

# Don't Ask Me If You Will Not Listen: The Dilemma of Participative Decision Making<sup>1</sup>

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**Abstract.** We study the effect of participative decision making in an experimental principal-agent game, where the principal can consult the agent's preferred option regarding the task to be undertaken in the final stage of the game. We show that consulting the agent was beneficial to principals as long as they followed the agent's choice. Ignoring the agent's choice was detrimental to the principal as it engendered negative emotions and low levels of transfers. Nevertheless, the majority of principals were reluctant to change their mind and adopt the agent's proposal. Our results suggest that the ability to change one's own mind is an important dimension of managerial success.

**Keywords:** organizational behavior, participative decision making, principal-agent model

**JEL codes:** C92, D23, D82, E2

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Employees' participation in the decision making process is a widely used managerial tool that has been studied at length in the last fifty years in the management literature (Allport, 1964; Cotton et al., 1988; Lam, Chen and Schaubroeck, 2002) and described in detail in numerous case studies and reports.<sup>2</sup> Yet, clear evidence on the positive impact of *participative decision making* on employees' performance has been scarce and controversial despite its intuitive appeal.<sup>3</sup> The intuitive appeal of *participative decision making* is linked to the belief that involving people in decision making can increase job satisfaction and raise motivation (Lawler, 1996; Wagner et al. 1997). People are expected to react positively to *participative decision making* because they tend to value the fact that their opinions are being heard and considered (Korsgaard and Roberson, 1995; Wiley, 1997; Freeman and Rogers, 1999).<sup>4</sup> However, implementing *participative decision making* appears to be challenging as it tends to create expectations for increased employees' empowerment. High expectations may well be followed by disenchantment.

One issue faced by empirical researchers is the difficulty to observe the degree of employees' participation and isolate this effect from potential confounding factors such as corporate culture, firm size, organizational structure or industry competitiveness. Another issue is the wide variety of approaches that have been described under the label of *participative decision making* (see, e.g., Cotton et al. 1988).

In this paper, we focus on *consultative participation*, defined as a low-cost form of participation under which employees are asked to give opinions about job-related issues without

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<sup>2</sup> See for example, Mann and Neff, 1963; Marrow and Bowers, 1967; Lowin, 1968; Mitchell, 1973; Locke and Schweigger, 1979; Frey, 1983; Miller and Monge, 1986; McCaffrey, Faerman and Hart, 1995; and also the writings by Edward Lawler and others (Lawler, 1988, 1990, 1993; Lawler, Mohrman and Ledford, 1992, 1998; Ledford, 1993).

<sup>3</sup> See for example, Locke and Schweiger, 1979; Locke, Schweiger and Latham, 1986; Schweiger and Leana, 1986; Wagner and Gooding, 1987a, b; Cotton et al. 1988; Cotton et al. 1990; Leana, Locke and Schweiger, 1990; McCaffrey, Faerman and Hart, 1995; McCaffrey, Lam, Chen and Schaubroeck, 2002.

<sup>4</sup> More generally, people value esteem and like to be considered by their peers and superiors (Maslow, 1943; Alderfer, 1972).

having the power to make final decisions (Cotton et al. 1988). We propose a simple experimental approach to shed light on the current debate regarding the effect of *participative decision making* tools on employees' performance.

### **An experimental approach to participation in the workplace**

The use of experiments is motivated by the difficulty to gather field data about crucial aspects of organizations such as participation in decision making or internal communications among workers and managers (Falk and Fehr, 2003). A growing number of related experimental works building on principal-agent games have been conducted in order to study organizational features such as incentives contracts (Fehr, Kirchsteiger and Riedl, 1993; Fehr, Gächter and Kirchsteiger, 1997; Brown, Falk and Fehr, 2004; Fehr, Klein and Schmidt, 2007a, b), monitoring (Frey, 1993; Fehr and Gächter, 2000; Falk and Kosfeld, 2006, FK henceforth, Dickinson and Villeval, 2008) or delegation (Charness et al. 2010; Fehr, Herz and Wilkening, 2010, FHW henceforth).

The experimental methodology enables us to control for well-known confounding factors that may have prevented researchers from providing clear evidence on the positive relationship between employees' involvement in decision making and performance. We build on the principal-agent game described in FK in which agents decide upon a level of transfer which is costly to them but beneficial for the principal. The authors show that imposing a minimum level of transfer can backfire and reduce agents' motivation. Interestingly, Charness et al. (2010) modify the FK gift-exchange design by allowing the principal to delegate the decision to set wages. The authors show that delegating the wage decision to the agent increases transfers.

We extend the FK design by allowing the principal to consult the agent regarding the choice of the task to be undertaken by the agent in the last stage of the game. Importantly, we introduce

an initial stage during which both principals and agents select their preferred task among five possible choices, each characterized by different transfer cost functions. If the principal decides to consult the agent in the second stage of the game then he or she can decide whether to follow the agent's preferred option or implement his or her own preferred task. Our approach differs from FK as we study the effect of *consultative participation* rather than control and monitoring. It is interesting to notice that consulting can be implemented at low costs and thereby constitutes an appealing managerial tool.

Our analysis is also related to a recent paper by FHW in which the authors analyze delegation of authority in a modified version of the principal-agent game. The authors show that principals are reluctant to delegate authority because they value authority per se. Interestingly, the allocation of authority affects effort provision and, in particular, controlling parties tend to over-provide effort while subordinates under-provide effort. The previous paper is closely connected to our design as it analyzes the issue of empowerment that can be seen as a strong form of *participative management*. However, empowerment and *consultative decision making* are different managerial tools. Indeed, the former tool consists in giving power to the agent while the latter simply consists in asking employees about job-related issues without affecting the allocation of authority in the organization. The empowerment approach is likely to be more costly and more difficult to implement than the consulting approach.

### **The dilemma of participative decision making**

In this study, we are able to validate the intuitive appeal of *participative decision making* by establishing that workers' participation in the decision making process can increase transfers from agents to principals. This occurred when the principal decided to consult and follow the

agent's proposal. However, this profitable strategy was followed by a minority (22.5%) of principals. The rest of the principals decided either not to consult the agent (53%) or to consult the agent without following his or her proposal (24.5%). These strategies led to levels of transfers that were respectively 28% and 46% lower than in the case in which the principal consulted and followed the agent's preferred option. Also, the principals who consulted the agent but did not follow his or her preferred option significantly underperformed principals who decided not to consult the agent. As a result, consulting the agent was not a profitable strategy for principals who were unwilling to follow the agent's proposal. However, a large proportion of principals (47%) decided to consult the agent's choice incurring a monetary consultation fee imposed by the experimenter.<sup>5</sup>

In order to identify the motives of the principals to consult the agent's choice, we analyzed the answers to a questionnaire completed by participants at the end of the experimental session. A large proportion of principals (42%) mentioned that they would consult agents in order to know their intended transfer in the last stage of the game. That is, principals may have felt curious about the type of agents they faced and may have decided to consult, as a result. Our findings suggest that the decision to consult agents may not solely rely on the consideration of material gains but also on the general concern for understanding others' goals and desires. This non-strategic aspect of consulting may well be a consequence of the natural tendency of humans to value social interactions per se outside the laboratory. This account for human behaviors in the laboratory was also emphasized in the analysis of social distance in dictator games by Hoffman,

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<sup>5</sup> In a Nash equilibrium with purely selfish individuals, principals would not consult agents as they would expect selfish agents not to transfer anything in the last stage of the game regardless the task finally implemented by the principal

McCabe and Smith (1996), in line with the theoretical concept of social adaptation developed in evolutionary psychology (Cosmides and Tooby, 1992).<sup>6</sup>

Strategic motives also played an important part in principals' decisions. A noticeable proportion (23%) of the principals who consulted the agent thought that it would increase the willingness of the agent to transfer points in the last stage of the game. This proportion rises to about 50% when considering principals who consulted and followed the agent's transfer rule.

Then, one may wonder why the majority of principals (52%) decided to ignore the agent's choice. A large majority of principals who decided to ignore the agent's choice (60%) mentioned that their rule was better than the agent's, either because it was fairer or because it would lead to larger payoffs. Interestingly, most principals acknowledged that following the agent would induce either positive emotions (39%) or larger transfers (22%) while only 26% claimed that the agent would be indifferent. Principals decided not to follow the agent's choice because they were not willing to change their mind and preferred to implement the game they themselves selected in the first stage of the experiment. Principals believed that the agent's option conflicted with their own interpretation of how the game should be played. This behavior is closely related to the well-documented self-serving biases by which people conflate what is fair with what benefits them. In our design, self-serving individuals were likely to disregard the opinion of the other party concerning the project to be implemented. In line with our results, Babcock et al. (1995) and Babcock and Loewenstein (1997) showed that self-serving biases prevented defendants and plaintiffs from reaching an agreement about a settlement in a bargaining game. In their experiment, people exhibited self-serving biases as they tended to perceive the legal case differently whether they were assigned the role of plaintiff or defendant. Evidence of self-serving

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<sup>6</sup> According to social adaptation theory, humans develop cognitive processes to deal with social exchange that are shaped by evolutionary pressures.

biases has also been found in a simulated labor relationship closely related to the current experiment (Charness and Haruvy, 2000).<sup>7,8</sup>

Interestingly, only a small minority of principals (4%) reported that they did not follow the agent's preferred option in order to keep control of the situation. This confirms that the mechanism by which principals ignored the agent differed from the one highlighted by FHW wherein principals decided to retain authority because they valued power. In our design, the principals did not decide whether to delegate authority to the agents, instead, they decided whether to listen to the agent's choice or not. Agents understood this difference and, as one of them summarized in the debriefing questionnaire, "*Being consulted gives me a voice in their decision*".

Our analysis also relates to the introduction of communication in principal-agent games.<sup>9</sup> Charness and Dufwenberg (2006) found that promises were effective in increasing cooperation as people were likely to keep their promise to avoid guilt from disappointing others' expectations. In a related paper, Brandts and Cooper (2007) found that coordination on high levels of transfers could be facilitated by communication between managers and workers. In our setting, we show that consulting can lead to very different outcomes than the ones found in previous communication experiments. Indeed, even though principals were willing to consult the

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<sup>7</sup> In the literature on conflict resolution, researchers have put forward that self-serving biases may prevent litigants to interpret information objectively and reach an agreement. The legal system has already developed mechanisms that limit the negative effects of self-serving biases (Jolls and Sunstein, 2006). For example, under Rule 68 (US federal system) plaintiffs are penalized if they do not accept an early settlement and get less at a trial.

<sup>8</sup> Similarly, the fact that the principal ignored the agent's preferred option can be linked to the existence of self-confirmatory biases (Brunner and Potter, 1964; Lord, Ross and Lepper, 1979; Plous, 1991; Sanitioso and Wlodarski, 2004) by which people look for opinions and facts that confirm their initial beliefs.

<sup>9</sup> Notice that our design introduces a very limited communication channel between the agent and the principal as the latter only observes the agent's desired task after consultation. The principal does not chat with the agent and does not even receive a written or verbal message from the agent. As a result, our design differs from classical experiments on communication that attempt to reduce social distance between subjects in order to foster social motives (Roth, 1995; Hoffman, McCabe and Smith, 1996; Bohnet and Frey, 1999).

agent, they were unwilling to implement their preferred option generating dissatisfaction and reducing cooperation, as a result.

Finally, our findings relate to previous experimental works showing that individuals are not purely selfish but express reciprocal concerns as well as social preferences. In particular, our analysis is in line with a series of works that showed that managers can strengthen the effect of monetary incentives by fostering positive reciprocity either by increasing fixed wages (Fehr, Gächter and Kirchsteiger 1997; Fehr, Kirchsteiger and Riedl, 1993) or by giving bonuses (Fehr, Klein and Schmidt, 2007a, b). Consistently with previous research on the psychology of incentives (for an overview of the literature, see, e.g., Camerer and Malmendier, 2007; Charness and Kuhn, 2011; Fehr and Falk, 2002), our results stress that reciprocal behaviors play an important role in understanding employees' motivation in the workplace. In our design, consulting agents and implementing their preferred task had a positive effect on their level of transfers as it fostered positive reactions. Conversely, ignoring the agent, and to a lesser extent not consulting the agent, nurtured negative reactions. As a result, consulting employees was likely to backfire when the principal decided to ignore the agent's choice. This undesirable outcome may account for the scarce evidence of the positive effect of participative decision making on workers' performance.

The process of involving workers in decision making is challenging because, on the one hand, managers are willing to ask their subordinates about their opinion but, on the other hand, they are reluctant to change their mind and follow the employees' proposal. This behavior captures the essence of the participative decision making dilemma and is illustrated by the following quotations.



