WORKERS’ SELECTION, EFFORT AND CONFLICT OF INTERESTS

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Abstract: Reciprocity has been widely emphasized as a positive norm for motivating workers in organizations, when their members’ interests are misaligned. In this study we aim at experimentally investigating the emergence of a dark side of reciprocity in hierarchical organizations, leading workers to incur in inefficient and opportunistic behavior, finally damaging the organization. In particular, we consider a hierarchical organization in which an agent has to hire, on the behalf of the principal, one worker out of two to perform a task for a fixed compensation.

The two workers differ in their ability and, once employed, the selected one decides which level of costly non contractible effort to exert in two activities: one benefits the organization (i.e. both the principal and the agent) while the other is less efficient and only benefits the agent. We provide evidence that: i) the lower ability workers are more likely to exert effort in the inefficient activity that provides benefits solely to the agents; ii) agents distort the hiring process in favor of the low ability workers as a consequence and iii) sharing part of the organization’s profit with the workers, rather than (only) with the agents, alleviates the effort distortion due to the conflict of interest within the organization.

Keywords: Conflict of Interest, Effort Distortion, Profit Sharing, Reciprocity.

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1. Introduction

One of the main scopes of compensation schemes is to align the interests of the members within an organization. In standard models, alignment of interests between principal and agents is obtained by correlating agents’ wages to verifiable outcomes, possibly reducing the efficiency of the job relation due to distortions in risk sharing. However, if agents exhibit reciprocal concerns, the principal can reduce their opportunistic behavior without negatively affecting efficiency, by offering them a wage higher than the incentive compatible one (gift-exchange hypothesis). The fair action by the principal will indeed be reciprocated by a fair action by the agents. It follows that reciprocity concerns are usually considered as desirable features in organizations, reducing the costs of aligning interests between its members.

In hierarchical organizations, however, conflict of interest between its members may emerge at multiple levels: in such a situation, reciprocity can exacerbate, rather than alleviate, the negative effects of members’ misalignment of objectives. In particular, reciprocity can induce an “exchange of favors” between the members of the organization, decreasing its overall efficiency: one member’s intentional actions aimed at illegitimately increasing the welfare of another member will be reciprocated by the latter one, even if this occurs at the expenses of the organization. In this paper, we provide evidence of the emergence of a dark side of reciprocity, which negatively affects firm’s profits. In such a situation, the design of the optimal compensation scheme has to conveniently take it into account, in order to (re)align members’ interests at all levels of the organization.

We design an experiment that renders a three-level hierarchical organization, formed by one principal, one agent, and two candidates for a job. The agent has to select one worker between the two candidates, who, once hired, chooses a level of non-verifiable effort. The worker can exert his effort either just in activity X, which is beneficial for the whole organization (i.e. both the principal (85%) and the agent (15%)), or also in activity Y, which inefficiently only provides private benefits to the agent. Importantly, the two candidates differ in their abilities: for each level of effort exerted in activity X, the high ability candidate is more productive than the low ability one, generating higher profits for the organization; however, if exerting effort in activity Y, the two candidates are not different in terms of productivity.

Even if it is public information that candidates have different abilities, only the agent is able to distinguish among them: in particular, the principal cannot observe which one of the two candidates has the higher ability and only receives noisy information regarding the exerted effort by the hired one. We implemented a between subjects design and consider three different

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1 We use the female pronoun for the agent and the male pronoun for the principal and for the workers.
treatments: Baseline, Selection and Profit Sharing. In all treatments, once hired, the worker chooses how much effort to exert in activities X and Y.

In the Baseline treatment, the principal orders the agent which candidate to hire: the high or the low ability one. The agent can only obey to the principal and, thus, cannot take any decision (the set of available actions to the agent once the principal has moved is always a singleton).

In the Selection treatment, the principal privately suggests to the agent which candidate to hire, but the agent is free to follow the suggestion or not. The fact that the agent takes the hiring decision is made salient by allowing her to send a private message to the selected worker, suggesting how much effort to exert in each activity X and Y.

These two treatments allow us to investigate whether the introduction of a powerful hierarchical level in the organization affects i) the type of candidates who is hired; ii) the level of effort exerted by the hired worker both in activity X and Y. It is important to note that when reciprocal concerns are absent, a selfish agent will always prefer the high ability worker to the low ability one, since the former is more productive when exerting the minimum enforceable effort in activity X. We thus should not observe any difference in the hiring choice and in the effort exertion between the Baseline and the Selection treatment.

Our main findings are twofold. First, in the Selection treatment, we observe a substantial and significant increase in the number of low ability candidates hired. Second, we find that such a hiring distortion with respect to the Baseline treatment is driven by low ability workers exerting more effort in activity Y than the high ability ones. Agents do strategically exploit the reciprocal concern of low ability workers, who feel less entitled to get the job and are thus more likely to exert effort in activity Y. In particular, in our setting, a compensation scheme that assigns to the agent 15% of the payoff generated in activity X is not high enough to deter the latter to profit of her powerful position at the disadvantage of the organization.

A costly way to avoid the agent to take illegitimate advantage of the reciprocal concerns of the (low ability) workers is to perfectly align her interests with the principal’s ones, by increasing the size of the profit sharing to such a level so that she also prefers the worker’s effort to be devoted to activity X. As a consequence, both the distortion in the selection process and in the effort provision should disappear. However, we propose a much less costly compensation scheme that helps in reducing the negative effects of conflicts of interests in hierarchical organization: in the Profit Sharing treatment, we replicate the design implemented in the Selection treatment, with the only difference that the 15% of the monetary payoff generated by the effort exerted in activity X is now equally shared between the agent and the hired worker (7.5% each). We show that this compensation scheme induces both workers to exert a higher level of effort in activity X, while decreasing their effort in activity Y, with respect to the Selection treatment. As a consequence, the profit of the organization is restored to the same
level as in the *Baseline treatment*, preventing the agent to illegitimately take advantage of her powerful position.

The reminder of this paper is organized as follows. Section 2 sets our paper in the related literature. Section 3 sets out the design and procedures of the experiment. The presentation of our findings is provided in Section 4. Finally, Section 5 discusses our results and concludes.

