IAAEU Discussion Paper Series in Economics
No. 07/2014

Workers' Participation in Wage Setting and Opportunistic Behavior: Evidence from a Gift-Exchange Experiment

Jörg Franke, Ruslan Gurtoviy, Vanessa Mertins

March 2014

Workers' Participation in Wage Setting and Opportunistic Behavior: Evidence from a Gift-Exchange Experiment*

Jörg Franke   Ruslan Gurtoviy   Vanessa Mertins
(TU Dortmund)   (Deloitte Consulting)   (IAAEU Trier)

Abstract

Our study analyzes the consequences of workers' participation in the wage setting process on effort exertion. The experimental design is based on a modified gift-exchange game where the degree of workers' involvement in the wage setting process is systematically varied among the workers. The experimental data reveals that workers' participation leads actually to a decline in effort exertion which can be explained by negative reciprocity of the respective worker. These results put some recently observed positive effects from workers' participation in experimental labor markets into perspective and are more in line with the ambiguous results from empirical studies.

Keywords: Participation, labor market, gift-exchange game, personnel economics, reciprocity.

JEL classification: C72; C91; J33; L23; M52; M55

* *Corresponding Author*: Jörg Franke, University of Dortmund (TU), Department of Economics, Vogelpothsweg 87, 44227 Dortmund, Germany

E-mail: joerg.franke@tu-dortmund.de, rgurtovoy@yahoo.com, mertins@iaaeu.de

1.   Introduction

Formal and informal institutions of workers' participation and co-determination in the management of firms are widespread and, in some countries like Germany, Belgium, and the Netherlands, even mandatory for large firms. Indeed, 60 per cent of workers in the European Union (excluding UK) are covered by collective bargaining agreements that are conducted by workers councils and/or trade unions with the respective firm or employer associations. One of the main arguments in favor of workers' participation is that the involvement of workers in managerial decision processes fosters their identification with the firm's objectives, which should finally result in increased labor performance and higher productivity. Empirical studies that try to explicitly validate this hypothesis, however, produce rather mixed results; see Addison et al. (2004) and Mueller (2011) for surveys of the respective literature. As most of these empirical studies are based on panel and cross-sectional data with different degrees of representativeness, they also face the typical problems of empirical work in contexts where the implementation of randomized treatments is not feasible, for instance, confounding effects from unobserved heterogeneity, or reverse causality.

Recently, the experimental approach has been applied to avoid these shortcomings and to address the consequences of increased worker participation in controlled laboratory situations; see Mellizo et al. (2011) and Charness et al. (2012). In both studies, subjects in the worker role were assigned substantial influence in the decision making process about the relevant work compensation. While the first study used a real effort experiment where participants vote on the respective compensation scheme among a restricted set of potential options, the second study was based on the gift-exchange game, which is the standard game in experimental labor economics; see Fehr el al. (1993 and 1998) and Charness (2004). The crucial design feature of Charness et al. (2012) was a delegation treatment, where the decision about wages was completely delegated to the respective workers. Total authority of the worker in setting her own wage in the gift-exchange game should thereby reflect the wage decision processes in

some highly successful enterprises like the Brazilian Semco SA whose organizational structures rather resemble labor co-operatives based on workers' self-management. Although both studies differ in the experimental design, the observed incentive effects from workers' participation in the managerial decision making process were very similar: Performance (in the sense of effort exertion) increased in the participation treatment, which even implied pareto-improvements in the Charness et al. (2012) framework. The latter finding, however, could not be confirmed outside the laboratory: Although Jeworrek and Mertins (2014) found in a natural field experiment that workers who were allowed to choose their own wage exerted significantly more effort than a control group, the performance increase was much smaller than the self-determined wage increase.

Our study complements this literature by granting workers a more limited degree of participatory influence in the wage setting process. The fact that, in our experiment, workers do not have total autonomy in setting their wages, should reflect in a more appropriate way the type of co-determination that is actually observed in the real world, where institutions of collective bargaining based on union or worker delegates are common (in contrast to labor-owned firms or labor cooperatives). Hence, in our version of the gift-exchange game, we allow a representative worker to choose from a menu of two alternative labor contract options that are ex-ante specified by the employer. The main objective of our study is then to analyze the robustness of the previously observed performance-enhancing effects with respect to this limited (but also more natural) institution of workers' involvement in an experimental framework.

Our experimental design relies on a modified gift-exchange game where each firm is matched simultaneously with three workers, as in Gächter and Thöni (2010), Charness and Kuhn (2007), and Kocher et al. (2012). The distinctive design feature of our approach is that all workers matched to a specific firm face exactly the same contract which has been chosen ex-ante by one (the representative) of the workers. Contrary to previous multi-player gift-exchange games, we exclude the possibility of

'horizontal' comparisons among employees: Workers are not informed about co-workers' performance and payoff. Furthermore, employers are paid only one (out of three) work relations, thus the game is a standard bilateral gift-exchange game from a game-theoretic point of view. This also implies that payoff-relevant characteristics are identical for all three workers, which in turn allows us to identify the incentive effects of participation in the contract decision process without having confounding effects from potential differences in monetary payoffs. Hence, systematic differences in behavior between the three workers can be traced back to the respective treatment differences that only vary the degree of participation and the provided information on the details of the wage setting process.

The analysis of our experimental data reveals that incentive effects of participation in the wage setting process are (surprisingly) rather negative: A worker who participates in the decision about the final work contract (the *participation* treatment) exerts on average significantly less effort than workers who neither participate in the wage setting process nor are informed about the details of the two alternative contract options (the *control* group). Hence, in our case there is no direct link between increased workers' participation and improved firm performance.

A more detailed analysis of behavioral reactions yields three additional observations of interest: Firstly, initially existing differences in effort exertion among the workers fade out in later rounds of the experiment. Secondly, differences in the degree of information with respect to the details of the contract alternatives do not affect effort exertion to a large extent. Thirdly, the wage-effort gradient (which measures the responsiveness of workers with respect to proposed wage offers by the firm) of workers in the participation treatment is higher than for workers who do not participate in the wage setting process. The last observation is important because it suggests that reciprocity plays a major role in explaining the aforementioned differences in behavior (in contrast to Charness et al. 2012). Moreover, it suggests that specifically negative reciprocity is an important driver for the comparatively low effort levels observed from

workers in the participation treatment, because those workers react more negatively to lower wage offers than other workers. We find evidence for both explanations in the regression analysis.

The rest of the paper is structured as follows: In Section 2 the experimental design is explained. The experimental results are presented and discussed in Section 3, while Section 4 concludes. An Appendix contains additional material and the experimental instructions.

2. Experimental Design

Our experimental design is based on a modified version of the standard bilateral gift-exchange game as it was introduced in the context of incomplete labor contracts by, for instance, Fehr et al. (1993 and 1998), Hannan et al. (2002), and Charness (2004). The novel element in our version is the variation of the contract setting procedures, which is discussed in detail in the subsequent paragraphs. Besides the contract setting stage, the underlying gift-exchange game follows the standard protocols as introduced in the aforementioned papers: A labor contract v consists of a fixed wage $w \in [20,120]$ (limited to integers) and a 'desired' effort level $\hat{e} \in [0.1,1]$ (limited to decimals), that are both specified by the respective firm. Effort $\hat{e}$ is called 'desired' because it is non-binding for the worker. In the second stage and after the final contract $v = (w, \hat{e})$ has been specified, workers can react to the final contract v by exerting costly effort $e \in \{0.1,1\}$ (limited to decimals). The combination of wage and exerted effort determines outcomes and monetary payoffs for each pair of participants. Workers receive the fixed wage w, pay fixed costs of 20 and face a disutility of effort exertion according to the following cost function $c(e)$:

Table 1: Cost of Effort

Effort e:	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Cost $c(e)$:	0	1	2	4	6	8	10	12	15	18

Hence, the monetary payoff function of a worker is given by:

$$\pi_L = w - c(e) - 20.$$

Firms benefit from exerted effort of the workers but have to pay the fixed wage:

$$\pi_F = (120 - w)e.$$

These functional forms for workers and firms are standard and applied, for instance, in the seminal contributions of Fehr and Falk (1999), Fehr et al. (1998), and Charness (2004).[1] Both payoff functions and the cost function are common knowledge for all participants.

The Contract Setting Procedures

Workers' participation in managerial decision making is implemented through different procedures in the contract setting stage. Our objective is to vary the degree of workers' participation (and thus their influence) on the finally implemented labor contract while keeping the material incentives identical among all workers that are matched to the same firm. This is achieved by the following set-up: Each firm faces simultaneously three workers of distinctive types A, B, and C. Firms are asked to specify two alternative work contracts: $v_1 = (w_1, \hat{e}_1)$ and $v_2 = (w_2, \hat{e}_2)$, where $w_1 \neq w_2$ and $\hat{e}_1 \neq \hat{e}_2$. The three types of workers vary in their degree of participation/information in the contract setting procedure in the following way:

- Worker of Type A (the representative) is informed about the contract alternatives v_1 and v_2, and decides which of those will be implemented. The chosen contract is denoted by $v \in \{v_1, v_2\}$ which is valid for all three workers facing the same firm.

---

[1] These specifications ensure that profits are non-negative and that more effort leads to greater joint income, so that higher levels of effort are encouraged from the standpoint of social welfare. Hence, a proposed work contract $v = (w, \hat{e})$ can be interpreted as a proposal of the firm to the worker about how to share the produced surplus.

- Worker of Type B is informed about the contract alternatives v_1 and v_2, and about the fact that the implemented contract v has been chosen by worker A.

- Worker of Type C is informed about the finally implemented contract v. She remains ignorant with respect to the details of the two alternatives v_1 and v_2.

The different degrees of involvement (participation and revealed information) in the contract setting are presented in Table 2, which is common information for all participants.

Table 2: Participation, Information, and Control

	Participation	Information	Control
Type A	x	x	
Type B		x	
Type C			x

The crucial point in this set-up is the fact that the only difference between workers of Types A, B, and C (who are matched to the same firm) is the degree of participation and information in the contract setting procedure. All other parameters of relevance, especially the payoff-relevant contract details, are the same among the three workers because the final contract is identical for all workers who are matched to the same firm in a given round.[2] Hence, systematic differences in behavior in terms of effort exertion between the three types can be traced back to differences in the contract setting procedure in the following sense: Comparing effort of worker Type A with Type B will reveal the behavioral reactions induced by participation in the contract setting process, while the comparison between Type B and C will reveal behavioral reactions to the fact whether or not a worker is informed about work contract details. In this way our design

---

[2] This feature also implies that theories based on payoff-relevant characteristics, for instance, standard game theoretical approaches based on own payoff-maximization or distribution-dependent theories like Bolton and Ockenfels (2000) or Fehr and Schmidt (2000), would not predict systematic differences in behavior between the three types of workers that are matched to the same firm.

allows us to identify the consequences from participation and information in the contract setting process based on the behavioral responses to the different treatments.