*“Of course, I like to hear everyone, but then I go off alone and decide. The decisions that are important must be made alone.”*

Richard M. Nixon (Schechter, 1972:18-19)

*“Wanted to stand by my own decision to see where that led.”*

Anonymous subject who played the role of principal and who did not follow the agent’s proposal after consultation.

Our findings stress that, beyond incentives contracts, the manager’s capacity to listen and follow their subordinates can be a powerful source of motivation. This result is particularly striking given that it relies on an almost costless managerial tool.

This paper is organized as follows. The experimental design is detailed in the next section while results and robustness checks are analyzed in Sections II and III, respectively. Concluding remarks are presented in Section IV.

## **I. Experimental Design**

### *A. The game and predictions*

Our experiment was designed to study the effect of involving employees in the decision making process on workers’ performance. We used a modified version of the principal-agent game described in FK. In this game, the agent selects a transfer  $x$  which is costly for the agent but beneficial to the principal. In particular, each transfer of  $x$  points increases principals’ earnings by  $2x$ . In our design, principals were endowed with 2 points while agents had an initial

endowment of 12 points.<sup>10,11</sup> Each point was converted to cash at the end of the experiment at the following exchange rate: 1 point = \$1.50.<sup>12</sup>

The timing of the game was as follows (see Figure 1).

In Stage 1, both types of players, agents and principals, had 8 minutes to select the transfer rule that they wanted to be considered in the final selection of the rule in Stage 3.

In Stage 2, principals decided whether or not to consult the transfer rule previously selected by the agent. Principals incurred a cost  $c > 0$  to consult the agent's choice. The parameter  $c$  varied across treatments.

In Stage 3, principals who consulted the agent's decision learned the agent's choice in Stage 1 and chose whether or not to follow the agent's choice when deciding upon the implementation of a transfer rule. Notice that consulting the agent's choice in Stage 2 did not imply transferring the authority to make the final decision in Stage 3 to the agent. In our design and in contrast to FHW, the final decision was always made by the principal.

In the final stage and after learning the transfer rule selected by the principal in Stage 3, agents decided on the value of the transfer  $x$  in  $\{0, 1, \dots, 12\}$ .

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<sup>10</sup> Principals were endowed with two points (\$3) while in Falk and Kosfeld (2006) principals received no initial endowment. We introduced this positive endowment in our design so as to allow principals to pay for the consultation fee in Stage 2.

<sup>11</sup> In the experiment we refer to agents and principals as "participant A" and "participant B", respectively.

<sup>12</sup> See Appendix VI.1 for the full set of instructions.

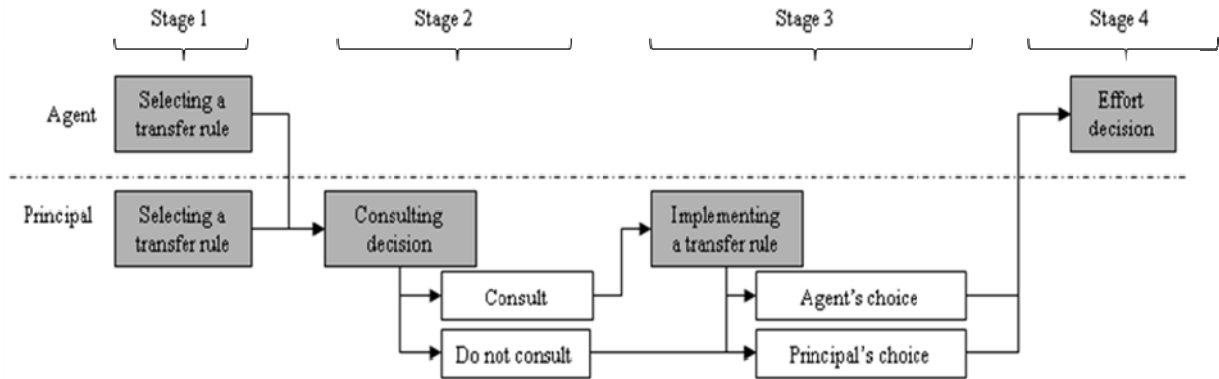


FIGURE 1. TIMING OF THE GAME.

In Stage 1, we introduced a crucial feature of our experiment. Previous to the decisions of the agents regarding transfers, principals and agents decided which of five different transfer rules they wanted to see implemented in the third stage of the game. Each transfer rule was associated with a different cost function.<sup>13</sup> Each cost function was non-decreasing in transfers, and the marginal cost was always lower than or equal to the marginal product of the transfer.<sup>14</sup> Figure 2 shows all the transfer rules.

<sup>13</sup> See Appendix VI.4 for more details on transfer rules.

<sup>14</sup> Similarly to FK, the marginal product of the transfer was equal to 2.

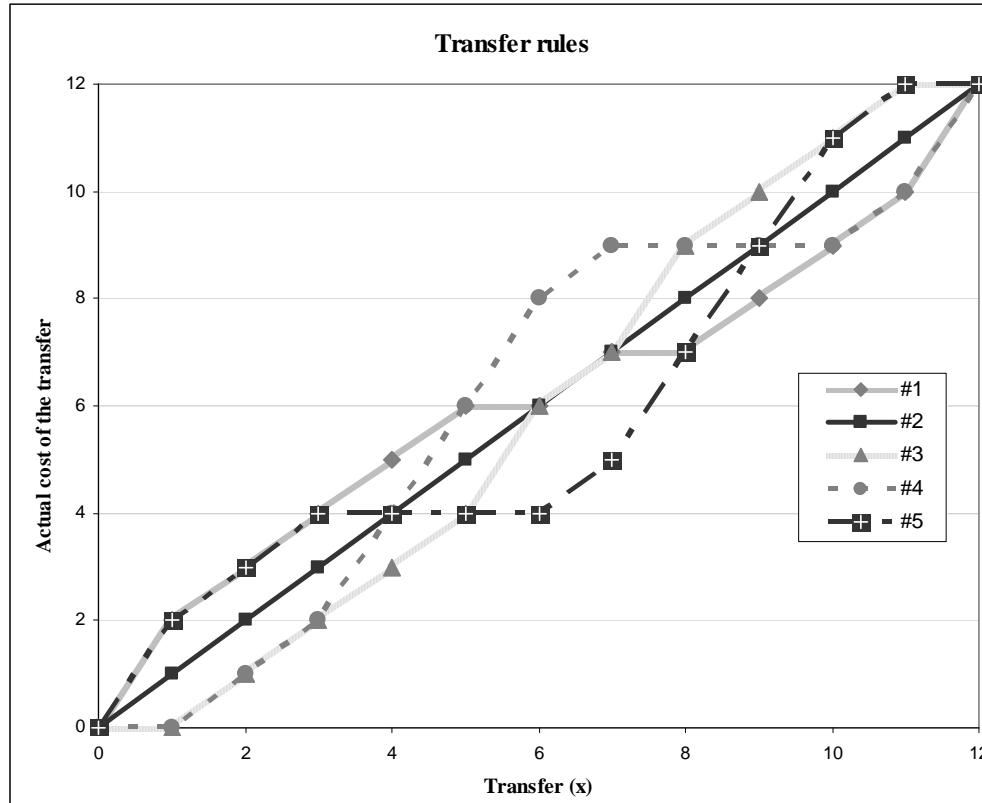


FIGURE 2. TRANSFER RULES.

Transfer rule 2 corresponds to the linear transfer rule used in FK. The other four transfer rules are symmetrical with respect to the linear transfer rule. All transfer rules are such that zero-transfers are costless while the cost of the maximum transfer (12 points) is always equal to 12. Non-linear transfer rules differ for intermediate transfer values and were designed such that there exists a range of transfer values for which a given rule entails lower transfer costs than the others. Transfer rules 3 and 4 are associated with the lowest transfer costs for low transfers (between 0 and 3 points for rule 4, and between 0 and 5 points for rule 3). For higher transfers (between 5 and 8), rule 5 entails the lowest transfer costs. Finally, transfer rule 1 is the least costly of the transfer rules for very high transfers (from 8 to 12). Interestingly, the choice of transfer rules by the agents in Stage 1 helped us identify distributive preferences. For example,

an agent who chose rule 5 would tend to be driven by equality concerns (equal sharing of the agent's endowment) whereas an agent who chose transfer rules 3 or 4 would reveal his or her willingness to transfer less than half of the initial endowment to the principal. Also, the choice of transfer rule 1 characterized by minimum transfer costs for any transfer value above 8 may reveal altruistic motives. The choice of the transfer rule as a predictor of agents' distributive concerns is valid as long as agents truthfully revealed their preferred transfer rule in Stage 1. If this was the case, first-stage decisions could help us identify initial social preferences and control for them in our analysis of the effect of consulting on agents' transfers. Similarly, we could differentiate principals' expectations on agents' transfers according to the rule they selected in Stage 1. For example, principals selecting rules 1 or 5 were likely to expect agents to be either altruistic or to express a concern for equality. Therefore, agents and principals were likely to differ in their choice of the transfer rule as they would tend to form different expectations about transfers.

Theoretically, the choice of the transfer rule should be irrelevant as long as agents are purely self-interested in which case they would never transfer any amount to the principal. Agents would be indifferent between the five transfer rules since zero-transfers were costless independently of the rule implemented in Stage 3. In a subgame perfect Nash equilibrium with purely self-interested individuals, principals would anticipate the selfish behavior of the agent in Stage 4 and would decide not to pay the monetary cost imposed by the experimenter for consulting the agent in Stage 2. As a result, any choice of transfer rules would be consistent with Nash equilibrium.

However, we know from previous studies that, in principal-agent games, individuals typically express both distributive and reciprocal concerns (Fehr, Kirchsteiger and Riedl, 1993; Fehr,

Gächter and Kirchsteiger, 1997; Brown, Falk and Fehr, 2004; FK; Fehr, Klein and Schmidt, 2007a, b; Charness et al. 2010; FHW). As a result, we should expect a different outcome from the subgame perfect Nash equilibrium with purely self-interested individuals. In particular, we may expect consulting agents and implementing their rule to have a positive effect on transfers as it may foster positive reciprocity while ignoring the agent and, to a lesser extent, not consulting the agent may nurture negative reciprocity and reduce transfers. Further, agents and principals may not be indifferent regarding the choice of the transfer rule in the first stage of the game as the former may have distributive concerns and the latter may expect the agent to have social motives.

Our design aims at representing a situation in which a manager (principal) has to decide about the type of productive task (transfer rule) that a worker (agent) should undertake. Each task requires effort (transfer) but each of them is characterized by a different level of difficulty (transfer rule). For example, transfer rule 3 corresponds to the task that requires the lowest amount of work for low levels of production (between 0 and 5). In the first stage, both the manager and the employee spend some time reflecting upon the task to be implemented after which the manager decides whether to consult the employee's opinion or not (Stage 2). We are envisioning a situation in which not only the manager but also the employee knows the set of tasks that can be undertaken.<sup>15</sup>

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<sup>15</sup> An alternative design may consider that only the manager is able to think about the task in the first stage of the game. This would be the case if the employee was not informed about the type of work he or she can be asked to undertake. Besides the fact that our experiment is designed to represent a real-world labor environment, it is also the case that having the agent select a transfer rule in Stage 1 allows us to assess his or her social preferences and control for those in our subsequent analysis.

### B. Treatments

Our two treatments differ in the cost of consulting (see Table 1). The first treatment is referred to as the high consulting cost (CH) in which case the cost of consulting the agent's choice was equal to 1 point (\$1.5) for the principal. In the second treatment, the low-cost consulting treatment (CL), the consulting cost was equal to 0.2 point (30¢). In treatment CL, the cost was set to the lowest possible value (in points) that translates into a positive monetary cost (in dollars) for the agent.<sup>16</sup> Notice that the subgame perfect Nash equilibrium (no consulting and zero-transfers) is the same in the two treatments.<sup>17</sup> However, if we believe that subjects exhibit social preferences then consulting the agent may become valuable as a mechanism to foster positive reciprocity and increase transfers. In that case, the cost of consulting would be a relevant variable in the principal's decision to consult the agent. In particular, we should expect principals to be more likely to consult agents when the cost of consulting is low than when it is high.

TABLE 1— EXPERIMENTAL DESIGN

| Treatment                 | Description              | Number of subjects        |
|---------------------------|--------------------------|---------------------------|
| High consulting cost (CH) | Cost of consulting \$1.5 | 68 subjects (3 sessions)  |
| Low consulting cost (CL)  | Cost of consulting 30¢   | 118 subjects (5 sessions) |

<sup>16</sup> The standard procedure at the ESI laboratory is to round all the payoffs up to the nearest quarter and, given the exchange rate used in the experiment, any cost lower than or equal to 0.2 would not cut down on the participants' final earnings in dollars.