2. Related literature

The gift-exchange hypothesis, first formulated by Akerlof in his seminal paper in 1982 (see also Gintis, 1976; Akerlof and Yellen, 1988, 1990), states that principals offering wages higher than the incentive-compatible ones could be overcompensated for that, with grateful workers exerting more effort than the minimum enforceable level. This hypothesis has received wide support in laboratory (e.g., Fehr et al., 1993, 1997, 1998; Fehr and Gatcher, 1998; Fehr and Falk, 1999; Charness, 2004; Hannan et al., 2002; Brown et al., 2004; Maximiano et al., 2013) and field experiments (e.g., Gneezy and List, 2006; Bellemare and Shearer, 2009; Henning-Schmidt et al., 2010; Kube et al., 2012). This evidence is based on the notion of reciprocity: agents obey to this social norm when perceiving that the offered wage is higher than the (perceived) incentive compatible one. Interestingly, Charness *et al.* (2012) show that delegating the wage choice to employees, rather than just offering them a higher wage, represents a Pareto improvement in the Gift-exchange paradigm. However, whether the “gift exchange” mechanism is beneficial to organizations actually depends on circumstances. Indeed, if reciprocity may positively affect organizations, as in the above described situation, it can also damage them, when the same principle is used by its members as an enforcement device to reach personal illegitimate benefits (Jacquement, 2012). In our study, we are analyzing whether, in a three-level hierarchical organization, such a mechanism will cause workers to inefficiently reciprocate agents who hired them, instead of addressing their effort in favor of the organization they are enrolled in.

When considering the working environment, the hiring process represents a relevant dimension of the principal-agent relationship. In particular, another important thread of the literature is focused on the efficiency loss due to distortions in the selection process: organization’s overall performance is usually negatively affected when candidates’ evaluation in the hiring process is not based on their ability (Kramarz and Thesmar, 2007; Levine *et al.*, 2010). Managers may indeed favor people according to their personal preferences when objective evaluations of workers’ performance is not available (Prendergast and Topel, 1996), or may favor employees who engage in ingratiatory behavior to conform their ideas on managers’ opinions, regardless of their objective ability (Robin et al., 2012). In a field experiment, Bandiera *et al.* (2009) show that managers are more likely to hire people according to their social connections when they are
paid a fixed wage than when they are paid according to bonuses based on the average productivity of the managed workers.

While all these authors analyze the distortion in the hiring process as a result of the presence of managers’ personal preferences towards workers, our first aim is to analyze whether such a distortion is effective even when there are not any kind of social ties among the organizational members. In our experiment, in particular, conflict of interests within the hierarchical organization is a major source in explaining the inefficient employment allocation of workers.

Tirole (1986) and Laffont and Martimort (1997) have expanded the analysis of the traditional principal-agent paradigm to hierarchical organizations, where the principal has to delegate the decision making authority to managers who may, as a result of asymmetric information and costly monitoring, collude with the agents they should supervise. In particular, previous studies analyze how to reduce the negative effects of internal corruption by manipulating the structure of monitoring hierarchies (Mehmet, 1996) and suggest to reduce effort incentives for employees while increasing managers compensations (Thile, 2013). Chang and Lai (2002) investigate the role of social norms in affecting the corruptive behavior of supervisors, showing that when the latter are already plagued with corruption, then paying them more than workers limit worker’s slack. Our study contributes to this stream of research providing evidence that, in the presence of conflict of interests between delegated managers and principals, illegitimate behaviors emerges even when managers’ compensations scheme is relatively high and related to worker’s performance.

In our experiment the agent acts as a hiring expert who has more information than the principal about the quality of the candidates. The negative effect of conflict of interests in professional advisor-client relationships has been analyzed in the medical practice (Dana and Loewenstein, 2003; Loewenstein et al., 2012), in the auditing environment (Cain et al., 2005; Koch and Schmidt, 2010), in the real estate market (Levitt and Syverson, 2008) and in the general framework of experts (Loewenstein et al., 2011; Norton and Isaac, 2012).

Finally, we propose to share a little part of the profit with the workers in order to overcome the hiring and effort distortions caused by the conflict of interests between different levels of the hierarchical organization. Rewards systems do not only represent a monetary incentive to workers but also affect their values, beliefs and attitudes regarding the corporate culture, ultimately affecting their productivity (Kerr and Slocum, 1987).

3. Experimental design

In order to test how the presence of a conflict of interest within the organization affects the selection process and the performance of the hired workers, we implement a variation of the design used by Montinari et al. (2012), adding one hierarchical level within the organization.
(i.e. an agent who has to select the worker to be hired) and allowing for inefficient forms of reciprocity, as a result of the presence of conflict of interest between the principal and the agent. The main game develops as follow. At the beginning of each session, each subject is matched with other three participants to form a group of four, that we call a firm. We will refer to them as Principal (P), Agent (A), Worker L (L) and Worker H (H). First, the principal has the possibility to send a suggestion to the agent, about which worker to hire. After being informed about the suggestion, the agent selects worker L or worker H. The selected worker has then to exert a costly effort in two activities, X and Y, for a fixed compensation. Workers L and H differ only with respect to their productivity, with worker H being more productive than worker L, when exerting the same level of effort in activity X. Only the agent is able to correctly distinguish workers’ ability. On the other hand, when plugging away at activity Y, workers have no differences in their ex ante ability. Once selected, the worker has thus to choose a costly effort level in activity X, which produces profits for the entire organization (both the agent and the principal), and a costly effort level in activity Y, which exclusively benefits the agent. However, after selecting one of the two workers, the agent has the opportunity to a priori refuse the value produced in activity Y, if any, thus devoting it to the principal. The cost of effort is increasing in the total effort exerted and does not depend on whether it is exerted in activity X or Y.

We run 3 treatments: Baseline, Selection and Profit Sharing treatment. In the Baseline treatment, the Principal’s suggestion whether to hire worker L or H is binding for the agent so that, by design, there is no conflict of interest in this treatment. In the Selection and Profit Sharing treatments, the agent is free to follow the suggestion of the principal or not. Moreover, in the Selection and Profit Sharing treatments, the agent has the opportunity to communicate to the selected worker a (non-binding) level of effort she would like him to implement in activity X and Y.

In the Selection treatment, it is made clear that the agent is hired by the principal in order to select one worker to work in the organization and should thus act on his behalf, by persecuting the best interest for the organization. The agent, when expecting both workers to exert the minimum level effort (i.e. 1), should then hire worker H, which assures a higher profit for the organization. However, the agent may decide to persecute her personal interest, while disregarding acting on the best interest for the organization. In particular, in such a situation, she may prefer to choose the low ability worker when expecting him to exert more effort in activity Y than the high ability one. Indeed, since the former is less entitled to get the job, he may be more likely to inefficiently reciprocate the agent’s choice. Still, as stated by Montinari et al. (2012), it is possible that the agent hires the low ability worker because she expects him to work harder for the Principal. In order to distinguish between the illegitimate behavior of the agent and the latter one, we also give the agent the possibility to ex-ante refuse the value eventually
produced by the selected worker in activity Y. Moreover, we reasonably think that the agent and the principal hold the same beliefs about workers’ effort choices in both activities, so that we expect no differences in their hiring decisions, when they both want to persecute the best interests for the organization. Finally, we also give the agent the opportunity to privately suggest to the hired worker a level of effort to exert both in activity X and in activity Y. Agents may suggest workers to work both for the organization, in activity X, and for themselves, in activity Y, in order to maintain a positive self image; in such a way they behave dishonestly enough to gain but honestly enough to convince themselves of their integrity (Mazar et al., 2008).

