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Abstract

In hierarchical organizations the role of a team leader often requires making decisions which do not necessarily coincide with the majority opinion of the team. However, these decisions are final and binding for all team members. We study experimentally why, and under which conditions, leaders resort to such decisions. In our experiment, teams are presented with several paired lottery choices. They decide by majority voting which lottery from the lottery pair they prefer to be played out. After all members of the team have made their choices, the team leader is informed about the outcome of the vote and has an opportunity either to confirm or to alter the majority decision. We find that leaders overrule their teams in 35% of cases and such decisions are primarily driven by divergent preferences of leaders and the other team members. Male, younger and more risk seeking (as opposed to female, older and more risk averse) leaders overrule decisions of ordinary team members more often. We discuss the implications of our findings for the management of organizations.

JEL classification: C91, C92, D91, M14

Keywords: leadership, risk attitude, managerial decisions, collective choice, choice under risk

1 Introduction

Management of teams in hierarchically structured organizations is a complex and fascinating phenomenon. It often involves decision making in stochastic domains such as investment, organizational strategy, and market entry to name a few. While team leaders should be prepared to set a good example for the members of their team and coordinate interactions and information streams within the organization, they also have a responsibility of making final judgments and decisions, which we will call *managerial decisions*. These decisions are binding for the whole team and they typically affect the team leader stronger than the ordinary team members.[1]

Managerial decisions may, however, disregard or even contradict the opinion of the ordinary team members (e.g. Solow et al., 2002). For example, team leaders (managers) make the majority of decisions on hiring, firing or task delegation without consulting their subordinates. In most companies, a CEO or a top manager often has a final say in important decisions, even though all members of the board of directors or an expert panel participate in strategic discussions on different issues. The leader's authority to make managerial decisions becomes particularly important in situations when members of a team cannot reach an agreement.

While business practices provide substantial evidence that leaders make managerial decisions (e.g. Lieberman et al., 1990 and Knott, 2001), the question about factors that motivate such decisions remains largely unanswered. We study managerial decision making in a controlled laboratory experiment, which allows us to identify the conditions and reasons why team leaders may overrule the majority opinion of their team.

[1] For example, one can think of team leaders being promoted, or sacked, as a result of their good, or bad, decisions.

To date, research in economics has largely concentrated on one particular type of leadership, i.e. leading by example. Several theoretical studies and experiments on public goods games have investigated leading by example in situations with both asymmetric (e.g. Hermalin, 1998; Rotemberg and Saloner, 1993, 2000; Vesterlund, 2003; Kobayashi and Suchiro, 2005; Potters et al., 2005 and 2007; Andreoni, 2006; and Komai et al., 2007) and symmetric (e.g. Güth et al, 2007[2] and Levati et al., 2007) information structures. Even though leading by example is very important in organizations (especially in case of informal leadership), the economics literature offers little guidance as to how leaders make managerial decisions in situations involving choice under risk.[3] In this paper we present a simple experiment that aims to answer this question.

Our approach extends the existing literature in three aspects. First, we propose a new design to study leadership in organizations and the factors that induce leaders to make managerial decisions in choice under risk. Second, we complement the research on leadership by considering leaders who lead by authority and not by example.[4] Third, we link our analysis of collective choice and managerial decisions under risk with the literature on individual decision making.

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[2] Güth et al. (2007) include one treatment where the leader in a public goods experiment has a power to exclude a (non-cooperating) member from participating in the team decision making for one period.

[3] Our analysis if also related to the literature in psychology and economics on decision making in small teams (e.g. Teger and Pruitt, 1967; Moscovici and Zavalloni, 1969; Davis, 1992; Kerr et al., 1996; Cason and Mui, 1997; Bornstein and Yaniv, 1998; Bone, 1998; Bone et al., 1999; Cooper and Kagel, 2005; Kocher and Sutter, 2005; Kugler et al., 2007; and Rockenbach et al., 2007). Levine and Moreland (1998) provide a detailed overview of this stream of literature. While some of these papers focus on decision making in a risky environment, all team members have the same decision power. In other words, none of the participants has an authority to make decisions that are binding for the entire team.

[4] We also endogenize the election of the leader, adding an additional layer to the study.

In our experiment, participants are randomly assigned to teams of three people. All members of a team have to choose one lottery from a lottery pair, which they would like to be played out at the end of the experiment. However, the team leader makes an ultimate, and binding, decision after having observed preferences of the other team members. This design allows us to explore whether and to what extent leaders are inclined to overrule the decisions of other team members.

In addition to studying managerial decision making in teams, we let each participant choose among lottery pairs by performing an individual decision making task. Therefore, we can also relate the choices in the individual decision making task to the choices in the team decision making task. This allows us to study whether participants change their individual preferences when they are making decisions in a team.

We find that leaders tend to make decisions in contradiction with the team opinion when they have different preferences over risky choices than the majority of the team. Moreover, leaders' choices in the team setting are consistent with their individual preferences both when voting in the team on which lottery to implement and when making choices in the individual decision making task. Apparently, leader's attitudes towards risk have a significant impact on their behavior. Particularly, we show that the more risk seeking the leader is the more likely he or she is to make a decision in contradiction to the other team members. We also find that females and older team leaders (as opposed to males and younger leaders) are less likely to make managerial decisions that overrule the opinion of the others.

The reminder of the paper is organized as follows. Section 2 provides a description of the experimental design, laboratory procedures and our theoretical hypotheses. Section 3 presents the experimental results. Finally, Section 4 concludes with a general discussion on the previous sections.

2 Experimental design and theoretical predictions

2.1 Experimental design

The experiment consists of two different tasks: (i) an individual task, and (ii) a team task. To avoid order effects, we have constructed two experimental treatments. In one treatment an individual task is followed by a team task. In the other treatment, the order of tasks is reversed.

We have designed 17 pairs of lotteries with different payoff schemes and risk coefficients for leaders and ordinary team members (Table 1). This difference reflects the fact that leaders (managers) often face higher risks when making decisions, because managerial decisions typically affect the team leader stronger than an ordinary team member.

In the individual task (see the experimental instructions in the Appendix), we elicit individual preferences of participants over these pairs of lotteries. Since in the team task leaders and ordinary players face different lotteries, we let each subject in the individual task make choices as if he or she had a payoff scheme of the leader and the ordinary player. Therefore, each participant receives 34 paired lotteries as it is depicted in Table 2. Lottery pairs are presented to subjects in a random order. In the majority of lottery pairs one of the lotteries (the high-risk lottery) provides a relatively large outcome with probability 1/3 and a relatively small outcome with probability 2/3, whereas the other (the low-risk lottery) yields a medium outcome with probability 2/3 and a small outcome with probability 1/3.

[INSERT TABLES 1 AND 2 HERE]

In addition to the 34 binary lottery choices subjects are exposed to the procedure of Holt and Laury (2002) to measure their individual risk attitudes (see lotteries 18-27 in Table 2).[5] More precisely, subjects have to make ten choices between a relatively risky and a relatively safe lottery. The probabilities for the different outcomes of the lotteries are systematically varied from 0.1 to 1. In this procedure the number of safe choices (i.e. choosing a relatively safe lottery) can be used as an indicator of risk aversion.