<sup>17</sup> If consulting were costless, we would have a multiplicity of equilibrium predictions in the case in which individuals are purely selfish since then both consulting and not consulting are equilibrium strategies. At the end of the experiment, we asked principals if they would have consulted the agent's choice if the cost had been equal to zero and most of them (88%) responded affirmatively.

### *C. Procedures*

Our subject pool consisted of students from Chapman University. The experiments took place in October and November 2010. In total, 186 subjects participated in the experiment, divided in eight sessions. We ran three sessions for treatment CH and five sessions for treatment CL. Twenty-four students participated in each session, except for two sessions with 20 and 22 students. Students were assigned randomly to one of the two roles, agent or principal, and were randomly matched with a partner. The experiment was completed using papers and pencils.

When all students were seated, the experimenter read the instructions aloud for approximately 20 minutes. Then, students could raise their hand to ask any clarification question about the experiment. Agents and principals made their decisions using answer sheets provided by two monitors.<sup>18</sup> Subjects put their answer sheets into envelopes that were collected by the monitors and delivered to their respective partners in the principal-agent game.

At the end of Stage 3 and before principals knew the agent's transfer, we elicited principals' beliefs. Agents' beliefs were elicited after the final stage of the game. We elicited beliefs for two sessions with a total of 46 subjects.<sup>19</sup>

At the end of the experiment, all answer sheets were collected and a short questionnaire was distributed to the subjects (see appendix VI.5 for the details of the questions). Subjects responded to the questionnaire while payoffs were being computed. Experimental sessions lasted one hour on average. Subjects were paid \$1.5 for each point obtained in the experiments and earnings were rounded up to the nearest quarter. Agents and principals earned on average \$22.24 and \$16.54, respectively, including a \$7.00 show-up fee.

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<sup>18</sup> Monitors were graduate students. The experimenter did not serve as a monitor.

<sup>19</sup> In order to avoid any interference between beliefs elicitation and subjects' behavior we did not elicit beliefs in the first six experimental sessions. Also, we did not incentivize the elicitation of beliefs as it may lead to hedging strategies.



## II. Results

### *A. Transfer rule choice and social preferences*

We start by presenting an analysis of the first stage of the game in which participants had to choose the transfer rule they wanted to implement in Stage 3. Given the sequence of the experiment, both principals and agents should have reported truthfully the rule they actually wanted to play with. There were no incentives to lie in the first stage of the experiment. For example, the principal (agent) had no incentives to choose a transfer rule that would be preferred by the agent (principal).<sup>20</sup>

Also, if agents were purely selfish both agents and principals should be indifferent between the five transfer rules since the transfer of the agent in Stage 4 would be equal to zero, regardless of the rule actually selected. However, we know from previous research that people exhibit social preferences in this setting (Fehr, Kirchsteiger and Riedl, 1993; Fehr, Gächter and Kirchsteiger, 1997; Brown, Falk and Fehr, 2004; FK; Klein and Schmidt, 2007a, b). As a result, we should expect agents and principals to choose transfer rules in response to their social preferences.

The most popular transfer rules for principals and agents were rules 3 and 5, respectively. On aggregate, 80% (149/186) of the participants chose either one of these two rules.<sup>21</sup> Transfer rule 3 is the rule for which the transfer cost was the lowest for any transfer between 0 and 5, while transfer rule 5 is the rule for which the transfer cost was the lowest for any transfer between 5

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<sup>20</sup> One can still argue that the agent may have been willing to select a transfer rule that is closer to the principal's preferred rule so as to increase the odds of getting his or her rule accepted in Stage 3. This argument relies on the assumption that the agent is not purely selfish so that the choice of the transfer rules may affect his or her transfers in Stage 4. In any case, this reasoning would imply that principals and agents were more likely to choose similar transfer rules in Stage 1 compared to the Nash equilibrium with purely selfish participants. However, we found that agents and principals selected very different transfer rules.

<sup>21</sup> We reject the hypothesis that the distribution of transfer rules selected by either the principal or the agent follows a uniform distribution (Chi-square goodness-of-fit test,  $p < 0.001$  in both cases).

and 8.<sup>22</sup> Note that transfer rule 1 is characterized by minimum transfer cost for any transfer above 8. This transfer rule was logically not as popular as rules 3 and 5 since the proportion of agents considering transferring more than 8 points was extremely low in this game (only one subject in our dataset transferred more than 8 points). The selection of a transfer rule in Stage 1 is relevant for the experimenter in order to identify agents' social preferences. For example, an agent who chose rule 5 would tend to be driven by equality concerns whereas an agent who chose transfer rule 3 would reveal his or her willingness to transfer less than half of the initial endowment to the principal. If agents truthfully revealed their type then we could use their Stage 1 decision to control for social preferences in our statistical analysis. This would help us disentangle the effect of the consulting process from the existence of initial social preferences. We display the transfer rules choices of agents and principals in Table 2.

TABLE 2— CHOICE OF TRANSFER RULES

| Transfer rule    | 1              | 2            | 3              | 4              | 5              |
|------------------|----------------|--------------|----------------|----------------|----------------|
| Agent choice     | 2%<br>(2/93)   | 4%<br>(4/93) | 63%<br>(59/93) | 11%<br>(10/93) | 19%<br>(18/93) |
| Principal choice | 12%<br>(11/93) | 4%<br>(4/93) | 29%<br>(27/93) | 7%<br>(6/93)   | 48%<br>(45/93) |

It is not surprising that most agents opted for transfer rule 3 for which low transfers were the least costly since most of them considered to transfer less than half of their initial endowment (transfers between 0 and 5 in our design). Indeed, transfers below one half of the initial agent's

<sup>22</sup> That is, transfer rule 3 is the lower envelope of the transfer rules functions for any transfer between 0 and 5. Similarly, transfer rule 5 is the lower envelope of the transfer rules functions for any transfer between 5 and 8.

endowment represented 84% of the choices in our experiment.<sup>23</sup> A noticeable proportion of agents (19%) also opted for transfer rule 5. Analyzing the debriefing questionnaire, we report that most subjects (77% of the agents and 74% of the principals) considered the ratio between the intended transfer value and its cost, when asked which criteria they considered to select the transfer rule. Agents would then choose the transfer rule that minimized the transfer cost for the amount of money they planned to transfer to the principal.

In contrast to agents, principals favored transfer rule 5. This is the rule agents would choose if they intended to transfer any amount between 5 and 8. Indeed, the agents who selected transfer rule 5 in the first stage transferred more to principals than the agents who selected transfer rule 3. For example, if we consider only the cases in which the agent was not consulted by the principal, agents who selected transfer rule 5 transferred twice more (\$5.55) than agents who selected transfer rule 3 (\$2.48).<sup>24</sup>

Participants' decisions in Stage 1 put forward that agents and principals held different views regarding the amount that the agent should transfer to the principal. Agents generally considered transfer values between 0 and 5 while principals expected transfers between 5 and 8. The distribution of transfer rules choices was significantly different between agents and principals ( $p < 0.01$ , Chi-square test). As one of the subjects who played the role of the agent summarized in the debriefing questionnaire "*I felt like we both wanted very different outcomes*".

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<sup>23</sup> This proportion is equal to 97% in FK.

<sup>24</sup> We use two-sided tests along the paper if not specified otherwise. The difference is highly significant (Mann-Whitney-Wilcoxon test,  $p < 0.001$ ). We do not consider cases in which the agent was consulted since then the principal's decision to follow his or her preferred option may have interfered with agents' distributive preferences. The decision of the principal to follow the agent's preferred option or not was affected by the agent's choice in the first stage of the game. As a result, the relationship between the agent's choice of the transfer rule in Stage 1 and the final transfer value was mediated by the principal's behavior to follow the agent's option or not. This was the case since principals were more likely to follow the agent's transfer rule if it was perceived to be closer to their rule (see Section III.A for details). In order to avoid this issue we restrict our analysis to the case in which the principal does not consult the agent ( $n = 49$ ).

This finding is in line with the study of Charness and Haruvy (2000) in which subjects who played the role of employers were likely to claim that they would have provided, for any given wage, more effort than subjects who played the role of employees actually provided. This behavior may be related to the literature on self-serving biases (Konow 2000, 2003) in which people tend to adopt the concept of fairness that is most favorable to them. In our experiment, people who played the role of agents revealed a different vision of what fair transfers should be (between 0 and 5) compared with people who played the role of principals (between 5 and 8). Indeed, we are able to show from beliefs elicitation that principals expected significantly larger transfers (1.42\$ larger) than the amount agents were planning to transfer.<sup>25</sup> Expectations regarding the agent's transfer determined the principal's choice of the transfer rule. For example, we know from our questionnaire analysis that principals who selected transfer rules 3 or 4 (the two rules for which transferring one point to the principal costs nothing to the agent) expected that agents would not be willing to incur any transfer costs, and chose the rule according to this criterion. None of the principals who selected the other transfer rules (1, 2, or 5) mentioned in the debriefing questionnaire the agent's greediness in selecting the transfer rule.

This conflict of views between agents and principals is a crucial element in order to understand the behavior of principals and agents in the remaining stages of the game. We summarized our findings regarding transfer rules choices in Stage 1 as follows.

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<sup>25</sup> We elicited beliefs for two sessions, that is a total of 46 subjects (23 agents and 23 principals). Using a two-sided Mann-Whitney-Wilcoxon test we reject the hypothesis that principals' beliefs regarding agents' transfers were equal to agents' beliefs about their own transfers ( $p = 0.058$ ). We obtained similar results if we consider agents' actual transfer levels instead of agents' beliefs, see Table VI.1 in appendix VI.1 for more details.

RESULT 1. (Choice of the transfer rule)

*i) Agents and principals were not indifferent between the different transfer rules. This is consistent with the existence of social preferences.*

*ii) Agents and principals held different views regarding the choice of the transfer rule.*

### *B. Consulting or not consulting?*

In Stage 2, principals could consult the agent's previously selected transfer rule by paying a cost  $c > 0$ , where the cost was \$1.5 in the high-cost treatment (**CH**) and 30¢ in the low-cost treatment (**CL**). The proportion of principals who decided to consult the agent's answer was equal to 35% and 54% in treatments CH and CL, respectively.<sup>26</sup> The difference in proportion is marginally significant ( $p < 0.1$ ) and this confirms the sound premise that, in our environment, participants were responsive to relatively small monetary costs.

Pooling the data from both treatments, average (median) transfers were equal to \$3.48 (\$2.25) if principals consulted the agent and \$3.37 (\$3.00) otherwise. We do not find any significant differences in transfers as well as in principal earnings between the case in which the principal consulted the agent and the case in which the principal did not ( $p = 0.76$  and  $p = 0.86$ , respectively).<sup>27</sup> In the same way, we do not report significant differences in either transfers or principals' earnings when considering the two treatments (**CL** and **CH**) separately ( $p = 0.93$  and  $p = 0.24$  for treatment CL while  $p = 0.71$  and  $p = 0.57$  for treatment CH). In the rest of the results section, we will pool the data from both treatments CL and CH to analyze the effect of consulting on transfers and earnings. We do so because we could not reject that the distribution

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<sup>26</sup> Notice that we started by gathering three sessions for both treatments CH and CL. In the next two sessions, we decided to use treatment CL (for which consulting was more likely) to gather additional observations for the case in which principals consulted the agent.

<sup>27</sup> In this paper, we use non-parametric Mann-Whitney-Wilcoxon test to compare transfers and earnings since we reject standard normality tests (Shapiro-Wilk and Jarque Bera tests) for both transfers and earnings,  $p < 0.001$ .

of agents' transfers and principals' earnings are identical across treatments (Kolmogorov-Smirnov test for transfers values:  $p = 0.52$  and for principals' earnings:  $p = 0.19$ ). Also, mean and median transfer values were not significantly different across treatments. In Table 3 we display average and median transfers as well as principals' earnings across treatments and consulting strategies.

