 25. In addition it is determined by a random draw that your decision (and not the decision of your team colleague) is relevant for the formation of the production team.
A threshold of 20 means, that you prefer the fixed wage to the formation of the production team for values of at least 20. Since the realized fixed wage is 25, the realized fixed wage is above the threshold from which onwards you prefer the fixed wage to the formation of a production team. In this round, you and your team colleague thus both receive a fixed wage of 25 and no production team is formed. In case you had set a threshold of 30, then for a realized fixed wage 25 you had argued for the formation of a production team because only for a fixed value of 30 and above you would have preferred the fixed wage. Thus, a production team would have been formed. The number of experimental points you can get as wage then depends on the production decision which is explained below.

2. Production decision

Before you learn whether in a given round a production team is formed or not, you have to decide on how much effort to contribute to the production of the joint team output for the case that a production team is formed. Equally, your team colleague must determine his effort. When you determine your effort, you do not know which effort is chosen by your team colleague. Equally, your team colleague does not know which effort is chosen by you.

You and your team colleague can choose an effort between 1 and 8. Effort is costly. The higher is your effort, the higher are the costs. The costs are illustrated in the following table. For example, an effort of 4 causes costs of 6 experimental points, and an effort of 8 causes costs of 22 experimental points. The same table is relevant for your team colleague.

Effort	1	2	3	4	5	6	7	8
Effort Costs in Experimental Points	0	1	3	6	9	13	17	22

The joint team output and thus your wage and the wage of your team colleague are the higher, the higher your effort and the effort of your team colleague. However, chance also determines the exact wages. The relationship between the effort choices and the wages you can find in the tables on the separate yellow papers that have already been handed out to you. There you can also see the influence of chance. With a probability of 50% wage table 1 is relevant, and with a probability of 50% wage table 2 is relevant.

You will learn only at the end of the round and thus after your effort choice which table has been randomly selected. You will also learn the effort choice of your colleague only at the end of the round.
[TEREATMENT VARIATION: DIFFERENT TABLES ARE SHOWN. SEE BELOW]

[IN TREATMENT EQUAL WAGES:]
An example: You choose an effort of 3, and your colleague chooses an effort of 4. If wage table 1 is relevant, then you and your team colleague both receive a wage of 22 experimental points. If wage table 2 is relevant, then you and your team colleague both receive a wage of 55 experimental points.

[IN TREATMENT UNEQUAL WAGES:]
An example: You choose an effort of 3, and your colleague chooses an effort of 4. If wage table 1 is relevant, then you receive a wage of 22 experimental points and your team colleague receives a wage of 55 experimental points. If wage table 2 is relevant, then you receive a wage of 55 experimental points and your team colleague receives a wage of 22 experimental points.

Please enter your effort choice – for the case that a team is formed – in the below computer screen. The arrow shows where you have to enter your decision.

[SCREEN SHOWN]

If a production team is formed, your decision will be relevant. You should thus carefully think about your decision.

3. Your Guess

You can earn extra experimental points if you **guess the average effort choice of all participants (not only your team colleague) in the current round correctly.** You have to make your guess before get to know how much you team colleague contributed to team production.

Please enter your guess in the below computer screen. The arrow shows where you have to enter your guess.

[SCREEN SHOWN]

By clicking the OK-button you confirm your threshold, your effort choice, and your guess simultaneously.

Earnings in Experiment 1

The decisions as explained above will be repeated in the 15 rounds, each time with a new and randomly matched other participant of this experiment. At the end of each round you will receive feedback. **At the end of the experiment the computer will randomly determine 2 of the 15 Rounds.** These two rounds will determine your and your team colleague's earnings.

The first randomly determined round determines your earnings from team production. There are two cases that can occur. If no team was formed in that round, you and your team colleague receive the fixed wage that applies to that round. If a team was formed, then your and your team colleague's effort choices determine your wages. In addition, for your wages it is important which table was randomly selected. Your earnings in experimental points are your wage minus you effort costs.

To summarize, for you and your team colleague the following holds:

Earnings in experimental points in case no team is formed:
Realized fixed wage

Earnings in experimental points in case a team is formed:
Own wage – own effort costs

Since you do not know which of the 15 rounds will be randomly selected at the end of the experiment, you should think carefully about your team formation and your production decision in each round.

