Advice from Women and Men and Selection into Competition

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ABSTRACT
We study how gender matching affects the impact of advice on men’s and women’s entry into a real-effort tournament and how advice varies with gender and gender matching. We analyze the impact as well as the content and justification of advice. Our results show that gender pairings do not affect the impact of advice. With respect to the advice process we find that for medium performers women are less likely to recommend entry than men, and that women give worse advice. Men are more reluctant to weaken women’s than men’s confidence in their success.

KEYWORDS: experiments, advice, gender gap in competitiveness

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1. INTRODUCTION

Increasing women’s representation in top-level jobs is one of the main goals of gender equality policies in many countries. Identifying the causes of their current under-representation is a crucial input for the design of policies that can change this situation. There is now an established strand of experimental research (starting with Niederle and Vesterlund, 2007; Croson and Gneezy, 2009) that studies this issue under controlled conditions where the decision to enter a real-effort tournament is used as a vehicle to study women’s attitudes towards competing for high-ranking jobs. Buser et al. (2014), Buser et al. (2017), and Reuben et al. (2017) show that the laboratory measure of competitiveness is significantly correlated with real world outcomes such as career choices and income on the labor market.

One central finding coming out of this work is that the gender difference in self-assessment is one of the determinants of tournament entry decisions. Women tend to be less confident about their ability than men – for given ability levels. This leads to fewer women competing in tournaments and, hence, to fewer women winning tournaments. The question arises how the gender bias in self-assessment can be overcome or at least compensated. McCarty (1986) illustrates that giving feedback in achievement situations eliminates the gender gap in self-confidence. In our research we are interested in finding out how advice and the human interaction it typically entails can lead to an improvement in women’s self-assessment.

In a previous study (Brandts, Groenert, and Rott, 2015), we reported on the results of a laboratory experiment in which we analyzed how advice by a more experienced and better-informed person affects men’s and women’s entry into tournaments. In that study we analyzed men’s and women’s reaction to advice in a setting in which participants did not know the gender of their advisor or advisee. Overall, we found that advice improved the entry decision of subjects, in that forgone earnings due to wrong entry decisions went significantly down. The improvements were mainly driven by the increased entry of potentially strong-performing women, who became more confident about their relative performance, and the reduced entry of weak-performing men. However, an overall competition gender gap persisted. Although this gender gap disappeared among weak and strong performers, its overall persistence was due to an emerging gender gap among intermediate performers.

Actively promoting that people who are thinking of competing for high-ranking jobs receive advice from more experienced colleagues can be seen as a “soft” policy intervention. It relies more on raising the awareness of women’s internal obstacles to correct self-assessment than on the change of explicit institutional rules. We feel that lower self-esteem of women
with respect to their job market possibilities is an important problem of general societal interest. It is a particular type of gender-specific bias which needs to be addressed through a process in which more and more people become aware of the bias and contribute to correcting it. Advice is one of the social mechanisms through which women’s self-esteem bias can be corrected.

In this paper we study two related dimensions of the advice process between men and women. The first question is whether certain gender matchings will be more effective than others in correcting existing biases. For example, to encourage a potentially high-performing woman to enter a competition perhaps the advice from another woman is more effective. Similarly, in convincing a potentially low-performing man not to make the socially wasteful decision of entering a competition it is possible that advice from a man has a bigger impact. We compare the impact of advice between all four cases of gender-matchings in which advisors and advisees of the same and opposite gender can be matched (i.e., female advisors with female advisees and male advisors with male advisees as well as female advisors with male advisees and male advisors with female advisees) as well as with the gender-blind data first reported in Brandts et al. (2015).

Our second focus is on how advice giving and the reasons for giving advice interact with gender pairing. Our analysis will yield insights into how men and women relate to each other in the advice process. We will refer to the new data set reported including all four cases of gender matching as the GM data set. In some of our analysis we will also use the data set with gender blind data to which we will refer to as GB. This last data set was first used in Brandts et al. (2015). Here we will report some new results using that data set.

In our set-up advice consists of recommending choosing either a competitive or a non-competitive payment scheme. The advisor can furthermore add one or more pre-formulated reasons for the recommended payment scheme relating to preferences for competition, self-confidence, and earnings risk. All communication takes place through the computer. The gender of the matched person is revealed explicitly at the beginning of the advice stage. This information is displayed on the computer screen, without any information about the identity of the partner. Our focus here is on the ‘pure effect’ of knowing the other person’s gender without allowing for a more intense interaction involving, for example, free-form and face-to-face communication. We see this as a necessary step in understanding how social interaction can lead to more informed decisions vis-à-vis entry into competition.

Our results show both no effects of gender pairing on advice giving and on the reactions to advice. As a consequence gender pairing does not affect the impact of advice.
Subject to the constraints that we impose on social interaction, the counterpart’s gender does not matter. For all gender matchings the overall impact of advice is just like in the gender-blind data first reported in Brandts et al. (2015). Advice leads to efficiency gains in the sense of reduced foregone earnings. This improvement is driven by increased entry of potentially strong-performing women, who also become more confident. However, the overall gender gap persists. Among high performers the gender differences disappear, but they emerge among medium performers. In conclusion, with respect to the overall effect of advice the results are robust to knowing the gender of the counterpart.

We also find that women are significantly more reluctant to advise tournament entry if the advisee’s chance of winning is less certain from the advisor’s perspective. Furthermore, we find differences in the reasons participants give for their advice. Interestingly, when recommending the non-competitive payment scheme, men are more reluctant to discourage a woman to belief in her performance than a man. Interestingly, men tend to refuse to follow the received advice, in particular the recommendation not to enter the tournament, when they know the advisor’s gender. By contrast, women follow the received advice whether it comes from a woman or a man. The difference is less pronounced when the gender of the advisor is not revealed.

2. EXPERIMENTAL DESIGN

We first describe the basic experimental ‘two-generation’ design with regard to the choice of participating in a competition and then turn to the specifics of the advice part of the experiment and to some further information on the design.

2.1. The basic setup

For the purpose of maximal comparability, we keep the experimental design regarding the participation decision as close as possible to the one in Brandts et al. (2015) which extended the design of Niederle and Vesterlund (2007). The experiment took place at the UAB in Barcelona in two adjacent rooms, separated by a sound-proof glass wall. Upon arrival, subjects were divided randomly into two room groups of equal size. Participants in one room have the role of advisors, and those in the other room the role of advisees, but they do not learn about their roles until later in the experiment when the advice stage begins. The separation of the two rooms by the glass window makes it possible for participants to see that the participants in the other generation really exist.
Participants in both groups go through the same eight decisions in the same order: three real-effort tasks, two entry decisions, and two self-evaluations. There is a difference in the timing in which the groups go through their tasks. See Table 1 for a timeline of the tasks of the two generations. As illustrated in Table 1, advisors begin to make decisions 15 minutes earlier while the advisees wait. This waiting period was necessary to ensure that advisors and advisees reach the advice stage at roughly the same time. During this waiting period, advisees are not yet informed about the content of the experiment because we wanted to ensure that the waiting period has no effect on the choice of the compensation scheme in task 3.

[Table 1 approx. here]

In the real-effort tasks, 1-3, participants have five minutes to add up sets of five two-digit numbers without using a calculator. (See the screenshot provided with the instructions in the appendix). The three real-effort tasks differ in the circumstances under which they are performed by the participants. In task 1, subjects first perform the task under the piece payment scheme and in task 2 under the tournament payment scheme. Under the piece rate payment scheme, subjects receive €0.50 for each correct sum. For the tournament payment scheme, subjects are matched in groups of four (two women and two men seated in the same computer row), and only the person with the best performance receives payment in form of €2 for each correct sum.

In task 3 participants have to first decide whether the piece rate or the tournament payment scheme will be applied to their performance in the addition task. If a subject chooses the competitive payment scheme in task 3, her task 3 performance is evaluated against the task 2 performance of her group members. Thus a subject “wins” the tournament in task 3 if she solves more problems correctly than each of her group members in task 2. Ties are broken randomly among the best performers. The fact that subjects in task 3 compete with the performance of subjects in task 2 ensures that a subject’s entry decision is not influenced by beliefs about the other subjects’ entry decisions.