TABLE 3— TRANSFER VALUE AND PRINCIPAL'S EARNINGS BY TREATMENT

|   |         | Transfer value<br>in US dollars    |   |                   | Principal's earnings<br>in US dollars |   |                   |
|---|---------|------------------------------------|---|-------------------|---------------------------------------|---|-------------------|
|   |         | Principal<br>consulted<br>(n = 44) | Principal<br>did not<br>consult<br>(n = 49) | Total<br>(n = 93) | Principal<br>consulted<br>(n = 44)    | Principal<br>did not<br>consult<br>(n = 49) | Total<br>(n = 93) |
| Treatment<br>CL<br>(n = 34)               | Average | 3.52                               | 3.50  | 3.51              | 9.73                                  | 10.00                                       | 9.85              |
|   | Median  | 2.25                               | 3.00  | 3.00              | 7.20                                  | 9.00  | 8.70              |
| Treatment<br>CH<br>(n = 59)               | Average | 3.38                               | 3.20  | 3.26              | 8.25                                  | 9.41  | 9.00              |
|   | Median  | 2.25                               | 1.50  | 1.50              | 6.00                                  | 6.00  | 6.00              |
| Mann-Whitney-<br>Wilcoxon test (p-values) |         | p = 0.82                           | p = 0.42                                    | p = 0.41          | p = 0.26                              | p = 0.42                                    | p = 0.41          |

In Figure 3, and after pooling the data from the two treatments, we show the histogram of transfers for the case in which the principal consulted the agent and for the case in which the principal did not consult. In line with FK, the histograms reveal that the frequency of a transfer value decreases as the transfer increases except for a peak observed at a value equal to 6. For this

transfer value, agents decide to split their endowment equally showing concerns for strict equality.<sup>28,29</sup>

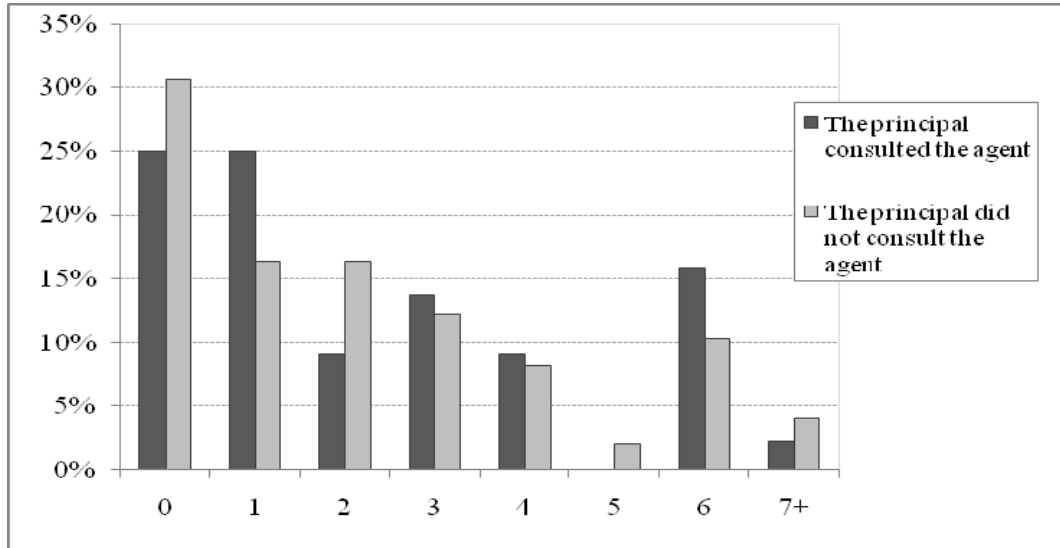


FIGURE 3. HISTOGRAM OF TRANSFER VALUES<sup>30</sup>

Principals' earnings, as well as transfer values, were similar whether the principal decided to consult the agent's choice or not. Nevertheless, a large proportion of principals (47%) decided to consult the agent's transfer rule even though it was costly to do so. This result is not consistent with the Nash equilibrium with purely selfish individuals under which principals should not consult agents at a cost. In our design, the principal did not obtain any valuable information about the transfer rules when consulting the agent. This is an important difference between our analysis and the paper of FHW in which case principals could be better-off delegating the decision making process to more informed agents. In our setting, there exist no informational

<sup>28</sup> We mean by strict equality sharing the agent's initial endowment equally. This is not equivalent to payoffs equality in which case the agent would transfer 3.33 (considering either that the principal does not consult the agent or that the cost of consulting is equal to zero).

<sup>29</sup> A detailed comparison between our results and FK is provided in appendix VI.2.

<sup>30</sup> 7+ stands for transfer values greater than or equal to 7.

issues and the effect, if any, of consulting on final transfers should be accounted for by behavioral considerations.

We summarize the results regarding the consulting stage of our experiment as follows.

RESULT 2. (Consulting or not consulting)

*i) A significant proportion of principals decided to consult the agent (47%) even though it was costly to do so.*

*ii) Principals who consulted the agent did not outperform those who did not because agents' transfers were not significantly different in these two cases.*

Using the debriefing questionnaire, we shed light on the motives of principals to consult or not consult the agent's rule.<sup>31</sup> A large proportion of principals (42%) mentioned that they would consult agents in order to know their intended transfer in the last stage of the game. That is, principals may have felt curious about agents' social preferences and may have decided to consult, as a result. These findings suggest that the principal's decision to consult may not only rely on the maximization of expected payoffs but also on the general concern for understanding others' goals and desires. This non-strategic aspect of consulting can be seen as consequence of the natural tendency of people to value social interactions per se. This account for human behaviors in the laboratory was put forward in the study of social distance in dictator games by Hoffman, McCabe and Smith (1996).<sup>32</sup>

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<sup>31</sup> The usual limitation regarding the use of debriefing questionnaires applies here. The answers to the questionnaire have to be interpreted with care as people may attempt to rationalize their acts a posteriori. For example, principals who did not follow the agent's choice may claim that they did not expect the agents to react negatively when being ignored so as to justify their decision.

<sup>32</sup> This interpretation is consistent with social adaptation theory (Cosmides and Tooby, 1992) according to which humans develop cognitive processes to deal with social exchange that are shaped by evolutionary pressures.



Nonetheless, strategic motives also played an important part in principals' decisions to consult the agent since a noticeable proportion (23%) of those who consulted the agent thought that it would increase the willingness of the agent to transfer points in the last stage of the game.

We also asked agents about their emotional reaction to consulting. We summarize agents' emotional responses to being consulted or not in Table 4. A large majority of agents (77%) who were consulted reported that it generated positive emotions. In particular, about one-third of these agents mentioned *being regarded and considered* as their dominant feeling when being consulted. One-third of the subjects explicitly mentioned that being consulted by the principal would lead them to increase their transfer value. These reported emotions are consistent with the intuitive appeal of *participative decision making* according to which consulting agents and considering their choice should enhance their satisfaction (see Miller and Monge, 1986, for an extensive discussion on affective models of participation). Indeed, we know that people value the fact that their opinions are being heard and considered (Korsgaard and Roberson, 1995; Wiley, 1997; Freeman and Rogers, 1999) and this is likely to translate into positive reactions from the agent. It is also interesting to notice that a large majority of agents (60%) who were not consulted reported negative emotions for not being consulted. About 30% of those agents reported that they felt ignored by the principal.

TABLE 4— AGENTS' EMOTIONAL RESPONSES TO BEING CONSULTED OR NOT

|                | AFTER BEING CONSULTED |         |          | AFTER NOT BEING CONSULTED |         |          |
|----------------|-----------------------|---------|----------|---------------------------|---------|----------|
|                | Positive              | Neutral | Negative | Positive                  | Neutral | Negative |
| Relative share | 77%                   | 18%     | 5%       | 15%                       | 25%     | 60%      |

We also report principals' beliefs about agents' emotional responses after being consulted or not (see Table 5). These beliefs were consistent with agents' emotional responses and this stresses that principals were aware of agents' positive behavioral reaction to being consulted and the negative reaction that followed from not being consulted.

TABLE 5— PRINCIPALS' BELIEFS ABOUT AGENTS' EMOTIONAL RESPONSES

|                | AFTER CONSULTING THE AGENT |         |          | AFTER NOT CONSULTING THE AGENT |         |          |
|----------------|----------------------------|---------|----------|--------------------------------|---------|----------|
|                | Positive                   | Neutral | Negative | Positive                       | Neutral | Negative |
| Relative share | 77%                        | 23%     | 0%       | 0%                             | 27%     | 73%      |

The positive reaction of agents to being consulted does not seem to be consistent with the fact that transfer values were not significantly higher when agents were consulted than when they were not (Result 2). In order to elucidate this apparent puzzle, we need to analyze the decision of the principal to follow or not follow the agent's preferred option. We examine this stage of the game in the next section.

### *C. Listening, or not listening?*

In Stage 3, the principals who consulted the agent had to decide whether to follow the agent's preferred transfer rule. This decision turns out to be crucial in understanding the consulting process and its effect on agents' transfers. Interestingly, about half of the participants (52%) decided not to listen to the agent's choice even though it may have been beneficial for them to do so. We summarize our results in Table 6.

TABLE 6— TRANSFER VALUE FOR PRINCIPALS WHO FOLLOWED THE AGENT AND FOR THOSE WHO DID NOT

|   | Transfer value<br>in US dollars | Principal's earnings<br>in US dollars |
|---|---------------------------------|---------------------------------------|
| Principal followed the agent (n = 21)       |                                 |                                       |
| Average                                     | 4.57                            | 11.61                                 |
| Median                                      | 4.50                            | 11.70                                 |
| Principal did not follow the agent (n = 23) |                                 |                                       |
| Average                                     | 2.48                            | 7.24                                  |
| Median                                      | 1.50                            | 4.50                                  |
| Mann-Whitney-Wilcoxon                       | p < 0.001                       | p < 0.001                             |

The average earnings of the principals who followed the agent's preferred rule (\$11.61) were about 60% larger than the average earnings of principals who ignored the agent's rule (\$7.24). This is the case because agents transferred significantly more on average to principals who followed their rule (\$4.57) than to those who did not (\$2.48). The behavior of the agents was driven by emotional responses to the principal's decision to follow their rule or not. We summarize agents' emotional responses to being followed or not by the principal in Table 7.

TABLE 7— AGENTS' EMOTIONAL RESPONSES AFTER BEING FOLLOWED OR NOT

|                | AFTER BEING FOLLOWED |         |          | AFTER NOT BEING FOLLOWED |         |          |
|----------------|----------------------|---------|----------|--------------------------|---------|----------|
|                | Positive             | Neutral | Negative | Positive                 | Neutral | Negative |
| Relative share | 91%                  | 9%      | 0%       | 0%                       | 25%     | 75%      |

A large majority of agents (91%) whose rule was followed by the principal reported that it generated positive emotions. In particular, about one-fourth of these agents explicitly mentioned *being regarded and considered* as their dominant feeling in that case. Another 25% of these subjects mentioned that it would promote their team spirit. Positive emotions (91%) as well as negative emotions (75%) were apparently stronger than the ones reported by agents when asked about their reaction to being consulted or not (77% of positive emotions and 60% of negative emotions in that case).<sup>33</sup> This illustrates that agents may value the implementation of their rule more than the mere fact of being consulted. This behavior is at the core of the *participative decision-making dilemma*. Successful principals should not limit themselves to asking agents their opinions but should also put those opinions into practice. Failing to do so may generate strong negative feelings from agents who expect their opinion to count once being consulted. Most principals who did not follow the agent's rule mentioned that they had already selected the best rule in the first stage of the game. Subjects playing the role of principal typically claimed "*His rule wasn't as good as mine*".

Notice that a significant proportion of principals decided not to consult the agent even in cases in which consulting was almost free (in treatment CL the cost of consulting was 30¢). This may be seen as evidence of principals anticipating the possible negative effects of consulting the agent without following his or her preferred option. Indeed, the average (median) earnings for principals who did not consult the agent were equal to \$9.73 (\$9.00) and were significantly larger than the earnings of principals who consulted the agent but decided not to follow his or her choice (\$7.24 (\$4.50)).<sup>34</sup> This was the case because both average and median transfers were

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<sup>33</sup> Notice that, similarly to Section B, principals' beliefs about agent's emotional responses were consistent with agents' beliefs. That is, principals expected that following (not following) the agent's rule would generate positive (negative) emotions.

<sup>34</sup> Mann-Whitney-Wilcoxon test,  $p < 0.001$ .

lower in the case in which the principal consulted the agent without following his or her preferred option (\$2.48 and \$1.50, respectively) than in the case in which the principal did not consult the agent (\$3.37 and \$3.00, respectively).<sup>35</sup> In addition, consulting the agent entailed a monetary cost that lowered the earnings of the principals who consulted the.

This result is consistent with the fact that the negative emotions generated by not following the agent's preferred option were particularly pronounced and may have offset the positive feelings that agents expressed when being consulted. It is also true that the positive reaction of the agents following the acceptance of their own rule by the principal was sufficiently strong to offset the consultation fee paid by the principal. Indeed, the earnings of the principals who consulted the agent and decided to follow his or her choice were significantly higher than the earnings of the principal who did not consult ( $p = 0.05$ ).