A natural hypothesis with respect to expected differences in behavior would suggest that participation enhances performance in the sense that workers of Type A, who have a say in the contract setting process, exert more effort than workers of Type B who do not participate, or Type C, who neither participate nor are informed about the details of the contract options. This hypothesis could be justified based on different psychological arguments, for instance, because subjects honor procedurally fair procedures, because they react more 'pro-socially' if they have greater responsibility for the joint outcome or autonomy in general, or because they identify more with the firms' objectives after they participated in wage setting.[3] However, our analysis will reveal that this hypothesis does generally not hold in our context (there is rather evidence for a decline in effort exertion) and that information plays no major role in driving behavioral differences between treatments

Conducting the Experiment

The experiment was conducted in the laboratory of the University of Trier (TrEx). Subjects were 188 students from various fields recruited by ORSEE, see Greiner (2003). The experiment was computerized using the software z-tree, see Fischbacher (2007). Subjects were paid a 2.50 Euro show-up fee plus additional money depending on the decisions made during the experiment, resulting in an average payment of 10.20 Euro. Before the experimental sessions started subjects were randomly assigned to one of four roles (firm, worker Type A, worker Type B, or worker Type C). All subjects kept their roles during the whole experiment, which consisted of six rounds. After each round group members were re-matched to make sure that no subject played with the

---

[3] Besides the aforementioned experimental studies on the delegation of wage choice, there exists a number of studies that share this type of hypothesis in related frameworks; see Charness (2000), Charness and Jackson (2009), Dal Bó et al. (2010), Cornet and González (2013). We refer to these papers for further details on the justification of this hypothesis.

same participants more than once. When the experiment was over and all decisions made, one of the six rounds was randomly, individually, and independently determined for each subject to be payoff-relevant.[4] A post-experimental questionnaire was conducted among all participants to obtain additional information with respect to basic personal details such as gender, age, number of siblings, field of study, general risk attitudes, etc., but also to get some information on subjects' impressions with respect to their influence and the perceived fairness of the contract setting procedure.

Table 3: Summary Statistics

	Type C	Type B	Type A	All Types
EXERTED EFFORT (e)	0.362	0.335	0.307	0.335
WAGE (w)	56.113	56.113	56.113	56.113
DESIRED EFFORT ($\hat{e}$)	0.714	0.714	0.714	0.714

NOTE: All presented values are averages. Summary statistics of other variables of interest are provided in Table A.1 in Appendix 1.

3. Experimental Results and Discussion

In Table 3 we present summary results of variables of interest for each treatment (Type) separated and aggregated. As work contracts are identical in each group, the average fixed wage and desired effort based on the finally implemented work contract coincide for all Types, while the average exerted effort varies between treatments. A comparison between Types reveals that exerted effort is highest in the control treatment (Type C: 0.362) and lowest in the participation treatment (Type A: 0.307), where this difference is significant with a p-value of 0.022 (Mann-Whitney test, two-sided[5]). Workers who are informed about the details of the alternative work contracts but do not

---

[4] This procedure implied that the finally realized payoffs of two co-workers (who were matched to the same firm in one round) were not related to each other. As this randomized final payoff determination procedure was also public information ex-ante, it minimized the possibility that workers' motivation for exertion was driven by other-regarding preferences towards co-workers. As explained before, our modified gift-exchange game can de facto be perceived as a bilateral game between one isolated worker and one firm.

[5] If not otherwise stated, we use two-sided non-parametric tests.

participate in the wage setting process choose an intermediate effort level (Type B: 0.355). If we compare effort exertion between Types A vs. B (p=0.251) and Type B vs. C (p=0.260), the differences are too small to be significant. However, if we compare effort exertion under the participation treatment (Type A) against the two Types without participation (Type B and Type C), we observe a difference of 0.041, which is significant at p=0.047. Similar results hold for the comparison between information (Type A and B) versus no information, where the difference of 0.040 is significant with a p-value of 0.048. Hence, in our version of the gift-exchange game, there is no evidence for performance-enhancing effects of (limited) workers' participation in the wage setting process, but rather some evidence for a decline in effort exertion.[6]

While this observation has already some value in itself, it does not shed light on the underlying motivations of the workers of different Types. In the following, we therefore analyze in more detail what contributes to the comparatively low effort exertion of Type A and B. We concentrate first on a graphical analysis of the wage dependency of effort choices and then on variation in exerted effort over time (rounds). Finally, we account for both of these factors in an econometric analysis which also allows us to control for individual heterogeneity.

In Figure 1 (top) we present a histogram of the wage distribution based on the finally chosen contract, while Figure 1 (bottom) shows the corresponding average level of exerted effort for each wage decile, separated for Types. As in previous studies there is a positive relation between effort and wages (indicating employees' reciprocal inclinations), however, the size of this effort-wage gradient differs among Types: For Type A, there is virtually no increase in effort for low wages and also for intermediate wage levels the increase in effort exertion is less pronounced than for Type B or C. Only

---

[6] The negative incentive effect of participation and/or information is also reflected in the relative amount of free-riding (exerting minimal effort of 0.1) because the percentage of free-riding is lowest for Type C (37.6 %), substantially higher for Type B (41.5%), and highest for Type A (41.8%). Excluding the observations with free-riding does not alter the qualitative results with respect to average effort comparisons: Without free-riding, average effort is highest for Type C (0.519), intermediate for Type B (0.502), and lowest for Type A (0.457).

for the highest wage interval (90-120) is the increase in effort exertion by Type A considerable, and even substantially higher than for Type B or C.[7]

Figure 1: Wage and Effort Distributions

---
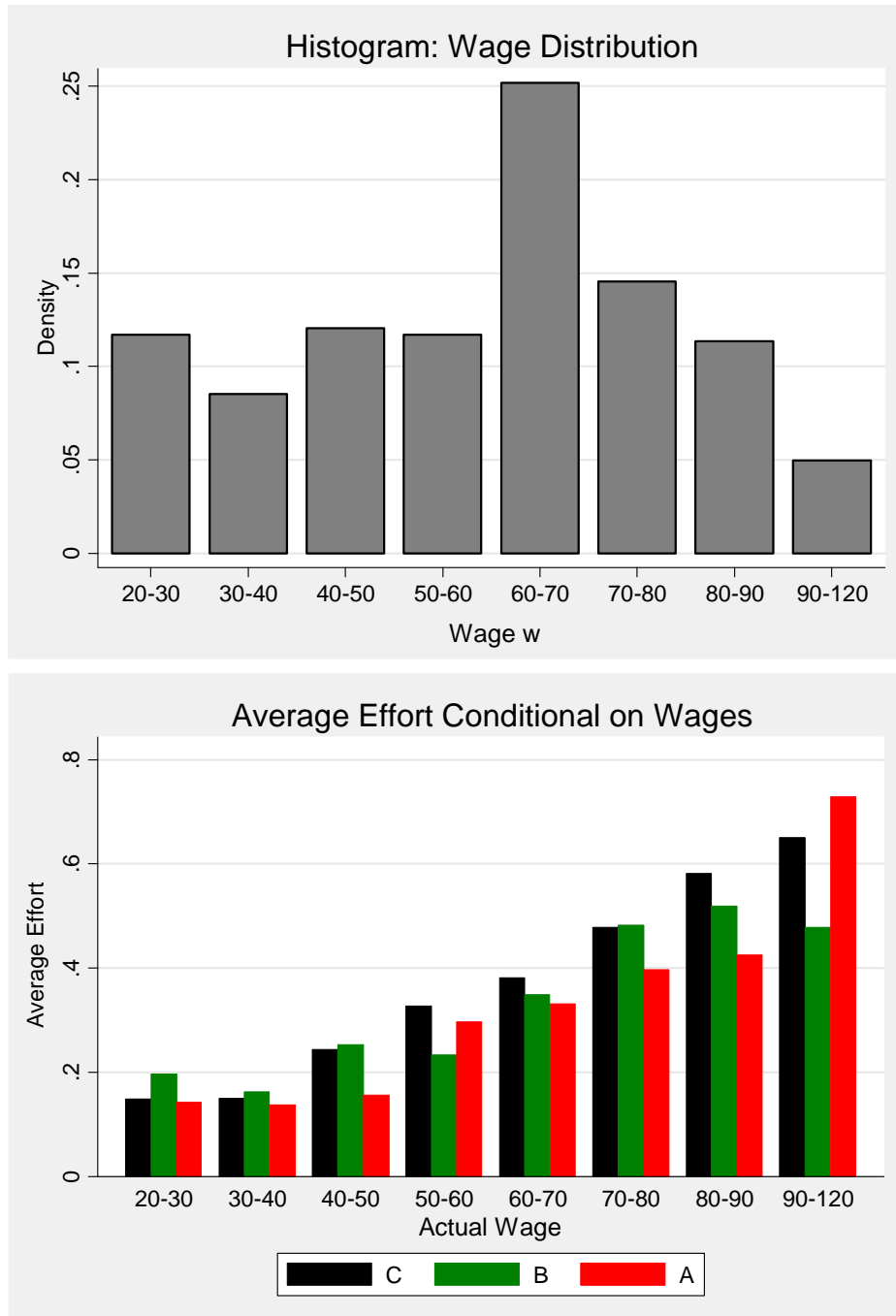
[7] For Type B there are no obvious systematical differences in comparison to Type A or C.