For advisors the advice stage follows after they have made all their other decisions. For advisees the advice stage follows after they have completed tasks 1 and 2, that is, immediately before they have to choose the payment scheme for task 3. Both advisors and advisees know at which stage of the decisions the members of the other generation are.

In task 4 subjects do not have to do the addition task but only have to make an entry decision. They have to decide whether to apply the competitive or the noncompetitive
payment scheme to their (past) task 1 performance. Finally, subjects have to rank their performance in tasks 1 and 2 relative to the group members’ performances on a scale from 1 (best) to 4 (worst), respectively. At the end of the self-evaluation task, each participant receives feedback on the task 1 and task 2 performances of all her group members.

2.2. Advice

The exact sequencing of the advice stage is as follows. Each advisee is randomly matched to exactly one advisor, and each advisor has only one advisee. The advisee sends information about his task 1 and 2 performances to his advisor. Upon receiving this information, the advisor sends a message, telling the advisee whether or not he or she recommends entering the competition. The advisor is then asked to give the advisee reasons for the recommendation. We provide three pre-formulated reasons for each of the two possible recommendations (‘tournament’ or ‘piece rate’) from which the advisor can select as many as she wishes to. We chose the two-way design of the advice stage to create a feeling of interaction between advisor and advisee. After having received the advisor’s recommendation and (possibly) some reasons for this recommendation, the advisee decides whether to enter the competition in task 3.

Table 2 summarizes the characteristics of the data we use in this paper. In the Gender Matching (GM) data set, the advisor’s and the advisee’s gender is revealed to each other. In the sessions with same gender matching, each male (female) advisor is matched with a male (female) advisee. In the sessions with opposite gender matching, each male (female) advisor is matched with a female (male) advisee. In the Gender Blind (GB) data, some of which was previously used in Brandts et al. (2015), advisors and advisees are matched randomly and their genders are not revealed. An advisor is paid 50% of her advisee’s task 3 earnings. We reward advisors because the main objective of the advice incentive system is to make the advisors give “good” advice. On average, €3.48 was earned for the advice, with payoffs ranging from €0 up to €25. In natural environments, the reward of advisors can be nonmonetary in form of building a reputation or in form of a good feeling because of giving good advice to somebody.

[Table 2 approx. here]

Advisors in our experiment are no experts in the task, but they have experienced the situation once and have some information about it. Since advisors have received information
feedback on task 1 and task 2 performance of all her group members, they have not only made an entry decision, but have also seen how people perform in the addition task in a small sample of four people. Note, however, that when advisors receive the information about performance levels in their group, they do not yet know that there will be an advice stage. We chose a design with these features because we felt that this is a rather natural setup. Usually, a person who has previously participated in a competition task will have some idea about performance levels in that task, but does not have access to a large database on the matter.

Each advisee knows that his or her advisor has just completed all tasks and that the advisor has information about the task 1 and task 2 performances of the participants in his or her own group. However, the advisee does not know that his or her advisor is compensated for giving advice. We chose this option to eliminate the influence of social preferences on the advisee’s entry decision. Advisees do know that their advisor has some informational advantage, but they need to trust that the advisor will advise them correctly.

In our experiment, advisees receive advice based on information from the advisor’s generation and we analyze how this affects tournament entry depending on the paired advisor’s gender. In Wozniak et al. (2014) and Ewers (2012), the experimenters inform the participants about their relative performance with respect to the other group members in their own generation (or about the performance distribution in general as in Ewers, 2012) and the participants know that this information is correct. Our interest is in studying the advice process as a whole and the effects of human interaction between advisors and advisees. The focus in this paper is on the gender pairing between advisor and advisee and advice giving. We believe that these are important dimensions of the interaction that takes place at the workplace.

2.3. Group Composition, Procedures, and Subject Pool

Participants were all allocated into fixed groups of four, composed of two women and two men. We made sure that participants were not aware of the fact that we controlled for the gender composition because the salience of this information might change people’s behavior (Iriberri and Rey-Biel, 2017). Each group of four shared the same row in the computer laboratory and participants knew that their competitors were seated in the same row as them.

Subjects received a show-up fee of €5 plus €4 for completing tasks 1–4. Advisors were paid for giving advice and advisees were paid an additional €2 because they had to wait for approximately 15 minutes at the beginning of the experiment. At the end of the experiment, we chose one of tasks 1–4 at random and paid participants according to their
performance in that task. Finally, we paid subjects for the self-evaluation task. On average, our participants earned €18.35. The average duration of a session was 1 hour 30 minutes, starting with reading aloud the general instructions and finishing after participants filled out a questionnaire and received their payment.

The experiment was conducted in January 2012 and December 2014 at the Universitat Autònoma de Barcelona (UAB). Subjects were recruited from a pool of subjects via the online recruitment system ORSEE (Greiner, 2004) and were mainly undergraduate students from UAB. Students in all departments at UAB were invited to subscribe to ORSEE via flyers distributed and posted on campus and through student mailing lists. The experiment was programmed and conducted with the experimental software z-Tree (Fischbacher, 2007).

The UAB has a total of 50,000 students and our subject pool contains approximately 2,500 students. Thus, there is a very low likelihood that participants of the same group knew each other because all 2,500 students of the subject pool received the invitations for the sessions at the same time, and we assigned participants randomly to the role (advisor or advisee) and group. The GM data set is composed of a total of 424 subjects, 212 men and 212 women, with 100 men and 100 women in sessions with same gender matching, and 112 men and 112 women in sessions with opposite gender matching. The GB data set that we used previously was composed of 112 men and 112 women.

2.4. Research Questions and Hypotheses

Our research question 1 pertains to overall outcomes: Does advice lead to efficiency gains and does advice reduce the gender gap in competition entry when advisors and advisees know each other’s gender? Here we ask whether the findings reported in Brandts et al. (2015) are robust to information about gender matchings.

Research questions 2 to 6 are about the specifics of the advice process. Questions 2 and 3 pertain to advice giving, 4 to advice following and 5 and 6 to the reasons given for advice and the reactions to them:

2. Do men and women differ in the piece of advice – ‘piece rate’ or ‘tournament’ – they give? If they do, does the difference in advice giving depend on the gender of the advisee? Given the repeated finding that women are more risk averse than men (Filippin and Crosetto, 2016), we would expect to find that women are less likely to give the ‘tournament’ advice than men and that own tournament entry explains (at least partly) differences in advice giving. We do not have clear expectations about the role of the advisee’s gender and could imagine effects in both directions, i.e., that advisors are more likely to recommend the
tournament to men (because advisors anticipate that men are more willing to take risk) or to women (because advisors anticipate that women enter the tournament too little).

3. Whose advice, men’s or women’s, is of ‘better quality’ in the sense of discouraging low-performing participants from entering the tournament and encouraging high performing participants to enter? The answer to this question may be important to suggest from whom men and women should seek advice.

4. Do men and women react differently to advice? If they do, does the difference depend on the gender of the advisor? Given our earlier findings in Brandts et al. (2015), we expect that men are more likely to follow the ‘tournament’ advice than women and that women are more likely to follow the ‘piece rate’ advice. With respect to the effect of the advisor’s gender, different scenarios are possible: advisees might follow men’s (women’s) ‘tournament’ (‘piece rate’) advice less because they believe that men (women) recommend too often the ‘tournament’ (‘piece rate’) or advisees follow more often the advice when it comes from an advisor with the same gender because they identify and trust more.

5. Which reasons do men and women give for their advice? And does it depend on the gender of the advisee? Preferences for competition, self-confidence, and risk of earnings are likely candidates to explain men’s and women’s tournament entry behavior (Niederle and Vesterlund, 2007). Men and women may differ in which of these reasons they give and this may also depend on the advisee. For example, perhaps men know that women tend to underestimate themselves and are, therefore, cautious in referring to self-confidence when advising women.