In addition, no agents decided to transfer nothing to the principal when the latter decided to follow the agent's choice. In contrast, 48% of the agents did not transfer anything to the principal when the latter did not follow their choice. As an element of comparison, in FK in the case in which the principal decided not to control the agent's transfer, that is the most favorable case for the principal, the proportion of zero-transfers was equal to 22%.<sup>36</sup> Our statistical tests show that the proportion of zero-transfers was significantly higher when principals decided not to follow the agent's choice than when they followed the agent's rule ( $p < 0.001$ ) or than when the principal did not consult the agent ( $p < 0.001$ ). Even though the proportion of zero-transfers was larger in the case in which the principal did not follow the agent's choice (48%) than in the case in which the principal did not consult the agent (31%), the difference is not statistically significant ( $p = 0.16$ ).

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<sup>35</sup> This difference in transfers is marginally significant (Mann-Whitney-Wilcoxon test,  $p = 0.09$ ).

<sup>36</sup> In FK, we considered transfers between 0 and 5 points that correspond to 0% to 4.2% of the agent's initial endowment of 120 points.

In a nutshell, consulting the agent was not a neutral process even though the earnings of the principals who consulted the agent did not significantly differ from the earnings of those who did not. Indeed, there were potential gains from consulting as long the principal was willing to accept the agent's view. Average agents' transfers were significantly higher in this case (\$4.57) than in the case in which the principal did not consult the agent (\$3.37).<sup>37</sup>

We summarize our findings as follows.

RESULT 3: (Participative decision making dilemma)

- i) A large proportion of principals (52%) decided not to follow the agent's preferred option after consulting the latter.*
- ii) However, principals who followed the agent's rule obtained significantly larger earnings than principals who did not.*
- iii) Despite the cost of consulting, principals' earnings were significantly higher when they consulted and followed the agent's preferred option than when they did not consult the agent.*
- iv) Because of the cost of consulting and because of lower transfers, principals' earnings were significantly lower when they consulted but did not follow the agent's preferred option than when they did not consult the agent.*
- v) The proportion of zero-transfers was significantly lower when the principal followed the agent's choice than when the principal either did not follow the agent's preferred option or did not consult the agent.*

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<sup>37</sup> The Mann-Whitney-Wilcoxon test for the latter case gives a p-value equal to 0.05.

We illustrate Result 3 (*participative decision making dilemma*) with the graph of the empirical cumulative distribution of transfers for the case in which the principal followed the agent's view and for the case in which the principal did not follow the agent's preferred rule (Figure 4). We observe that the empirical cumulative distributions of transfer values are consistent with first-order stochastic dominance of the empirical cumulative distribution of transfer values for the case in which the principal decided to follow the agent's preferred option.

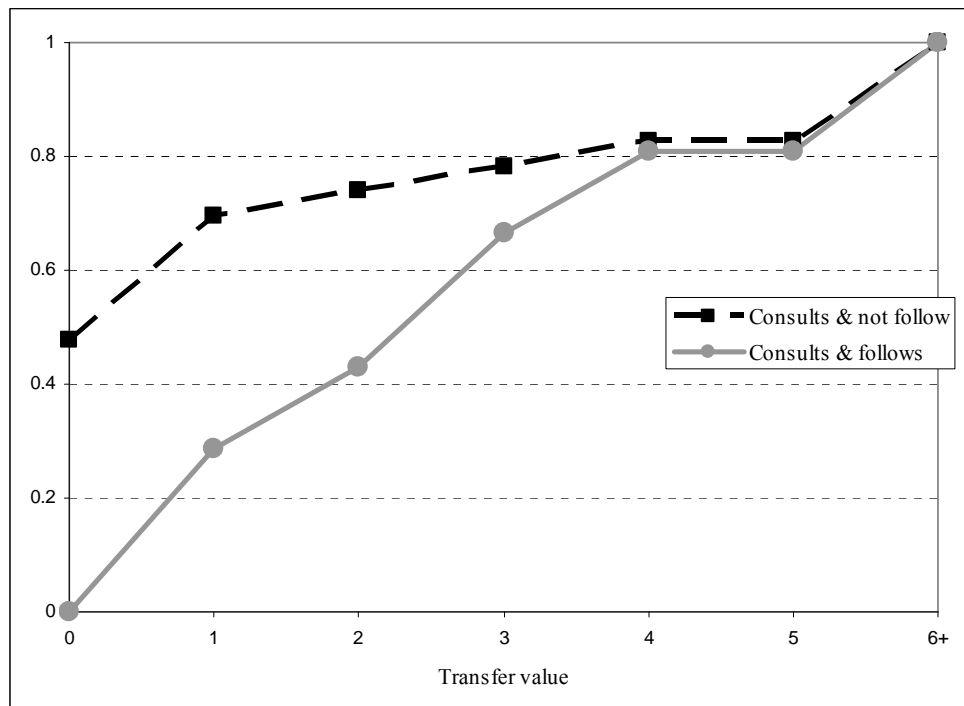


FIGURE 4. EMPIRICAL CUMULATIVE DISTRIBUTION OF TRANSFER VALUES FOR THE TWO CASES IN WHICH THE PRINCIPAL CONSULTED THE AGENT.

We use a Kolomogorov-Smirnov upper-tailed test to confirm that the cumulative distribution function of transfer values for the case in which the principal did not follow the agent's advice is above the cumulative distribution function for the case in which the principal followed the agent's advice ( $p < 0.01$ ).

### III. Interpretation of the results and robustness checks

#### A. Principal behavior and reluctance to change one's own mind

In this section, we further study the motives underlying the principal's decisions to accept or reject the transfer rule of the agent. First, we assess whether principals were more likely to accept the transfer rule of the agent when it was more similar to their own rule. To do so, we measure the similarity between two transfer rules by computing the distance between the costs functions associated to each rule. The two measures we use are described below. The first measure of discrepancy between two transfer rules is the *total sum of absolute differences* in transfer costs for any transfer value between 0 and 12. That is, for two transfer rules  $i$  and  $j$  this measure is defined as follows:  $\sum_{k=1}^{12} |C_i(k) - C_j(k)|$ , where  $C_i(k)$  represents the cost of transferring  $k$  points to the principal if transfer rule  $i$  applies. The second measure is the *partial sum of absolute differences* in transfer costs in which case we consider only transfer values that are less than or equal to 6. We do so because subjects tended not to look at transfer costs for transfer values above 6. Indeed, only 3.2% of the participants decided to transfer more than 6 points to the principal.<sup>38</sup> We display the two different measures of discrepancy between any two transfer rules in Table 8.

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<sup>38</sup> Extremely high levels of altruism or misunderstanding of the experiment may explain such behavior.



TABLE 8— PARTIAL (TOTAL) SUM OF ABSOLUTE DIFFERENCES  
IN TRANSFER COSTS BETWEEN ANY TWO TRANSFER RULES

| Transfer rules | 1       | 2      | 3      | 4       | 5 |
|----------------|---------|--------|--------|---------|---|
| 1              | 0       | -      | -      | -       | - |
| 2              | 5 (9)   | 0      | -      | -       | - |
| 3              | 10 (18) | 5 (9)  | 0      | -       | - |
| 4              | 9 (14)  | 6 (11) | 5 (12) | 0       | - |
| 5              | 5 (12)  | 6 (11) | 9 (14) | 12 (22) | 0 |

It is interesting to note that both measures are significantly larger in the case in which the principal decided not to follow the rule chosen by the agent than in the case in which the principal followed the agent's rule (Mann-Whitney-Wilcoxon test,  $p = 0.01$  for the case of the *partial sum* and  $p = 0.03$  for the case of the *total sum*). Also, we run two probit regressions using each measure as a regressor in order to confirm that principals were more likely to accept the rule of the agent when it was closer to their previously selected transfer rule. Our dependent variable (*Acceptance of the agent's choice*) takes value 0 or 1 whether the principal decided to accept or reject the choice of the agent. The results are summarized in Table 9.

TABLE 9— PROBIT REGRESSION RESULTS

|  | <i>Acceptance of the agent's choice</i> |              |
|--|---|--------------|
|  | Regression 1                            | Regression 2 |
| <i>INTERCEPT</i>                       | 0.989**                                 | 1.038**      |
| <i>TOTAL SUM ABSOLUTE DIFFERENCE</i>   | -0.086**                                | -            |
| <i>PARTIAL SUM ABSOLUTE DIFFERENCE</i> | -                                       | -0.154***    |
| Mc-Fadden R <sup>2</sup>               | 0.115                                   | 0.128        |
| <i>Number of observations</i>          | 44                                      | 44           |

In line with the previous findings, the analysis of the questionnaire stresses that principals did not follow the agent's option because they believed that it conflicted with their own interpretation of how the game should be played. Similarly, Babcock et al. (1995) and Babcock and Loewenstein (1997) show that self-serving biases prevent defendants and plaintiffs from reaching an agreement about a settlement in a bargaining game. In their experiment, people exhibited self-serving biases because they interpreted the legal case in favor of the role that was assigned to them by the experimenter.

In our experiment, principals were reluctant to change their mind and adopt the agent's rule whenever it was significantly different from their initial choice. Consistently, we observe that the great majority of principals (74%) who rejected the agent's choice, selected rule 5 (characterized by low transfer costs for high transfers) as their preferred rule in the first stage of the game. To the contrary, only a minority of principals (38%) who accepted the agent's rule selected rule 5 in

the first stage of the game.<sup>39</sup> Also, only two principals (9%) who rejected the agent's rule had previously selected rule 3 (characterized by low transfer costs for low transfers) whereas about half of the principals (48%) who accepted the agent's rule had chosen rule 3.<sup>40</sup>

In order to shed light on the reluctance of principals to change their mind we report principals' beliefs and analyze whether they played accordingly.<sup>41</sup> In Table 10 we show, for each available strategy, principals' earnings computed according to their beliefs about the agent's transfer. The principals' expected earnings that correspond to their actual decisions in the game are shown in the main diagonal. The remaining cells correspond to the expected earnings under strategies that were not played by the principal (e.g. expected earnings for principals who did not consult the agent in the hypothetical case in which they had consulted and followed the agent's rule). If principals who consulted the agent but did not follow their rule were maximizing expected payoffs, they would have chosen the strategy that consisted in accepting the agent's rule. Indeed, average (median) expected earnings for the principals who ignored the agent's preferred option were 10% (20%) lower than what they expected to earn if they had followed the agent's option. It is also the case that, regardless of the principal's strategy, expected earnings were always higher in the case in which the principal followed the agent's rule than in the case in which the principal did not.<sup>42</sup> These results suggest that principals have a preference for keeping their own rule. In other words, people do not like to change their mind. Relatedly, FHW found that, in the context of a delegation game, principals were reluctant to delegate authority even though this strategy maximized their expected payoffs according to their beliefs about the agent's transfer. The authors put forward that people value authority. Notice that our

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<sup>39</sup> This difference is significant (Proportion test,  $p < 0.001$ ).

<sup>40</sup> This difference is significant (Proportion test,  $p < 0.001$ ).

<sup>41</sup> Recall that beliefs were elicited for two sessions, that is a total of 46 subjects.

<sup>42</sup> The difference in expected earnings is significant between the two cases (We use the sample of the 23 principals for whom we elicited beliefs, Wilcoxon matched-pairs signed-rank test,  $p < 0.001$ ).

interpretation of the results is different from the interpretation put forward by FHW in which case principals were willing to retain authority for the mere pleasure of keeping control of the situation. In our case, only one principal out of 93 mentioned control as a reason for rejecting the agent's rule.

Interestingly, in the two other cases (the principal did not consult the agent or the principal consulted the agent and followed his or her rule), principals' strategies appear to be consistent with expected payoffs maximization given the beliefs about the agent's level of transfer.

