

Online appendix to

Does managerial compensation affect workers' effort?

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This appendix contains the instructions (originally in Spanish) for the Public/MD - Sessions. The instructions for the other sessions were adapted appropriately and are available upon request.

Instructions for all participants

Thank you for coming to this experiment. You will be paid 3 euros for participating in this experiment, plus the tokens you earn, which accumulate over the course of the session, converted into euros. At the end of the session you will be privately paid. From now on, no communication is allowed. After reading these instructions carefully, please raise your hand if you have any question. There are three types of participants in this experiment: firm owner (which we call simply firm), worker, and manager. You have been randomly assigned a type corresponding to the card you received at the entrance. You will have that same type for the whole experiment. The experiment consists of 30 periods. In each period, each firm owner will be grouped with three workers and one manager. Firm, manager and workers are randomly re-matched every period. Each period consists of four steps, which will be described in the following.

Step 1: The account of the firm owner will be credited with a certain amount N of tokens. The firm owner decides individually how much to pay to the manager (S_m). Wages can not exceed the total amount assigned to the firm; wages are restricted to be in whole tokens, e.g. 0 tokens, 1 token, 2 tokens, etc.

Step 2: The manager observes the wage paid to him/her and the remaining endowment (RE) he/she can use to pay wages to the workers ($RE = N - S_m$). Then the manager decides how much to pay to the workers. The three workers get the same wage; wages are restricted to be in whole tokens, e.g. 0 tokens, 1 token, 2 tokens etc.; wages can not exceed the remaining endowment RE .

Step 3: After the workers observe the wage assigned, workers and managers choose a level of effort from 4 feasible levels. Each effort level has different costs for workers and manager and implies different revenues for the firm. Workers and manager have the same cost of effort, while the revenue provided by the manager is much higher than the revenue provided by the workers. The three workers are equally productive.

The payoffs for each participant are calculated in the following way:

The firm's profit is equal to the initial endowment (N) plus the profit generated by the manager plus 80% of the profit generated by the workers as long as this is positive. The profit generated by the manager is equal to the revenue provided by him/her minus the salary paid to him/her. The profit generated by the workers is the sum of the revenues generated by them minus the salaries

paid to them. When the profit generated by the workers is negative, the firm has to bear 100% of these costs.

Thus, if the workers' profit is ≥ 0 :

$$Firm's\ payoff = N + Profit\ Manager + 0.8 * Profit\ Workers$$

And if the workers' profit is < 0 :

$$Firm's\ payoff = N + Profit\ Manager + (negative)\ Profit\ Workers$$

Each manager receives the wage assigned and the bonus (20% of the profits: revenue provided by the workers minus the wages assigned to the workers, as long as this difference is positive), less the cost of the effort level chosen.

When the workers' profit is ≥ 0 :

$$Manager's\ payoff = Manager's\ Wage + 0.2 * Profit\ Workers - Cost\ of\ Effort$$

When the workers' profit is < 0 :

$$Manager's\ payoff = Manager's\ Wage - Cost\ of\ Effort$$

Each worker receives the wage assigned, minus the cost of the effort level chosen.

$$Worker's\ payoff = Worker's\ Wage - Cost\ of\ Effort$$

Step 4: The participants are informed about the decisions in the following way:

- Firms are informed about the wage paid to the workers, about each worker's and manager's choice of effort, the corresponding revenues and about his/her own resulting earnings.
- Managers are informed about each worker's revenue and about his/her total earnings.
- Workers are informed about the total revenue provided (by workers and manager) and about their individual total earnings.

After step 4, the period is over. At the end of period 30, you will be paid 3 euros for participating in this experiment, plus the tokens in your account at that time converted into euros.

Over the course of the session, changes in the economic situation (indicated by the initial endowment) of the firm might occur, which will be communicated to you when they occur.

Instructions for Firms

Your role in this experiment is: firm owner. You will keep this role for the whole experiment. You will be matched every period with one manager and three workers.

At the beginning of each period, your account will be credited with 15 tokens. You decide what wage to offer to the manager. Wages can not exceed your 15 tokens endowment, and wages are restricted to be in whole tokens, e.g. 0 tokens, 1 token, 2 tokens etc. The manager will be informed about his/her wage and will then decide what wages to offer to the workers out of the remaining endowment. After the manager and the workers have been informed about their wages, (and after the workers are informed also about the manager's wage) they will choose a level of effort. The more effort supplied, the more revenues you earn. But effort is costly to the workers and the manager.

In the following table you can see the costs of the effort levels that the workers and the manager can choose, and the revenues they provide. The manager sees the same table as you, whereas workers only see the column reflecting costs and revenues for them.