In the team task subjects are randomly assigned to teams of three people each. After that, members of a team are asked to elect a leader.[6] For this purpose, all team members can communicate with each other using an interactive chat.[7] Any participant may propose him or herself as a candidate for becoming a team leader.

Every team has three chat periods to discuss the election of the leader. Each chat period lasts three minutes, after which all team members have to submit their (anonymous) votes. A team member who receives two votes (i.e. a simple majority) becomes a leader. If a simple majority is not reached after the first vote, the team proceeds to the next chat period. Teams who fail to determine the leader endogenously (i.e. after three voting attempts) are assigned an exogenous leader at random.[8]

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[5] Given that the main task and the risk attitude elicitation technique are structurally similar, the Holt and Laury (2002) procedure is the most appropriate technique for our analysis.

[6] The reasons for implementing an endogenous selection of leaders are that (i) we wanted to make leadership more salient than it would have been by a random draw, and that (ii) the endogenous selection provides us with data of an additional interest.

[7] In the beginning of the team task, subjects are assigned identification names Player A, Player B or Player C, which they use in the chat. Targeted chat messages to a particular team member are not possible. Subjects are not allowed to reveal their identity (through reporting seat number, name, gender, age, courses taken, etc.) or to use abusive language in the chat. Otherwise, the content of messages within a team is unrestricted.

[8] The whole procedure is common knowledge.

After all leaders have been determined, teams receive 17 consecutive decision problems. In each problem they have to choose between paired lotteries. The complete set of decision problems is given in Table 3. Although these decision problems are identical to the problems used in the individual task, they are shown in a different order and framed differently.[9]

For each decision problem, all three team members, including the leader, are requested to cast an anonymous vote for one of the lotteries in a lottery pair. The team leader alone is informed about which lottery is chosen by a majority (i.e. by at least two members). After that, the leader has an option to either confirm the majority decision or to pick the alternative lottery. This decision is final and determines the payoff of the entire team.

[INSERT TABLE 3 HERE]

In the team task all ordinary team members receive the same profit.[10] The leader, however, has a flexible payoff scheme. The intuition behind this scheme is simple. When the work of the team produces a successful outcome, the leader is rewarded; otherwise, the leader is punished. Therefore, in the majority of decision problems the leader receives a higher profit than ordinary team members if the chosen lottery yields its highest possible payoff. If the chosen lottery provides the lowest possible payoff the leader receives less than the ordinary team members. Therefore, the leader's authority comes at a cost.[11] For

[9] In the team task each lottery is framed as a "project".

[10] This profit depends on the lottery that is chosen/confirmed by the leader, and the random outcome of this lottery.

[11] This cost is pointed out in the experimental instructions.

control purposes, we also include lotteries where the leader has the same payoff as the other team members.

2.2 *Experimental procedure*

We conducted six experimental sessions. In three sessions, the individual task was followed by the team task. In the other three sessions, we reversed the order of the tasks. All sessions were run at the University of Innsbruck in October and November 2006, using the experimental software z-Tree 3.0.5 (Fischbacher, 2007).[12] A total of 108 subjects took part in the experiment. 61% of them were male. The average age of participants was 23 years.

Eighteen subjects participated in each session. Each participant had a separate work space, which could not be seen by other participants or the experimenter. Each work space was equipped with a personal computer, a pen and scratch paper. Built-in digital calculators were available on all computer screens during the experiment. Subjects received a set of instructions for each task of the experiment separately. Instructions were read aloud and subjects had an opportunity to re-read the instructions and ask questions about the procedure in private. To avoid possible framing effects, we used neutral language (i.e. ordinary team members were called "participants of type 1" and team leaders "participants of type 2"). We included an additional questionnaire at the end of the experiment to gather information about personal characteristics of the participants. The whole procedure took approximately 1.5 hours.

To avoid wealth effects, we provided payoff information only at the end of the experiment. One of the decision problems was selected from each experimental task at

[12] Program files with experimental treatments are available from the authors upon request.

random and subjects received the payment according to the lottery which they had selected during this task. Average earnings amounted to € 20.26.

2.3 *Theoretical hypothesis*

One of the main advantages of our experimental design is the simplicity of the theoretical prediction. In the individual task, all subjects should reveal their true preferences over a menu of presented lotteries. Furthermore, leaders should make the same choices in both the individual task and the team task of the experiment when they make their final decisions to either confirm or alter the majority vote. Hence, the individual preferences over binary lottery choices from the individual task form our prediction for leaders' final decisions in the team task. The reverse is true for the sessions where the team task is played before the individual task.[13]

The behavior of ordinary players in the team task, however, may be different. If ordinary players are fully rational and they expect that the leader is also fully rational, they know that their votes in the team task will not have any impact on the final decision. In other words, in the final decision, the leader will always choose the lottery according to his or her preferences, irrespective of what the other members of the team do. Therefore any voting profile obtained during the team vote is an equilibrium.

However, if ordinary players believe that there is a slight chance that the team leader will accommodate the majority choice (e.g. has a preference for conformism), they have a strong incentive to reveal their true preference over the lotteries in the team task. In this case, ordinary players should make the same choices both in the individual and the team tasks of the experiment.

[13] Note, however, that the leader may not reveal his or her true preference during the team vote. This decision is simply "cheap talk", because it has no consequences for the final payoff.

In our setting, managerial decisions (when the leader's final decision is at odds with the majority vote of the team) may emerge in two cases. First, ordinary team members may vote for a different lottery than the leader during the team task of the experiment. Second, the vote of the ordinary team members in the team task may contradict with the leader's individual preferences (i.e. with his or her choice in the individual task).[14] One can think of two different scenarios when this may occur. One possibility is that the leader has distinctively different risk attitudes compared with the ordinary team members. For example, the leader is risk seeking and opts for a high-risk lottery and ordinary members are risk averse and choose a low-risk lottery, or vice versa. Another possibility is that all team members have similar risk attitudes, but because leaders face different lotteries with higher possible payoffs in the majority of cases, the role of a leader *per se* suggests a different behavior.

Notice that if the leader confirms the decision made by the simple majority of the team, it does not necessarily indicate that he or she is influenced by the information about the outcome of the vote. Particularly, if during the team task the leader's vote is in line with the simple majority decision or if the team votes for the same lottery that the leader has chosen in the individual task, then it would appear that he or she simply behaves according to his or her individual preferences. Our empirical analysis accounts for all these possibilities.

[14] Note that the two cases do not necessarily exclude each other.

3 Experimental results

3.1 Risk attitudes of participants

Table 4 reports the results of the Holt and Laury (2002) procedure used to elicit individual risk attitudes. We consider the choices of 92 out of 108 participants, who have made their decisions consistently. These subjects have switched from the safe choice to the risky choice at most once (i.e. from left to right in the green portion of Table 2).[15] Overall, consistent subjects made, on average, 5.64 safe choices (left-hand side of Table 4), indicating a slight degree of risk aversion in the aggregate.