The Profit Sharing treatment is identical to the Selection one with the only difference that the effort exerted in activity X does not only benefits the principal and the agent, but also the worker. When comparing the Profit Sharing treatment to the Selection one, the conflict of interest between the principal and the agent is still present, but an incentive to act in the interest of the organization is provided to the worker. Interestingly, the cost of such an incentive scheme for the principal is the same as in the Selection treatment, where the agent received the 15% of the value produced in activity X: in the Profit Sharing treatment, indeed, both the agent and the worker receive the 7.5% of the value produced in activity X.

Our experiment consists of two parts. In the first part, participants play the game described above as one shot. In part two, they play the same game for 15 periods, maintaining the same role of part 1 but under a stranger random matching protocol. Participants were informed that the experiment was composed of two parts, but they only received instructions about part two after having completed part one. We can thus analyze whether the above described dark side of reciprocity emerges both in one-shot interactions and as a consequence of players’ learning during repetitions, when strategic motives are not at stake.

### 3.1. Payoffs

In the experiment, labor contracts do not contain any explicit incentives to make the worker exert a costly effort. In the Baseline and Selection treatments, the worker, once hired, receives a fixed wage \( w_w \) equals to 50 ECUs, and incurs in a cost when exerting effort in activity X or Y. Differently, in the Profit Sharing treatment, the worker also gets the 7.5% of the value he

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2 Notice that the magnitude of the incentive is very small and it does not affect the optimal effort choice by payoff maximizing workers, equals to an effort level of 1.

3 Since each session is played by 28/32 participants, the probability to meet the same group of players during the second part of the game is quite low; moreover, participants have no possibility to communicate with each other and thus to recognize players they have already been matched with.

4 At the end of part one the subjects did not receive any feedback information about their payoff or the strategies of the other players and this was common knowledge.

5 We employed a conversion rate of 10 ECUs = €1.
produced in activity X. The chosen effort level in activity X, \( e_x \), has to be an integer number between \( e_x = 1 \) and \( e_x = 10 \), whereas the effort level devoted to activity Y, \( e_y \), has to be an integer number between 0 and 5. The total exerted effort \( e_x + e_y \) cannot exceed level 10.

Note that if the worker chooses the minimum enforceable effort level (i.e. 1), this effort is necessarily exerted in favor of activity X. Therefore, workers who aim at maximizing their payoff, will only exert a level of effort equals to 1 in activity X (this is true also for the profit sharing treatment, since the magnitude of the provided incentive is very low).

The cost of the effort increases as the sum of the effort exerted in activity X and Y increases and it does not depend on the worker’s ability in performing activity X (i.e. \( c(e) = c(e_x + e_y) \) for both worker H and L). The effort cost function is convex and its outcomes and the associated payoffs for the worker are displayed in Table 1 (the cost function is the same used in Brown et al. (2004) with the only difference that in this paper the agent only exerts effort in one activity).

The worker who has not been chosen receives an unemployment benefit of 10 ECUs.

**Table 1. Payoff for the selected worker.**

<table>
<thead>
<tr>
<th>( e_x + e_y )</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earnings for the worker (=(W-Ce) )</td>
<td>50</td>
<td>49</td>
<td>48</td>
<td>46</td>
<td>44</td>
<td>42</td>
<td>40</td>
<td>38</td>
<td>35</td>
<td>32</td>
</tr>
</tbody>
</table>

The principal’s payoff entirely depends on the chosen level of effort by the hired worker in activity X. In every period of the game he is endowed with a budget \( E \) equals to 100 ECUs, which is entirely spent in order to pay both the wage of the agent and of the hired worker. The principal gets the 85% of the value produced by the hired worker in activity X. Depending on which worker is hired, the principal’s payoff differs according to the profit’s scheme illustrated in Table 2, which is calculated as follows:

\[
P^k_p = (e_x + \alpha_k) \cdot 8.5 \cdot RV
\]

Where, the productivity factor \( \alpha \) indicates the worker’s ability with \( k = \{H, L\} \) such that \( \alpha_H > \alpha_L \) and \( P^H_p > P^L_p \); in particular, in our experiment \( \alpha_H = 0.5 \) and \( \alpha_L = 0 \).

The Random Value RV can affects both positively or negatively the surplus generated by activity X, \( RV \in [\underline{v}, \overline{v}] \) with \( \underline{v} < 1 \), \( \overline{v} > 1 \) and \( E(RV) = 1 \). The random component makes thus difficult for the Principal to infer which effort level has been chosen by the hired worker.
Table 2. Principal’s payoff (when considering the RV affects the payoff with its expected value equals to 1).

<table>
<thead>
<tr>
<th>Effort in X</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value if H is hired</td>
<td>12.8</td>
<td>21.3</td>
<td>29.8</td>
<td>38.3</td>
<td>46.8</td>
<td>55.3</td>
<td>63.8</td>
<td>72.3</td>
<td>80.8</td>
<td>89.3</td>
</tr>
<tr>
<td>Value if L is hired</td>
<td>8.5</td>
<td>17.0</td>
<td>25.5</td>
<td>34.0</td>
<td>42.5</td>
<td>51.0</td>
<td>59.5</td>
<td>68.0</td>
<td>76.5</td>
<td>85.0</td>
</tr>
</tbody>
</table>

The agent receives a fixed wage $w_m$ equals to 50 ECUs. As for the principal, her payoff increases depending on the exerted level of effort in activity X and in activity Y, according to the following rule:

$$P^k_M = w_m + ((e_x + \alpha_e) \cdot 1.5) + (e_y \cdot 4.3)$$

In the Baseline and Selection (Profit Sharing) treatments, the agent gets the 15% (7.5%) of the value produced in activity X and, as for the principal, depending on which worker is hired, the payoff coming from activity X differs, with the value produced by worker H being higher than the value produced by worker L, when considering the same level of effort (i.e. $\alpha_H > \alpha_L$ with $\alpha_H = 0.5$ and $\alpha_L = 0$). Differently, the profit produced in activity Y is not affected by the worker’s ability. Most importantly, as easily notable in Table 3, when considering the same level of effort, activity Y is always less efficient than activity X in producing earnings, independently on whether the worker is of type H or L.