Overall, the graphical analysis suggests that Type A workers are less inclined to exert high effort for low and intermediate wage levels in comparison to workers of Type B or C. One explanation for the observed behavior of Type A workers would be that the participation treatment triggers reciprocal motivations from the respective workers, which is addressed in more detail in the econometric analysis.[8]

Figure 2: Average Effort per Round
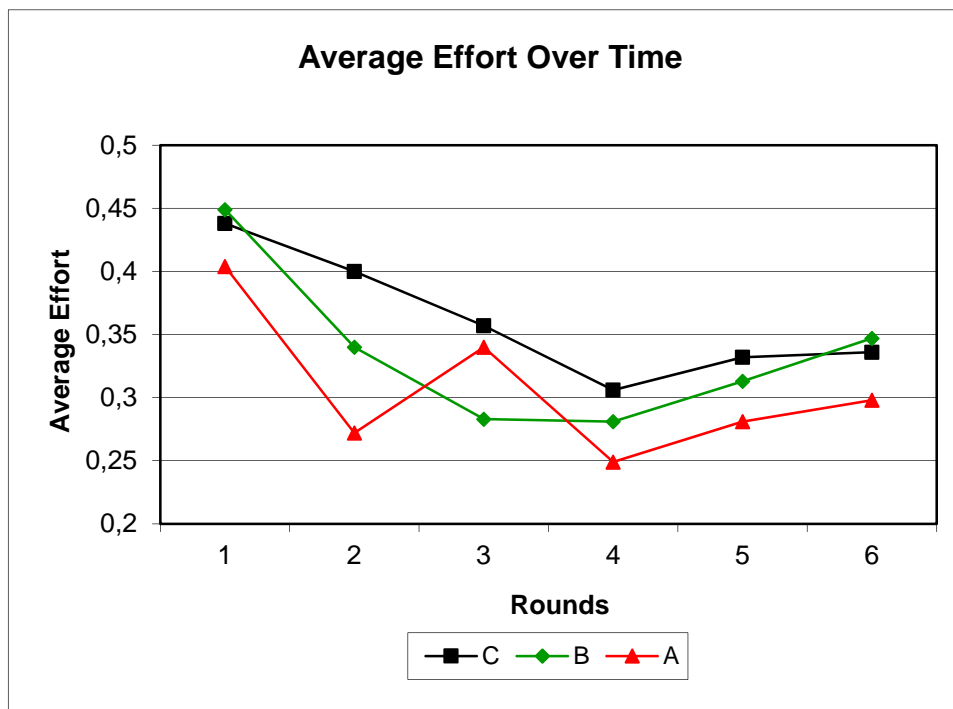
In Figure 2 we present the average exerted effort per round for each Type separately. We observe a decline in effort exertion in the first three rounds for all three Types which stabilizes in the last three rounds of each session. There are no specific end-game effects, as expected, due to the re-matching after each round. More importantly, the results from the previous analysis (rather negative incentive effects from participation) are replicated in the round-specific analysis: Effort exertion of Type A is substantially lower than Type C and (in most rounds) lower than Type B, where

effort exertion by Type B lies (in nearly all rounds) between those of Type A and C.[9] Hence, the graphical analysis based on Figures 1 and 2 confirms the already observed negative incentive effect from participation, which is summarized in the following result.

RESULT 1: *Workers' participation in the wage setting process does not lead to an increase in average effort exertion; instead there is a rather a decline in performance.*

Figure 2 also suggests that the difference between Types declines in later rounds of the experiment, such that effort exertion becomes nearly indistinguishable among treatments in the last rounds. Although our analysis of the post-experimental questionnaire reveals that there are significant differences in the perceived influence on (and the fairness of) the wage decision process between the different treatments,[10] it might be that the importance of these differences for effort exertion fades out in later rounds.

Overall, the graphical analysis indicates two behavioral patterns that have to be accounted for in the subsequent econometric analysis: Firstly, Figure 1 suggests that differences in effort exertion due to more or less involvement in the work contract process are dependent on the respective wage level. Secondly, Figure 2 implies that differences in behavior occur more predominantly in early rounds of the interaction.

---

[9] The spike observed in round 3 for Type A can be attributed to three subjects that exerted maximum effort of *e=1.0* (which was also the respectively desired effort in these groups). Excluding these observations would result in average effort of 0.295 for Type A in round 3. Moreover, in this case all pairwise Type comparisons would become significant, comp. footnote 6.

[10] Perceived influence is measured by the degree of agreement with the statement: "I did not have any influence on contract determination" (with range 1 'disagree' to 7 'agree'). As the reported value for workers of Type C is comparatively high (5.383), the perceived influence of these workers is, as expected, relatively low. For workers of Type B, the value is accordingly lower (4.894), while for workers of Type A it is lowest (3.128), which implies that, as expected, workers of Type A correctly perceive themselves as having a greater influence on the wage setting procedure. (All pairwise differences between Types are highly significant based on the same non-parametric tests that have been applied previously). Interestingly, the measure for procedural fairness (agreement with the statement: "I think that the procedure for determining the contract is fair") is similar for Type A (3.319) and Type B (3.340) and, as expected, higher in comparison to Type C (2.936), where only the last difference is significant.

Regression Analysis

The robustness of our previous results is analyzed based on regression techniques which allow us to consider explicitly the aforementioned patterns and to control for individual heterogeneity on the subject level. There is a substantial fraction of free-riding among workers (who exerted the minimum amount of effort, comp. footnote no. 7) which implies that the experimental data is left-censored with respect to exerted effort. We therefore resort to an econometric analysis based on random-effects Tobit regressions, where the dependent variable is EXERTED EFFORT, while subject is the panel identifier.[11] We additionally include round and session dummies, as well as individual covariates on the subject level (that stem from the answers to the post-experimental questionnaires) to control for systematic variations along these dimensions. All variables are described and summarized in Table A1 in the appendix.

Before we analyze behavioral differences between treatments, we provide results from regressions for each worker Type separately (Table 4, columns 1 – 3) and jointly (Table 4, column 4).[12] The obtained results are in line with the observations from the non-parametric and graphical analysis; there is, for instance, a positive and significant wage-gradient for each worker type and also for the pooled data set.[13] There is also a significant positive effect of DESIRED EFFORT (although it is non-binding for workers) which is frequently reported in previous studies. More importantly, the comparison of the type-specific regression results reveals that the effort-wage gradient is steepest for workers of Type A while the respective constant is, at the same time, the lowest among

---

[11] Our results are robust with respect to various alternative specifications; for instance, using group (and not subject) as an alternative panel identifier (comp. robustness check No. 3 in the appendix, Tables A8 and A9), applying random-effects generalized least squares as alternative regression technique (comp. robustness check No. 2, Tables A6 and A7). Using the latter approach, robustness is even maintained if observations with free-riding behavior are excluded from the analysis (to address the issue of left-censored data in a random-effects generalized least squares framework), comp. robustness check No. 4, Tables A10 and A11.

[12] Here, we only report the variables of interest (i.e. WAGE, DESIRED EFFORT, and Constant). In Table A2 in the appendix we present the regression results in more detail, including the round dummies, as well as subject specific explanatory variables FEMALE, NO. FRIENDS, AGE, and RISK, that are mostly non-significant (the only exception is FEMALE, NO. FRIENDS, and AGE for Type B). All results are maintained if non-significant explanatory variables are excluded from the regression equation.

[13] There is also some evidence for the general decline in exerted effort in the first rounds (observed in Figure 2) because the round dummies are declining for all types, comp. Table A2 in the appendix.

all types. This suggests that workers of Type A react more negatively to low wage offers[14] but at the same time more positively to high wage offers, which would indicate that Type A workers are more inclined towards reciprocal behavior than Type B or C workers. The following two subsections address this issue by focusing on treatment comparisons in line with Table 2.

Table 4: Random-Effects Tobit Regressions for Separated and Aggregated Types

Dependent Variable: EXERTED EFFORT	(1) Type C	(2) Type B	(3) Type A	(4) All Types
Constant	-0.4424*** (0.1594)	-0.2542 (0.1906)	-0.6258*** (0.1806)	-0.4486*** (0.1035)
WAGE	0.0089*** (0.0009)	0.0071*** (0.0009)	0.0097*** (0.0008)	0.0087*** (0.0005)
DESIRED EFFORT	0.2522*** (0.0875)	0.3384*** (0.0913)	0.1619** (0.0731)	0.2455*** (0.0492)
No. of observations	282	282	282	846

NOTE: All estimations are the result of random-effects Tobit regressions that are left-censored at 0.1 with subject as the panel identifier. Round and session dummies are included, as well as other variables on the subject level (FEMALE, NO. FRIENDS, AGE, and RISK, comp. Table A1 for details on these variables).
* denotes significance at the 10% level, ** denotes significance at the 5% level and *** denotes significance at the 1% level.

The Participation Treatment

The incentive effects of participation in the wage setting process are analyzed by testing explicitly for differences in effort exertion between workers of Type A, who are allowed to participate in the contract choice, and workers of Type B, who are not involved in the choice of the final contract but face identical information with respect to

---

[14] Note that the observed variable EXERTED EFFORT is left-censored at 0.1 while the latent variable from the random-effects Tobit regression (i.e. predicted EXERTED EFFORT) might be actually less than 0.1 (especially for low wage offers). In column 1, for instance, the constant is significantly negative which reflects the high frequency of free-riding of Type A workers if they face low or intermediate wage offers. Our statement that workers of Type A react more negatively to lower wage offers refers to this interpretation.

the alternative contract specifications. As already mentioned, the graphical analysis suggested that differences in behavior are more pronounced in the first than in the last rounds of the experiment, and that effort exertion is highly wage dependent. In the econometric analysis, we take these observations into account by running separate random-effects Tobit regressions for the first three rounds (Table 5, column 2 and 5) and the last three rounds (presented in Table 5, column 3 and 6). Moreover, we introduce the interaction variable A*WAGE between the treatment variable and the fixed wage covariate (Table 5, columns 4 – 6) to check whether there are significant differences in the effort-wage gradient for the participation treatment.

Table 5: Random- Effects Tobit Regressions Types A and B

Dependent Variable: EXERTED EFFORT	(1) All Rounds	(2) Rounds 1-3	(3) Rounds 4-6	(4) All Rounds	(5) Rounds 1-3	(6) Rounds 4-6
Constant	-0.4964*** (0.1318)	-0.6545*** (0.1394)	-0.2901* (0.1613)	-0.4288*** (0.1356)	-0.5136*** (0.1451)	-0.2431 (0.1674)
A	-0.0109 (0.0566)	-0.0085 (0.0514)	-0.0123 (0.0673)	-0.1464 (0.0890)	-0.2520** (0.1048)	-0.1309 (0.1280)
A*WAGE				0.0022** (0.0011)	0.0040*** (0.0015)	0.0020 (0.0018)
WAGE	0.0085*** (0.0006)	0.0082*** (0.0008)	0.0086*** (0.0010)	0.0074*** (0.0008)	0.0062*** (0.0011)	0.0077*** (0.0013)
DESIRED EFFORT	0.2445*** (0.0587)	0.3119*** (0.0915)	0.1697** (0.0857)	0.2438*** (0.0585)	0.3057*** (0.0893)	0.1662* (0.0852)
No. of observations	564	282	282	564	282	282

Notes: All estimations are the result of random-effects Tobit Regressions that are left-censored at 0.1 and where subject is the panel identifier. Round and session dummies are included but not reported here, as well as other variables on the subject level (comp. Table A3 in the appendix for the full results).
* denotes significance at the 10% level, ** denotes significance at the 5% level and *** denotes significance at the 1% level.