6. Do men and women react differently to advice depending on what reasons advisors give for it? And does this depend on the gender of the advisor? In particular the advisee’s self-confidence is likely to be affected by the reason referring to ‘confidence’ (encouragement for the advice ‘tournament’ or discouragement for the advice ‘piece rate’). We will also explore whether the effect is stronger depending on the advisor’s gender.

3. RESULTS

Throughout the results section, whenever we mention performance, we mean the number of correct sums. If not otherwise noted, to test for differences in the performance between subjects, we use two-sided Mann–Whitney U tests; to test for differences in advice
giving and tournament entry, we use the two-sided Fisher’s exact test. For the regression analysis, we use Linear Probability Models with robust standard errors.¹

In section 3.1, we present some preliminary results, comparing performances across gender and generations and overall entry rates. Section 3.2 presents our findings on the overall impact of advice pertaining to research question 1 using the GM data set and compare them with the results in Brandts et al. (2015). Section 3.3 presents our results on what piece of advice – ‘tournament’ or ‘piece rate’ – is given by advisors in the GM and the GB data and how advisees in GM react to the advice received (research questions 2, 3 and 4).² Section 3.4 analyzes which reasons are given for each piece of advice in GM and GB, how they depend on the gender match of advisor and advisee in GM, and how advisees react to the reasons in GM (research questions 5 and 6).

3.1. Descriptive statistics on performance and tournament entry

We start by verifying whether there are performance differences between men and women in the absence of advice.³ To do this we aggregate the data from the GM data set (424 observations from 212 advisors and advisees, respectively) because at this point there is no difference between the types of gender matching (same or mixed) and the randomly assigned role (advisor or advisee). Men solve on average 7.8 problems in task 1, 9.8 in task 2. Women solve on average 7.3 problems in task 1 and 9.4 in task 2. The performance does not differ across gender, neither for task 1 (p = 0.603) nor task 2 (p = 0.921).⁴ The absence of a significant gender difference in performance replicates the results reported in Brandts et al. (2015). We thus confirm a consistent subject pool across the GB and the GM data sets and the fact that, contrary to the widespread stereotype, women’s and men’s performance in the math task does not differ.

Comparing those who will later be advisors with those who later will be advisees, we find insignificant differences for task 1 (and task 3), but not for task 2. In task 1, advisors solve 7.4 problems while advisees solve 7.8 (7.6) who will receive advice from a male (female) advisor (p = 0.250 and p = 0.628 for advisors vs. advisees matched with male and female advisors, respectively; p = 0.505 for advisees matched with male vs. female advisors).

¹ Logit and Probit regressions with robust standard errors lead to very similar results.
² The analysis of the reaction to advice in the GB data set can be found in Brandts et al. (2015).
³ Figure A1 in Appendix A shows men’s and women’s performance distributions in task 1 and task 2.
⁴ Performances in task 1 and task 2 are highly correlated and the same accounts for task 2 performance and the performance change from task 1 to task 2 (overall and separately for men and women). In task 3 men solve on average 10.0 problems correctly and women 9.6. The performance does not differ across gender (p = 0.790). Note that in task 3 participants have chosen to be paid under one of the two payment schemes before performing the task.
However for task 2, the performance levels are 9.0 correct answers for advisors vs. 10.1 from advisees with male advisors and 10.2 from advisees with female advisors (p = 0.012 and p = 0.016 for advisors vs. advisees matched with male (female) advisors, respectively; p = 0.868 for advisees matched with male vs. female advisors). Performance in task 3 is again insignificant (p > 0.488 for all three comparisons) which leads us to believe that the difference in task 2 performance is a somewhat random event. For the analysis presented in this paper, the difference is not of major importance because we will control for performance.

(Table 3 approx. here)

Though performance does not differ across gender, tournament entry rates in task 3 do differ significantly both with and without advice (Table 3). Without advice, 54.7% of men (58 of 106) and only 36.8% of women (39 of 106) enter the tournament (p = 0.013). With advice, tournament entry rates by men and women are similar. Below we study these differences in detail.

3.2. Overall impact of advice

Figure 1 presents the average expected forgone earnings without and with advice from male (female) advisors. Forgone earnings are zero for a participant who choses the payment scheme in task 3 that maximizes the expected earnings for her performance. For a participants who choses the sub-optimal payment scheme (in terms of expected payoff), forgone earnings are defined as the difference between the expected earnings had the participant made the opposite choice minus the actually expected earnings under the chosen payment scheme for task 3. Calculations are ex-ante, i.e., they are based on task 2 performance (see Brandts et al, 2015, for a detailed explanation of the calculations).

(Figure 1 approx. here)

While the expected forgone earnings without advisors are 1.62 (1.37 for men and 1.89 for women), they are only 1.28 for advisees who receive advice from a male advisor (1.41 for men and 1.17 for women) and 1.33 for advisees matched with a female advisor (1.76 for men

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5 The figures were created using the plot scheme developed by Bischof and Zurich (2017).
and 0.85 for women). Though the magnitude of the drop is slightly larger with male advisors (p = 0.134, one-sided Mann-Whitney U test), it is statistically not significant, whereas it is significant with female advisors (p = 0.034, one-sided Mann-Whitney U test). The differences between advisors and advisees are insignificant for men (p > 0.347, one-sided Mann-Whitney U test), but significant for women (p = 0.032 for female advisors vs. female advisees matched with male advisors; p = 0.005 for female advisors vs. female advisees matched with female advisors; one-sided Mann-Whitney U tests). This partly confirms earlier findings for gender blind advice reported in Brandts et al. (2015). There, forgone earnings of both men and women and particularly of men were significantly reduced with advice. In the new GM data we only see a significant drop for women.

However, the overall gender gap in tournament entry does not diminish with advice. Upon receiving advice from a male advisor, 64.0% (32 of 50) of men and 41.1% (23 of 56) of women enter the tournament (p = 0.021). After receiving advice from a female advisor, the rates are 60.7% (34 of 56) of men versus 36.8% (18 of 50) of women (p = 0.012). This is about the same as the gender gap without advice (54.7% of men versus 36.8% of women, p = 0.013).

The apparent contradiction between the reduction in forgone earnings and the persistence of the gender gap can be understood by taking a closer look at the performance levels of those who change their tournament entry decisions. To do this we divide participants into three groups, according to their performance in task 2: weak (26%), intermediate (52%), and strong performance (22%), see Table 4. Participants in the weak performance group solve six or fewer additions correctly, their probability of winning in the tournament is less than 1%, and their most likely rank is fourth (the lowest rank). Participants in the intermediate group solve between seven and eleven problems and win the tournament with a probability larger than 1% and smaller than 35%. Note that the threshold performance level (ten correct answers), where the expected earnings from entering the tournament more or less equal the earnings from the piece rate, lies within this performance group. Participants in the strong performance group solve twelve or more problems, their probability of winning the tournament is at least 42%, and the most likely rank in a randomly composed group of four is first (the highest rank).

6 Average forgone earnings of men with female advisors go up from 1.37 to 1.76, but this increase is not statistically significant (MW U-test: z=-0.104, p=0.9168).
Figure 2 depicts the share of men and women who choose the tournament payment scheme for each of the three performance groups. For each performance group (weak, intermediate, and strong) there are three bars: entry decisions of participants without advice, after having received advice from a male advisor, and after having received advice from a female advisor. The sample is composed of advisors and advisees in the GM data set.

A first remarkable feature of the data is that in none of the three performance groups (weak, intermediate, and strong) are men affected by the advice neither from a male nor from a female advisor (p > 0.162). Next we look separately at each of the three performance groups. We start with strong performers. Without advice the gender gap is substantial: whereas 87% (20 of 23) of strong-performing men enter the tournament only 45% (10 of 22) of women do so (p = 0.005). This changes with advice. More strong-performing women enter the competition after having received advice both from a man (75%, 15 of 20) or from a woman (82%, 9 of 11) than without advice (45%, 10 of 22) (p < 0.068), thereby closing the gender gap among strong-performers. The difference in entry rates between men and women is now statistically insignificant (p > 0.676). In the GM data, strong-performing women improve tournament entry decisions with advice in the sense of increasing expected earnings.