Table 3a. Agent’s payoff depending on the effort exerted by the hired worker in activity X.

<table>
<thead>
<tr>
<th>Effort X</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value if L is hired</td>
<td>2.3</td>
<td>3.8</td>
<td>5.3</td>
<td>6.8</td>
<td>8.3</td>
<td>9.8</td>
<td>11.3</td>
<td>12.8</td>
<td>14.3</td>
<td>15.8</td>
</tr>
<tr>
<td>Value if H is hired</td>
<td>1.5</td>
<td>3.0</td>
<td>4.5</td>
<td>6.0</td>
<td>7.5</td>
<td>9.0</td>
<td>10.5</td>
<td>12.0</td>
<td>13.5</td>
<td>15.0</td>
</tr>
</tbody>
</table>

Table 3b. Agent’s payoff depending on the effort exerted by the hired worker in activity Y.

<table>
<thead>
<tr>
<th>Effort in Y</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Produced value</td>
<td>0.0</td>
<td>4.3</td>
<td>8.5</td>
<td>12.8</td>
<td>17.0</td>
</tr>
</tbody>
</table>

3.2. Feedback

Information about part 1 is only provided at the end of the experiment. At the end of each period of part 2, we provide the principal with an imperfect feedback regarding the chosen level of effort by the hired worker in activity X: indeed, he only receives information regarding the earnings produced in this activity, that depend both on the exerted effort and on a an unknown random component with expected value equals to one. Differently, the agent receives information about the exerted level of effort by the selected worker in both activity X and Y.
Finally, both the agent and the principal are informed about the average effort chosen in activities X and Y by employees of type H and L which have been hired by other firms in that session and about how many employees of type H and L have been hired within the precedent period of the session. We believe that spreading the information regarding other’s behaviour in the game is critical in explaining individual’s behaviour. Indeed, as previous research has stated (Kees et al., 2008; Diekman et al., 2011; Gino et al., 2011), other’s social norm’s violation affects individuals choices: we thus expect that when a “corruptive” social norm begins to spread among players (i.e. the proportion of agents choosing the ex ante low ability worker increases, as well as the proportion of them exerting higher effort than ex ante high ability workers in activity Y), then the propensity of agents pursuing their personal interest at the expenses of those of the organization increases, generating a snowball effect (Chang and Lai, 2002).

3.3. Procedures
The experiment was programmed using zTree (Fischbacher, 2007). We conducted 21 experimental sessions at the experimental laboratory of the Max Planck Institute of Economics (Jena, Germany), from November 2013 to February 2013. Respectively, 216, 212 and 216 subjects participated to the Baseline, to the Selection and the Profit Sharing treatment, with about 28/32 individuals taking part in each session. The subjects were undergraduate students from the Friedrich Schiller University Jena recruited via the ORSEE software (Greiner, 2004).

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Participants</th>
<th>Group</th>
<th>Sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSL</td>
<td>216</td>
<td>54</td>
<td>7</td>
</tr>
<tr>
<td>SEL</td>
<td>212</td>
<td>53</td>
<td>7</td>
</tr>
<tr>
<td>PS</td>
<td>216</td>
<td>54</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>644</td>
<td>161</td>
<td>21</td>
</tr>
</tbody>
</table>

Once arrived in the laboratory, each participant was randomly assigned to one visually isolated computer terminal. It was common knowledge that the experiment was composed by two parts. Each subject received written instructions for the first part of the game. The instructions were read aloud and then individuals were asked to answer a set of control questions on the screen. Roles were then randomly assigned to subjects, who played the first part of the game (i.e. the one shot decision). Once having completed part one, instructions about part two of the

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6 Participants receive a similar feedback regarding others’ behavior in part one only after part two is completed, and this is common information. This design assures that subjects play a one shot game in the first part of the game.
experiment were distributed and read aloud. In the second part of the experiment, participants played the game 15 periods repeatedly, with a random re-matching of groups after each period. At the end of each session, one period of part two was randomly extracted for payment. The payoff of part one then was added up and the sum was converted into Euro. The duration of each session was about 110 minutes and the average payment was --- Euro, including a show up fee of 4 Euros.

4. RESULTS

In the following sections we are referring to the Baseline, Selection and Profit Sharing treatments respectively as BSL, SEL and PS. First, in section 4.1, we analyze the agent’s hiring decision comparing the SEL and PS treatments, where a conflict of interest between the principal and the agent is present, to the BSL treatment where, by design, there is no conflict of interest. Then, in section 4.2 we analyze the effort’s suggestion made by agents to the selected workers. Moreover, we investigate the effort exertion by the hired workers in the three treatments, focusing on the relationship between effort in activity X (which is productive for the organization) and in activity Y (i.e. effort distorted in favor of the agent). Finally, in section 4.3, we provide the results regarding the profits both of the agents and of the principals, comparing the BSL, SEL and PS treatments.

Throughout the analysis, we will first present the results of the one shot decision taken in part 1, then we will focus on the dynamics observed over the 15 periods in part 2, when information about others’ behavior is spread among participants.

4.1 Selection

In order to determine if the conflict of interests between the principal and the agent impacts the workers’ selection process, we proceed in two steps. First we consider the selection in our BSL treatment where, by design, there is no conflict of interest. Then, we analyze the agents’ choices in treatments SEL and PS, given the principals’ suggestion. It may be the case, in fact, that a principal prefers to hire the L worker believing that, once hired he would exert higher effort in activity X than the H worker, because feeling less entitled to get the job, as shown by Montinari et al. (2012).

The hiring decision made by the principal in the BSL treatment as well as the suggestion sent to the agents in the SEL and PS treatments are reported in Table 5. In the BSL treatment, a fraction

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7 We analyze the results of the second part of the game by running the following statistical analysis: we consider each session as a single observation in order to take into account that spreading information regarding other participants’ behavior may render participants’ choices not to be independent within the same session.
of principals hire the L workers and, similarly, in the SEL and PS treatments, they suggest the L worker to be hired by the agents.

Specifically, in part 1, we find that the proportion of the principals suggesting to hire a L candidate is not different in the BSL and SEL treatments, while it is slightly higher in the PS treatment than in the BSL one (two sample tests of proportion: BSL vs. PS: $z=2.07$, $p=0.04$; BSL vs. SEL: $z=1.18$, $p=0.24$; SEL vs. PS, $z=0.91$, $p=0.36$).

<table>
<thead>
<tr>
<th>Table 5. Choice and Suggestion of the Principal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Part 1</strong></td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td><strong>BSL</strong></td>
</tr>
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<tr>
<td><strong>SEL</strong></td>
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<tr>
<td><strong>PS</strong></td>
</tr>
</tbody>
</table>

*Note.* In treatment BSL the suggestion of the principal is binding for the agents. In treatments SEL and PS the suggestion from the principal is cheap talk.