[INSERT TABLE 4 HERE]

Table 4 also shows risk attitudes for team leaders and ordinary team members separately. Apparently, while the majority of ordinary team members exhibited at least a slight degree of risk aversion, a large fraction of leaders (almost 39%) were risk neutral. The results of Mann-Whitney-U (also known as Wilcoxon rank-sum or Wilcoxon-Mann-Whitney) tests (Wilcoxon, 1945; Mann and Whitney, 1947) suggest that leaders were significantly less risk averse than ordinary team members (*p*-value = 0.049).

Result 1: On average, team leaders are less risk averse than ordinary team members.

[15] The other 16 (out of 108) subjects have switched back and forth more than once and, therefore, cannot be classified in terms of their risk preferences.

3.2 Endogenous selection of the team leader

There were 31 out of 36 teams that were successful in electing a leader. Out of them, 25 (81%) chose the leader in the first vote (by simple majority voting), 5 (16%) needed two voting rounds, and 1 team (3%) agreed on a leader only in the third voting round. 5 teams could not come to an agreement and their leaders were determined by a random draw.

Even though assessing the content of team discussions is in many ways subjective, one particularly noteworthy result is that leaders who were elected on the first try self-selected for the leading roles. In other words, these subjects proposed themselves as candidates for the leader's position within the first seconds of the chat.[16] This finding, reconciled with the fact that leaders appear to be on average more risk seeking than the ordinary team members, suggests an interesting connection between risk attitudes and the emergence of leadership in teams.

Result 2: The majority of teams agree on a leader in the first chat period.

3.3 Consistency of decisions across the two tasks of the experiment

We now check the consistency of decisions across the two tasks of the experiment. We have not found any significant impact of the order of tasks (individual task first vs. team task first) on the choices of lotteries.[17] Therefore, we can pool the data across all 6 sessions.

[16] During the chat, successfully elected participants typically do not promise that they will confirm the majority decision of their teams if they become leaders.
[17] This statement is supported by our results in the next section. Please, refer to Section 3.4 and Table 6.

Decisions of an ordinary team member are consistent throughout the experiment if he or she votes for the same lottery both in the individual and in the team task. According to column **OC** (*ordinary consistency*) in Table 5, 75.7% of ordinary members' choices can be classified as consistent. An inconsistency rate of about 25% is very typical in the experimental literature, when the subjects are asked to answer the same binary choice questions twice (e.g. Hey and Orme, 1994). This suggests that ordinary team members tend to reveal their true preferences during the team vote, even though they have no apparent reason to do so unless they believe that a leader might have a tendency to follow the majority (as we discuss in section 2.3 above).

[INSERT TABLE 5 HERE]

For team leaders it is necessary to develop a different definition of consistency because leaders face the same, though differently framed, decision problems on three occasions – once in the individual task and twice in the team task, i.e. when they vote on the preferred lottery together with the team and when they make the final decision. Columns **LT** (*leader in a team*), **LF** (*leader final*) and **CTU** (*consistency throughout*) in Table 5 report three different classifications of consistency. Out of the three, **CTU** allows for the least amount of flexibility, demanding from the leader to choose the same lottery on all three occasions. Note from the bottom row of Table 5 that 63.7% of leaders' choices are consistent in this strict sense.

Column **FRE** (*framing effect*) in Table 5 shows the percentage of decisions when a leader makes the same choices in the team task but a different choice in the individual task. In other words, **FRE** is a measure of leaders' inconsistency across tasks, and it is comparable with (100%-**OC**) for the ordinary players. Notably, leaders show a slightly lower degree of inconsistency (**FRE** = 22.5%) than ordinary players and subjects in comparable repeated binary choice experiments (Hey and Orme, 1994).

Leaders were more consistent in their choices during the vote in the team task (73.7%, see Table 5, column **LT**) than they were after observing the outcome of the majority vote (67.5%, see Table 5, column **LF**). The result of a chi-square test of association (Fisher, 1922) between these two variables (taken in absolute terms) reveals that the difference in proportions is statistically significant (*p*-value = 0.02). Therefore, it appears that the feedback about the outcome of the team vote has a significant impact on leaders' decisions. This result suggests that team leaders in our experiment may indeed have a preference for conformism.[18]

Column **CHM** (*changing mind*) in Table 5 shows that leaders confirm the results of the majority vote when it contradicts with their own voting decisions in the team task in 13.7% of cases. Notice that this fact *alone* cannot be interpreted as an evidence of conformism or any other social preference. Since leaders understand that their decisions during the team vote are not binding, they may cast their vote for any lottery during the vote (engage in a "cheap talk") or simply pick the wrong lottery by mistake. However, taking into account that **LT** is greater than **LF** (see Table 5) **CHM** may provide additional evidence that leaders may regard majority opinions and adapt to them.

[18] Several studies provide a theoretical background for the notion of conformism within the domain of social learning models (e.g., Bala and Goyal, 1998 and 2001). However, investigating conformism is a relatively new objective in experimental economics (e.g. Bardsley and Sausgruber, 2005). Note, however, that the focus of our study is on the determinants of managerial decisions and not on conformism.

Result 3: Consistency of decisions across the two tasks is high both for leaders and for ordinary team members. However, we also find evidence that leaders confirm team majority decisions even when these decisions diverge from leaders' individual preferences.

3.4 Determinants of managerial decisions

In the following section we concentrate on managerial decisions, i.e. situations when the team leader has chosen a different lottery than the simple majority of team members. Column **MD** (*managerial decisions*) in Table 5 shows that in 35.3% of cases leaders overrule the other two members in their team. We use logit regression analysis to determine the impact of different explanatory variables on the likelihood of a team leader making such managerial decisions. The probability that leader *i* makes a managerial decision *j* is given by

$$\mathrm{p}_\mathrm{i}^\mathrm{j} = \frac{\exp\left\{\beta_1 \mathrm{X1}_\mathrm{i}^\mathrm{j} + \beta_2 \mathrm{X2}_\mathrm{i}^\mathrm{j} + \ldots + \beta_N \mathrm{X}N_\mathrm{i}^\mathrm{j}\right\}}{1 + \exp\left\{\beta_1 \mathrm{X1}_\mathrm{i}^\mathrm{j} + \beta_2 \mathrm{X2}_\mathrm{i}^\mathrm{j} + \ldots + \beta_N \mathrm{X}N_\mathrm{i}^\mathrm{j}\right\}}. \tag{1}$$

Explanatory variables $X1,\ldots,XN$ are described in Table 6 and regression coefficients $\beta_1,\ldots,\beta_N$ are estimated by minimizing the log-likelihood function $LL = \sum_{ij} I_{ij} \ln p_i^j + \left(1 - I_{ij}\right)\ln\left(1 - p_i^j\right)$, where $I_{ij} = 1$ if leader *i* made a managerial decision *j* in contradiction with the team vote and $I_{ij} = 0$ if leader *i* confirmed the team decision.[19] The results of the econometric analysis are given in Table 6.