Results presented in Table 5, columns 1 – 3, imply that the pure participation treatment effect is negative but not significant. However, Figure 1 already suggested that the non-significance was to be expected because differences in effort exertion between treatments are also wage dependent. This dependency is addressed in Table 4,

columns 4 – 6, based on the additional treatment interaction term A*WAGE. In line with Figure 2, we observe that for the first three rounds there are in fact significant treatment effects from participation: The effort-wage gradient is positive and significant in columns 4 and 5, and therefore steeper for workers of Type A. Hence, workers who participated in the wage setting process react more positively to increases in the wage offers. At the same time the pure treatment dummy A becomes significantly negative in column 5, which implies that workers of Type A react significantly more negatively to low wage offers at least in the first three rounds.[15] Thus, the econometric analysis confirms the hypothesized reciprocal behavior of Type A workers, which has already been posited in the graphical analysis based on Figure 1.[16]

Moreover, the non-parametric analysis already showed that average effort exertion of Type A workers is comparatively low which suggests that negative incentive effects from participation dominate workers' behavior. Based on our regression results this implies that the percentage of low wage offers (that lead to comparatively low effort exertion by Type A workers) is sufficiently high such that the negative incentive effects from low wage offers dominate on average the behavior of Type A workers in comparison to Type B or C workers. Hence, the participation treatment seems to trigger rather negative reciprocal behavior of the respective workers.

RESULT 2: *The observed behavior under the participation treatment suggests that negative reciprocity is the dominant motive for workers' behavior.*

Formal theories of reciprocal behavior like Rabin (1983) or Dufwenberg and Kirchsteiger (2004) provide a theoretical explanation for this observation. These theories are based on the notion of the perceived kindness of a specific player's action

---

[15] We refer to footnote No. 14 for a clarification of our statement on the negative reaction to low wage offers in a context where free-riding is frequently observed.
[16] These results are robust with respect to alternative econometric specifications and techniques, comp. robustness checks no. 1 – 5, Tables A5, A6, A8, A10, and A12 in the appendix.

which implies that unkind behavior leads to a negative reciprocal reaction by the respective counterpart and vice versa for kind behavior. For the standard gift-exchange game there is experimental evidence that this theoretical argument can explain low effort exertion as a reaction to low wage offers (comp. Charness 2004). In our modification of the gift-exchange game with two alternative wage contracts there is even more potential for negative reciprocity because low wage offers in the final contract are often accompanied by even lower wage offers from the alternative (not chosen) contract.[17] Hence, workers who are informed about the details of the two alternative contracts (Type A and B) frequently face not only one low wage offer but two, where both offers can be fully attributed to the volition of the firm. Especially workers of Type A, who then have to decide between the two (comparably bad) contract alternatives, might perceive this type of configuration as a particularly unkind act on the part of the firm, which then triggers the substantially negative reaction, that is, comparatively low effort exertion. Note also that competing theoretical approaches based on procedural fairness considerations mentioned in the introduction have no explanatory power in our framework: The negative reciprocity motive seems to dominate alternative explanations.

The Information Treatment

In Table 6 we present the results from random-effects Tobit regressions based on observations from workers of Type B and C to trace out the incentive effects of different degrees of information with respect to the details of the two contract alternatives. While the general results observed in the context of Table 3 (significantly negative constant, positive effect from WAGE, and small positive effect from DESIRED EFFORT) are preserved in all specifications of Table 6, we also observe that treatment effects (i.e. the pure treatment dummy B and the treatment interaction B*WAGE) remain mostly non-

---

[17] In 81 percent of all observations, workers of Type A choose as final contract the one with the higher fixed wage.

significant.[18] The negative reciprocal behavior to low wage offers by Type A workers, who are in some sense advantaged (in comparison to Type B workers) with respect to the wage setting procedure, is not observed for Type B workers who are advantaged (in comparison to Type C workers) with respect to the amount of provided information on contract alternatives. Hence, the additional information provided to workers of Type B about the details of the alternative (non-chosen) work contract does not seem to affect the behavior of Type B workers in a substantial way.

Table 6: Random- Effects Tobit Regressions Types B and C

Dependent Variable: EXERTED EFFORT	(1) All Rounds	(2) Rounds 1-3	(3) Rounds 4-6	(4) All Rounds	(5) Rounds 1-3	(6) Rounds 4-6
Constant	-0.3362*** (0.1274)	-0.4124*** (0.1532)	-0.2543* (0.1448)	-0.3881*** (0.1327)	-0.5173*** (0.1627)	-0.2726* (0.1557)
B	-0.0534 (0.0526)	-0.0615 (0.0545)	-0.0493 (0.0572)	0.0467 (0.0900)	0.1381 (0.1165)	-0.0144 (0.1221)
B*WAGE				-0.0016 (0.0012)	-0.0033* (0.0017)	-0.0006 (0.0018)
WAGE	0.0081*** (0.0007)	0.0080*** (0.0009)	0.0075*** (0.0010)	0.0089*** (0.0009)	0.0096*** (0.0013)	0.0078*** (0.0013)
DESIRED EFFORT	0.2904*** (0.0638)	0.2826*** (0.0979)	0.3206*** (0.0915)	0.2912*** (0.0637)	0.2872*** (0.0974)	0.3200*** (0.0915)
No. of observations	564	282	282	564	282	282

Notes: All estimations are the result of random-effects Tobit Regressions that are left-censored at 0.1 and where subject is the panel identifier. Round and Session dummies are included but not reported here. * denotes significance at the 10% level, ** denotes significance at the 5% level and *** denotes significance at the 1% level.

4.   Concluding Remarks

In this experimental study, we analyze the effects of involvement in the contract setting process based on a modified gift-exchange game between workers and firms

---

[18] The only exception is the effort-wage gradient in the first three rounds in column 5, which is (weakly) significantly negative. This result, however, is not maintained in all robustness checks.

where some workers have a say in the design of the finally implemented work contract. Our results reveal that there is no automatism between workers' participation in managerial decision-making and improved firm performance. We rather observe negative incentive effects from workers' participation in the wage setting process: Workers who are endowed with participation rights are reluctant to exert more effort if they face higher wage offers (which seems to be driven by negative reciprocity) in comparison to workers who are not allowed to participate. The consequence is a decrease in effort exertion and performance, which is in contrast to the positive incentive effects from participation that have been observed in some previous experimental studies. At the same time, however, our results are more in line with the mixed and ambiguous results on workers' co-determination from the empirical literature.

Arguably, the institution of workers' participation that we apply in our study differs substantially from experiments that completely delegate the wage choice to workers. However, different mechanisms of co-determination can also be observed in the real world, which might lead to very different perceptions of affected individuals and therefore also to very different incentive structures and performance outcomes. Hence, further analysis of the relation between specific institutions of workers' performance and their incentives would constitute a valuable contribution.

References

Addison, John T., Schnabel, Claus, and Joachim Wagner (2004): The Course of Research into the Economic Consequences of German Works Councils. British Journal of Industrial Relations 42: 255-281.

Bolton, Gary, and Axel Ockenfels (2000): ERC: A theory of equity, reciprocity, and competition. American Economic Review 90: 166-93.

Charness, Gary (2000): Responsibility and Effort in an Experimental Labor Market. Journal of Economic Behavior and Organization 42(3): 375-84.

Charness, Gary (2004): Attribution and Reciprocity in an Experimental Labor Market. Journal of Labor Economics 22(3): 665-88.

Charness, Gary, Cobo-Reyes, Ramón, Jiménez, Natalia, Lacomba, Juan A., and Francisco Lagos (2012): The Hidden Advantage of Delegation: Pareto Improvements in a Gift Exchange Game. American Economic Review 102: 2358-2379.

Charness, Gary, and Peter Kuhn (2007): Does Pay Inequality Affect Worker Effort? Experimental Evidence. Journal of Labor Economics 25(4): 693-723

Charness, Gary, and Matthew O. Jackson (2009): The Role of Responsibility in Strategic Risk-Taking. Journal of Economic Behavior and Organization 69(3): 241-47.

Corgnet, Brice, and Roberto Hernán González (2013): Don't ask me if you will not listen: The dilemma of consultative participation. Management Science, forthcoming, DOI: 10.1287/mnsc.2013.1786

Dal Bó, Pedro, Foster, Andrew, and Louis Putterman (2010): Incentives and Behavior: Experimental Evidence on the Effects of Democracy. American Economic Review 100(5): 2205-29.

Dufwenberg, Martin, and Georg Kirchsteiger (2004): A theory of sequential reciprocity. Games and Economic Behavior 47: 268–98.

Fehr, Ernst, and Armin Falk (1999): Wage Rigidity in a Competitive Incomplete Contract Market. Journal of Political Economy 107(1): 106-134.

Fehr, Ernst, Kirchler, Erich, Weichbold, Andreas, and Simon Gächter (1998): When social forces overpower competition: Gift Exchange in Experimental Labor Markets. Journal of Labor Economics 16: 324-51.

Fehr, Ernst, Kirchsteiger, Georg, and Arno Riedl (1993): Does fairness prevent market clearing? An experimental investigation. Quarterly Journal of Economics 108: 437-59.

Fehr, Ernst, and Klaus Schmidt (1999): A theory of fairness, competition, and cooperation. Quarterly Journal of Economics 114: 817-68.

Fischbacher, Urs (2007): z-Tree: Zurich toolbox for ready-made economic experiments. Experimental Economics 10: 171-178.

Gächter, Simon, and Christian Thöni (2010): Social comparison and performance: Experimental evidence on the fair wage–effort hypothesis. Journal of Economic Behavior & Organization 76(3): 531-543.

Greiner, Ben (2004): An online recruitment system for economic experiments. In Forschung und Wissenschaftliches Rechnen. GWDG Bericht 63, ed. K. Kremer, & V. Macho. Göttingen: Gesellschaft für Wissenschaftliche Datenverarbeitung.

Hannan, Lynn R., Kagel , John H., and Donald V. Moser (2002): Partial Gift Exchange in an Experimental Labor Market: Impact of Subject Population Differences, Productivity Differences, and Effort Requests on Behavior. Journal of Labor Economics 20(4): 923-951.

Jeworrek, Sabrina, and Vanessa Mertins (2014): Do Self-Determined Wages Really Improve Employees' Performance? Evidence from a Randomized Field Experiment, mimeo.

Kocher, Martin G, Luhan, Wolfgang J. and Matthias Sutter (2012): Testing a Forgotten Aspect of Akerlof's Gift Exchange Hypothesis: Relational Contracts with Individual and Uniform Wages, IZA Discussion Paper No. 6415.

Mellizo, Philip, Carpenter, Jeffrey, and Peter Hans Matthews (2011): Workplace Democracy in the Lab, IZA Discussion Paper No. 5460.

Mueller, Steffen (2011): Works Councils and Firm Profits Revisited. British Journal of Industrial Relations 49, Issue Supplement s1: 27–43.

Rabin, Matthew (1993): Incorporating fairness into game theory and economics. American Economic Review 83: 1281–1302.