When looking at 15 repetitions in part 2, we find that the proportion of the principal suggesting to hire an L candidate is not different across treatments (Mann Whitney test: SEL vs. BSL: $z=1.02$, $p=0.31$; SEL vs. PS: $z=0.51$, $p=0.61$; BSL vs. PS, $z=0.57$, $p=0.56$).

Consider now Table 6, which reports the hiring decision of the agents in the SEL and PS treatments depending on whether they follow or not the suggestion received by the principal.

<table>
<thead>
<tr>
<th>Table 6. Percentage of agents NOT following the principals’ suggestion</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Part 1</strong></td>
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<tr>
<td>-------------</td>
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<tr>
<td><strong>SEL</strong></td>
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<tr>
<td></td>
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<tr>
<td><strong>PS</strong></td>
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</tbody>
</table>

When the agents have the possibility to choose which worker to hire, a significant share of them decide to deviate from the suggestion of the principal. In the SEL and PS treatments, respectively 28.30% ($N=15/53$) and 24.07% ($N=13/54$) of agents in part 1 do not follow the suggestion of the principal. In part 2, overall the 15 periods, this happens in the 42.46% and in the 40% of the cases for treatment SEL and PS, respectively. Both in part 1 and 2, these proportions are not significantly different across the two treatments (part 1, two samples test of proportions: $z=0.50$, $p=0.619$; part 2, Mann Whitney test: $z=0.83$, $p=0.40$). When restricting the attention only to those agents hiring the L workers, we find that in the SEL and PS treatments, in part 1, respectively the 87.50% ($N=7/8$) and 50% ($5/10$) of agents select the L workers.
workers without following the principal’s suggestion. In part 2, the 60.04% of agents hire the L worker ignoring the different suggestion of the principal, while in the PS treatment this happens the 60.60% of the times.

These first evidences show that agents deviate from the suggestion of the principal more often when hiring less able workers than when hiring more able ones. This can be considered as a first signal of a potential distortion on the hiring process operated by the presence of the conflict of interest.

**Result 1.** In both the SEL and PS treatments, agents are more likely to hire low ability workers without following the suggestion of the principal compared to the BSL treatment. In the SEL treatment, the percentage of low ability workers hired increases over time.

Support for Result 1 can be found in Tables 5-7. Consider first the choices made in Part 1. In the Baseline treatment, 9.26% (N=5/54) of the principals decide to hire the less able workers, whereas a slightly higher proportion of agents enroll them in the SEL and PS treatments, 15.09% (N=8/53) and 18.52% (N=10/54), respectively. According to a set of two sample proportion tests, these differences across treatments are not statistically significant (BSL vs. SEL: $z = 0.92 \ p = 0.36$; BSL vs. PS: $z = 1.39 \ p = 0.164$; SEL vs. PS: $z = 0.47 \ p = 0.636$).

Consider now Part 2. Inspection of Table 7 reveals that, when considering the 15 periods overall, the percentage of low ability workers hired is significantly higher when there is a conflict of interests between the principal and the agent (Mann Whitney test: BSL vs. SEL: $z = 2.50 \ p=0.04$; BSL vs. PS: $z=2.23 \ p=.02$; SEL vs. PS: $z=0.12 \ p=0.90$). Moreover, when comparing the SEL and PS treatments, there are no significant differences in the hiring behavior of the agents.

When analyzing the dynamics of the hiring decision across periods, it can be noted that in the SEL treatment the percentage of low ability workers hired increases of about 10 percentage points over time, from 39.08% in the first block of 5 periods to 54.03% in the last 5-periods block. While the percentage of low ability workers enrolled by the agent is progressively increasing in the SEL treatment, the hiring behavior of the principal remains almost constant in
the PS and BSL treatments. Thus, the presence of conflict of interest has an effect on the hiring decision of agents. Since at the end of each period the information regarding the hired workers’ average exerted effort both in activity X and Y is spread among participants, we expect the hiring decision, in particular in the SEL treatment, to be linked to workers’ behavior. In the next section we thus analyze the exerted effort of workers in activity X and Y.

### 4.2 Effort

In the SEL and PS treatment, after the agent has chosen whether to hire the high or the low ability agent, she has the opportunity to suggest him which level of effort to exert in activity X and Y.

We observe that agents suggest workers which level of effort to exert in activity X and Y depending on their ability. In particular, in the second part of the SEL treatment, the agent is suggesting the low ability candidate to choose a level of effort in activity Y equals to 3.29, while asking for a significant lower level of effort (2.59) when hiring the high ability one (High vs. Low ability worker, Mann-Whitney test: $z = 2.24, p=0.02$). We observe the opposite result, the agent suggests the low ability worker to choose a lower level of effort than the high ability one (3.44 vs. 4.07), when considering activity X, even if the difference is not significant (High vs. Low ability worker, Mann-Whitney test: $z = 1.21, p=0.22$). In the PS treatment the agents behave according to the same pattern than in the SEL treatment. However, while the suggested effort in activity Y to the high and low ability workers is not significantly different (High vs. Low ability worker, Mann-Whitney test: $z = 0.32, p=0.75$), the agents are significantly more likely to suggest to high ability workers to work harder than low ability ones in activity X (High vs. Low ability worker, Mann-Whitney test: $z = 1.72, p=0.08$).

In the following subsections we focus on the effort choices made by the hired worker. Once selected, the worker simultaneously chooses the effort level to exert in activity X, which benefits both the principal and the agent, and in activity Y, which inefficiently only provide benefit to the agent.

When comparing the three treatments, we proceed as follows. First, we analyze the effort choices in activities X and Y, irrespectively of the workers’ ability. Second, we concentrate on the differences in effort exertion both in activity X and Y, driven by differences in the ability of the selected workers (both within treatments and between treatments). Finally, we present the results of a set of multiple regression models estimating simultaneously the effort choices in activity X and Y.

#### 4.2.2 Effort Exertion in Activity X
The effort exerted in activity X is profitable for the whole organization, i.e. both for the principal and the agent. As a consequence, a worker, when being concerned for the agent’s welfare, does not necessarily have to exert effort in activity Y. 

Both in the BSL and in the SEL treatments, there are no explicit incentives to make the workers to exert effort. In particular, since workers are paid a fixed wage and effort is costly to exert, a payoff maximizer worker chooses the minimum enforceable level of effort (i.e. 1) in activity X. Conversely, in the PS treatment, the workers receive, on the top of the flat wage, the 7.5% of the value produced in activity X. This incentive, however, is not high enough to change the optimal effort choice for a payoff maximizer worker, who should choose to exert the minimum enforceable effort level in the PS treatment too. 