[INSERT TABLE 6 HERE]

[19] We used the *Matlab* 6.5 package for the estimation. Program files are available from the authors upon request.

Consistent with our theoretical hypothesis, the regression results suggest that more than 70% of the variability in the data can be explained by the explanatory variable X1. This variable indicates whether the leader has voted for a different lottery than the two other members in the team during the team task of the experiment. The variable X2 is also significant. It is equal to 1 if the two ordinary team members vote for a different lottery than the leader has chosen in the individual task and to zero otherwise.

Interestingly, risk seeking leaders are more likely to resort to managerial decisions that overrule the other team members (see variable X5). We also find that two personal characteristics – gender (X3) and age (X4) – are significant. Younger leaders are more likely to resort to decisions contrary to the team. Furthermore, males are more likely to make managerial decisions and overrule the team than females.

Dummy variable X6 is constructed to check whether the order of tasks matter. We find that there is no significant difference in decisions irrespective of the order of tasks.[20]

Result 4: Risk seeking leaders, male leaders and younger leaders are more likely to resort to managerial decisions that overrule the other team members .

4 Discussion

This paper proposes a new framework for research on leadership, which takes into account the authority of leaders who enforce operational routine (e.g. Knott, 2001), coordinate information streams (e.g. Harris and Raviv, 2002) and fulfill their function of supervision (e.g. Jago, 1982) in hierarchically structured organizations. Our approach is distinct from the existing literature, which primarily concentrates on the effects of leadership in voluntary contribution experiments with a leader-follower setting. In these

[20] This allows us to pool data from all 6 sessions of the experiment to conduct our analysis (see section 3.3).

studies (e.g. Andreoni, 2006; Potters et al., 2005; Güth et al., 2007) leadership is largely viewed (and established) as a team coordination device under certainty.

The main contribution of this paper is twofold. First, we analyze leadership in a risky environment, which is one of the key elements of managerial decision making. Second, we consider leadership as a formal authority where the leader makes the ultimate decision for his or her team. These two important aspects of leadership have been largely understated in previous research.

Our design resembles many decision making situations when managers have an opportunity to consult their teams, but when they are personally responsible for making the final decisions on risky prospects. However, these decisions may contradict with the majority opinion of the team. We call such decisions *managerial decisions*.

In our experiment we show that leaders are willing to take over responsibility and overrule their team members quite frequently. The main source for overruling appears to be the divergence of opinions between the leader and the team during the vote. However, gender, age and risk attitudes also play an important role.

We find that younger leaders and male leaders are more likely to overrule the majority than older leaders and female leaders. Our result that age influences managerial decisions is in line with the literature on personality characteristics of upper level managers, showing that older executives behave more conservatively than their younger counterparts (e.g. Hambrick and Mason, 1984; MacCrimmon and Wehrung, 1986). The gender impact provides an interesting insight for formulating corporate strategies. It might seem sensible for hierarchical organizations with a team-oriented philosophy of decision making to promote women to leadership positions, since they are more likely to take into account the opinion of their team as opposed to men.

Finally, we have also found that less risk averse team leaders are more likely to overrule the majority decisions of ordinary team members. Moreover, teams seem to elect more risk seeking people for the leadership positions even without knowing their attitudes towards risk. It is interesting to note that less risk averse team members are those that volunteer more quickly for becoming a leader, which creates a link between risk attitudes and leadership. It is left to future research to further examine the relation between risk attitudes and the emergence of the leadership in hierarchical organizations.

Tables and Figures

Table 1 Experimental Lottery Pairs*

Lottery pair	Team earnings	Earnings for ordinary player	Earnings for the leader	Probability	Expected value of the lottery for ordinary player	Expected value of the lottery for the leader	Absolute difference in expected value between two lotteries for ordinary player	Absolute difference in expected value between two lotteries for the leader	Risk coefficient (σ) for ordinary player	Risk coefficient (σ) for the leader
1	30.3	7.9	14.5	1/3	4.7	5.5	0	1	2.3	6.4
	7.2	3.1	1	2/3						
	9.3	3.9	1.5	1/3	4.7	4.5			0.6	2.1
	16.2	5.1	6	2/3						
2	38.2	9.7	18.8	1/3	4.1	6.6	0	2	4.0	8.6
	3.1	1.3	0.5	2/3						
	9.2	3.5	2.2	1/3	4.1	4.6			0.4	1.7
	14.6	4.4	5.8	2/3						
3	39.1	9	21.1	1/3	5.4	8.1	0	3	2.6	9.2
	8.8	3.6	1.6	2/3						
	11.5	4.8	1.9	1/3	5.4	5.1			0.4	2.3
	18.1	5.7	6.7	2/3						
4	35	9	17	1/3	4.3	6.3	0	1	3.3	7.6
	4.9	2	0.9	2/3						
	5.2	2	1.2	1/3	4.3	5.3			1.7	2.9
	18.3	5.5	7.3	2/3						
5	36.4	8.7	19	1/3	4.7	7.2	0	2	2.8	8.3
	6.7	2.7	1.3	2/3						
	9.6	3.9	1.8	1/3	4.7	5.2			0.6	2.4
	17.1	5.1	6.9	2/3						
6	47.1	11.7	23.7	1/3	5.1	8.5	0	3	4.7	10.8
	4.5	1.8	0.9	2/3						
	10.5	4.3	1.9	1/3	5.1	5.5			0.6	2.6
	18.3	5.5	7.3	2/3						
7	25.7	7.9	9.9	1/3	4.0	3.6	1	0	2.8	4.4
	4.5	2	0.5	2/3						
	7.7	2.9	1.9	1/3	3.0	3.6			0.1	1.2
	10.5	3	4.5	2/3						
8	16	4	8	1/3	3.3	4	2	0	0.5	2.8
	8	3	2	2/3						
	16	7	2	1/3	5.3	4			1.2	1.4
	14	4.5	5	2/3						