Table 1

- Zero effort level by either worker or the manager, means zero effort cost to both of them and no revenue.
- Effort level 1 by a worker generates revenues of 2 tokens, while effort level 1 by a manager generates revenues of 6 tokens. It costs 0.1 tokens to the workers and the manager.
- Effort level 2 by a worker generates revenues of 3.3 tokens, while effort level 2 by a manager generates revenues of 10 tokens. It costs 0.3 tokens to the workers and to the manager.
- Effort level 3 by a worker generates revenues of 4 tokens, while effort level 3 by a manager generates revenues of 12 tokens. It costs 0.6 tokens.

Your earnings will be the sum of the earnings in the 30 periods of the experiment converted into euros plus 3€ for showing up. The conversion rate for your earnings is: 20 tokens = 1€, i.e. each token is worth 0.05€.

Please raise your hand, if you have any question.

Instructions for Managers

Your role in this experiment is: manager. You will keep this role for the whole experiment. You will be matched every period with one firm owner and three workers.

At the beginning of each period the firm owner's account will be credited with 15 tokens and he/she should decide your wage (S_m). You will be informed about your wage and the remaining endowment (RE) you can use to pay wages to the workers ($RE = 15 - S_m$). Then, you must decide how much to pay to the workers. The three workers get the same wage; wages are restricted to be in whole tokens, e.g. 0 tokens, 1 token, 2 tokens etc; wages can not exceed the remaining endowment RE.

Then, you should choose a level of effort. The workers will do the same, after receiving the information about their own and your wage. Each effort level has different costs for you and the workers and implies different revenues. In the following table, you can see the costs of the effort levels and the revenues they provide.

Table 2

It means, if you choose:

- zero effort level, it implies zero cost to you and no revenue,
- effort level 1, it implies a cost of 0.1 tokens to you and a revenue of 6 tokens,
- effort level 2, it implies a cost of 0.3 tokens to you and it generates a revenues of 10 tokens,
- effort level 3, it implies a cost of 0.6 tokens to you and it generates revenues of 12 tokens.

It means that the higher the level of effort, the higher the revenue for the firm and the higher the cost for you.

The workers will only observe the columns corresponding with their cost and revenue provided by them. If a workers chooses:

- zero effort level, it implies zero cost to him/her and no revenue,
- effort level 1, it implies a cost of 0.1 tokens to him/her and a revenue of 2 tokens,
- effort level 2, it implies a cost of 0.3 tokens to him/her and it generates a revenues of 3.3 tokens,
- effort level 3, it implies a cost of 0.6 tokens to him/her and it generates revenues of 4 tokens.

Your earnings will be the sum of the earnings in the 30 periods of the experiment converted into euros plus 3€ for showing up. The conversion rate for your earnings (and the workers' earnings) is: 5 tokens = 1€, i.e. each token is worth 0.20€.

Please raise your hand, if you have any question.

Instructions for Workers

Your role in this experiment is: worker. You will keep this role for the whole experiment. You will be matched every period with one firm owner, one manager and two workers.

At the beginning of each period the firm owner's account will be credited with N tokens and he/she must decide the manager's wage (S_m). The manager will be informed about his/her wage and the remaining endowment (RE) he/she can use to pay wages to the workers ($RE = N - S_m$). Then, the manager must decide how much to pay to the workers. The three workers get the same wage; wages are restricted to be in whole tokens, e.g. 0 tokens, 1 token, 2 tokens etc; wages can not exceed the remaining endowment RE. The manager is not obliged to choose a wage higher than 0 tokens.

Then, after knowing your wage, you should choose a level of effort. The manager and the other two workers will do the same. Each effort level has different costs for you and implies different revenues. In the following table, you can see the costs of the effort levels and the revenues they provide.

Table 3

It means, if you choose:

- zero effort level, it implies zero cost to you and no revenue,
- effort level 1, it implies a cost of 0.1 tokens to you and a revenue of 2 tokens,
- effort level 2, it implies a cost of 0.3 tokens to you and it generates a revenues of 3.3 tokens
- effort level 3, it implies a cost of 0.6 tokens to you and it generates revenues of 4 tokens.

It means that the higher the level of effort, the higher the revenue for the firm, the higher the probability that the manager receives a bonus, and the higher the cost for you.

Your earnings will be the sum of the earnings in the 30 periods of the experiment converted into euros plus 3€ for showing up. The conversion rate for your earnings (and the manager's earnings) is: 5 tokens = 1€, i.e. each token is worth 0.20€.

Please raise your hand, if you have any question.

For the instructions

Table 1 & Table 2

Effort level	Cost of the effort	Revenue provided by the worker	Revenue provided by the manager
0	0	0	0
1	0,1	2	6
2	0,3	3,3	10
3	0,6	4	12

Table 3

Effort level	Cost of the effort	Revenue provided
0	0	0
1	0,1	2
2	0,3	3,3
3	0,6	4