Appendix 1

Table A1: Summary Statistics and Description of Variables

Variables	Description of Variables	Range	Type C	Type B	Type A	All Types
EXERTED EFFORT (e)	Effort chosen by workers	0.1 – 1.0	0.362	0.335	0.307	0.335
WAGE (w)	Fixed wage of finally chosen contract v	20 – 120	56.113	56.113	56.113	56.113
DESIRED EFFORT ($\hat{e}$)	Desired effort of finally chosen contract v	0.1 – 1.0	0.714	0.714	0.714	0.714
FEMALE	Percentage of female subjects	0 – 1	0.447	0.553	0.702	0.567
AGE	Normalized age of subjects	0 – 64	59.191	57.702	58.957	58.617
NO. FRIENDS	No. of friends of subjects	0 – 12	0.213	0.348	0.255	0.355
RISK	Risk affinity. Answer to Question No. 6	1 – 10	5.298	4.489	5.061	4.950
Procedural Fairness	Answer to Question No. 1	1 – 7	2.936	3.340	3.319	3.199
Outcome Fairness	Answer to Question No. 2	1 – 7	3.340	3.787	3.277	3.468
Comprehensibility	Answer to Question No. 3	1 – 7	4.574	4.319	4.660	4.518
Outcome Satisfaction	Answer to Question No. 4	1 – 7	3.723	3.915	3.575	3.738
No Influence	Answer to Question No. 5	1 – 7	5.383	4.894	3.128	4.468
No. of Workers			47	47	47	141
No. of observations			282	282	282	846

Notes: All figures are averages with the exception of FEMALE (percentage). Exact formulations of questions from the post-experimental questionnaire are provided in the instructions, Appendix 2.

Table A2: Random-Effects Tobit Regressions for Separated and Aggregated Types

Dependent Variable: EXERTED EFFORT	(1) Type C	(2) Type B	(3) Type A	(4) All Types
Constant	-0.4424***	-0.2542	-0.6258***	-0.4486***
	(0.1594)	(0.1906)	(0.1806)	(0.1035)
WAGE	0.0089***	0.0071***	0.0097***	0.0087***
	(0.0009)	(0.0009)	(0.0008)	(0.0005)
DESIRED EFFORT	0.2522***	0.3384***	0.1619**	0.2455***
	(0.0875)	(0.0913)	(0.0731)	(0.0492)
FEMALE	-0.0040	-0.1456*	-0.0890	-0.0575
	(0.0706)	(0.0840)	(0.0897)	(0.0470)
NO. FRIENDS	0.0051	0.1156***	-0.0398	0.0309
	(0.0738)	(0.0428)	(0.0836)	(0.0299)
AGE	-0.0050	0.0169**	-0.0136	0.0023
	(0.0115)	(0.0083)	(0.0153)	(0.0057)
RISK	0.0023	-0.0279	0.0067	-0.0086
	(0.0164)	(0.0174)	(0.0187)	(0.0100)
Dummy Round 1	0.1193**	0.1369***	0.1123**	0.1227***
	(0.0510)	(0.0530)	(0.0444)	(0.0291)
Dummy Round 2	0.0948*	0.0184	0.0170	0.0444
	(0.0528)	(0.0546)	(0.0459)	(0.0301)
Dummy Round 3	0.0294	-0.1007*	0.0607	-0.0010
	(0.0527)	(0.0563)	(0.0456)	(0.0302)
Dummy Round 4	0.0101	-0.0527	-0.0042	-0.0156
	(0.0532)	(0.0558)	(0.0470)	(0.0306)
Dummy Round 5	0.0107	-0.0397	0.0095	-0.0080
	(0.0530)	(0.0557)	(0.0467)	(0.0305)
Number of Observations	282	282	282	846

Notes: All estimations are the result of random-effects Tobit Regressions that are left-censored at 0.1 and where subject is the panel identifier. Round and Session dummies are included where only the first mentioned are reported (with round no. 6 as the base round). * denotes significance at the 10% level, ** denotes significance at the 5% level and *** denotes significance at the 1% level.

Table A3: Random-Effects Tobit Regressions Types A and B

Dependent Variable: EXERTED EFFORT	(1) All Rounds	(2) Rounds 1-3	(3) Rounds 4-6	(4) All Rounds	(5) Rounds 1-3	(6) Rounds 4-6
Constant	-0.4964*** (0.1318)	-0.6545*** (0.1394)	-0.2901* (0.1613)	-0.4288*** (0.1356)	-0.5136*** (0.1451)	-0.2431 (0.1674)
A	-0.0109 (0.0566)	-0.0085 (0.0514)	-0.0123 (0.0673)	-0.1464 (0.0890)	-0.2520** (0.1048)	-0.1309 (0.1280)
A*WAGE				0.0022** (0.0011)	0.0040*** (0.0015)	0.0020 (0.0018)
WAGE	0.0085*** (0.0006)	0.0082*** (0.0008)	0.0086*** (0.0010)	0.0074*** (0.0008)	0.0062*** (0.0011)	0.0077*** (0.0013)
DESIRED EFFORT	0.2445*** (0.0587)	0.3119*** (0.0915)	0.1697** (0.0857)	0.2438*** (0.0585)	0.3057*** (0.0893)	0.1662* (0.0852)
FEMALE	-0.0643 (0.0612)	-0.0000 (0.0560)	-0.1176 (0.0725)	-0.0674 (0.0613)	-0.0038 (0.0552)	-0.1207 (0.0734)
NO. FRIENDS	0.0430 (0.0359)	0.0274 (0.0325)	0.0573 (0.0428)	0.0414 (0.0359)	0.0252 (0.0319)	0.0563 (0.0432)
AGE	0.0035 (0.0069)	-0.0014 (0.0063)	0.0084 (0.0083)	0.0035 (0.0069)	-0.0017 (0.0062)	0.0086 (0.0084)
RISK	-0.0061 (0.0126)	-0.0006 (0.0114)	-0.0123 (0.0150)	-0.0058 (0.0126)	-0.0021 (0.0113)	-0.0107 (0.0153)
No. of observations	564	282	282	564	282	282

Notes: All estimations are the result of random-effects Tobit Regressions that are left-censored at 0.1 and where subject is the panel identifier. Round and Session dummies are included but not reported here. * denotes significance at the 10% level, ** denotes significance at the 5% level and *** denotes significance at the 1% level.

Table A4: Random-Effects Tobit Regressions Types B and C

Dependent Variable: EXERTED EFFORT	(1) All Rounds	(2) Rounds 1-3	(3) Rounds 4-6	(4) All Rounds	(5) Rounds 1-3	(6) Rounds 4-6
Constant	-0.3362***	-0.4124***	-0.2543*	-0.3881***	-0.5173***	-0.2726*
	(0.1274)	(0.1532)	(0.1448)	(0.1327)	(0.1627)	(0.1557)
B	-0.0534	-0.0615	-0.0493	0.0467	0.1381	-0.0144
	(0.0526)	(0.0545)	(0.0572)	(0.0900)	(0.1165)	(0.1221)
B*WAGE				-0.0016	-0.0033*	-0.0006
				(0.0012)	(0.0017)	(0.0018)
WAGE	0.0081***	0.0080***	0.0075***	0.0089***	0.0096***	0.0078***
	(0.0007)	(0.0009)	(0.0010)	(0.0009)	(0.0013)	(0.0013)
DESIRED EFFORT	0.2904***	0.2826***	0.3206***	0.2912***	0.2872***	0.3200***
	(0.0638)	(0.0979)	(0.0915)	(0.0637)	(0.0974)	(0.0915)
FEMALE	-0.0474	-0.0107	-0.0802	-0.0488	-0.0137	-0.0807
	(0.0553)	(0.0574)	(0.0601)	(0.0549)	(0.0566)	(0.0601)
NO. FRIENDS	0.0569*	0.0385	0.0692*	0.0564*	0.0388	0.0688*
	(0.0332)	(0.0344)	(0.0362)	(0.0330)	(0.0339)	(0.0362)
AGE	0.0068	0.0031	0.0089	0.0069	0.0034	0.0089
	(0.0063)	(0.0065)	(0.0069)	(0.0063)	(0.0064)	(0.0069)
RISK	-0.0176	-0.0111	-0.0237*	-0.0170	-0.0107	-0.0233*
	(0.0117)	(0.0121)	(0.0127)	(0.0116)	(0.0119)	(0.0128)
No. of observations	564	282	282	564	282	282

Notes: All estimations are the result of random-effects Tobit Regressions that are left-censored at 0.1 and where subject is the panel identifier. Round and Session dummies are included but not reported here. * denotes significance at the 10% level, ** denotes significance at the 5% level and *** denotes significance at the 1% level.

Table A5: Robustness Check 1: Random-Effects Tobit Regressions All Types

Dependent Variable: EXERTED EFFORT	(1) All Rounds	(2) Rounds 1-3	(3) Rounds 4-6	(4) All Rounds	(5) Rounds 1-3	(6) Rounds 4-6
Constant	-0.4634***	-0.5739***	-0.3295***	-0.3885***	-0.4210***	-0.2929**
	(0.1064)	(0.1198)	(0.1244)	(0.1130)	(0.1302)	(0.1367)
A	-0.0132	-0.0077	-0.0170	-0.1480*	-0.2514**	-0.1087
	(0.0560)	(0.0546)	(0.0626)	(0.0895)	(0.1097)	(0.1261)
A*WAGE				0.0022*	0.0040**	0.0016
				(0.0012)	(0.0016)	(0.0018)
C	0.0441	0.0520	0.0407	-0.0471	-0.1344	0.0041
	(0.0559)	(0.0546)	(0.0621)	(0.0895)	(0.1119)	(0.1208)
C*WAGE				0.0015	0.0031*	0.0006
				(0.0012)	(0.0016)	(0.0017)
WAGE	0.0086***	0.0087***	0.0082***	0.0074***	0.0063***	0.0076***
	(0.0005)	(0.0007)	(0.0008)	(0.0008)	(0.0011)	(0.0013)
DESIRED EFFORT	0.2455***	0.2931***	0.2129***	0.2452***	0.2909***	0.2117***
	(0.0492)	(0.0767)	(0.0712)	(0.0491)	(0.0756)	(0.0710)
FEMALE	-0.0475	-0.0210	-0.0644	-0.0496	-0.0240	-0.0656
	(0.0478)	(0.0469)	(0.0533)	(0.0478)	(0.0463)	(0.0537)
NO. FRIENDS	0.0318	0.0215	0.0409	0.0305	0.0203	0.0399
	(0.0300)	(0.0292)	(0.0333)	(0.0299)	(0.0289)	(0.0335)
AGE	0.0021	-0.0008	0.0044	0.0021	-0.0008	0.0045
	(0.0057)	(0.0055)	(0.0063)	(0.0057)	(0.0055)	(0.0064)
RISK	-0.0091	-0.0017	-0.0164	-0.0087	-0.0024	-0.0156
	(0.0101)	(0.0098)	(0.0112)	(0.0101)	(0.0097)	(0.0114)
No. of observations	846	423	423	846	423	423

Notes: All estimations are the result of random-effects Tobit Regressions that are left-censored at 0.1 and where subject is the panel identifier. The benchmark type is here Type B (which also holds for Tables A6-A8) because this allows direct comparison of the significant results for Type A presented in Table 5 and Table A3. Round and Session dummies are included but not reported here. * denotes significance at the 10% level, ** denotes significance at the 5% level and *** denotes significance at the 1% level.