We find that, in both parts of the game and irrespectively of their abilities, workers exert an effort higher than the minimum enforceable one in activity X, as stated in Result 2.

**Result 2.** In the absence of explicit incentives to make the hired worker exert a costly effort, in all treatments, workers choose to exert a positive effort in favor of the organization, higher than the minimum enforceable one. In the PS treatment, hired workers choose a higher effort level than in BSL and SEL treatments. 

Support for Result 2 can be found in Table 8 and Figure 1. In part 1, workers hired in the BSL and in the SEL treatments exert an average effort of 2.76 and 2.79, which are not significantly different from each other (Mann-Whitney test, \( p=0.54, z=0.61 \)). The average effort in the PS treatment, however, is equal to 3.66, which is significantly higher than both the BSL and SEL treatments (PS vs. BSL: Mann-Whitney test, \( p=0.00, z=2.60 \); PS vs. SEL: Mann-Whitney test, \( p=0.014, z=2.47 \)). 

In part 2, workers in the BSL and SEL treatments exert, over the 15 periods, an average effort of 2.62 and 2.30 respectively, which are not significantly different from each other (Mann-Whitney test, \( p=0.11, z=1.60 \)). When considering the average effort exerted in the PS treatment, it is significantly higher than in the SEL treatment but not statistically different than in the BSL treatment (PS vs. BSL: Mann-Whitney test, \( p=0.27, z=1.09 \); PS vs. SEL: Mann-Whitney test, \( p=0.05, z=1.91 \)).
4.2.3 Effort Exertion in Activity Y

Consider now the effort exertion in activity Y, which only benefits the agent but not the organization. In our setting, exerting effort in activity Y represents an effort distortion in form of private benefit lavished to the agent who is responsible for the selection. When comparing the SEL and the BSL treatments, we can control for workers’ distributional concerns towards the agent, since in the BSL treatment the latter has no power in the hiring decision. Result 3 summarizes our findings:

Result 3. Workers significantly increase their effort level in activity Y in the SEL treatment compared to the BSL one. In the PS treatment, sharing a small part of the organization’s profit with the workers significantly lowers the effort exerted in favor of the agent, to the level of the BSL treatment.

Support for Result 3 can be found in Table 8 and Figure 1. In part 1, workers hired in the BSL treatment exert an average effort of 0.78 in activity Y, which is significantly lower than the average effort of 1.36 exerted in the SEL treatment (Mann-Whitney test, $p=0.01$, $z=2.61$). In the PS treatment, however, the introduction of a small incentive for workers to work in activity X is sufficient in significantly reducing the effort exerted in activity Y. In particular, the chosen effort level in activity Y is not significantly different in the PS and BSL treatments. (Mann-Whitney test, PS vs. SEL: $p=0.00$, $z=3.53$; PS vs. BSL: $z=0.84$, $p=0.40$).

In the second part, when considering the average effort exerted in activity Y over all the 15 periods, the results obtained in part 1 are confirmed: the average effort exerted in activity Y in
the SEL treatment is equal to 1.43 and it is significantly higher than in the BSL treatment, where it is equal to 0.89, (Mann-Whitney test, BSL vs. SEL: \(z=3.00, p=0.00\)). When introducing a profit sharing however, the effort distortion in favor of the agent is significantly reduced to 0.73, a significantly lower level than the one observed in the SEL treatment (Mann-Whitney test, PS vs. BSL: \(z=1.34, p=0.18\); PS vs. SEL: \(z=3.00, =0.00\)).

4.2.4 Productivity and Effort Exertion in Activities X and Y

In the following section we are now considering the effort exerted in activities X and Y, depending on the worker’s ability. In the previous paragraphs we have shown that the presence of conflict of interests between the principal and the agent has an effect on the workers’ selection process, with low ability workers being more likely to be hired in the SEL treatment. Moreover, we have found a significant increase of the level of effort exerted in activity Y in the SEL treatment with respect to the BSL one. Therefore, in this section we aim at understanding whether workers’ effort choices both in activity X and Y depends on their ability. Result 4 summarizes our findings.

Result 4. In the SEL treatment, while the H workers do not modify their effort exertion in activity X and Y with respect to the BSL treatment, the L workers increase their effort in favor of the agent. The introduction of a small profit sharing in the PS treatment eliminates the effort distortion by the L workers both by increasing their effort in X and reducing their effort in Y.

Support for result 4 can be found in Table 8 and Figure 2. In the first part of the game the effort exerted in activity X both in the Baseline and in the Selection treatment does not differ depending on whether Worker L or H is hired (Baseline treatment, Mann-Whitney test, \(p=0.507, z=0.664\); Selection treatment, Mann-Whitney test \(p=0.898, z=0.127\)).
Table 8. Average effort in Project X and Activity Y across repetitions (Standard Deviation in Parenthesis)

<table>
<thead>
<tr>
<th></th>
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<td>11-15</td>
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<tr>
<td></td>
<td>X Y</td>
<td>X Y</td>
<td>X Y</td>
<td>X Y</td>
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<td>X Y</td>
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<td></td>
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<tr>
<td>H</td>
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<td>2.70 (.93)</td>
<td>2.55 (.48)</td>
<td>2.42 (.73)</td>
<td>2.54 (.90)</td>
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<td>(.48) (.45)</td>
<td>(.39) (.35)</td>
<td>(.34) (.48)</td>
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<td>(.89) (53)</td>
<td>(.63) (.35)</td>
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<td>(.88) (.61)</td>
<td>(.59) (43)</td>
<td>(.69) (44)</td>
<td>(.51) (.40)</td>
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<td><strong>Selection treatment</strong></td>
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</tr>
<tr>
<td>H</td>
<td>2.82 (1.31)</td>
<td>2.52 (1.06)</td>
<td>2.26 (1.27)</td>
<td>2.12 (.84)</td>
<td>2.38 (1.03)</td>
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<td></td>
<td>(1.75) (1.35)</td>
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<td>(.27) (.62)</td>
<td>(.46) (.59)</td>
<td>(.58) (.55)</td>
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<tr>
<td>L</td>
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<td>2.17 (1.19)</td>
<td>2.21 (1.77)</td>
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<td>(.66) (.15)</td>
<td>(.19) (44)</td>
<td>(.77) (48)</td>
<td>(.54) (.29)</td>
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</tr>
<tr>
<td>H+L</td>
<td>2.79 (1.36)</td>
<td>2.43 (1.35)</td>
<td>2.21 (1.59)</td>
<td>2.16 (1.18)</td>
<td>2.30 (1.38)</td>
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<tr>
<td></td>
<td>(1.69) (1.35)</td>
<td>(.73) (.52)</td>
<td>(.59) (72)</td>
<td>(.61) (62)</td>
<td>(.55) (.58)</td>
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</tr>
<tr>
<td>H</td>
<td>3.40 (.59)</td>
<td>3.20 (.60)</td>
<td>2.80 (.48)</td>
<td>2.74 (.61)</td>
<td>2.93 (.57)</td>
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<tr>
<td></td>
<td>(1.98) (.87)</td>
<td>(.71) (.18)</td>
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<td>(.88) (.42)</td>
<td>(.71) (.40)</td>
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</tr>
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<td>L</td>
<td>4.8 (.4)</td>
<td>3.36 (.83)</td>
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<td>2.53 (.68)</td>
<td>2.96 (.76)</td>
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<td>(1.40) (.52)</td>
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<td>(.49) (.42)</td>
<td>(.72) (.26)</td>
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</tr>
<tr>
<td>H+L</td>
<td>3.66 (.55)</td>
<td>3.26 (.72)</td>
<td>3 (.88) (.86)</td>
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</tr>
<tr>
<td></td>
<td>(1.95) (.82)</td>
<td>(.75) (.41)</td>
<td>(.88) (.48)</td>
<td>(.71) (40)</td>
<td>(.71) (.44)</td>
<td></td>
</tr>
</tbody>
</table>