The second randomly determined round determines the earnings that you can make by guessing correctly the average effort choices of all participants. Your guess will be compared to the actual average effort (rounded to the next integer). If your guess corresponds to this value, you receive 50 experimental points. To summarize:

Earnings from your guess of the average effort of all other participants:
If your guess is correct: 50 experimental points
If your guess is not correct: 0 experimental points

Since you do not know which of the 15 rounds will be randomly selected at the end of the experiment, you should carefully guess in each round.

Total earnings in experiment 1 are the sum of the earnings from both selected rounds. Your will get to know your earnings at the end of today's experimental session.

Please raise your hand if you have any questions. We will come to your place to assist you.

On the next pages we ask you to answer a number of **questions**. Your answers have no impact on your earnings in this experiment. They are only meant to ensure the understanding of the instructions.

Please raise your hand if you have answered all questions. We will come to your place to check your answers. At that point you have another opportunity to ask any question that you may have.

Questions

When answering the questions, assume that the respective round was randomly determined to be relevant for your earnings.

Question 1

Your threshold value is 65 while your team colleague's threshold value is 17. In case a production team is formed, your effort choice is 7 while your colleague's effort choice is 6. A fixed wage of 23 is randomly determined. Also, the computer determines that your colleague's threshold value is relevant. Finally, in case a team is formed, table 2 will be relevant.

What is your wage in case a team is formed? What is your colleague's wage in case a team is formed? Does a team get formed? What are your earnings?

Question 2

Your threshold value is 43 while your team colleague's threshold value is 28. In case a production team is formed, your effort choice is 5 while your colleague's effort choice is 7. A fixed wage of 33 is randomly determined. Also, the computer determines that your threshold value is relevant. Finally, in case a team is formed, table 2 will be relevant.

What is your wage in case a team is formed? What is your colleague's wage in case a team is formed? Does a team get formed? What are your earnings?

Question 3

Your threshold value is 33 while your team colleague's threshold value is 23. In case a production team is formed, your effort choice is 2 while your colleague's effort choice is 3. A fixed wage of 30 is randomly determined. Also, the computer determines that your threshold value is relevant. Finally, in case a team is formed, table 1 will be relevant.

What is your wage in case a team is formed? What is your colleague's wage in case a team is formed? Does a team get formed? What are your earnings?

Question 4

Your guess about the (rounded) average effort of all participants is 4. The true value is 6.

What are your earnings?

Question 5

Your guess about the (rounded) average effort of all participants is 5. The true value is 5.

What are your earnings?

[TABLES IN TREATMENT EQUAL WAGES]

Wage Table 1

Your effort choice	Effort choice of your team colleague								
	1	2	3	4	5	6	7	8	
1	**12**	**14**	**16**	**18**	**20**	**22**	**24**	**26**	◀ **Your wage**
	12	14	16	18	20	22	24	26	◀ Wage of your colleague
2	**14**	**16**	**18**	**20**	**22**	**24**	**26**	**28**	◀ **Your wage**
	14	16	18	20	22	24	26	28	◀ Wage of your colleague
3	**16**	**18**	**20**	**22**	**24**	**26**	**28**	**30**	◀ **Your wage**
	16	18	20	22	24	26	28	30	◀ Wage of your colleague
4	**18**	**20**	**22**	**24**	**26**	**28**	**30**	**32**	◀ **Your wage**
	18	20	22	24	26	28	30	32	◀ Wage of your colleague
5	**20**	**22**	**24**	**26**	**28**	**30**	**32**	**34**	◀ **Your wage**
	20	22	24	26	28	30	32	34	◀ Wage of your colleague
6	**22**	**24**	**26**	**28**	**30**	**32**	**34**	**36**	◀ **Your wage**
	22	24	26	28	30	32	34	36	◀ Wage of your colleague
7	**24**	**26**	**28**	**30**	**32**	**34**	**36**	**38**	◀ **Your wage**
	24	26	28	30	32	34	36	38	◀ Wage of your colleague
8	**26**	**28**	**30**	**32**	**34**	**36**	**38**	**40**	◀ **Your wage**
	26	28	30	32	34	36	38	40	◀ Wage of your colleague