Lottery pair	Team earnings	Earnings for ordinary player	Earnings for the leader	Probability	Expected value of the lottery for ordinary player	Expected value of the lottery for the leader	Absolute difference in expected value between two lotteries for ordinary player	Absolute difference in expected value between two lotteries for the leader	Risk coefficient (σ) for ordinary player	Risk coefficient (σ) for the leader
9	29	6.6	15.8	1/3	3.5	6.2	3	0	2.2	6.8
	5.2	1.9	1.4	2/3						
	23	7.3	8.4	2/3	6.5	6.2			1.2	3.1
	11.4	4.8	1.8	1/3						
10	24.3	7.7	8.9	1/3	4.6	4.6	0	0	2.2	3.0
	8.7	3.1	2.5	2/3						
	10.7	4.3	2.1	1/3	4.6	4.6			0.2	1.8
	15.5	4.8	5.9	2/3						
11	27.8	8.9	10	1/3	4.0	3.8	1	1	3.5	4.4
	3.7	1.5	0.7	2/3						
	7.8	2.9	2	1/3	3.0	4.8			0.0	2.0
	12.2	3	6.2	2/3						
12	30.6	10.1	10.4	1/3	5.3	4	2	2	3.4	4.5
	6.6	2.9	0.8	2/3						
	9	3.1	2.8	1/3	3.3	6			0.1	2.3
	14.4	3.4	7.6	2/3						
13	31	10.2	10.6	1/3	6.7	3.9	3	3	2.5	4.7
	10.4	4.9	0.6	2/3						
	8.2	3	2.2	1/3	3.7	6.9			0.5	3.3
	17.3	4	9.3	2/3						
14	13.5	4.5	4.5	1/3	2.8	2.8	1.5	3	1.2	1.2
	6	2	2	2/3						
	10.6	1.7	7.2	2/3	1.3	5.8			0.5	1.9
	4.3	0.6	3.1	1/3						
15	21	4.5	12	1/3	2.8	7.3	1.5	3	1.2	3.3
	9	2	5	2/3						
	9	3	3	1/3	4.3	4.3			0.9	0.9
	15	5	5	2/3						
16	10.5	3.5	3.5	1/3	2.6	2.6	3	1.5	0.6	0.6
	6.6	2.2	2.2	2/3						
	8.6	4.1	0.4	1/3	5.6	1.1			1.1	0.5
	14.3	6.4	1.5	2/3						
17	20.9	9.2	2.5	1/3	6.3	1.8	3	1.5	2.0	0.5
	11.3	4.9	1.5	2/3						
	6	2	2	1/3	3.3	3.3			0.9	0.9
	12	4	4	2/3						

*** All earnings are in euro.**

Table 2 Lottery Pairs Used in the Individual Task of the Experiment*

Lottery pair	Option 1	Option 2	Absolute expected payoff difference
1	1/3 of €8.90, 2/3 of €1.50	2/3 of €3.00, 1/3 of €2.90	€1
2	1/3 of €4.50, 2/3 of €2.00	2/3 of €7.20, 1/3 of €3.10	€3
3	1/3 of €7.90, 2/3 of €3.10	2/3 of €5.10, 1/3 of €3.90	€0
4	1/3 of €17.00, 2/3 of €0.90	2/3 of €7.30, 1/3 of €1.20	€1
5	1/3 of €7.70, 2/3 of €3.10	2/3 of €4.80, 1/3 of €4.30	€0
6	1/3 of €10.60, 2/3 of €0.60	2/3 of €9.30, 1/3 of €2.20	€3
7	1/3 of €9.00, 2/3 of €2.00	2/3 of €5.50, 1/3 of €2.00	€0
8	1/3 of €19.00, 2/3 of €1.30	2/3 of €6.90, 1/3 of €1.80	€2
9	1/3 of €9.20, 2/3 of €4.90	2/3 of €4.00, 1/3 of €2.00	€3
10	1/3 of €10.40, 2/3 of €0.80	2/3 of €7.60, 1/3 of €2.80	€2
11	1/3 of €11.70, 2/3 of €1.80	2/3 of €5.50, 1/3 of €4.30	€0
12	1/3 of €9.90, 2/3 of €0.50	2/3 of €4.50, 1/3 of €1.90	€0
13	1/3 of €4.00, 2/3 of €3.00	2/3 of €4.50, 1/3 of €7.00	€2
14	1/3 of €12.00, 2/3 of €5.00	2/3 of €5.00, 1/3 of €3.00	€3
15	1/3 of €9.70, 2/3 of €1.30	2/3 of €4.40, 1/3 of €3.50	€0
16	1/3 of €21.10, 2/3 of €1.60	2/3 of €6.70, 1/3 of €1.90	€3
17	1/3 of €3.50, 2/3 of €2.20	2/3 of €6.40, 1/3 of €4.10	€3
18	1/10 of €2.00, 9/10 of €1.60	1/10 of €3.85, 9/10 of €0.10	€1.17
19	2/10 of €2.00, 8/10 of €1.60	2/10 of €3.85, 8/10 of €0.10	€0.83
20	3/10 of €2.00, 7/10 of €1.60	3/10 of €3.85, 7/10 of €0.10	€0.50
21	4/10 of €2.00, 6/10 of €1.60	4/10 of €3.85, 6/10 of €0.10	€0.16
22	5/10 of €2.00, 5/10 of €1.60	5/10 of €3.85, 5/10 of €0.10	€0.18
23	6/10 of €2.00, 4/10 of €1.60	6/10 of €3.85, 4/10 of €0.10	€0.51
24	7/10 of €2.00, 3/10 of €1.60	7/10 of €3.85, 3/10 of €0.10	€0.85
25	8/10 of €2.00, 2/10 of €1.60	8/10 of €3.85, 2/10 of €0.10	€1.18
26	9/10 of €2.00, 1/10 of €1.60	9/10 of €3.85, 1/10 of €0.10	€1.52
27	10/10 of €2.00, 0/10 of €1.60	10/10 of €3.85, 0/10 of €0.10	€1.85
28	1/3 of €8.00, 2/3 of €2.00	2/3 of €5.00, 1/3 of €2.00	€0
29	1/3 of €6.60, 2/3 of €1.90	2/3 of €7.30, 1/3 of €4.80	€3
30	1/3 of €3.50, 2/3 of €2.20	2/3 of €1.50, 1/3 of €0.40	€1.5
31	1/3 of €4.50, 2/3 of €2.00	2/3 of €5.00, 1/3 of €3.00	€1.5
32	1/3 of €23.70, 2/3 of €0.90	2/3 of €7.30, 1/3 of €1.90	€3
33	1/3 of €8.70, 2/3 of €2.70	2/3 of €5.10, 1/3 of €3.90	€0
34	1/3 of €15.80, 2/3 of €1.40	2/3 of €8.40, 1/3 of €1.80	€0
35	1/3 of €7.90, 2/3 of €2.00	2/3 of €3.00, 1/3 of €2.90	€1
36	1/3 of €10.00, 2/3 of €0.70	2/3 of €6.20, 1/3 of €2.00	€1
37	1/3 of €10.20, 2/3 of €4.90	2/3 of €4.00, 1/3 of €3.00	€3
38	1/3 of €8.90, 2/3 of €2.50	2/3 of €5.90, 1/3 of €2.10	€0
39	1/3 of €9.00, 2/3 of €3.60	2/3 of €5.70, 1/3 of €4.80	€0
40	1/3 of €18.80, 2/3 of €0.50	2/3 of €5.80, 1/3 of €2.20	€2
41	1/3 of €4.50, 2/3 of €2.00	2/3 of €1.70, 1/3 of €0.60	€1.5
42	1/3 of €2.50, 2/3 of €1.50	2/3 of €4.00, 1/3 of €2.00	€1.5
43	1/3 of €10.10, 2/3 of €2.90	2/3 of €3.40, 1/3 of €3.10	€2
44	1/3 of €14.50, 2/3 of €1.00	2/3 of €6.00, 1/3 of €1.50	€1

* Lottery pairs in light grey shaded rows refer to the lottery pairs with ordinary players' payoff scheme, white-shaded rows to those with a leader's payoff scheme, and dark grey shaded ones to lottery pairs of Holt and Laury (2002).