When considering the PS treatment, however, we find that the L workers exert significantly higher effort in activity X than the H workers (BSL, Mann-Whitney test, p=0.01, z=-2.42). Both the High and the Low ability workers are more likely to exert effort in activity Y in the SEL treatment than in the BSL and PS one.

Now focus on Part 2 of the game. Table 8 shows that, in the first block of five periods of the SEL and BSL treatments, both H and L workers’ effort in activity X does not differ neither when comparing workers within the same treatment (H vs. L workers, Mann-Whitney test: BSL, z=0.45, p=0.65; SEL, z=0.06 p=0.95), nor if considering each worker’s effort across
treatments (BSL vs. SEL, Mann-Whitney test: L workers, z=0.26, p=0.80; H workers, z=0.64 p=0.52). Moreover, such a behavioral pattern persists in the following blocks of periods. Differently, when considering the effort exerted in activity Y, only L workers distort their effort in the SEL treatment: in particular, while the H workers choose the same level of effort in both the BSL and SEL treatments, L workers are significantly more likely to work for the agent in the latter treatment in periods 1-5 (BSL vs. SEL, Mann-Whitney test: L workers, z=2.62, p=0.00; H workers, z=0.57; p=0.56), in periods 6-10 (Mann-Whitney test: L workers, z=2.68, p=0.00; H workers, z=0.06; p=0.94) and 11-15 (Mann-Whitney test: L workers, z=2.49, p=0.01; H workers, z=0.38; p=0.70).

When considering the two types of worker within each treatment, we find that while the effort exerted in activity Y by low and high ability workers in the Baseline treatment is similar (Mann Whitney z=0.32 p=0.75, z=0.77; p=0.44, z=0.38 p=0.70, respectively for periods 1 to 5, 6 to 10 and 11 to 15), in the Selection treatment the low ability worker is more likely to work in favor of the agent than the high ability one (Mann Whitney test, z=2.05, p=0.04, z=2.49 p=0.01 and z=1.857 p=0.06 respectively for periods 1-5, 6-10 and 11-15).

In the PS treatment, when introducing a small profit sharing with the worker H workers do not change their effort exertion neither in activity X (Mann Whitney test PS vs. SEL z=1.47 p=0.14; BSL vs. PS z=0.96 p=0.34) nor in activity Y (Mann Whitney test PS vs. SEL and BSL vs. PS z=1.60 p=0.11); When considering L workers, the introduction of a profit sharing has a double positive effect both in the first and in the second part of the game: i) it increases significantly the effort exerted in activity X compared to the SEL treatment (Mann Whitney test, z=2.63, p=0.00 and z=2.10 p=0.03, respectively for the first and second part) bringing it back to a level which is not significantly different than in the BSL treatment (Mann Whitney test, z=0.75, p=0.45 and z=1.09 p=0.28, respectively for the first and second part); ii) it significantly reduces the effort devoted to activity Y in the SEL treatment to the level observed in the BSL one (PS vs. SEL, Mann Whitney test, z=2.08, p=0.04 and z=2.74 p=0.00, respectively for the first and second part).

As an ulterior evidence of the distortive effect of conflict of interests in the organization, Figure 2 shows the different average levels of effort exerted in activity X and Y by H and L workers in the second part of the game, in the BSL, SEL and PS treatments.
Figure 2. Effort provided by the high and low ability workers in activity X (a) and Y (b) across treatments.

Finally, we present results from a set of regressions where we take into account the fact that workers’ choice of X and Y are simultaneous. We proceed in two steps: in table 9 we present the results both of an OLS regression separate for X and Y and of a set of Zellner's seemingly unrelated regressions.

Models (1), (2), (4) and (5) in Table 9 report the results of the OLS regressions. Models (1) and (4) use as dependent variable the workers’ choice of effort in activity X; models (2) and (5) instead considers as dependent variable the workers’ choice of effort in activity Y. Models (3) and (6) report the results of the Zellner's seemingly unrelated regression where respectively
equations (1)-(2) and equations (4)-(5) are estimated simultaneously, accounting for the correlated errors at the same time.

As independent variables we include a set of dummies to identify the SEL and PS treatments, as well as a dummy to identify the ability of the worker (“L worker” which takes value 1 if the worker has low ability, and 0 otherwise). In models (3)-(6) we also include interactions between the treatment dummies and the worker’s ability.

Table 9 reports the results of the Breusch-Pagan test of independence for models (3) and (6) which give us an estimate of the correlation between the errors of the two models. In both cases, the residuals from the two equations are not independent (p<0.000 in both cases), with a coefficient of correlation of the residuals around 10%.

By looking at model (3) it can be seen how the SEL and the PS treatments have two opposite effects on the effort exertion in X and Y compared to the BSL treatment. The SEL treatment has a positive and significant effect on the effort in activity Y while a negative and significant effect on effort in activity X. We interpret these effects as a signal of effort distortion due to the conflict of interest between the principal and the agent. The PS treatment has the opposite effect: positive and significant on the effort exerted in activity X and negative and significant for effort in activity Y.

The dummy accounting for the worker’s ability is positive and significant for activity Y, indicating that once hired, the low ability workers exert higher effort in activity Y to reciprocate the choice of the agent.