Weak-performing men without advice enter the tournament with 37.5% (12 of 32) rather frequently given that their probability of winning the tournament is less than 1%. Advice does not correct the entry decisions of weak-performing men, neither when it comes from a male advisor (38%, 5 of 13) nor when it comes from a female advisor (38%, 5 of 13). Weak-performing women without advice enter the tournament in 20% (7 of 35) of the cases. Though this share goes down to 0% (0 of 8) with a male advisor, the change is not statistically significant (p = 0.315), neither is it with a female advisor (25%, 1 of 4). There is no significant gender gap among weak performers with or without advice (p = 0.138 without advice, p = 0.111 with male advisor and p = 1.000 with female advisors).

The reason why the overall gender gap does not disappear with advice is due to the effect of advice on the group with intermediate performance. Women in the intermediate group become less likely to enter the tournament with advice (though not significantly, p > 0.147), whereas men are more likely to enter, leading to a gender gap in tournament entry.

Observe that both low-performing men and women are over-confident, but men much more so.
among intermediate performers (p < 0.038). The pattern of changes for intermediate performers is the same as in the gender blind case, reported in Brandts et al. (2015). Below we will report on other differences that pertain particularly to the group of intermediate performers.

We thus confirm only partially the findings of gender blind advice in Brandts et al. (2015). In particular we find the same reaction of women to advice and the consequences for the gender gap thereof, but we fail to replicate reduced (increased) tournament entry by weak-performing (intermediate-performing) men through advice.

[Figure 3 approx. here]

In addition to the reaction to advice of strong-performing women, we also replicate their increase in self-confidence with gender-blind advice (Brandts et al., 2015). Figure 3 depicts the average guessed rank (task 2) of men and women given their actual rank. The actual rank is the rank that a participant is most likely to obtain (using the probability of winning from the expected earnings calculation as described above). Strong-performing women (corresponding to actual rank 1 in task 2) become significantly more confident with advice both from men (p = 0.035) and women (p = 0.074). Except for women in the intermediate group (corresponding to actual rank 2 and 3) who become more confident with advice from a man (p = 0.021), there are no other significant changes in the self-assessment with advice. Result 1 summarizes our findings corresponding to our first research question.

**Result 1:** Advice reduces expected forgone earnings, due to a doubling of tournament entry rates by strong-performing women. However, the overall gender gap in tournament entry persists due to the behavior of intermediate performers.

### 3.3. Men’s and women’s advice giving

Advice giving was not studied in Brandts et al. (2015) and, hence, here we will use data from both the GM and the GB data set. As mentioned above, when advising the next generation, advisors hold several pieces of information: the distribution of performance in task 1 and task 2 in their own group, the advisee’s information on task 1 and task 2 performance as well as the advisee’s gender. The first two pieces of information
(performance) are provided in both the GB and GM data, the third piece of information (advisee’s gender) is provided in the GM data only.

We focus on answering research questions 2, 3 and 4: First, does the advisor’s or the advisee’s gender affect the advice? Second, does the advisor’s or the advisee’s gender affect the quality of advice? Third, how do advisees react to the advice received and how is the reaction affected by gender matching? As mentioned earlier, the data sets for the analysis of advice giving are GB and GM and the data set for the analysis of the reaction to the received advice is GM.

For our analysis it is useful to separate subjects’ performance levels into different intervals. Since task 2 performance is arguably a better predictor of task 3 performance than task 1 performance, we create three relative performance intervals based on task 2 performance: (1) The advisee’s task 2 performance information is lower than the 2nd best performance in the advisor’s own group (low). (2) The advisee’s task 2 performance information is between the 2nd (including) and the 1st best performance in the advisor’s own group (medium). (3) The advisee’s task 2 performance information is at least as good as the 1st best performance in the advisor’s own group (high). Note that these intervals (low, medium, high) are defined by the advisee’s task 2 performance relative to the 1st and 2nd best performance in the advisor’s own group. The intervals used in the previous section (weak, intermediate, strong) are defined by an individual’s most likely task 2 performance rank.

Figure 4 shows the proportion of male and female advisors who recommend tournament entry separately for the three relative performance intervals, the advisor’s gender (male or female) and the advisee’s gender (gender blind, male, or female). A first observation is that the share of advisors who recommend tournament entry increases as we move from the low to the high relative performance interval. While only 7.10% (11 of 155) of all advisors (across the two data sets) recommend tournament entry if the advisee’s performance is relatively low, the share increases to 51.32% (39 of 76) in the intermediate relative performance interval, and to 87.1% (81 of 93) in the strong relative performance interval. The advice is thus aligned with the information that the advisors hold at the moment of giving a recommendation: the better the advisee’s performance relative to the performance in the advisor’s own group the more likely advisors are to recommend tournament entry.

[Figure 4 approx. here]

8 The results do not change considerably if we include (or exclude) the limits of any of the three relative performance intervals.
In addressing our research question 2 we pool the GB and GM data. We find that men’s and women’s advice does not differ if the advisee’s relative performance is either weak (lower than 2nd best) or strong (at least equal to 1st best). However, women are significantly less likely to recommend tournament entry than men if the advisee’s performance is at least equal to the 2nd best but weaker than the 1st best performance in the advisor’s own group. The shares of advisors recommending the competition in the weak relative performance interval are 7.50% (6 of 80) for men and 6.67% (5 of 75) for women (p = 1.000). In the strong relative performance interval, 86.00% (43 of 50) of men and 88.37% (38 of 43) of women recommend the tournament, again an insignificant difference (p = 0.767). Remarkably, in the intermediate relative performance interval in contrast, 68.75% (22 of 32) of men advise tournament entry whereas only 38.64% (17 of 44) of women do so (p = 0.012).9

We now disaggregate between the gender blind, male advisee, and female advisee cases. In the left panel of Figure 4 (low relative performance interval), 4% to 11% of men recommend to enter the competition compared to 0% to 12% of women (p > 0.621; separately for gender blind, male advisee, and female advisee). In the right panel (high relative performance interval), the corresponding shares range from 83% to 86% for men and from 69% to 100% for women (p > 0.533; separately for gender blind, male advisee, and female advisee). In the panel in the middle (medium relative performance interval), 67% (6 of 9, gender blind), 67% (6 of 9, male advisee), and 71% (10 of 14, female advisee) of men recommend competition entry while only 33% (5 of 15, gender blind), 38% (6 of 16, male advisee) and 46% (6 of 13, female advisee) of women do so (p < 0.253; separately for gender blind, male advisee, and female advisee).

Table 5 shows the results of Linear Probability Model regressions (with robust standard errors) for advisors from both GB and GM data sets as sample. Logit and Probit regressions lead to similar results. In the upper part of Table 5, the dependent variable Advice ‘tournament’ takes the value 1 if the advisor’s recommendation is ‘tournament’ and 0 if the advice is ‘piece rate’. Regression models (1) – (4), (5) – (8), and (9) – (12) correspond to advisors in the low, medium, and high relative performance interval, respectively. As explanatory variables, we include the dummy variables for Female advisor and for Female advisee, which take the value 1 if the advisor (advisee) is a woman and 0 if he is a man and an

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9 Revealing the advisee’s gender does not affect advice giving (p > 0.242, pairwise comparison for male and female advisors separately and for each relative performance interval) except for female advisors matched with advisees who fall in the strong relative performance interval. Only 69% (9 of 13) of women recommend entering the competition if the advisee’s gender is not revealed, whereas the shares are 95% (18 of 19, p = 0.132) for male advisees and 100% (11 of 11, p = 0.098) for female advisees.
interaction term of Female advisor and Female advisee to capture whether women and men react differently to the advisee’s gender. The sample is advisors in data sets GM and GB in models (1), (2), (5), (6), (9), and (10) and advisors in the GM data set only in models (3), (4), (7), (8), (11), and (12). The variable Female advisee and the interaction term are thus included in models (3), (4), (7), (8), (11), and (12) only. We also add the advisor’s own tournament entry decision (Advisor’s entry task 3) to test whether the advisor’s own choice (which is likely to be influenced by risk and competition preferences as well as confidence) is correlated with the advice they give. Furthermore, we include as controls the information that advisees send to their advisor about their task 2 performance (Info task 2) as well as the difference between the task 2 and the task 1 information (Info task 2 – task 1) reflecting the improvement from task 1 to task 2. Finally, the information about the best as well as the second best performance in task 2 in the advisor’s own group of four (1st best performance task 2 as well as 2nd best performance task 2) are incorporated to check whether advisors take this information into account in a sensible way.\textsuperscript{10}

\textit{[Table 5 approx. here]}

The regression analysis confirms significant gender differences if the task 2 performance information falls between the first and second best performance in the advisor’s own group (models (5) and (6), p < 0.01), and no gender differences else (models (1), (2), (9), and (10)). In the intermediate performance group, women are on average more than 30 percentage points less likely to recommend tournament entry than men. Regression analysis with GM data only include a dummy variable for the advisee’s gender and an interaction term of the advisor’s and the advisee’s gender and confirm the same pattern.