TABLE 10— PRINCIPALS' EXPECTED EARNINGS ACCORDING TO THEIR BELIEFS ABOUT AGENTS' TRANSFERS

| Principal's actual strategy            | <i>Average (median) expected earnings in US dollars if principals had:</i> |                            |                        |
|--|--|----------------------------|------------------------|
|  | not consulted  | consulted but not followed | consulted and followed |
| Principal did not consult              | 14.50 (16.50)  | 12.20 (10.20)              | 13.20 (13.20)          |
| Principal consulted but did not follow | 12.30 (12.00)  | 13.20 (11.70)              | 14.70 (14.70)          |
| Principal consulted and followed       | 12.00 (12.00)  | 9.45 (8.70)                | 16.70 (14.70)          |

Finally, one may think that the principals decided to follow their own rule so as to influence the agent's perception of what is a fair transfer. This argument relies on the fact that some individuals are conformists and may be tempted to follow the social norm advanced by the principal (Sliwka, 2007). However, we find no evidence of such mechanism in our experiment as principals expected the effect of ignoring the agent's preferred option to be negative. Also, no

principals mentioned influencing the agent's perception of fairness as a determinant aspect of their strategy to stick to their own transfer rule.<sup>43</sup>

*B. Agent behavior, reciprocity and alternative explanations*

A large majority of agents (91%) whose rule was followed by the principal reported that it generated positive emotions while a large majority (75%) expressed negative feelings when their rule was ignored by the principal. These reported emotions are consistent with the idea that agents reciprocated positively (negatively) when principals decided to follow (ignore) their rule because they perceived such behavior positively (negatively). However, in order to support the reciprocity-based explanation further, we have to rule out alternative explanations of agents' behavior. For example, one may argue that agents transferred less to the principal when the latter did not follow their rule because transfers were more costly in that case. We know from the previous section that the final rule implemented by the principal in Stage 3 differed whether the principal's followed the agent's rule or not. Indeed, transfer rule 5 was implemented in 74% of the cases when the principal ignored the agent rule compared with 24% when the principal followed the agent's rule. Conversely, rule 3 was more commonly used in the latter case (57%) than in the former (9%). Also, transfer rule 5 entailed higher costs than transfer rule 3 for any transfer value between 0 and 4 (83% of agents' transfers were in that range). In order to assess whether differences in transfer rules can account for differences in transfers we compute the average transfer cost in the case in which the principal followed the agent's rule and in the case in which the principal did not follow the agent's rule. Reporting transfer costs will inform us about the monetary amount that agents were willing to sacrifice in order to increase principals' earnings. We find that average (median) transfer costs were equal to \$2.15 (\$0.00) when the

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<sup>43</sup> This interpretation of the results may have been more persuasive in the context of a multi-agent game.

principal ignored the agent compared with \$3.29 (\$3.00) when the principal followed the agent's rule.<sup>44</sup> Also, the proportion of zero-cost transfers was significantly higher when principals ignored the agent's rule (57%) than in the case in which principals followed the agent's rule (24%).<sup>45</sup> Finally, we report that the empirical cumulative distributions of transfer costs are consistent with first-order stochastic dominance of the empirical cumulative distribution of transfer costs for the case in which the principal followed the agent's preferred option (see Figure VI.3 in the appendix). We use a Kolmogorov-Smirnov test to confirm that the cumulative distribution function of transfer costs for the case in which the principal did not follow the agent's rule is above the cumulative distribution function for the case in which the principal followed the agent's rule ( $p = 0.07$ ).<sup>46</sup> These results stress that the increase in agents' transfers when the principal followed their preferred rule is not solely due to the fact that transfers were less costly in that case. Agents transferred more in that case because they were willing to incur higher transfer costs than in the case in which they were ignored by the principal. This interpretation is in line with the reciprocity-based account of agents' behaviors.

Another possible explanation for the behavior of the agents is related to the difficulty to change one's own mind. Similarly to the case of the principal's behavior, one could argue that the agent was reluctant to consider any transfer rule but his or her own. Being asked to consider another transfer rule in the final stage of the game may have led to negative reactions from the

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<sup>44</sup> This difference is significant (Mann-Whitney-Wilcoxon two-tailed test,  $p = 0.08$ ). It is important to notice that this is a conservative test for the hypothesis that reciprocity does not account for agents' behavior. Indeed, reciprocity concerns could still explain agents' behaviors even if the average transfer cost were the same when the principal ignored the agent and when he or she followed the agent's rule. For example, all agents who decided to incur no transfer cost in the case in which the principal followed their preferred option faced transfer rule 3 and decided to transfer one point to the principal. This behavior can be seen as evidence of positive reciprocity. To the contrary, the great majority of agents who were ignored by the principal and decided to incur no transfer cost did not transfer any points to the principal.

<sup>45</sup> This difference is significant (Proportion test,  $p = 0.03$ ).

<sup>46</sup> Noether (1963, 1967) states that the Kolmogorov-Smirnov test tends to be conservative (i.e., less likely to reject a false null hypothesis) when the dependent variable is discrete.

agent. This reasoning is closely linked to the reciprocity-based explanation since the negative reaction of the agent (low transfers to the principal) that may have followed from considering an alternative rule is likely to be stronger whenever the principal is seen as being responsible for the agent's discomfort. In this paper, we did not attempt to disentangle these two intertwined effects.<sup>47</sup>

### *C. Transfer rule choice, social preferences and transfer values*

Subjects' decisions in the first stage of our experimental design can be used so as to gather information about agents' social (distributive) preferences and control for the robustness of our results. We know from Section III.A that principals were more likely to follow the agent's transfer rule if it was perceived to be close to their own rule. As a result, the proportion of agents who selected rule 5 (3) was larger (smaller) in the set of agents that were followed by the principal than in the set of agents who were ignored. This conjecture is confirmed in Table 11 in which we display the proportion of agents choosing each transfer rule for each consulting strategy of the principal. The proportion of agents who chose rule 3 (rule for which low transfers entailed low costs) was smaller in the case in which the principal followed the agent's rule (57%) than in the case in which the principal consulted the agent but did not follow his or her rule (65%). Also, the proportion of agents who chose rule 5 (rule for which high transfers entailed low costs) was greater in the case in which the principal followed the agent's rule (24%) than in the case in which the principal did not follow the agent's rule (13%). These differences are not significant, however (proportion tests,  $p = 0.58$  and  $p = 0.36$ , respectively).

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<sup>47</sup> One can think of isolating the effect of reciprocity by running a treatment in which the decision to follow or neglect the agent's preferred option in Stage 3 is selected randomly (see FHW for a similar design).

TABLE 11— AGENTS' TRANSFER RULE CHOICES AND CONSULTING DECISIONS

| Proportion of agents choosing each transfer rule in the following cases | 1  | 2  | 3   | 4   | 5   |
|---|----|----|-----|-----|-----|
| Principal did not consult (n = 49)                                      | 2% | 2% | 65% | 10% | 20% |
| Principal consulted but did not follow (n = 23)                         | 0% | 9% | 65% | 13% | 13% |
| Principal consulted and followed (n = 21)                               | 5% | 5% | 57% | 10% | 24% |

We then proceed by analyzing whether the significant differences in transfers between the case in which principals followed the agent's rule and the case in which they did not (Result 3ii) is robust to controlling for agents' and principals' transfer rules choices in the first stage of the game. In Table 12 we present the results of two censored Tobit models where the dependent variable is the transfer value. The first independent variable (*Followed*) is a dummy that takes value 1 if the principal followed the agent's rule and 0 otherwise. The second regressor (*Agent chose rule 3*) and third regressor (*Agent chose rule 5*) are also dummy variables that take value 1 if the agent chose rule 3 or rule 5, respectively. The regression analysis confirms that agents transferred more when their rule was followed. Also, the agents who chose rule 5 (in the first stage of the game) transferred significantly more than those who selected another rule (Regression 2). By contrast, the selection of transfer rule 3 had a negative but not significant effect on agents' transfers (Regression 1). This result is consistent with the finding established in Section II.A, i.e., the choice of the transfer rule in the first stage of the game can be used as a proxy for agent's social preferences. Therefore, we are able to confirm that our central Result 3ii holds even after controlling for the agents who have strong distributive concerns.



TABLE 12— TOBIT REGRESSION RESULTS

|                               | <i>Agent's transfer</i> |              |
|-------------------------------|-------------------------|--------------|
|                               | Regression 1            | Regression 2 |
| <i>INTERCEPT</i>              | 1.11                    | 0.54         |
| <i>FOLLOWED</i>               | 1.89***                 | 1.88***      |
| <i>AGENT CHOSE RULE 3</i>     | -0.78                   | -            |
| <i>AGENT CHOSE RULE 5</i>     | 2.08*                   | 2.68***      |
| <i>Number of observations</i> | 44                      | 44           |

#### *D. Separate analysis of treatment CL*

In the previous analysis, we have pooled the data from sessions CL and CH. Nevertheless, we obtained similar findings when restricting our analysis to treatment CL for which we have a total of 5 sessions and 118 subjects (59 independent observations). In treatment CL, the proportion of principals who did not follow the agent's choice was around 50% (15 out of 32 subjects). More importantly, the corresponding Mann-Whitney-Wilcoxon test for the central Result 3ii gives a p-value inferior to 0.001 while Results 3iii and 3iv give respective p-values equal to 0.07 and 0.04 for similar one-sided Mann-Whitney-Wilcoxon tests.<sup>48</sup> Finally Result 3v is also confirmed with  $p < 0.001$  and  $p = 0.03$  for the following two proportion tests: (1) the proportion of zero-transfers differed in the case in which the principal followed the agent's choice compared with the case in which the principal did not follow the agent's choice and (2) the proportion of zero-transfers

<sup>48</sup> Given the small sample size, it is not surprising that we report larger p-values when restricting our analysis to treatment CL.

differed in the case in which the principal followed the agent's choice compared with the case in which the principal did not consult the agent.<sup>49</sup>

#### IV. Concluding remarks

In this paper, we analyzed the impact of *consultative decision making* in an experimental principal-agent game, where the principal could ask the agent's opinion about the task to be undertaken in the final stage of the game. We proposed a simple experimental approach to shed light on the current debate regarding the effect of *participative decision making* tools on employees' performance. The experimental approach enabled us to control for knowingly moderating factors such as firm size, industry, job type or corporate culture. These confounding factors had prevented researchers from providing clear evidence on the positive relationship between employees' involvement in decision making and performance.

We were able to corroborate the intuitive appeal for *participative decision making* by showing that agents reacted positively when being consulted by the principal and were likely to increase their transfer when their opinion was considered and implemented. This result stressed that, beyond monetary incentives, managers could increase workers' effort by simply listening to their opinions and, most importantly, by putting their recommendations into practice.

Nevertheless, consulting employees was likely to backfire when the principal decided to ignore the agent's choice. This situation is what we referred to as the *participative decision making dilemma*. We showed that the principals who consulted but ignored the agent's preferred option significantly underperformed those who did not consult the agent. This was the case because agents were likely to reciprocate negatively to principals who consulted their preferred

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<sup>49</sup> In treatment CH, we have a total of 3 sessions and 68 subjects (34 independent observations). In that case, we have only twelve observations for the case in which the principal consults the agent. This limits the power of our statistical tests.

option but finally ignored their choice. The behavior of principals can be understood in the light of previous research showing the prevalence of self-serving behaviors according to which people demonstrate limited capacity to envision another person's view of a problem and change their mind accordingly.

In practical terms, our results suggest that even weak forms of employee involvement such as *consultative decision making* can have strong effects on workers' effort as long as managers do not systematically ignore their employees' suggestions. To be an effective manager, one cannot simply ask employees their opinions but also has to put them into practice. How intuitive this behavior may seem to be, the majority of our subjects decided to ignore their employees. The ability to change one's own mind may well be at the heart of managerial talent.

The reluctance of people to change their mind in a context in which it is profitable to do so could be a relevant behavioral feature to introduce in models of persuasion (Milgrom and Roberts, 1986; Dewatripont and Tirole, 1999; Caillaud and Tirole, 2007) and committees (Farrell and Gibbons, 1989; Li, 2001; Li, Rosen and Suen, 2001).

In our design, we voluntarily decided to isolate the effect of participation on workers' performance by using a simple principal-agent game without gift-exchange (Fehr, Kirchsteiger and Riedl, 1993). Nevertheless, previous research has shown that analyzing together monetary and non-monetary incentives schemes may lead to interesting interactions (for an overview of the literature, see, e.g., Fehr and Falk, 2002; Camerer and Malmendier, 2007; Charness and Kuhn, 2011) that we may want to explore in future research, combining incentives setting and *participative decision making* tools.

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## VI. Appendix

### VI.1. Table with beliefs

TABLE VI.1— PRINCIPALS’ BELIEFS ABOUT AGENTS’ TRANSFER COMPARED WITH ACTUAL AGENT’S TRANSFER

|  | Belief for each case: Average (Median) |  |                                    |
|--|--|--|------------------------------------|
|  | If they had not consulted              | If they had consulted but not followed | If they had consulted and followed |
| Agents’ realized transfer              | 2.2 (2.0)                              | 1.7 (1.0)                              | 3.0 (3.0)                          |
| All principals                         | 3.2 (3.0)                              | 2.8 (2.0)                              | 4.2 (4.0)                          |
| Principal does not consult             | 3.8 (4.5)                              | 3.2 (2.5)                              | 3.5 (3.5)                          |
| Principal consults and does not follow | 3.1 (3.0)                              | 3.5 (3.0)                              | 4.0 (4.0)                          |
| Principal consults and follows         | 3.0 (3.0)                              | 2.3 (2.0)                              | 4.7 (4.0)                          |

### VI.2. Comparison with Falk and Kosfeld (2006)

Given that, in our design, participants may use non-linear transfer rules, a direct comparison of our results with FK requires the analysis of transfer costs.<sup>50</sup> We provide a detailed analysis in the Table VI.2. In our experiment, the average and median transfer costs incurred by the agents tend to be greater than the transfer cost in the case in which the principal imposed a minimum transfer in FK (treatments C5, C10 and C20) but lower than the transfer cost incurred by agents in the case in which no control was imposed on the transfer.<sup>51</sup>

<sup>50</sup> Evidently, transfer costs coincide with transfers in Falk and Kosfeld (2006).