Table 3 Lottery Pairs Used in the Team Task of the Experiment*

Problem	Initial number of lottery pair (from Table 1)	Project A	Project B
1	**7**	Your team receives **€25.70** with probability **1/3** (each type 1 player receives **€7.90** and type 2 player receives **€9.90**) **OR** your team receives **€4.50** with probability **2/3** (each type 1 player receives **€2** and type 2 player receives **€0.50**)	Your team receives **€10.50** with probability **2/3** (each type 1 player receives **€3** and type 2 player receives **€4.50**) **OR** your team receives **€7.70** with probability **1/3** (each type 1 player receives **€2.90** and type 2 player receives **€1.90**
2	**4**	Your team receives **€35** with probability **1/3** (each type 1 player receives **€9** and type 2 player receives **€17**) **OR** your team receives **€4.90** with probability **2/3** (each type 1 player receives **€2** and type 2 player receives **€0.90**)	Your team receives **€18.30** with probability **2/3** (each type 1 player receives **€5.50** and type 2 player receives **€7.30**) **OR** your team receives **€5.20** with probability **1/3** (each type 1 player receives **€2** and type 2 player receives **€1.20**)
3	**6**	Your team receives **€47.1** with probability **1/3** (each type 1 player receives **€11.7** and type 2 player receives **€23.7**) **OR** your team receives **€4.50** with probability **2/3** (each type 1 player receives **€1.80** and type 2 player receives **€0.90**)	Your team receives **€18.30** with probability **2/3** (each type 1 player receives **€5.50** and type 2 player receives **€7.30**) **OR** your team receives **€10.50** with probability **1/3** (each type 1 player receives **€4.30** and type 2 player receives **€1.90**)
4	**3**	Your team receives **€39.10** with probability **1/3** (each type 1 player receives **€9** and type 2 player receives **€21.10**) **OR** your team receives **€8.80** with probability **2/3** (each type 1 player receives **€3.60** and type 2 player receives **€1.60**)	Your team receives **€18.10** with probability **2/3** (each type 1 player receives **€5.70** and type 2 player receives **€6.70**) **OR** your team receives **€11.50** with probability **1/3** (each type 1 player receives **€4.80** and type 2 player receives **€1.90**)
5	**9**	Your team receives **€29** with probability **1/3** (each type 1 player receives **€6.60** and type 2 player receives **€15.80**) **OR** your team receives **€5.20** with probability **2/3** (each type 1 player receives **€1.90** and type 2 player receives **€1.40**)	Your team receives **€23** with probability **2/3** (each type 1 player receives **€7.30** and type 2 player receives **€8.40**) **OR** your team receives **€11.40** with probability **1/3** (each type 1 player receives **€4.80** and type 2 player receives **€1.80**)

* Type 1 player refers to "ordinary player", type 2 player refers to "leader"

Table 3 continued

Problem	Initial number of lottery pair (from Table 1)	Project A	Project B
6	**13**	Your team receives **€31** with probability **1/3** (each type 1 player receives **€10.20** and type 2 player receives **€10.60**) **OR** your team receives **€10.40** with probability **2/3** (each type 1 player receives **€4.90** and type 2 player receives **€0.60**)	Your team receives **€17.30** with probability **2/3** (each type 1 player receives **€4** and type 2 player receives **€9.30**) **OR** your team receives **€8.20** with probability **1/3** (each type 1 player receives **€3** and type 2 player receives **€2.20**)
7	**12**	Your team receives **€30.60** with probability **1/3** (each type 1 player receives **€10.10** and type 2 player receives **€10.40**) **OR** your team receives **€6.60** with probability **2/3** (each type 1 player receives **€2.90** and type 2 player receives **€0.80**)	Your team receives **€14.40** with probability **2/3** (each type 1 player receives **€3.40** and type 2 player receives **€7.60**) **OR** your team receives **€9** with probability **1/3** (each type 1 player receives **€3.10** and type 2 player receives **€2.80**)
8	**8**	Your team receives **€16** with probability **1/3** (each type 1 player receives **€4** and type 2 player receives **€8**) **OR** your team receives **€8** with probability **2/3** (each type 1 player receives **€3** and type 2 player receives **€2**)	Your team receives **€14** with probability **2/3** (each type 1 player receives **€4.50** and type 2 player receives **€5**) **OR** your team receives **€16** with probability **1/3** (each type 1 player receives **€7** and type 2 player receives **€2**)
9	**10**	Your team receives **€24.30** with probability **1/3** (each type 1 player receives **€7.70** and type 2 player receives **€8.90**) **OR** your team receives **€8.70** with probability **2/3** (each type 1 player receives **€3.10** and type 2 player receives **€2.50**)	Your team receives **€15.50** with probability **2/3** (each type 1 player receives **€4.80** and type 2 player receives **€5.90**) **OR** your team receives **€10.70** with probability **1/3** (each type 1 player receives **€4.30** and type 2 player receives **€2.10**)
10	**2**	Your team receives **€38.20** with probability **1/3** (each type 1 player receives **€9.70** and type 2 player receives **€18.80**) **OR** your team receives **€3.10** with probability **2/3** (each type 1 player receives **€1.30** and type 2 player receives **€0.50**)	Your team receives **€14.60** with probability **2/3** (each type 1 player receives **€4.40** and type 2 player receives **€5.80**) **OR** your team receives **€9.20** with probability **1/3** (each type 1 player receives **€3.50** and type 2 player receives **€2.20**)
11	**17**	Your team receives **€20.90** with probability **1/3** (each type 1 player receives **€9.20** and type 2 player receives **€2.50**) **OR** your team receives **€11.30** with probability **2/3** (each type 1 player receives **€4.90** and type 2 player receives **€1.50**)	Your team receives **€12** with probability **2/3** (each type 1 player receives **€4** and type 2 player receives **€4**) **OR** your team receives **€6** with probability **1/3** (each type 1 player receives **€2** and type 2 player receives **€2**)

* Type 1 player refers to “ordinary player”, type 2 player refers to “leader”