Though the advisor’s own tournament entry does not explain the gender differences in the medium relative performance interval (models (6) and (8)), it does when merging all three relative performance intervals (results not reported in the table): advisors who entered the tournament on their own are 12 (11) percentage points more likely to recommend tournament entry, in both the GB and GM data (p = 0.010) (GM only, including Female advisee and interaction term; p = 0.054).\textsuperscript{11} One could thus interpret that successful mentors – both men and women – who entered a competition themselves are a self-selected sample, more inclined to recommend tournament entry, and less prone to gender differences.

\textsuperscript{10} The explanatory variables Info task 2 and Info task 2 – task 1 are positively correlated. However, Info task 2 is a strong predictor of the advice “tournament” even though the two variables are correlated.

\textsuperscript{11} Regression results not reported (available upon request).
We do not find significant effects of gender pairing on advice giving. In regression models (3), (4), (7), (8), (11), and (12) in Table 5, the coefficient estimates of Female advisor, Female advisee, and the interaction term are all insignificant. The only exceptions are the coefficient estimates of Female advisor in models (7) and (8) which correspond to the medium relative performance interval. We highlight the answer to our research question 2:

Result 2: For advisees that are medium performers, women are less likely to recommend tournament entry than men.

The next research question is who gives better advice, men or women (in particular in the medium relative performance interval)? Figure 5 complements Figure 4 in that, in addition to the share of advisor who recommend ‘tournament’, it also shows the share of advisors who recommend ‘piece rate’. Furthermore, the darker colors represent advisors who choose the ‘correct’ piece of advice and the lighter colors the share of advisors who recommend the ‘wrong’ piece of advice. The advice ‘piece rate’ (‘tournament’) is considered to be correct if the advisee’s task 2 performance information is less (more) than 11 (10) correct answers, otherwise it is considered wrong. The bars thus indicate the quality of advice in the sense of maximizing the advisee’s expected payoffs.

[Figure 5 approx. here]

In the lower part of Table 5, the dependent variable Correct advice takes the value 1 if the advisor’s recommendation (‘tournament’ or ‘piece rate’) is correct as defined above and 0 otherwise. Regression models (1) – (4), (5) – (8), and (9) – (12) correspond to advisors in the low, medium, and high relative performance interval, respectively. The explanatory variables and the samples are the same as in the upper part of Table 5 (regression output with dependent variable ‘tournament’ advice).

From the light shaded parts in the bars in Figure 5, it can be seen that women tend to give more often the wrong piece of advice in the medium performance group (middle panel). Using the just described definition of quality, the regression analysis confirms that women’s advice in the medium relative performance interval is at least 25 percentage points less likely to be correct (models (5) and (6)). In the GM data, women are even more than 40 percentage

12 Slight modifications (e.g., considering any piece of advice correct in case of ten correct answers) do not change the overall results.
points less likely to maximize male advisees’ expected earnings with their advice (negative coefficient estimate for Female advisor, models (7) and (8)). There is some evidence that men and women give better advice to advisees with the same gender as the significant estimates in models (11) and (12) indicate, but we would need more data to draw reliable conclusions.

With respect to research question 3, the following result summarizes the way in which women’s advice is worse than that of men:

Result 3: Women maximize less often the advisee’s expected earnings if the advisee’s performance is not clearly low or high.

For medium-performance advisees women’s advice is more cautious than men’s. This caution hurts women’s advisees economically. These findings add to the evidence that it is in the intermediate-performance group where gender matters. When it is very clear what to do or advise – as in the case of low and high performance – men and women are very similar. However, when it is less clear then women are more reluctant than men to enter or give the advice to enter the tournament, but this difference is not affected by the gender of the advisee.

3.4. Men’s and women’s advice following

We now turn to research question 4, how the piece of advice affects advisees’ competitive choices and how this depends on gender matching. We use the same relative performance intervals (low, medium, high) that we defined for the analysis of advice giving.

Figure 6 shows the tournament entry rates for male and female advisees in the three relative performance intervals (GM data only). In the low and medium relative performance intervals, men enter significantly more often the tournament than women do. In the low relative performance interval, 52% (43%) of men enter the tournament upon receiving advice from a man (woman), whereas only 10% (15%) of women do so (p = 0.001, n = 92, male and female advisors merged; p = 0.004, n = 45, and p = 0.052, n = 47, male and female advisors separately). For the medium relative performance interval, the differences are with 67% (62%) of men vs. 43% (31%) of women slightly smaller (p = 0.095, n = 52, male and female advisors merged; p = 0.400, n = 23, and p = 0.139, n = 29, male and female advisors separately). The differences in the high relative performance interval – 81% (79%) of men vs.

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13 Merging the medium and high relative performance intervals and running the same regressions as in (7) and (8)/(11) and (12), give highly significant coefficient estimates for the variables Female advisor, Female advisee, and their interaction term.
68% (91%) of women – are insignificant (p = 0.773, n = 68, male and female advisors merged; p = 0.469, n = 38, and p = 0.626, n = 30, male and female advisors separately).

[Figure 6 approx. here]

One possible explanation for why men and women enter so differently with advice is that the advice they receive is different. In the medium relative performance interval, women give significantly less often the advice ‘tournament’ than men as we have seen previously (Figure 4 and 5). However, as it can be seen in Figure 6, men’s and women’s tournament entry rates are not statistically significantly different depending on the advisor’s gender in this interval (p > 1.000, n = 52, for male and female advisees merged; p = 1.000, n = 25, and p = 0.695, n = 27, for male and female advisees separately).

[Table 6 approx. here]

The key to the persistence of the overall gender gap is the fact that men and women differ substantially in how they react to the advice that they receive. Table 6 depicts the tournament entry rates for men and women after receiving the ‘tournament’ or ‘piece rate’ advice from a male or female advisor and for all three relative performance intervals. Whereas women react strongly to the advice ‘piece rate’ and enter the tournament few times independent of whether it comes from a male advisor (15%, 4 of 26) or female advisor (13%, 4 of 30), men still enter the tournament frequently with 52% (15 of 29, male advisor; p = 0.010) and 47% (15 of 32, female advisor; p = 0.009). While women overall follow the received advice – in particular the advice ‘piece rate’ from both male and female advisors, men refuse to follow the advice ‘piece rate’. The difference is also strong for each relative performance interval separately, Table 6, and more marked than the difference with gender blind advice (Brandts et al., 2015). For the advice ‘tournament’, the differences are much less pronounced (p = 0.221 and p = 0.509, respectively), which is different than in Brandts et al. (2015) where men react very strongly to the gender blind advice ‘tournament’. We summarize the findings pertaining to our research question 4 in the following result:

Result 4: In the medium-performance group with advice men enter the tournament significantly more often than women, but the advisor’s gender does not affect advisees’
reaction to advice. Men follow less often the advice ‘piece rate’ than women independent of whether it comes from a male or female advisor.