Table A6: Robustness Check 2: Random-Effects GLS Regressions Types A and B

Dependent Variable: EXERTED EFFORT	(1) All Rounds	(2) Rounds 1-3	(3) Rounds 4-6	(4) All Rounds	(5) Rounds 1-3	(6) Rounds 4-6
Constant	-0.0551	-0.1075	0.0380	-0.0219	-0.0156	0.0481
	(0.0591)	(0.0673)	(0.0788)	(0.0615)	(0.0723)	(0.0862)
A	-0.0138	-0.0088	-0.0190	-0.0796	-0.1742***	-0.0411
	(0.0327)	(0.0343)	(0.0373)	(0.0587)	(0.0637)	(0.0767)
A*WAGE				0.0012	0.0029**	0.0004
				(0.0013)	(0.0013)	(0.0016)
WAGE	0.0056***	0.0060***	0.0048***	0.0050***	0.0046***	0.0046***
	(0.0006)	(0.0007)	(0.0008)	(0.0009)	(0.0010)	(0.0012)
DESIRED EFFORT	0.1555***	0.1541***	0.1182**	0.1558***	0.1579***	0.1174**
	(0.0363)	(0.0574)	(0.0533)	(0.0363)	(0.0564)	(0.0519)
FEMALE	-0.0370	-0.0070	-0.0715*	-0.0386	-0.0111	-0.0720*
	(0.0332)	(0.0336)	(0.0414)	(0.0332)	(0.0336)	(0.0418)
NO. FRIENDS	0.0325	0.0325	0.0322	0.0321	0.0316	0.0320
	(0.0199)	(0.0249)	(0.0196)	(0.0197)	(0.0242)	(0.0196)
AGE	-0.0056	-0.0015	-0.0091	-0.0055	-0.0029	-0.0088
	(0.0076)	(0.0079)	(0.0088)	(0.0076)	(0.0079)	(0.0087)
RISK	0.0045	0.0027	0.0066*	0.0046	0.0027	0.0067*
	(0.0039)	(0.0050)	(0.0037)	(0.0039)	(0.0049)	(0.0038)
No. of observations	564	282	282	564	282	282

Notes: All estimations are the result of random-effects GLS Regressions with robust standard errors clustered at the subject level. Round and Session dummies are not included because otherwise there would be more variables to be estimated than clusters. * denotes significance at the 10% level, ** denotes significance at the 5% level and *** denotes significance at the 1% level.

Table A7: Robustness Check 2: Random- Effects GLS Regressions Types B and C

Dependent Variable: EXERTED EFFORT	(1) All Rounds	(2) Rounds 1-3	(3) Rounds 4-6	(4) All Rounds	(5) Rounds 1-3	(6) Rounds 4-6
Constant	-0.0281	-0.0262	0.0067	-0.0562	-0.0931	0.0040
	(0.0601)	(0.0702)	(0.0739)	(0.0675)	(0.0715)	(0.0830)
B	-0.0361	-0.0510	-0.0205	0.0171	0.0784	-0.0152
	(0.0303)	(0.0346)	(0.0342)	(0.0612)	(0.0723)	(0.0791)
B*WAGE				-0.0009	-0.0023*	-0.0001
				(0.0012)	(0.0013)	(0.0015)
WAGE	0.0053***	0.0056***	0.0044***	0.0058***	0.0067***	0.0045***
	(0.0006)	(0.0007)	(0.0008)	(0.0008)	(0.0009)	(0.0011)
DESIRED EFFORT	0.1859***	0.1754***	0.1914***	0.1864***	0.1792***	0.1912***
	(0.0362)	(0.0597)	(0.0496)	(0.0360)	(0.0586)	(0.0493)
FEMALE	-0.0195	-0.0057	-0.0357	-0.0198	-0.0063	-0.0358
	(0.0339)	(0.0392)	(0.0388)	(0.0337)	(0.0390)	(0.0389)
NO. FRIENDS	0.0308*	0.0255	0.0367**	0.0306*	0.0257	0.0366**
	(0.0181)	(0.0240)	(0.0178)	(0.0179)	(0.0231)	(0.0178)
AGE	-0.0076	-0.0050	-0.0098	-0.0073	-0.0053	-0.0097
	(0.0073)	(0.0084)	(0.0081)	(0.0073)	(0.0083)	(0.0081)
RISK	0.0040	0.0023	0.0061*	0.0041	0.0024	0.0061*
	(0.0038)	(0.0050)	(0.0036)	(0.0038)	(0.0048)	(0.0036)
No. of observations	564	282	282	564	282	282

Notes: All estimations are the result of random-effects GLS Regressions with robust standard errors clustered at the subject level. Round and Session dummies are not included because otherwise there would be more variables to be estimated than clusters. * denotes significance at the 10% level, ** denotes significance at the 5% level and *** denotes significance at the 1% level.

Table A8: Robustness Check 3: Random- Effects Tobit Regressions with Group as Panel Identifier Types A and B

Dependent Variable: EXERTED EFFORT	(1) All Rounds	(2) Rounds 1-3	(3) Rounds 4-6	(4) All Rounds	(5) Rounds 1-3	(6) Rounds 4-6
Constant	-0.4010*** (0.0969)	-0.6009*** (0.1265)	-0.2177 (0.1430)	-0.3458*** (0.1047)	-0.4653*** (0.1361)	-0.2337 (0.1548)
A	-0.0098 (0.0293)	-0.0082 (0.0365)	-0.0096 (0.0464)	-0.1200 (0.0882)	-0.2521** (0.1115)	0.0260 (0.1390)
A*WAGE				0.0019 (0.0014)	0.0041** (0.0018)	-0.0006 (0.0022)
WAGE	0.0081*** (0.0008)	0.0085*** (0.0010)	0.0073*** (0.0013)	0.0072*** (0.0011)	0.0065*** (0.0013)	0.0076*** (0.0017)
DESIRED EFFORT	0.2297*** (0.0761)	0.2649** (0.1056)	0.2298** (0.1144)	0.2287*** (0.0759)	0.2630** (0.1040)	0.2305** (0.1144)
FEMALE	-0.0509 (0.0317)	0.0049 (0.0400)	-0.1184** (0.0500)	-0.0536* (0.0317)	-0.0013 (0.0395)	-0.1175** (0.0501)
NO. FRIENDS	0.0426** (0.0185)	0.0303 (0.0231)	0.0587** (0.0295)	0.0417** (0.0185)	0.0290 (0.0227)	0.0590** (0.0295)
AGE	0.0036 (0.0036)	-0.0009 (0.0044)	0.0092 (0.0057)	0.0037 (0.0036)	-0.0011 (0.0043)	0.0092 (0.0057)
RISK	-0.0082 (0.0065)	-0.0016 (0.0081)	-0.0160 (0.0104)	-0.0079 (0.0065)	-0.0034 (0.0080)	-0.0165 (0.0106)
No. of observations	564	282	282	564	282	282

Notes: All estimations are the result of random-effects Tobit Regressions that are left-censored at 0.1 and where group is the panel identifier. Round and Session dummies are included but not reported here. * denotes significance at the 10% level, ** denotes significance at the 5% level and *** denotes significance at the 1% level.

Table A9: Robustness Check 3: Random- Effects Tobit Regressions with Group as Panel Identifier Types B and C

Dependent Variable: EXERTED EFFORT	(1) All Rounds	(2) Rounds 1-3	(3) Rounds 4-6	(4) All Rounds	(5) Rounds 1-3	(6) Rounds 4-6
Constant	-0.3506*** (0.0978)	-0.4641*** (0.1418)	-0.2812** (0.1312)	-0.4326*** (0.1072)	-0.5849*** (0.1524)	-0.3071** (0.1467)
B	-0.0581** (0.0291)	-0.0659* (0.0396)	-0.0517 (0.0424)	0.1012 (0.0882)	0.1855 (0.1212)	-0.0031 (0.1284)
B*WAGE				-0.0027* (0.0014)	-0.0042** (0.0019)	-0.0008 (0.0020)
WAGE	0.0082*** (0.0008)	0.0086*** (0.0011)	0.0078*** (0.0012)	0.0095*** (0.0011)	0.0107*** (0.0015)	0.0082*** (0.0016)
DESIRED EFFORT	0.3230*** (0.0758)	0.3076*** (0.1128)	0.3469*** (0.1076)	0.3212*** (0.0755)	0.3050*** (0.1115)	0.3457*** (0.1077)
FEMALE	-0.0433 (0.0306)	-0.0108 (0.0417)	-0.0772* (0.0449)	-0.0452 (0.0305)	-0.0145 (0.0413)	-0.0776* (0.0449)
NO. FRIENDS	0.0520*** (0.0184)	0.0396 (0.0253)	0.0663** (0.0270)	0.0514*** (0.0183)	0.0404 (0.0250)	0.0657** (0.0270)
AGE	0.0056 (0.0035)	0.0035 (0.0047)	0.0081 (0.0051)	0.0058* (0.0034)	0.0038 (0.0047)	0.0082 (0.0051)
RISK	-0.0172*** (0.0064)	-0.0111 (0.0088)	-0.0231** (0.0098)	-0.0161** (0.0064)	-0.0109 (0.0087)	-0.0224** (0.0100)
No. of observations	564	282	282	564	282	282

Notes: All estimations are the result of random-effects Tobit Regressions that are left-censored at 0.1 and where group is the panel identifier. Round and Session dummies are included but not reported here. * denotes significance at the 10% level, ** denotes significance at the 5% level and *** denotes significance at the 1% level.