<sup>51</sup> Treatment C5 (C10) [C20] corresponds to the case in which the principal can impose a minimum transfer equal to 5 (10) [20].

TABLE VI.2— TRANSFER COST INCURRED BY AGENTS IN OUR DATASET IN COMPARISON WITH FALK AND KOSFELD (2006)

|   | Transfer cost measured in proportion of the agent's initial endowment |     |
|---|---|-----|
| Our data                                  | Average   | 15% |
|   | Median  | 17% |
| Falk and Kolsfeld<br>No control treatment | Average   | 21% |
|   | Median  | 21% |
| Falk and Kolsfeld<br>Treatment C5         | Average   | 10% |
|   | Median  | 4%  |
| Falk and Kolsfeld<br>Treatment C10        | Average   | 15% |
|   | Median  | 8%  |
| Falk and Kolsfeld<br>Treatment C20        | Average   | 21% |
|   | Median  | 17% |

In Figure VI.2, we represent the histograms for the transfer costs for our dataset as well as for FK transfer costs in the case in which the principal did not control the agent's transfer value.<sup>52</sup> The larger proportion of zero-cost transfers in our design could partly be explained by the fact that the principal had an initial endowment corresponding to 17% of the agent's initial endowment (2/12) whereas no initial endowment was given to the principal in FK. Also, in our experiment participants could choose transfer rules 3 or 4 that implied no cost for single-point transfers. These transfer rules were implemented in 40% of the cases.

<sup>52</sup> To compare our study with FK we consider that  $n$  points of transfer costs in our experiment correspond to  $10 \times n$  points in FK.

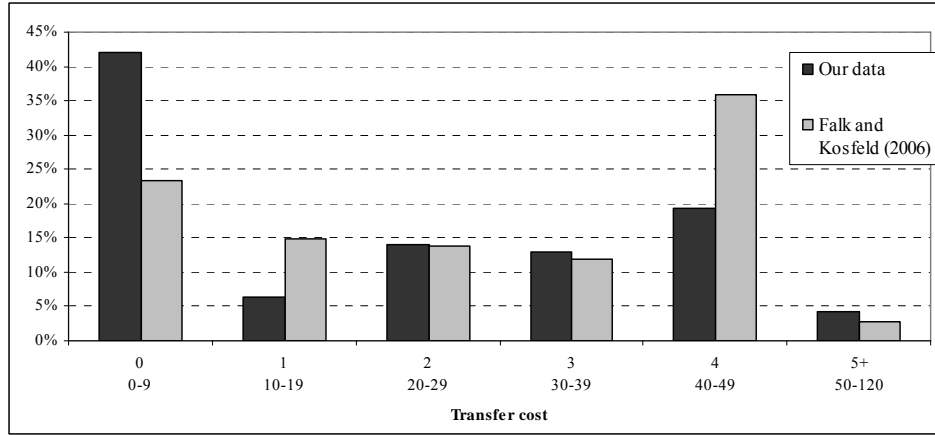


FIGURE VI.2. HISTOGRAMS OF TRANSFER VALUES FOR OUR DATA SET AND FOR FALK AND KOSFELD (2006) DATA SET.<sup>53</sup>

**VI.3. Cumulative distribution of transfer costs**

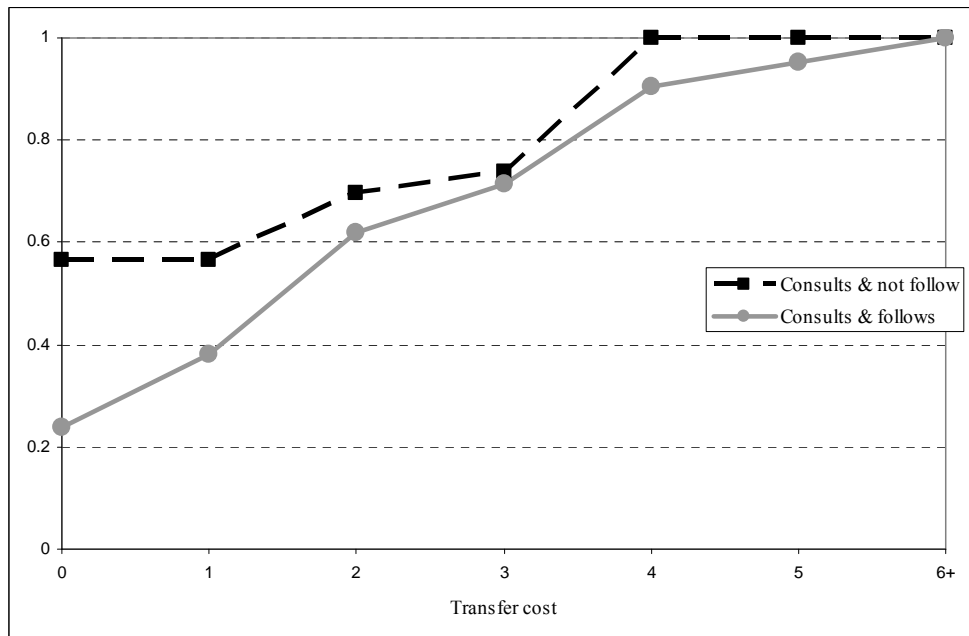


FIGURE VI.3. EMPIRICAL CUMULATIVE DISTRIBUTION OF TRANSFER COSTS FOR THE TWO CASES IN WHICH THE PRINCIPAL CONSULTS THE AGENT.

<sup>53</sup> 5+ stands for transfer costs greater than or equal to 5. Also, the bottom line of the horizontal axis reports the transfer costs in FK where for example 10-19 corresponds to transfer costs values between 10 and 19, both inclusive.

## **VI.4. Full set of instructions**

### **General information**

This is an experiment in decision making. You will be paid in cash for your participation at the end of the experiment. Different participants may earn different amounts. What you earn depends on your decisions and the decisions of others.

You will complete the experiment with a pencil and answer sheets provided to you by a monitor. If you have any questions during the instruction round, raise your hand and a monitor will come by to answer your question. If any difficulties arise after the experiment has begun, *raise your hand*, and someone will assist you.

During the experiment your earnings will be calculated in points. Each point will be converted in cash at the end of the session at the following exchange rate: 1 point = \$1.5. Payments will be made confidentially, so no one will receive information about the earnings of the other participants.

At your desk, you have instructions for the current experiment. Both the instructions and the answer sheet indicate your ID for this experiment (top left corner). This ID consists of a letter and a number. The letter is either *A* or *B* and indicates whether you are going to play the role of *A* or *B* in the current experiment.

### **Instructions**

#### **1. Introduction**

In this experiment you will be involved in a decision problem that involves two subjects. All participants in this experiment are allocated in two groups: the group of participants *A* and the group of participants *B*.

Each participant *A* will be matched randomly with a participant *B*. The other participant will only get informed about your decisions. They will never learn your name, that is, your decisions will remain anonymous.

This is an experiment in which you will use only papers and pencils. Your decisions will be anonymously transferred to the participant you have been matched with. You will write your answers in the answer sheets provided to you during the experiment. You will then put your answer sheet in an envelope that will be collected by a monitor and then transferred to the participant you have been matched with.

### **Description of the experiment**

Participant *A* receives an amount of 12 points at the beginning of this experiment. Participant *B* receives only 2 points. Each point is worth \$1.5.

Participant *A* will have the possibility to transfer part, or the total, of his initial amount of points to participant *B*.

There are five different types of transfer rules that can be used. The transfer rule specifies how costly will be the transfer from participant *A* to participant *B*.

The selection of the specific transfer rule and the amount to be transferred will be determined in the following four stages of the experiment.

**Stage 1.** Participants *A* & *B* study the different *transfer rules*:

All participants have 8 minutes to study the five different *transfer rules* and answer the following question *Q1*.

(*Q1*) Which of the five *transfer rules* would you like to apply for this experiment?

**Stage 2.** Participant *B* decides whether to consult participant *A*'s answer to question (*Q1*) regarding the choice of the *transfer rule* to be used. Consulting participant *A*'s answer implies a fixed cost  $c = 1$  for participant *B*, which will be subtracted from *B*'s initial amount of points.

**Stage 3.** Participant *B*'s second decision:

- If participant *B* has consulted participant *A*'s answer to question (*Q1*) in Stage 2 then he or she will know *A*'s answer to question (*Q1*) and then will have to choose whether to implement the *transfer rule* stated by participant *A* in Stage 1 or implement the *transfer rule* stated by himself or herself in Stage 1.

- If participant *B* has not consulted participant *A*'s answer to question (*Q1*) then he or she will have to implement the *transfer rule* stated by himself or herself in Stage 1.

**Stage 4.** Participant *A*.

Knowing which rule has been chosen by participant *B* in Stage 3, participant *A* decides how many points (s)he wants to *transfer* to participant *B*. The cost of *transfer* for participant *A* depends on the *transfer rule* previously selected.

The experimenter doubles each point which participant *A* transfers to participant *B*. Thus, each transfer point increases *B*'s earnings by two points.

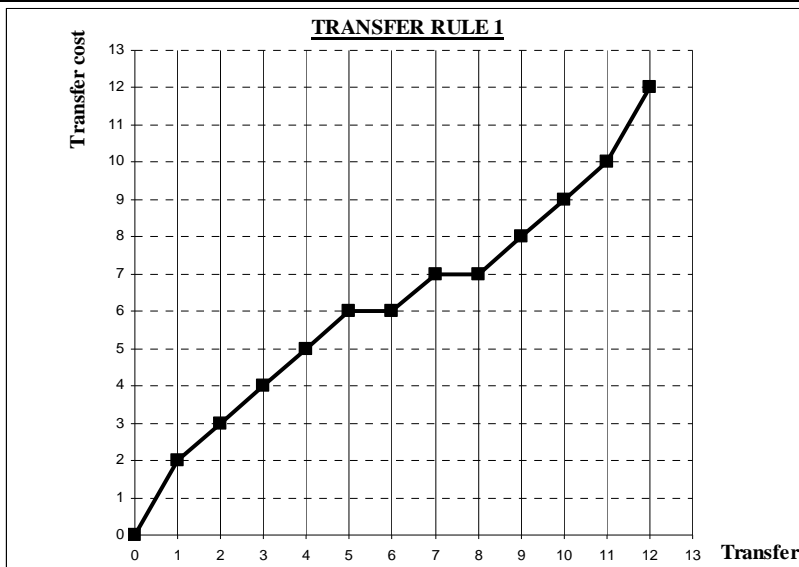
The formula for calculating earnings are as follows:

- Participant A's earnings :  $12 - (\text{transfer cost computed using the rule selected in Stage 3})$
- Participant B's earnings:  $2 + 2 \times \text{transfer} - c$  (If B consults A's answer to question (Q1))
- Participant B's earnings:  $2 + 2 \times \text{transfer}$  (If B does not consult A's answer to question (Q1))

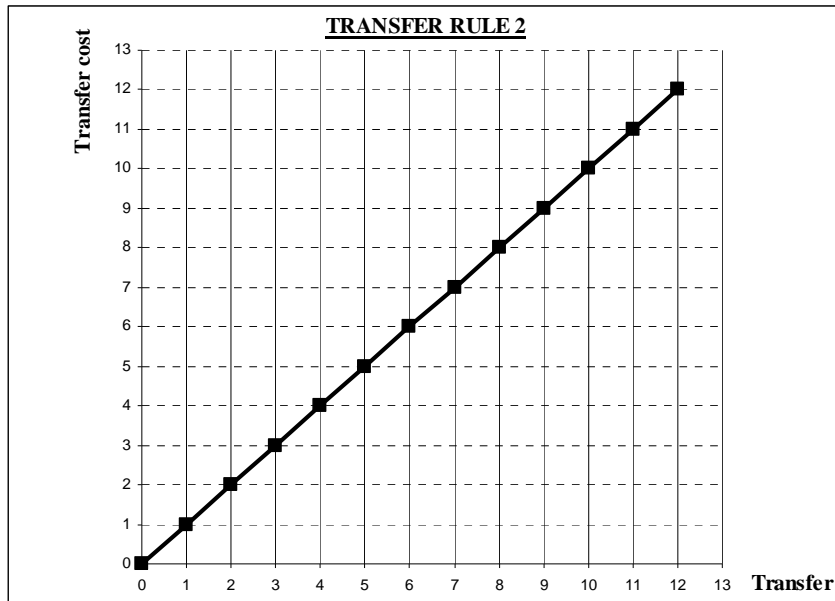
We describe the five different *transfer rules* in the following tables and graphs. You will have enough time to study the different rules in Stage 1 of the experiment.