3.5. Reason giving – preference for competition, confidence, and earnings risk

Not only bestsellers like John Gray’s “Men are from Mars, Women are from Venus: a Practical Guide for Improving Communication and Getting What You Want in a Relationship” reveal the widespread belief that men and women communicate differently. Also scientific evidence suggests that men and women have different communication styles (Basow and Rubenfield, 2003; Chodorow, 1999; Lakoff, 2004; Wood, 2012) and pursue different communication goals (Leaper, 1991; Maltz and Borker, 1982; Wood, 2012). Giving advice is inseparably linked with communicating, which is why analyzing gender differences in communication style is an important research question on its own. In our setup, communication is not free form, but also the preformulated form allows us to look into gender differences in communication styles.

Recall that advisors can choose up to three reasons for their chosen piece of advice. For the advice ‘piece rate’, the phrases are: (1) “Porque no es divertido competir con otros.” / “Because it is not fun to compete with others.” (preference for competition), (2) “Porque no deberías tener confianza de que te vaya bien.” / “Because you should not be confident that you will succeed.” (self-confidence), and (3) “Porque con la remuneración por unidad ganas algo seguro.” / “Because with the piece rate you earn something for sure.” (risk of earnings). For the advice ‘tournament’, the three phrases are: (1) “Porque es divertido competir con otros.” / “Because it is fun to compete with others.” (preference for competition), (2) “Porque deberías tener confianza de que te vaya bien.” / “Because you should be confident that you will succeed.” (self-confidence), and (3) “Porque en la competición puedes ganar mucho más.” / “Because in the competition you can earn much more.” (risk of earnings).

[Figures 7 and 8 approx. here]

Figure 7 (8) shows the share of male and female advisors who choose the phrase referring to competition preference, confidence, and/or risk of earnings for the recommended payment scheme ‘piece rate’ (‘tournament’). The sample includes the GB and GM data sets and the shares are shown separately for the advisor’s gender (male or female) as well as the advisee’s gender (revelation) (gender blind, male, female). Note first that independently of the
recommended payment scheme, advisors almost always mention risk of earnings to underline their advice (between 73% and 100%). That is, advisors refer with similar frequencies to risk and earnings in a positive sense than in a negative one. Overall, advisors provide more reasons if they recommend the competitive payment scheme ‘tournament’ compared to the non-competitive payment scheme ‘piece rate’. This is mainly driven by underlining more often the preference for competition (p < 0.057 for each gender matching of advisor and advisee) and encouraging more often self-confidence (p = 0.160 for male advisors matched with male advisees, p = 0.365 for male advisors in gender blind; p < 0.006 for all other matches). In other words, advisors refer more to the preference for competition and self-confidence in a positive sense than in a negative sense.

Result 5: Advisors underline more often the preference for competition and self-confidence in a positive sense (when giving the advice ‘tournament’) than in a negative sense (when giving the advice ‘piece rate’).

To investigate gender differences in the use of reasons we use regression analysis. Since advisors choose among the three reasons simultaneously we run Seemingly Unrelated Regression models for all three reasons and separately for the advice ‘piece rate’ (SUR 2 and SUR 3 in Table 7) and ‘tournament’ (SUR 4 and SUR 5 in Table 7). Logit and probit regressions with seemingly unrelated estimation lead to similar results. The dependent variable Reason takes the value 1 if chosen by the advisor and 0 otherwise. Reason refers to Preference for competition, Self-confidence, and Risk of earnings in regression models (a), (b), and (c), respectively. The explanatory variables are the same as in Table 5 (see description above) and SUR 2 and 4 include in addition the variable Advisor’s entry task 3, which takes the value 1 if the advisor choses the tournament herself and 0 otherwise. The sample is advisors, who advise ‘piece rate’ (‘tournament’) for SUR 2 and 3 (SUR 4 and 5) and from the GM data set only because we are interested in the effect of gender matching. In SUR 2 and 3, the advisors refer to competition, self-confidence, and in a discouraging way and in SUR 4 and 5 in an encouraging way. For the GB data, the same regression models (without the variable Female advisee and without the interaction term) are presented in Table C1 in the Appendix and confirm similar patterns.

[Table 7 approx. here]
Interestingly, there are no gender differences for the reason referring to Preference for competition, models (1a), (2a), (3a), and (4a). However, when recommending the non-competitive payment scheme ‘piece rate’, we find three interesting gender results: First, women are less likely than men to discourage (male) advisees’ self-confidence. The effect size is with 21 percentage points substantial, see model (1b). Second, men are more reluctant to discourage a female advisee than a male advisee to be self-confident about her performance, models (1b) and (2b). The effect size is even more striking and significant at the 1% level. Compared to a male advisee, men are 36 - 40 percentage points less likely to mention to a female advisee that she should not be confident that she would succeed. Third, women do not differentiate between male and female advisees and discourage self-confidence equally: the coefficient estimate for the interaction term Female advisor * Female advisee has about the same size as the coefficient estimate of the variable Female advisee. The effects are particularly strong for the weak relative performance interval.⁴ A similar pattern is observed for Risk of earnings after the advice ‘tournament’ (models (3c) and (4c) in Table 7).

The advisor’s own tournament entry is a strong predictor of her likelihood to discourage a weakly performing advisee’s confidence: Men and women who enter the tournament are more likely to discourage confidence after the advice ‘piece rate’ and explain to a large extend the gender differences in discouragement (model (2b) in Table 7). Put differently, women who entered the competition themselves are not less likely than men to discourage the advisee’s confidence. Just like for the piece of advice given, men and women who enter the competition do not differ substantially.

An indication that advisors take advice giving seriously is that the variable Info task 2 is negative and significant for the reason Self-confidence under advice ‘piece rate’, which is strongly related to ability. Furthermore, the variable Info task 2 is positive and significant for the reason Risk of earnings under advice ‘tournament’, which underlines the possibility of higher earnings with the competition. These findings parallel the result from Table 5.¹⁵

Since advisors vary considerably in the discouragement of advisees’ self-confidence, it would be interesting to know if it affects advisees’ self-confidence. We use the advisees’ guessed task 2 rank as an inverse measure of self-confidence. Overall, the discouragement of

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⁴ Regression results not reported, available upon request.
¹⁵ In Table A1 in the Appendix, we show the selection of reasons with our data from Brandts et al. (2015) where gender of advisor and advisee was not revealed. The SUR regressions are the same as in Table 4 except that the variable Female advisee and the interaction term between Female advisor and Female advisee are not included since the paired advisee’s gender is not revealed. Regression (1b) in Table A1 confirms that women are significantly less likely to mention self-confidence when recommending the piece rate and regression (2b) confirms that advisors who enter themselves the competition are more likely to discourage the advisee’s confidence.
confidence combined with the advice ‘piece rate’ has no effect on self-confidence: The average guessed rank of advisees who receive the advice ‘piece rate’ in the GM data is 2.1 if the advisor does not discourage confidence and 2.3 if she does (p = 0.278). A small exception is male advisors who discourage confidence. They seem to lower confidence among male and female advisees slightly (p = 0.075) and in particular among female advisees (p = 0.106) compared to male advisors who do not discourage confidence. We do not want to oversell these results though because it is difficult to pinpoint causality (the displayed reasons are endogenously chose by advisors) and we would need more data to draw reliable conclusions.

**Result 6:** Men are more reluctant to discourage women’s than men’s confidence in their success, but in general advisors who enter the tournament themselves are more likely to discourage the advisee’s confidence. Advisees’ reaction to the discouragement is however not strongly pronounced.

Strong-performing women update their beliefs about their relative performance in a positive way (see section 3.2) and low- to medium-performing individuals do not update their self-assessment. This finding is (partially) in line with the results in Mobius et al. (2014) who show theoretically and experimentally that individuals over-weight positive feedback relative to negative feedback and update self-confidence after receiving feedback about their performance too little. Interestingly, men’s advice following of the advice ‘piece rate’ and ‘tournament’ is somewhat weaker when gender is revealed compared to gender-blind advice. The revelation of gender and gender matching seem to be important factors in the advice process both on the giver’s and the receiver’s side. With face-to-face or free-form communication, gender could potentially have a stronger or different effect on advice giving and advice following.