Table 3 continued

Problem	Initial number of lottery pair (from Table 1)	Project A	Project B
12	**15**	Your team receives **€21** with probability **1/3** (each type 1 player receives **€4.50** and type 2 player receives **€12**) **OR** your team receives **€9** with probability **2/3** (each type 1 player receives **€2** and type 2 player receives **€5**)	Your team receives **€15** with probability **2/3** (each type 1 player receives **€5** and type 2 player receives **€5**) **OR** your team receives **€9** with probability **1/3** (each type 1 player receives **€3** and type 2 player receives **€3**)
13	**11**	Your team receives **€27.80** with probability **1/3** (each type 1 player receives **€8.90** and type 2 player receives **€10**) **OR** your team receives **€3.70** with probability **2/3** (each type 1 player receives **€1.50** and type 2 player receives **€0.70**)	Your team receives **€12.20** with probability **2/3** (each type 1 player receives **€3** and type 2 player receives **€6.20**) **OR** your team receives **€7.80** with probability **1/3** (each type 1 player receives **€2.90** and type 2 player receives **€2**)
14	**5**	Your team receives **€36.40** with probability **1/3** (each type 1 player receives **€8.70** and type 2 player receives **€19**) **OR** your team receives **€6.70** with probability **2/3** (each type 1 player receives **€2.70** and type 2 player receives **€1.30**)	Your team receives **€17.10** with probability **2/3** (each type 1 player receives **€5.10** and type 2 player receives **€6.90**) **OR** your team receives **€9.60** with probability **1/3** (each type 1 player receives **€3.90** and type 2 player receives **€1.80**)
15	**14**	Your team receives **€13.50** with probability **1/3** (each type 1 player receives **€4.50** and type 2 player receives **€4.50**) **OR** your team receives **€6** with probability **2/3** (each type 1 player receives **€2** and type 2 player receives **€2**)	Your team receives **€10.60** with probability **2/3** (each type 1 player receives **€1.70** and type 2 player receives **€7.20**) **OR** your team receives **€4.30** with probability **1/3** (each type 1 player receives **€0.60** and type 2 player receives **€3.10**)
16	**1**	Your team receives **€30.30** with probability **1/3** (each type 1 player receives **€7.90** and type 2 player receives **€14.50**) **OR** your team receives **€7.20** with probability **2/3** (each type 1 player receives **€3.10** and type 2 player receives **€1**)	Your team receives **€16.20** with probability **2/3** (each type 1 player receives **€5.10** and type 2 player receives **€6**) **OR** your team receives **€9.30** with probability **1/3** (each type 1 player receives **€3.90** and type 2 player receives **€1.50**)
17	**16**	Your team receives **€10.50** with probability **1/3** (each type 1 player receives **€3.50** and type 2 player receives **€3.50**) **OR** your team receives **€6.60** with probability **2/3** (each type 1 player receives **€2.20** and type 2 player receives **€2.20**)	Your team receives **€14.30** with probability **2/3** (each type 1 player receives **€6.40** and type 2 player receives **€1.50**) **OR** your team receives **€8.60** with probability **1/3** (each type 1 player receives **€4.10** and type 2 player receives **€0.40**)

* Type 1 player refers to “ordinary player”, type 2 player refers to “leader”

Table 4 Risk Attitudes of Participants

Constant relative risk aversion characterization		Number of …		
Number of safe choices in Holt and Laury (2002) test	CRRA coefficient (Description)	Participants (%)	Leaders (%)	Ordinary team members (%)
0	r<-0.95 (highly risk loving)	2 (2.2%)	-	2 (3.3%)
3	-0.49<r<-0.15 (risk loving)	3 (3.3%)	1 (3.2%)	2 (3.3%)
4	-0.15<r<0.15 (risk neutral)	20 (21.7%)	12 (38.7%)	8 (13.1%)
5	0.15<r<0.41 (slightly risk averse)	20 (21.7%)	5 (16.1%)	15 (24.6%)
6	0.41<r<0.68 (risk averse)	21 (22.8%)	6 (19.4%)	15 (24.6%)
7	0.68<r<0.97 (very risk averse)	13 (14.1%)	3 (9.7%)	10 (16.4%)
8	0.97<r<1.37 (highly risk averse)	5 (5.4%)	2 (6.5%)	3 (4.9%)
9 or 10	1.37<r (stay in bed)	8 (8.7%)	2 (6.5%)	6 (9.8%)
Average of safe choices		5.64	5.39	5.77

Table 5 Consistency of Decisions (in percent)*

Lottery Pair	OC	LT	LF	MD	CHM	FRE	CTU
1	66.7	69.4	63.9	25.0	11.1	27.8	61.1
2	68.1	75.0	72.2	30.6	2.8	25.0	72.2
3	68.1	69.4	55.6	30.6	19.4	27.8	52.8
4	48.6	63.9	58.3	25.0	22.2	27.8	50.0
5	69.4	83.3	69.4	36.1	13.9	16.7	69.4
6	69.4	66.7	61.1	13.9	16.7	27.8	55.6
7	62.5	52.8	38.9	13.9	19.4	44.4	36.1
8	91.7	75.0	69.4	13.9	5.6	25.0	69.4
9	95.8	66.7	66.7	13.9	16.7	25.0	58.3
10	56.9	55.6	63.9	16.7	13.9	33.3	52.8
11	72.2	72.2	61.1	22.2	11.1	27.8	61.1
12	79.2	69.4	69.4	38.9	11.1	25.0	63.9
13	86.1	72.2	77.8	61.1	11.1	19.4	69.4
14	95.8	86.1	77.8	72.2	8.3	13.9	77.8
15	88.9	91.7	77.8	63.9	19.4	5.6	75.0
16	83.3	94.4	83.3	63.9	11.1	5.6	83.3
17	84.7	88.9	80.6	58.3	19.4	5.6	75.0
Total	**75.7**	**73.7**	**67.5**	**35.3**	**13.7**	**22.5**	**63.7**

* Abbreviations are explained below:

OC (“ordinary consistency”) – percentage of decisions that ordinary team members have made consistently in the individual and team tasks of the experiment per lottery pair.

LT (“leader in a team”) – percentage of decisions in the team vote of the experiment that leaders have made consistently with their decisions in the individual task per lottery pair.

LF (“leader final”) – percentage of final decisions that team leaders have made consistently with their choices in the individual task of the experiment per lottery pair.

MD (“managerial decisions”) – percentage of managerial decisions per lottery pair where the leader overrules the majority vote within the team.

CHM (“changing mind”) – percentage of decisions when a leader makes a managerial decision different from his or her vote in the team.

FRE (“framing effect”) – percentage of decisions when a leader makes the same choices in the team task, but a different choice in the individual task.

CTU (“consistency throughout”) – percentage of leader’s decisions that are consistent at all three decision points.

Table 6 Results of Multinomial Logit Regression (N=612)

Explanatory variable	Description	Regression coefficient (standard error)	Regression coefficient (standard error)
Constant	Constant	2.5313 (2.0654)	-3.2959*** (0.294)
Decision contradiction (X1)	1 – decision of the team is different from leader's decision in the team vote; 0 – otherwise.	4.0293*** (0.3487)	4.3373*** (0.3244)
Preference contradiction (X2)	1 – decision of the team is different from leader's decision in the individual task; 0 – otherwise.	1.4017*** (0.3542)	
Gender dummy (X3)	1- female; 0 – male.	-0.4755* (0.2805)	
Age (X4)	Self-reported age of subjects.	-0.2314** (0.0823)	
Risk attitudes rank dummy (X5)	A scale from 0 (risk seeking) to 9 (risk averse), based on the number of safe choices made in Holt and Laury (2002) risk attitudes test	-0.2129** (0.0909)	
Sequence dummy (X6)	0 – first sequence (individual task is played first and team task second), 1 – second sequence (team task is played first and individual task is played second)	-0.0586 (0.2912)	
Log-likelihood		-194.8753	-210.1838
McFadden's likelihood ratio index		0.5406	0.5045
Veall and Zimmermann R^2		0.7374	0.7084

* Significant at 0.05 significance level
** Significant at 0.01 significance level
*** Significant at 0.001 significance level

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Appendix

Sample Experimental Instructions

[Not necessarily for publication; can be made available as an on-line supplement]

Dear participant,

Welcome to our experiment on decision making. If you carefully follow these simple instructions, you will earn a considerable amount of money. The money you will earn in this experiment is yours to keep and will be paid to you **privately** and **in cash** at the **end of the experiment**. The experiment will last approximately **one hour**. Your payoff will depend only on your decisions and the realization of random events.