Consider now model (6), where the interaction terms between the treatments and the worker type are included.

Table 9. The effort in Activity X and Y.

<table>
<thead>
<tr>
<th>Model</th>
<th>(1) OLS</th>
<th>(2) OLS</th>
<th>(3) Seemingly unrelated regression</th>
<th>(4) OLS</th>
<th>(5) OLS</th>
<th>(6) Seemingly unrelated regression</th>
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<tr>
<td>Dependent variable</td>
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<td>Effort y</td>
<td>Effort x</td>
<td>Effort y</td>
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<td>-.242***</td>
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<td>-</td>
<td>(6.41)*</td>
<td>(7.20)*</td>
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<td>Breusg-Pagan = 40.1309***</td>
<td>.096)</td>
<td>.062)</td>
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<td>Constant independence</td>
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Results are overall confirmed with small differences. The effect of the SEL treatment is now decomposed into two parts: there is a significant increase in the effort exerted in activity Y for both H and L agents. However, the negative and significant effect on the effort exerted in activity X is only driven by the L workers, as captured by the interaction term. Similarly, when looking at the effect of the PS treatment, we find a confirmation of the positive effect on X and of the negative effect on Y, as evidenced in model (3) but, in addition, it is associated with a positive effect on the effort exertion in activity Y by the L workers. Finally, L workers are more likely to exert effort in activity X, indicating that the L workers are in general more reciprocal than the H workers.

4.3 The profit in the organization

An important question that we want to answer in this study is whether conflict of interests actually causes a welfare loss to the organization. In particular, in this section we want to analyze the impact of the above described distortions in the hiring process and of the effort provision by workers on the payoffs of each member of the organization. We first compare the profit made by the principals in the SEL and in the BSL treatments: while in the first part of the game there is no difference in the profit earned by the principals with respect to treatments, in the second part the principals’ profits, independently on which worker is hired, decrease from an average of 25.89 ECUs in the BSL treatment to 22.22 ECUs in the SEL one (Mann-Whitney, z=1.21, p=0.22 in period 1 to 5, z=1.85 p=0.06 in period 6 to 10 and z=2.17 p=0.03 in periods 11 to 15).

On the other hand, when investigating the agents’ profit, as resulted both from activity Y and activity X, we get the opposite result: their income is significantly higher in the SEL treatment than in the BSL one and this result is true both for the first (Mann-Whitney, z=2.09, p=0.04) and the second part (Mann-Whitney, z=2.24, p=0.02) of the experiment.

Result 5. The presence of conflict of interest decreases the principal’s profit while increasing the agent’s one.

In order to further investigate whether the above described results depends on the distortion in the selection process, we study the profit provision to the principal and to the agent when the low (high) ability worker is hired, in the SEL treatment. Figure 3 shows that the agent’s earnings are effectively higher when the low ability worker is hired, but this difference is never significant across periods. Even if the low ability worker is exerting a higher effort in activity Y than the high ability one (see Figure 2) and thus is producing higher earnings for the agent, both...
workers are devoting almost the same level of effort in activity X. In such a situation, the high ability worker is more productive and therefore balances the agent’s profit.

We observe a similar result when considering the damage causes to the Principal by the distortion in the hiring process in the SEL treatment. While in the second part of the BSL treatment hiring the low ability worker instead of the high ability one decreases the principal’s profit of 3.21 ECUs, when analyzing the profit loss in the SEL treatment then the effect is much stronger. In the SEL treatment, when agents hire the low ability workers instead of the high ability ones, the principals’ profit decreases from an average of 24.05 ECUs to 18.80 ECUs. Graph 2 (a) shows that the profit loss remains almost constant in every block of periods even if not being significant (Mann-Whitney, z=1.60, p=0.11 and z=1.47 p=0.14 respectively for periods 1-5, 6-10 and 11-15).

When introducing a profit sharing with the workers, the principal’s profits are restored to the same level of the BSL treatment (PS vs. BSL, second part, Mann-Whitney, z=0.64, p=0.52): in particular, even if the hiring distortion is still present, low ability workers exert their effort in activity X at a similar level than in the BSL treatment, instead of distorting their effort in favor of the agent. On the other hand, since in the PS treatment the agent only receives the 7.5% of the value produced in activity X by the hired worker, her profit are lower than in the BSL treatment (PS vs. BSL, second part, Mann-Whitney, z=2.62, p=0.01). Moreover, the hired workers are decreasing the effort exerted in activity Y, so that the agent’s profits are significantly lower than in the SEL treatment (PS vs. SEL, second part, Mann-Whitney, z=3.13, p=0.00).

**Figure 3.** Earnings produced by the high and low productive workers in favor of the principal (a) and of the agent (b), in the second part of the BSL, SEL and PS treatments.
5. Conclusion

There is wide evidence that reciprocity is beneficial to organizations. Laboratory and field experiments have shown that workers are likely to provide more costly effort when the employer offers them higher wages than the minimum ones (see Henning-Schmidt et al. (2010) for an overview of recent results). However, some members of the organization may profit of such a mechanism for persecuting their personal illegitimate interests, on the detriment of the organization. In particular, we show that in a hierarchical organization, when the interests of delegated agents are not aligned with the principals’ ones, then inefficiencies emerge in the hiring process of workers and on their productivity, once hired.

In our experiment the agent is delegated to select one worker out of two on the behalf of the Principal. Workers differ with respect to their relative ability so that one is more productive
when exerting effort in favor of the organization. However, since the hired worker has the opportunity to exert effort just in favor of the agent, the latter has the incentive to disregard principal’s expectations and hire the less able candidate. Low ability workers are indeed more likely to provide her with inefficient private benefits, because being aware of being less entitled to get the job and thus reciprocates the agent’s choice, at the detriment of the organization. The presence of conflict of interests distorts the hiring process both in the Selection and in the Profit Sharing treatments, since a higher number of low abilities agents are enrolled in the firm. However, such a distortion negatively affects the organization only when workers are not involved in the organization through the profit sharing compensation scheme.

Our results suggest that sharing (a little part of the) profit both with workers and agents, rather than only with the latter ones, not only increases the motivation of low ability workers to exert effort in favor of the organization, but also prevent agents to take illegitimate advantage of their powerful position. Rewards system does not only represent a monetary motivational factor, but gives workers a cue to interpret the corporate culture of the organization. In particular, in our experiment, the profit’s proportion shared with the workers is not high enough to push them to work harder, but enhance their feeling of membership to the organization as a whole.

In our experiment, there is no room for reputation building since workers, principals and agents play the game repeatedly with different group members. Hence, a relevant extension of our experiment would be to analyze whether the same results hold when allowing for long-run relationships between workers, agents and principals.
References