4. **SUMMARY AND CONCLUSIONS**

In this paper we focused on two issues. The first is the impact of advice with gender pairing. The second is how the advice process is affected by gender pairing.

With respect to the first issue our results show that the impact of advice on the gender gap in entry into competition is robust to information about advisors’ and advisees’ gender. We find that advice causes an overall improvement in efficiency in the sense of foregone earnings, but that the overall gender gap persists due to the emergence of a gender gap among
intermediate performers. In particular strong-performing women are encouraged to enter the competition more often with advice and also become more confident.

With respect to the advice process we find a gender gap in advice giving among the medium relative performance interval. Women are less likely to recommend ‘tournament’ here and the gap is independent of the advisee’s gender. While Sutter et al. (2009) and Brandts and Garofalo (2012) find gender parining effects in the context of bargaining and accountability, respectively, we find gender differences but no gender pairing effects in the context of advice on competitiveness. In our context, the advisor’s and advisee’s objectives are aligned and they are ‘partners’ rather than ‘opponents.’ For the correctness of advice our results show that, in the medium relative performance interval, women’s advice is less often correct, in the sense of maximizing the advisee’s expected earnings. Men and women do not react differently to advice depending on the advisor’s gender, but there is a gender gap among advisees in the low and medium relative performance intervals because men follow less the advice ‘piece rate’.

Overall, we find no gender difference in reason giving, but after recommending ‘piece rate’, men choose less often discouragement of confidence for female advisees than for male advisees. Men and women who enter the tournament are more likely to discourage confidence after the advice ‘piece rate’. We find no effect of reasons (in particular, discouragement of confidence after ‘piece rate’ advice) on self-confidence.

In conclusion in our context, advice from women and men seems to work more or less equally well for (high-performing) women. Blau et al (2010) show that mentoring programs can be effective by increase young women’s performance and career success. The results from our lab experiment provide further evidence and suggest that it does not matter whether promising female juniors receive advice from a male or female senior. This is particularly important for the design of mentoring programs for women in practice (Noe, 1988) because female leaders are scarcer than male leaders in organizations.

However, it is possible that with more contact between partners, as with face-to-face communication, gender would have a stronger or different effect on advice giving and advice following. Women’s reluctance to advising tournament entry in the medium relative performance interval and men’s reluctance to discouraging women’s compared to men’s self-confidence give some indication that this could indeed be the case.

For medium/intermediate-performing advisees, we find particularly interesting results; women on both sides of the advice process show more reluctance to tournament entry: Female advisor are more reluctant to recommending the competition than male advisors and a gender
gap in tournament entry emerges among advisees in the intermediate group. In situations in which very good (though not top) performers are important for an organization, the design of mentoring programs for this particular group might require special attention.
REFERENCES


FIGURES

Figure 1: Average forgone earnings with and without advice (by gender and advisor’s gender, sample is the GM data set).

Figure 2: Proportion of men and women who enter the competition for a given performance group (task 2 performance, by advisor’s and advisee’s gender; sample is the GM data).

Figure 3: Guessed rank relative to actual rank (task 2 performance, by advisor’s and advisee’s gender; sample is the GM data).
Figure 4: Proportion of male and female advisors recommending ‘tournament’ entry (by advisee’s task 2 performance info relative to the performance in the advisor’s group, advisor’s and advisee’s gender; sample includes the GB and GM data).

Figure 5: Correctness of advisor’s piece of advice (in per cent). Advice ‘piece rate’ (‘tournament’) is considered correct if advisee’s task 2 performance info is less (more) than 11 (10) correct answers, otherwise wrong (by advisee’s task 2 performance info relative to the performance in the advisor’s group, advisor’s and advisee’s gender; sample includes the GB and GM data).

Figure 6: Proportion of male and female advisees who choose the tournament in task 3 (by advisee’s task 2 performance info relative to the performance in the advisor’s group, advisor’s and advisee’s gender; sample is the GM data).
Figure 7: Advisor’s reasons for the advice ‘piece rate’ (by advisor’s and advisee’s gender; sample is the GB and GM data sets).

Figure 8: Advisor’s reasons for the advice ‘tournament’ (by advisor’s and advisee’s gender; sample is the GB and GM data sets).
**TABLES**

<table>
<thead>
<tr>
<th>Advisors</th>
<th>Advisees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task 1: Five-minute addition task - Piece rate (€ 0.5)</td>
<td>Task 1: Five-minute addition task - Piece rate (€ 0.5)</td>
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<tr>
<td>Task 2: Five-minute addition task - Tournament (€ 2, winner takes all)</td>
<td>Task 2: Five-minute addition task - Tournament (€ 2, winner takes all)</td>
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<tr>
<td>Task 3: Five-minute addition task - Selection of compensation scheme</td>
<td></td>
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<tr>
<td>Task 4: Selection of compensation scheme task 1</td>
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</tr>
<tr>
<td>Self-evaluation, task 1 and 2 (€ 1 per correct guess)</td>
<td>Performance feedback, own group</td>
</tr>
<tr>
<td><strong>One advisor randomly matched with one advisee (gender (not) revealed)</strong></td>
<td>Send own performance info</td>
</tr>
<tr>
<td>Receive advisee’s performance info</td>
<td>Receive advice</td>
</tr>
<tr>
<td>Give advice (50% of the advisee’s task 3 earnings)</td>
<td>Receive up to three reasons (preference for competition, confidence, risk of earnings)</td>
</tr>
<tr>
<td>Choose up to three reasons (preference for competition, confidence, risk of earnings)</td>
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</tr>
<tr>
<td><strong>Task 3: Five-minute addition task - Selection of compensation scheme</strong></td>
<td></td>
</tr>
<tr>
<td>Task 4: Selection of compensation scheme task 1</td>
<td></td>
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<tr>
<td>Self-evaluation, task 1 and 2 (€ 1 per correct guess)</td>
<td></td>
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<tr>
<td>Performance feedback, own group</td>
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</tbody>
</table>

**Table 1**: Timeline of Tasks and Compensation Scheme in the Experiment.

<table>
<thead>
<tr>
<th>Data sets</th>
<th>Session type</th>
<th>Characteristics</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender matching (GM)</td>
<td>Same gender</td>
<td>Women (men) give advice to a woman (man), random pairing of advisor and advisee within gender</td>
<td>100 advisors, 100 advisees</td>
</tr>
<tr>
<td></td>
<td>Opposite gender</td>
<td>Women (men) give advice to a man (woman), random pairing of advisor and advisee across gender</td>
<td>112 advisors, 112 advisees</td>
</tr>
<tr>
<td>Gender blind (GB)</td>
<td>No gender</td>
<td>Gender of paired advisor/advisee not revealed, random pairing of advisor and advisee</td>
<td>112 advisors, 112 advisees</td>
</tr>
</tbody>
</table>

**Table 2**: Overview of the data we use.
**Table 3:** Tournament Entry Rates of Men and Women (sample is the GM data set).

<table>
<thead>
<tr>
<th></th>
<th>Without advice</th>
<th>With advice</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male advisor</td>
<td>Female advisor</td>
</tr>
<tr>
<td><strong>Men</strong></td>
<td>54.7% (58 of 106)</td>
<td>64.0% (32 of 50)</td>
</tr>
<tr>
<td><strong>Women</strong></td>
<td>36.8% (39 of 106)</td>
<td>41.1% (23 of 56)</td>
</tr>
<tr>
<td><strong>p-value</strong></td>
<td>0.013</td>
<td>0.021</td>
</tr>
<tr>
<td><em>(Fisher’s exact test)</em></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 4:** Probability of Winning Given a Certain Performance Level in Task 2 (sample is the GM data set).