We describe the five different *transfer rules* as follows.

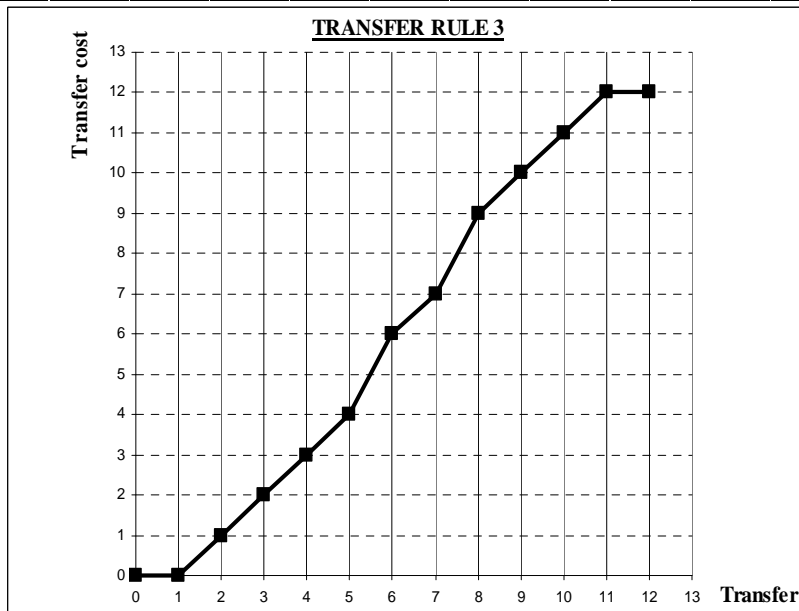
| <b>Transfer rule 1</b>             |   |   |   |   |   |   |   |   |   |   |    |    |    |
|------------------------------------|---|---|---|---|---|---|---|---|---|---|----|----|----|
| <i>Transfer</i>                    | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| <i>Actual cost of the transfer</i> | 0 | 2 | 3 | 4 | 5 | 6 | 6 | 7 | 7 | 8 | 9  | 10 | 12 |



| <b>Transfer rule 2</b>             |   |   |   |   |   |   |   |   |   |   |    |    |    |
|------------------------------------|---|---|---|---|---|---|---|---|---|---|----|----|----|
| <i>Transfer</i>                    | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| <i>Actual cost of the transfer</i> | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |

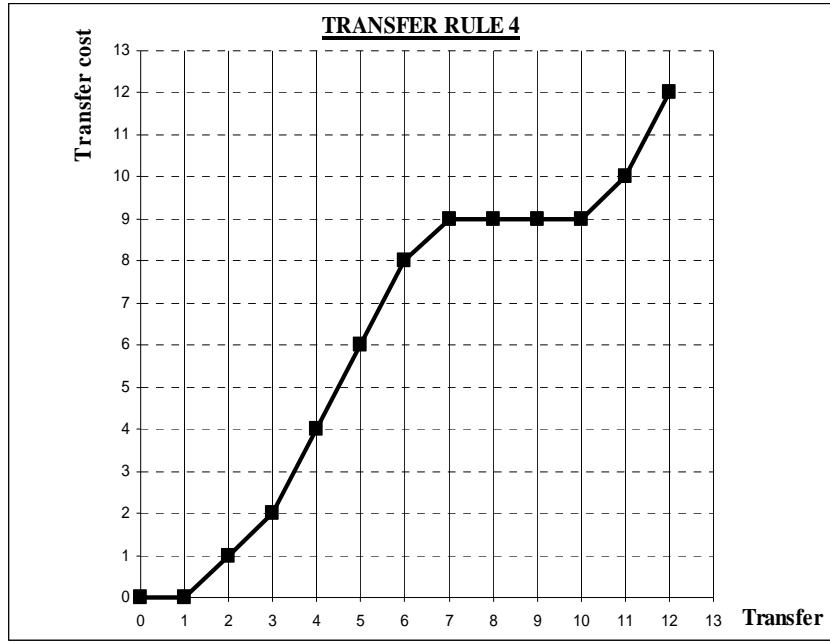


| <b>Transfer rule 3</b>             |   |   |   |   |   |   |   |   |   |    |    |    |    |
|------------------------------------|---|---|---|---|---|---|---|---|---|----|----|----|----|
| <i>Transfer</i>                    | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9  | 10 | 11 | 12 |
| <i>Actual cost of the transfer</i> | 0 | 0 | 1 | 2 | 3 | 4 | 6 | 7 | 9 | 10 | 11 | 12 | 12 |

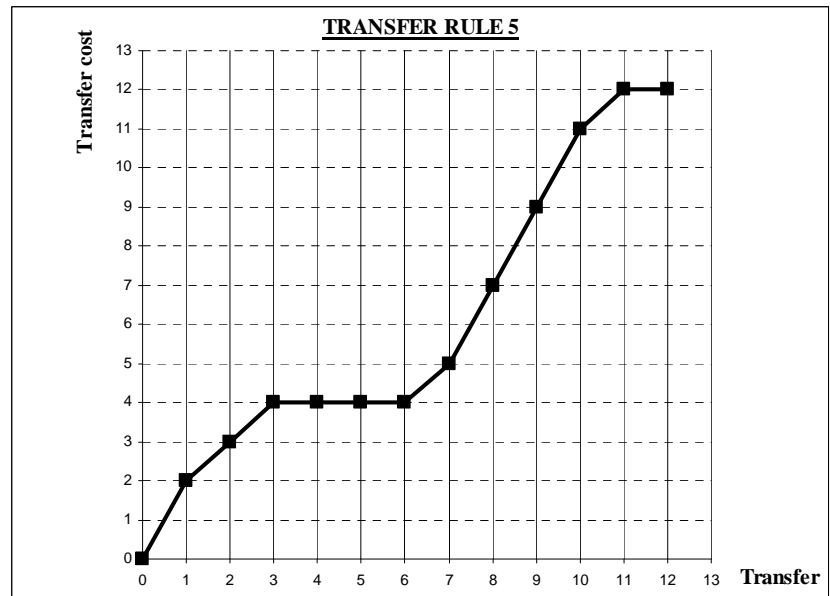




| Transfer rule 4             |   |   |   |   |   |   |   |   |   |   |    |    |    |
|-----------------------------|---|---|---|---|---|---|---|---|---|---|----|----|----|
| Transfer                    | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Actual cost of the transfer | 0 | 0 | 1 | 2 | 4 | 6 | 8 | 9 | 9 | 9 | 9  | 10 | 12 |



| Transfer rule 5             |   |   |   |   |   |   |   |   |   |   |    |    |    |
|-----------------------------|---|---|---|---|---|---|---|---|---|---|----|----|----|
| Transfer                    | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Actual cost of the transfer | 0 | 2 | 3 | 4 | 4 | 4 | 4 | 5 | 7 | 9 | 11 | 12 | 12 |



The following examples will clarify the earnings formula.

*Example 1:*

Consider that **transfer rule 3** is selected by participant *B* without consulting participant *A*'s answer and participant *A* transfers 2 points to *B*.

- As a result of selecting **transfer rule 3**, we know that the cost of transferring 2 points is equal to 1.
- The earnings are then 11 (12 – transfer cost) for participant *A* and 6 (2 + 2 times the transfer) for participant *B*.

| <b>Transfer rule 3</b>             |   |   |   |   |   |   |   |   |   |    |    |    |    |
|------------------------------------|---|---|---|---|---|---|---|---|---|----|----|----|----|
| <i>Transfer</i>                    | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9  | 10 | 11 | 12 |
| <i>Actual cost of the transfer</i> | 0 | 0 | 1 | 2 | 3 | 4 | 6 | 7 | 9 | 10 | 11 | 12 | 12 |

*Example 2:*

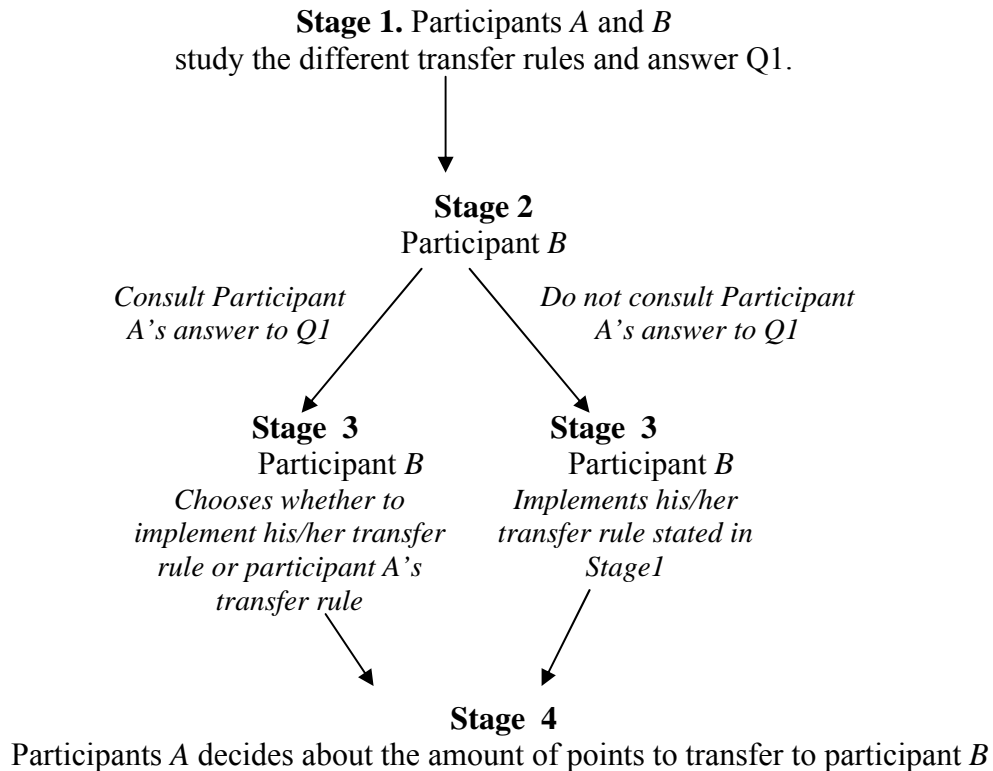
Consider that **transfer rule 5** is selected after participant *B* has consulted participant *A*'s answer and participant *A* transfers 6 points to *B*.

- As a result of selecting **transfer rule 5**, we know that the cost of transferring 6 points is equal to 4.
- The earnings are then 8 (12 – transfer cost) for participant *A* and 13 (2 + 2 times the transfer – *c*) for participant *B*, where  $c = 1$ .

| <b>Transfer rule 5</b>             |   |   |   |   |   |   |   |   |   |   |    |    |    |
|------------------------------------|---|---|---|---|---|---|---|---|---|---|----|----|----|
| <i>Transfer</i>                    | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| <i>Actual cost of the transfer</i> | 0 | 2 | 3 | 4 | 4 | 4 | 4 | 5 | 7 | 9 | 11 | 12 | 12 |

### Summary of the timing of the experiment

Remember that this experiment consists of the following four stages. At each stage decisions made by participants will be transmitted using an envelope that will be collected by a monitor in the room.



### VI.5. Questionnaire answered by participants at the end of each session

#### **Participant A**

Please answer the following questions (you have 15 minutes to complete the questionnaire):

Which criteria did you consider to select a transfer rule in Stage 1?

Which criteria do you think Participant *B* considered to select a transfer rule in Stage 1?

How would you feel if participant *B* *did not* consult the transfer rule you selected?

How would you feel if participant *B* *did* consult the transfer rule you selected?

How would you feel if participant *B* *did not* select the transfer rule you have stated in Stage 1?

How would you feel if participant *B* *did* select the transfer rule you have stated in Stage 1?

How would you have felt if you had transferred the lowest possible amount to Participant *B*?

#### **Participant B**

Please answer the following questions (you have 15 minutes to complete the questionnaire):

Which criteria did you consider to select a transfer rule in Stage 1?

Which criteria do you think Participant *A* considered to select a transfer rule in Stage 1?

How do you think participant *A* would feel if you *did not* consult the transfer rule (s)he selected?

How do you think participant *A* would feel if you *did* consult the transfer rule (s)he selected?

How would you have felt if participant *A* had transferred the lowest possible amount?

Why did you (or did not) choose to consult the transfer rule selected by participant *A*?

Why would you ever choose *not to* implement participant *A*'s observed *transfer rule*?

How do you think participant *A* would feel if you *did* select his or her transfer rule?

How do you think participant *A* would feel if you *did not* select his or her transfer rule?

Would you have consulted if the cost of consulting had been equal to zero ( $c=0$ )?

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