The experiment consists of two parts. The instructions for Part 1 are given below. You will receive instructions for Part 2 after you have completed Part1. These instructions will be read to you aloud and then you will have an opportunity to study them on your own. If you have a question about the content of the instructions, please raise your hand and the experimenter will answer your question **in private**. Please do not talk or communicate with other participants during the experiment. Irrespective of your performance in the experiment, you will be paid a **show-up fee of €3.00**.

Part 1 (*Individual task*)

You will be given **44 problems** and in each problem you need to choose between two lotteries. The problems will appear on your computer screen in three teams of 17, 10 and 17 problems respectively. Please, take your time and read each problem carefully. The example of a typical problem is given below:

Sample Problem 12

Lottery X	**Lottery Y**	**Your choice is**
You receive €9 with probability 1/3 or €2 with probability 2/3	You receive €4 with probability 2/3 or €3 with probability 1/3	☐ Lottery X ☐ Lottery Y

Your **payoff** in this part is determined **<u>at the end of Part 3 of the experiment</u>**, based on the outcome of the lotteries that you have chosen. First, the computer program will generate a random number from 1 to 44. This number will determine one of 44 problems. This problem (together with your choice) will reappear on your computer screen. Then the computer program will simulate the lottery you have chosen and reveal the outcome on your screen. The outcome of this lottery will determine your payoff.

For **example**, suppose that the computer program has generated a random number 12 and problem 12 presented above reappears on your screen. And suppose that you have chosen Lottery X in this problem. Then the computer program will simulate Lottery X and reveal your payoff (either €9 or €2). **<u>Your payoff will be paid out in cash at the end of the experiment along with your earnings from Part 2 and Part 3.</u>**

Part 2 (*Team task*)

Part 2 of the experiment consists of 17 rounds. In the beginning of Part 2 you will be randomly assigned to a team of **3 people**. The composition of your team is fixed for the duration of this part of the experiment. Each team should consist of 2 players of **type 1** and one player of **type 2**. Initially, all team members are assigned **type 1**. You need to elect one member of the team to be a **type 2** player.

Any member of the team can propose him- or herself as a candidate for becoming a **type 2** player and specify the reasons why he or he or she should be elected. You can communicate with other team members through the chat. **Type 2** player is elected by simple majority voting (to be elected you need 2 votes). If the team cannot choose **type 2** player during **3 attempts**, a random **type 2** player is selected. The difference between **type 1** player and **type 2** player will be explained below. **<u>Type 2 player is chosen for the entire length of Part 2 and cannot be changed.</u>**

After the **type 2** player is selected, the team receives **17 choice problems** (one problem per round). For example:

Sample Problem 1

You need to choose one of the following two projects:	
Project A	**Project B**
Your team receives €40 with probability $\frac{1}{3}$ (each **type 1 player** receives €10 and **type 2 player** receives €20)	Your team receives €7 with probability $\frac{1}{3}$ (each **type 1 player** receives €3 and **type 2 player** receives €1)
Your team receives €2.50 with probability $\frac{2}{3}$ (each **type 1 player** receives €1 and **type 2 player** receives €0.50)	Your team receives €16 with probability $\frac{2}{3}$ (each **type 1 player** receives €5 and **type 2 player** receives €6)

Note, that if the project is successful (yields its highest possible payoff), type 2 player receives more than any of the type 1 players <u>in the majority of projects</u>. However, if the project is unsuccessful (yields its lowest possible payoff), type 2 player receives less than other players <u>in the majority of projects</u>.

All members of the team vote on the projects and reach an *intermediate decision*. The *intermediate decision* is reached as soon as at least 2 players have voted for the same project (simple majority). The *intermediate decision* is reported to the **type 2 player** (no one else can see the intermediate decision). **The type 2 player can either confirm or alter the team's decision. Type 2** player reports the *final decision*, which is either an *intermediate decision* or his/her *own decision*. **The team's payoff is calculated based on the *final decision*, reported by the type 2 player.** The *final decision* of the **type 2** player is reported to the entire team. If the **type 2** player confirms the *intermediate decision*, *final decision* = *intermediate decision*; if the **type 2** player changes the intermediate decision, *final decision* = his/her *own decision*.

At the end of Part 3, when decisions on all choice problems are made, the computer program will select one of 17 rounds at random and **your payoff from this round only will be paid to you**. This problem will re-appear on your computer screen. The computer program will simulate projects which were under consideration in selected problem, and your payoff from Part 2 will be displayed.

For example, imagine that the team's *intermediate decision* (for Problem 1 shown above) was to choose Project B. However, the **type 2** player decided to change the team decision and made his/her *own decision* to select Project A. This means that the *final decision* of the team was to choose Project A. **At the end of Part 3 of the experiment**, Problem 1 will re-appear on your screen and the computer program will simulate both project A and B. Assume, that Project A turns out to yield €40. You will see the **team payoff** of €40 and a **forgone payoff (the payoff that you could have earned in this round had you chosen another investment project)** of €16 and your **private payoff** (€10 for each **type 1 player** and €20 for the **type 2** player) along with your **private forgone payoff** (€5 for each **type 1** player and €6 for the **type 2** player) on your screen. You will also be informed on whether the *intermediate decision* of your team was confirmed or changed by the **type 2** player. You will receive your **private payoff** and not your team payoff at the end of Part 3.

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Martin G. Kocher, Ganna Pogrebna and Matthias Sutter

The Determinants of Managerial Decisions Under Risk

Abstract
In hierarchical organizations the role of a team leader often requires making decisions which do not necessarily coincide with the majority opinion of the team. However, these decisions are final and binding for all team members. We study experimentally why, and under which conditions, leaders resort to such decisions. In our experiment, teams are presented with several paired lottery choices. They decide by majority voting which lottery from the lottery pair they prefer to be played out. After all members of the team have made their choices, the team leader is informed about the outcome of the vote and has an opportunity either to confirm or to alter the majority decision. We find that leaders overrule their teams in 35% of cases and such decisions are primarily driven by divergent preferences of leaders and the other team members. Male, younger and more risk seeking (as opposed to female, older and more risk averse) leaders overrule decisions of ordinary team members more often. We discuss the implications of our findings for the management of organizations.

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