Table A10: Robustness Check 4: Random- Effects GLS Regressions Types A and B

Excluding Free-riding

Dependent Variable: EXERTED EFFORT	(1) All Rounds	(2) Rounds 1-3	(3) Rounds 4-6	(4) All Rounds	(5) Rounds 1-3	(6) Rounds 4-6
Constant	-0.0247	-0.0810	0.1134	0.0488	0.0792	0.1474
	(0.0820)	(0.0772)	(0.1317)	(0.0878)	(0.0954)	(0.1358)
A	-0.0130	-0.0082	-0.0122	-0.1571	-0.2587***	-0.1028
	(0.0281)	(0.0306)	(0.0352)	(0.0980)	(0.0902)	(0.1503)
A*WAGE				0.0023	0.0040***	0.0015
				(0.0015)	(0.0013)	(0.0024)
WAGE	0.0060***	0.0063***	0.0049***	0.0048***	0.0043***	0.0042***
	(0.0007)	(0.0008)	(0.0012)	(0.0009)	(0.0010)	(0.0015)
DESIRED EFFORT	0.2486***	0.2753***	0.1965*	0.2420***	0.2400***	0.1987*
	(0.0620)	(0.0779)	(0.1164)	(0.0617)	(0.0811)	(0.1169)
FEMALE	-0.0518*	-0.0306	-0.0835**	-0.0527*	-0.0325	-0.0842**
	(0.0281)	(0.0282)	(0.0357)	(0.0275)	(0.0279)	(0.0357)
NO. FRIENDS	0.0396***	0.0417**	0.0376**	0.0373**	0.0383**	0.0365**
	(0.0151)	(0.0185)	(0.0165)	(0.0149)	(0.0183)	(0.0165)
AGE	-0.0067	-0.0062	-0.0102	-0.0060	-0.0072	-0.0087
	(0.0070)	(0.0071)	(0.0087)	(0.0068)	(0.0071)	(0.0081)
RISK	0.0066**	0.0048	0.0094***	0.0063**	0.0040	0.0094***
	(0.0030)	(0.0036)	(0.0034)	(0.0030)	(0.0036)	(0.0034)
No. of observations	329	182	147	329	182	147

Notes: All estimations are the result of random-effects GLS Regressions with robust standard errors clustered at the subject level, where all observations with e=0.1 are excluded. Round and Session dummies are not included because otherwise there would be more variables to be estimated than clusters. * denotes significance at the 10% level, ** denotes significance at the 5% level and *** denotes significance at the 1% level.

Table A11: Robustness Check 4: Random- Effects GLS Regressions Types B and C

Excluding Free-riding

Dependent Variable: EXERTED EFFORT	(1) All Rounds	(2) Rounds 1-3	(3) Rounds 4-6	(4) All Rounds	(5) Rounds 1-3	(6) Rounds 4-6
Constant	0.0328 (0.0756)	0.1083 (0.0842)	0.0431 (0.1029)	0.0340 (0.0800)	0.1220 (0.1009)	0.0265 (0.1053)
B	-0.0168 (0.0288)	-0.0507 (0.0310)	0.0153 (0.0373)	-0.0182 (0.0879)	-0.0777 (0.1129)	0.0459 (0.1323)
B*WAGE				0.0000 (0.0013)	0.0004 (0.0016)	-0.0005 (0.0020)
WAGE	0.0048*** (0.0007)	0.0041*** (0.0009)	0.0043*** (0.0011)	0.0048*** (0.0010)	0.0039*** (0.0014)	0.0045*** (0.0015)
DESIRED EFFORT	0.2721*** (0.0642)	0.2745*** (0.0798)	0.2441*** (0.0937)	0.2719*** (0.0642)	0.2764*** (0.0816)	0.2457*** (0.0928)
FEMALE	-0.0285 (0.0335)	-0.0183 (0.0379)	-0.0241 (0.0387)	-0.0284 (0.0340)	-0.0175 (0.0380)	-0.0251 (0.0399)
NO. FRIENDS	0.0153 (0.0181)	0.0066 (0.0220)	0.0189 (0.0206)	0.0153 (0.0180)	0.0065 (0.0221)	0.0185 (0.0208)
AGE	-0.0039 (0.0074)	-0.0047 (0.0080)	-0.0030 (0.0085)	-0.0040 (0.0073)	-0.0049 (0.0080)	-0.0027 (0.0084)
RISK	0.0023 (0.0037)	-0.0010 (0.0044)	0.0050 (0.0043)	0.0023 (0.0037)	-0.0011 (0.0044)	0.0050 (0.0043)
No. of observations	341	183	158	341	183	158

Notes: All estimations are the result of random-effects GLS Regressions with robust standard errors clustered at the subject level, where all observations with e=0.1 are excluded. Round and Session dummies are not included because otherwise there would be more variables to be estimated than clusters. * denotes significance at the 10% level, ** denotes significance at the 5% level and *** denotes significance at the 1% level.

Table A12: Robustness Check 5: Random- Effects Tobit Regressions Types A and B

Excluding Groups Where Lower Wage Contract Chosen

Dependent Variable: EXERTED EFFORT	(1) All Rounds	(2) Rounds 1-3	(3) Rounds 4-6	(4) All Rounds	(5) Rounds 1-3	(6) Rounds 4-6
Constant	-0.5200***	-0.6193***	-0.3086**	-0.4340***	-0.4661***	-0.2474
	(0.1331)	(0.1461)	(0.1568)	(0.1362)	(0.1520)	(0.1625)
A	-0.0223	-0.0298	-0.0198	-0.2013**	-0.2889***	-0.1740
	(0.0571)	(0.0542)	(0.0662)	(0.0908)	(0.1081)	(0.1261)
A*WAGE				0.0029**	0.0042***	0.0026
				(0.0012)	(0.0015)	(0.0018)
WAGE	0.0090***	0.0083***	0.0097***	0.0076***	0.0062***	0.0086***
	(0.0006)	(0.0009)	(0.0010)	(0.0008)	(0.0011)	(0.0013)
DESIRED EFFORT	0.2246***	0.2743***	0.1111	0.2247***	0.2617***	0.1066
	(0.0588)	(0.0949)	(0.0820)	(0.0586)	(0.0929)	(0.0815)
FEMALE	-0.0601	0.0071	-0.1062	-0.0648	0.0037	-0.1114
	(0.0620)	(0.0593)	(0.0716)	(0.0617)	(0.0582)	(0.0724)
NO. FRIENDS	0.0507	0.0340	0.0606	0.0496	0.0336	0.0596
	(0.0361)	(0.0338)	(0.0419)	(0.0360)	(0.0331)	(0.0422)
AGE	-0.0078	0.0003	-0.0163	-0.0074	-0.0020	-0.0144
	(0.0128)	(0.0122)	(0.0148)	(0.0128)	(0.0120)	(0.0150)
RISK	0.0031	-0.0016	0.0067	0.0031	-0.0018	0.0069
	(0.0070)	(0.0066)	(0.0081)	(0.0070)	(0.0064)	(0.0082)
No. of observations	528	254	274	528	254	274

Notes: All estimations are the result of random-effects Tobit Regressions that are left-censored at 0.1 and where group is the panel identifier. All observations from groups where Type A chose the contract with the lower wage are eliminated. Round and Session dummies are included but not reported here. * denotes significance at the 10% level, ** denotes significance at the 5% level and *** denotes significance at the 1% level.

Table A13: Robustness Check 5: Random- Effects Tobit Regressions Types B and C

Excluding Groups Where Lower Wage Contract Chosen

Dependent Variable: EXERTED EFFORT	(1) All Rounds	(2) Rounds 1-3	(3) Rounds 4-6	(4) All Rounds	(5) Rounds 1-3	(6) Rounds 4-6
Constant	-0.3142** (0.1275)	-0.3634** (0.1572)	-0.2326 (0.1444)	-0.3675*** (0.1329)	-0.4754*** (0.1651)	-0.2412 (0.1552)
B	-0.0534 (0.0528)	-0.0461 (0.0561)	-0.0544 (0.0578)	0.0477 (0.0913)	0.1724 (0.1185)	-0.0382 (0.1219)
B*WAGE				-0.0016 (0.0012)	-0.0036** (0.0017)	-0.0003 (0.0018)
WAGE	0.0083*** (0.0007)	0.0081*** (0.0009)	0.0080*** (0.0010)	0.0092*** (0.0009)	0.0100*** (0.0013)	0.0081*** (0.0013)
DESIRED EFFORT	0.2344*** (0.0644)	0.2136** (0.0999)	0.2461*** (0.0894)	0.2355*** (0.0644)	0.2143** (0.0995)	0.2461*** (0.0894)
FEMALE	-0.0336 (0.0554)	0.0172 (0.0587)	-0.0704 (0.0607)	-0.0347 (0.0549)	0.0141 (0.0574)	-0.0706 (0.0607)
NO. FRIENDS	0.0584* (0.0333)	0.0334 (0.0350)	0.0697* (0.0366)	0.0581* (0.0330)	0.0355 (0.0343)	0.0696* (0.0366)
AGE	-0.0193 (0.0117)	-0.0080 (0.0125)	-0.0258** (0.0129)	-0.0186 (0.0116)	-0.0081 (0.0122)	-0.0256** (0.0129)
RISK	0.0056 (0.0063)	0.0011 (0.0066)	0.0074 (0.0069)	0.0057 (0.0062)	0.0015 (0.0065)	0.0074 (0.0069)
No. of observations	528	254	274	528	254	274

Notes: All estimations are the result of random-effects Tobit Regressions that are left-censored at 0.1 and where group is the panel identifier. All observations from groups where Type A chose the contract with the lower wage are eliminated. Round and Session dummies are included but not reported here. * denotes significance at the 10% level, ** denotes significance at the 5% level and *** denotes significance at the 1% level.

Appendix 2: Instructions

General Information

Thank you for being part of our research. You will be taking part in a study of labor markets. If you read these instructions carefully, you may earn a significant sum of money.

During the experiment your income will be calculated in Coupons. After the experiment Coupons will be exchanged into Euros according to the following exchange rate:

4 Coupons = 1 €

In addition you will receive a show-up fee of 2.50 € You will be paid confidentially and in cash right after the experiment. If you have any question just raise your hand and we will come to help you.

Procedure

Each of you will be randomly assigned to one of two **groups**: "**managers**" and "**employees**." If you are an employee you will be assigned to one of the **three employee types A, B or C**. Which group and type you belong to is shown on the display. Each participant knows his or her role and type. They will not be changed during the experiment.

The experiment consists of several **market periods**. In each stage, **one** manager will be randomly assigned to one employee of each type. That means each manager will face three employees of the types **A, B and C**. The assignment will be anonymous, allowing no one to know at any point which other participants he or she is assigned to.

Each market period will have three stages as follows:

In **stage 1** every manager will design **two work contracts**. Each consists of the following elements:

- A **fixed wage** the manager has to pay the employee. The minimum wage is 20 Coupons, the maximum wage is 120 Coupons.

- A **desired effort level** for the employee. The **desired** effort level can be every number between 0.1 and 1.0.

In **stage 2** the valid work contract for the employees will be chosen. This happens as follows:

- The **type A employee** has the opportunity to pick one of the two contracts. The chosen contract will also be valid for the other employees of **type B and C**.
- The **type B employee** will be informed about both contracts offered and the decision of type A.

- The **type C employee** will be informed about the decision of type A only.

This procedure and the assigned type remain the same for each employee and will **not** be changed during the experiment.