Wage Table 2

Your effort choice	Effort choice of your team colleague								
	1	2	3	4	5	6	7	8	
1	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	◀ **Your wage**
	30	35	40	45	50	55	60	65	◀ Wage of your colleague
2	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	◀ **Your wage**
	35	40	45	50	55	60	65	70	◀ Wage of your colleague
3	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	◀ **Your wage**
	40	45	50	55	60	65	70	75	◀ Wage of your colleague
4	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**	◀ **Your wage**
	45	50	55	60	65	70	75	80	◀ Wage of your colleague
5	**50**	**55**	**60**	**65**	**70**	**75**	**80**	**85**	◀ **Your wage**
	50	55	60	65	70	75	80	85	◀ Wage of your colleague
6	**55**	**60**	**65**	**70**	**75**	**80**	**85**	**90**	◀ **Your wage**
	55	60	65	70	75	80	85	90	◀ Wage of your colleague
7	**60**	**65**	**70**	**75**	**80**	**85**	**90**	**95**	◀ **Your wage**
	60	65	70	75	80	85	90	95	◀ Wage of your colleague
8	**65**	**70**	**75**	**80**	**85**	**90**	**95**	**100**	◀ **Your wage**
	65	70	75	80	85	90	95	100	◀ Wage of your colleague

[TABLES IN TREATMENT UNEQUAL WAGES]

Wage Table 1

Your effort choice	Effort choice of your team colleague								
	1	2	3	4	5	6	7	8	
1	**12**	**14**	**16**	**18**	**20**	**22**	**24**	**26**	◀ **Your wage**
	30	35	40	45	50	55	60	65	◀ Wage of your colleague
2	**14**	**16**	**18**	**20**	**22**	**24**	**26**	**28**	◀ **Your wage**
	35	40	45	50	55	60	65	70	◀ Wage of your colleague
3	**16**	**18**	**20**	**22**	**24**	**26**	**28**	**30**	◀ **Your wage**
	40	45	50	55	60	65	70	75	◀ Wage of your colleague
4	**18**	**20**	**22**	**24**	**26**	**28**	**30**	**32**	◀ **Your wage**
	45	50	55	60	65	70	75	80	◀ Wage of your colleague
5	**20**	**22**	**24**	**26**	**28**	**30**	**32**	**34**	◀ **Your wage**
	50	55	60	65	70	75	80	85	◀ Wage of your colleague
6	**22**	**24**	**26**	**28**	**30**	**32**	**34**	**36**	◀ **Your wage**
	55	60	65	70	75	80	85	90	◀ Wage of your colleague
7	**24**	**26**	**28**	**30**	**32**	**34**	**36**	**38**	◀ **Your wage**
	60	65	70	75	80	85	90	95	◀ Wage of your colleague
8	**26**	**28**	**30**	**32**	**34**	**36**	**38**	**40**	◀ **Your wage**
	65	70	75	80	85	90	95	100	◀ Wage of your colleague

Wage Table 2

Your effort choice	Effort choice of your team colleague								
	1	2	3	4	5	6	7	8	
1	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	◀ **Your wage**
	12	14	16	18	20	22	24	26	◀ Wage of your colleague
2	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	◀ **Your wage**
	14	16	18	20	22	24	26	28	◀ Wage of your colleague
3	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	◀ **Your wage**
	16	18	20	22	24	26	28	30	◀ Wage of your colleague
4	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**	◀ **Your wage**
	18	20	22	24	26	28	30	32	◀ Wage of your colleague
5	**50**	**55**	**60**	**65**	**70**	**75**	**80**	**85**	◀ **Your wage**
	20	22	24	26	28	30	32	34	◀ Wage of your colleague
6	**55**	**60**	**65**	**70**	**75**	**80**	**85**	**90**	◀ **Your wage**
	22	24	26	28	30	32	34	36	◀ Wage of your colleague
7	**60**	**65**	**70**	**75**	**80**	**85**	**90**	**95**	◀ **Your wage**
	24	26	28	30	32	34	36	38	◀ Wage of your colleague
8	**65**	**70**	**75**	**80**	**85**	**90**	**95**	**100**	◀ **Your wage**
	26	28	30	32	34	36	38	40	◀ Wage of your colleague