In **stage 3** every employee can react to the valid contract by choosing his or her **actual effort level** that does **not** have to correspond with the **desired** effort level. The actual effort level can also be every number between 0.1 and 1.0.

The **income of a manager** in every market period depends on the fixed wage paid and the actual effort level. The **income of an employee** in every market period matches the fixed wage paid minus the costs for the chosen effort level. You will find the detailed procedure for calculating the income of managers and employees below.

Important: Your payoff

After the last period, one market period is randomly determined for every manager and employee. The income in this round combined with the 2.50€ show-up fee is your payoff and will be paid to you after the experiment in cash. Remember to decide carefully in each market period, for each period could be relevant for your payoff. Please note too that the income of a manager results from his work contract with *one* employee (either of type A *or* type B *or* type C)

How do Employees Calculate their Income?

In each period, one work contract is valid for every employee consisting of a **fixed wage** and the **desired effort level**. To determine the final income of each period, the **costs for the actual effort level** and **fixed costs** of 20 Coupons have to be subtracted from the fixed wage.

The costs for the **actual effort level** are determined as follows:

1. An employee determines his or her quantity of work by choosing a number between 0.1 and 1.0 from the schedule below. The lowest amount of work he or she can choose is 0.1: 0.2 is a slightly higher amount, and so on up to 1.0, the highest amount.
2. **The higher the quantity of work an employee chooses, the better it is for the manager. That is, the higher the number an employee chooses the higher the manager's income.** The exact calculation of the manager's income is described in detail on the next page.
3. **The higher the amount of work an employee chooses, the higher his work-related costs.** You can find out how these costs are related to quantity of work by looking at the schedule below.

Exerted effort level	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Costs	0	1	2	4	6	8	10	12	15	18

The income of an employee (in Coupons) is calculated using the following formula:

> **Income of an employee (in Coupons) =   fixed wage**
> **– costs for actual effort level**
> **– fixed costs (20 Coupons)**

How do Managers Calculate their Income?

1. In each period a manager is endowed with 120 Coupons per employee which he may use to pay the fixed wage for an employee. **The manager may choose every fixed wage between 20 and 120 Coupons.** If he makes an offer of 80 Coupons he will have 40 Coupons left. If he makes an offer of 20 Coupons he will have 100 Coupons left. The selection of a given fixed wage therefore leads to the respective number of Coupons remaining for the manager:

> **Coupons remaining = 120 Coupons – fixed wage**

2. The remaining Coupons are transformed into income through the following procedure: The remaining Coupons are multiplied by the exerted effort level of the employee. The result is the income of the manager in Coupons. This means:

> **Income of the manager (in Coupons) = Remaining Coupons * Exerted effort level**

Note:

The income for all managers and employees is calculated following the same rules. Every manager receives 120 Coupons **per period and employee**. The work related costs and the fixed costs are the same for each employee. Every manager is able to calculate the income of their own employee and each employee is able to calculate the income of their own manager.

Instructions on the computer screen

[Instructions differing for the different groups are marked with [].]

For the course of the entire experiment you are assigned the role of **[A, B, C: an employee of type]** **[M: a manager]**. In each period you are [**A, B, C:** randomly assigned a different manager] [**M:** randomly assigned three employees of type A, B and C.]

[A: Please wait until the manager has specified the two alternative contracts.**]**

[B: Please wait until the manager has specified the two alternative contracts and the type A employee has chosen one.**]**

[C: Please wait until the final contract is determined.**]**

[M: In stage 1 of each period you can specify **two work contracts** each consisting of a **fixed wage** and a **desired effort level**. Note that the fixed wage and desired effort level each need to be different for each contract!

In **stage 2** of each period, the type A and type B employees are informed about the two alternative contracts. The type A employee then decides upon one of the two contracts that will be valid for all three employees. In **stage 3** of each period all employees decide upon their actual effort level**]**

If you have any questions, please raise your hand and we will come to help you. If you have understood the instructions, please confirm by pressing the red OK-Button.

The labor market is now open. We are in period {t}.

[M: Stage 1: Designing the work contracts

Please specify the first of the two work contracts by selecting a fixed wage between 20 and 120 and a **desired** effort level between 0.1 and 1.0:

Work contract:

- Fixed wage of: {w1, whole number >=20, <=120}
- **Desired** effort level: {E1, number of table 1}

Please confirm you decision by pressing the red OK-Button.

Please specify another work contract by selecting a fixed wage between 20 and 120 and a **desired** effort level between 0.1 and 1.0. Note that the two contracts need to differ in both fixed wage and desired effort level.

Alternative work contract:

- Fixed wage of: {w2, whole number >=20, <=120 ≠ w1}
- **Desired** effort level: {E2, number of table 1 ≠ E1}

Right after you have again confirmed your decision with the red Button, stage 1 is finished. Please wait until all employees have finished their parts.**]**

[A: Your manager has specified the following two alternative contracts for you to choose:**]**

[B: In this period the manager has specified the following two work contracts from which type A employee is now choosing:**]**

[A, B:

- Fixed wage of: {w1}, **desired** effort level: {E1},
- Fixed wage of: {w2}, **desired** effort level: {E2}.**]**

[A: Please choose one of the two contracts by selecting the desired contract. Your decision is also valid for the type B and type C employees.**]**

[B: Which contract would you choose?**]**

[A, B:

Your choice:	{vi} [B: {vib}]	
Alternative contracts:	Fixed wage: {w1} Desired effort level: {E1}	Fixed wage: {w2} Desired effort level: {E2}

]

[A: You chose the following work contract:**]**

[B, C: The type A employee chose the following work contract that is also valid for you:**]**

[A, B, C:

- Fixed wage of {wi}, **desired** effort level {Ei}.

Please choose your corresponding **actual effort level** and select your choice from the following table:

Your choice										
Exerted effort level	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
COSTS	0	1	2	4	6	8	10	12	15	18

Please confirm your decision by pressing the red OK-Button.**]**

[A: You chose the following work contract:**]**

[B, C: The following work contract was selected:**]**

[A, B, C:

- Fixed wage of {wi}, **desired** effort level {Ei},

and you decided for an **actual effort level** of **[A:** {ea}] [B: {eb}] [C: {ec}**]**

Your income in this period is therefore calculated as follows:

- [A: {cna}] [B: {cnb}] [C: {cnc}] Coupons, that are [A: {ea}] [B: {eb}] [C: {ec}] Euros.

- Your manager receives: **[A:** {cga}] [B: {cgb}] [C: {cgc}**]** Coupons, that are **[A:** {ega}] [B: {egb}] [C: {egc}**]** Euros.**]**

[M: Your income in period {t}

In stage 1 you specified the following two contracts:

- Work contract 1: fixed wage {w1}, **desired** effort level {E1}

- Work contract 2: fixed wage {w2}, **desired** effort level {E2}

In stage 2 the type A employee chose **work contract {vi}** that is therefore valid for all employees. The following **actual effort levels** were chosen:

- Employee A: {ea}

- Employee B: {eb}

- Employee C: {ec}

You income from the work relation with the employees in this period is therefore:

- Of the contract with **Employee A**:

  - {cga} Coupons, that are {ega} Euros.

  - Employee A receives: {cna} Coupons, that are {ena} Euros.

- Of the contract with **Employee B**:

  - {cgb} Coupons, that are {egb} Euros.

  - Employee B receives: {cnb} Coupons, that are {enb} Euros.

- Of the contract with **Employee C**:

  - {cgc} Coupons, that are {egc} Euros.

  - Employee B receives: {cnc} Coupons, that are {enc} Euros.**]**

Note: At the end of the experiment **one** period [M: and one work relation] is randomly selected. Your income in this particular period will be paid to you in cash.

Right after you pressed the red OK-Button the next period of the labor market begins and [A, B, C: you will again be randomly assigned a manager] [M: you will again be randomly assigned employees of types A, B and C].

Please wait until the next period of the labor market is open.

3. Post-experimental Questionnaire

The following questions were rated on a 7-point scale (1=completely disagree; 7=completely agree)

[Worker Type A, B, C:]

- I consider the procedure that determined my work contract fair.
- My work contract was justified.
- The contract setting procedure was comprehensible.
- I am satisfied with my work contract.
- I had no influence on the final work contract.

[Manager:]

- The proposed work contracts were fair.
- The contract setting procedure was comprehensible.
- Employees will be satisfied with their work contracts.
- Employees had no influence on the final work contract.

IAAEU Discussion Paper Series in Economics

| 05/2013 | Structural and Cyclical Effects of Tax Progression |
| | *Jana Kremer and Nikolai Stähler* |

| 06/2013 | Regional Unemployment and Norm-Induced Effects on Life Satisfaction |
| | *Adrian Chadi* |

| 07/2013 | Third Person Effects in Interview Responses on Life Satisfaction |
| | *Adrian Chadi* |

| 08/2013 | The Role of Task Meaning on Output in Groups: Experimental Evidence |
| | *Agnes Bäker and Mario Mechtel* |

| 09/2013 | Gender Differences in Responsiveness to a Homo Economicus Prime in the Gift-Exchange Game |
| | *Vanessa Mertins and Susanne Warning* |

| 10/2013 | Relative Consumption, Working Time, and Trade Unions |
| | *Laszlo Goerke and Inga Hillesheim* |

| 11/2013 | The Role of Interviewer Encounters in Panel Responses on Life Satisfaction |
| | *Adrian Chadi* |

| 12/2013 | It's the Occupation, Stupid! Explaining Candidates' Success in Low-Information Elections |
| | *Mario Mechtel* |

| 13/2013 | Do Overconfident Workers Cooperate Less? The Relationship between Overconfidence and Cooperation in Team Production |
| | *Vanessa Mertins and Wolfgang Hoffeld* |

| 01/2014 | Income Tax Buyouts and Income Tax Evasion |
| | *Laszlo Goerke* |

| 02/2014 | Family Employees and Absenteeism |
| | *Jörn Block, Laszlo Goerke, José María Millán and Concepción Román* |

| 03/2014 | Dissatisfied with Life or with Being Interviewed? Happiness and Motivation to Participate in a Survey |
| | *Adrian Chadi* |

| 04/2014 | Gambling to Leapfrog in Status? |
| | *Tim Friehe and Mario Mechtel* |

| 05/2014 | The Magic of the New: How Job Changes Affect Job Satisfaction |
| | *Adrian Chadi and Clemens Hetschko* |

| 06/2014 | The Labor Market Effects of Trade Unions – Layard Meets Melitz |
| | *Marco de Pinto and Jochen Michaelis* |

| 07/2014 | Workers' Participation in Wage Setting and Opportunistic Behavior: Evidence from a Gift-Exchange Experiment |
| | *Jörg Franke, Ruslan Gurtoviy and Vanessa Mertins* |