<table>
<thead>
<tr>
<th>Task 2 performance</th>
<th>&lt;5</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>&gt;13</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Men (in %)</strong></td>
<td>&lt;0.1</td>
<td>0.1</td>
<td>0.4</td>
<td>1.8</td>
<td>5.9</td>
<td>13.3</td>
<td><strong>23.6</strong></td>
<td>34.7</td>
<td>45.6</td>
<td>57.2</td>
<td>&gt;68.7</td>
</tr>
<tr>
<td><strong>Women (in %)</strong></td>
<td>&lt;0.1</td>
<td>0.1</td>
<td>0.6</td>
<td>2.4</td>
<td>6.4</td>
<td>13.2</td>
<td><strong>22.1</strong></td>
<td>32.7</td>
<td>42.4</td>
<td>52.0</td>
<td>&gt;63.0</td>
</tr>
<tr>
<td><strong>Performance group</strong></td>
<td>Weak (26%)</td>
<td>Intermediate (52%)</td>
<td>Strong (22%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Most likely (=optimal guessed) rank</strong></td>
<td>4 (worst)</td>
<td>3 or 2</td>
<td>1 (best)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note.** With 10 correct answers (in bold), expected earnings for the tournament are similar to those for the piece rate.
### Table 5: OLS Regressions of Advice Giving by Advisors and Correctness of Advice (sample is the GB and GM data sets).

<table>
<thead>
<tr>
<th></th>
<th>Info task 2 &lt; 2nd best</th>
<th>2nd best ≤ Info task 2 &lt; 1st best</th>
<th>1st best ≤ Info task 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent variable:</strong> Advice 'tournament'</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female advisor</td>
<td>-0.011</td>
<td>-0.345***</td>
<td>-0.373*</td>
</tr>
<tr>
<td></td>
<td>(0.041)</td>
<td>(0.109)</td>
<td>(0.191)</td>
</tr>
<tr>
<td>Female advisee</td>
<td>-0.011</td>
<td>-0.025</td>
<td>-0.042</td>
</tr>
<tr>
<td></td>
<td>(0.065)</td>
<td>(0.204)</td>
<td>(0.195)</td>
</tr>
<tr>
<td>Female advisor * Female advisee</td>
<td>0.091</td>
<td>0.225</td>
<td>0.217</td>
</tr>
<tr>
<td></td>
<td>(0.091)</td>
<td>(0.290)</td>
<td>(0.284)</td>
</tr>
<tr>
<td>Advisor’s entry task 3</td>
<td>0.076</td>
<td>0.135</td>
<td>0.244</td>
</tr>
<tr>
<td></td>
<td>(0.048)</td>
<td>(0.113)</td>
<td>(0.151)</td>
</tr>
<tr>
<td><strong>R-squared</strong></td>
<td>0.060</td>
<td>0.213</td>
<td>0.021</td>
</tr>
<tr>
<td><strong>Dependent variable:</strong> Correct advice</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female advisor</td>
<td>0.044</td>
<td>-0.248**</td>
<td>-0.427*</td>
</tr>
<tr>
<td></td>
<td>(0.042)</td>
<td>(0.116)</td>
<td>(0.229)</td>
</tr>
<tr>
<td>Female advisee</td>
<td>0.047</td>
<td>-0.222</td>
<td>-0.217</td>
</tr>
<tr>
<td></td>
<td>(0.070)</td>
<td>(0.237)</td>
<td>(0.240)</td>
</tr>
<tr>
<td>Female advisor * Female advisee</td>
<td>-0.082</td>
<td>0.488</td>
<td>0.398**</td>
</tr>
<tr>
<td></td>
<td>(0.105)</td>
<td>(0.331)</td>
<td>(0.336)</td>
</tr>
<tr>
<td>Advisor’s entry task 3</td>
<td>-0.019</td>
<td>-0.065</td>
<td>0.035</td>
</tr>
<tr>
<td></td>
<td>(0.051)</td>
<td>(0.122)</td>
<td>(0.081)</td>
</tr>
<tr>
<td><strong>R-squared</strong></td>
<td>0.212</td>
<td>0.122</td>
<td>0.299</td>
</tr>
</tbody>
</table>

**Notes.** *** p<0.01, ** p<0.05, * p<0.1. OLS regressions with robust standard errors in parentheses. Constant omitted. For the ease of result interpretation, OLS regression results are displayed. Logit and probit regressions lead to similar results. The dependent variable Advice “tournament” takes the value 1 for tournament and 0 for piece rate. The dependent variable Correct advice takes the value 1 for advice ‘piece rate’ (‘tournament’) if Info task 2 < 11 (> 10) and 0 otherwise. The sample is advisors of the GM and GB data sets in models (1), (2), (5), (6), (9), and (10) as well and the GM data in models (3), (4), (7), (8), (11), and (12).
Advisees’ tournament entry rates

Table 6: Tournament Entry Rates of Advisees (sample is the GM data set).

Note. Bold men–women value pairs are statistically significantly different.
* p < 0.1; * p < 0.05; *** p < 0.01 (two-sided Fisher’s exact test for entry rates).
<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Advice 'piece rate'</th>
<th>Advice 'tournament'</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SUR 1</td>
<td>SUR 2</td>
</tr>
<tr>
<td></td>
<td>(1a)</td>
<td>(1b)</td>
</tr>
<tr>
<td>Female advisor</td>
<td>0.019 (0.070)</td>
<td>-0.211* (0.123)</td>
</tr>
<tr>
<td>Female advisee</td>
<td>-0.002 (0.073)</td>
<td>-0.361*** (0.128)</td>
</tr>
<tr>
<td>Female advisor *</td>
<td>0.046 (0.101)</td>
<td>0.352** (0.178)</td>
</tr>
<tr>
<td>Advisor's entry task 3</td>
<td>(0.010)</td>
<td>(0.017)</td>
</tr>
<tr>
<td>Info task 2</td>
<td>0.003 (0.010)</td>
<td>-0.045*** (0.017)</td>
</tr>
<tr>
<td>Info task 2 - task 1</td>
<td>0.000 (0.012)</td>
<td>0.024 (0.021)</td>
</tr>
<tr>
<td>1st best performance task 2</td>
<td>(0.007)</td>
<td>(0.013)</td>
</tr>
<tr>
<td>2nd best performance task 2</td>
<td>-0.010 (0.012)</td>
<td>0.012 (0.022)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.086 (0.139)</td>
<td>0.979*** (0.246)</td>
</tr>
<tr>
<td>Observations</td>
<td>117</td>
<td>117</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.012</td>
<td>0.125</td>
</tr>
</tbody>
</table>

Notes. *** p<0.01, ** p<0.05, * p<0.1. Seemingly Unrelated Regressions (SUR) with standard errors in parentheses. For the ease of result interpretation, SURE results are displayed. Logit and probit regressions with seemingly unrelated estimation lead to similar results. The dependent variable Reason takes the value 1 if chosen by the advisor and 0 otherwise. Reason refers to Preference for competition, Self-confidence, and Risk of earnings in regressions (a), (b), and (c), respectively. Controls are Info task 2, Info task 2 - task 1, 1st best performance task 2, and 2nd best performance task 2. The sample is the GM data set and advice "piece rate" for SUR 1 and 2, and the GM data and advice "tournament" for SUR 3 and 4.

Table 7: SUR Regressions of Reasons Given by Advisor (sample is the GM data set).
APPENDIX

APPENDIX A. PERFORMANCE DISTRIBUTION

![Figure A1: Women's and men's performance in tasks 1 and 2 (sample is the GM data set).](image)

APPENDIX B. FORGONE EARNINGS

Figure A2 displays the average forgone earnings of participants who do not receive advice (i.e. the advisors in our experiment), participants who receive advice from a male advisor, and participants who receive advice from a female advisor. We define the forgone earnings as the difference between expected earnings under the payment scheme the participant does not choose and expected earnings under the one she chooses if a participant chooses the (for her) inferior payment scheme.\(^{16}\) Otherwise, forgone earnings are considered to be equal to zero. Forgone earnings are comparable to the difference between the opportunity cost and the actual earnings of a decision and are therefore a measure of efficiency gains in economic terms.\(^{17}\)

Without advice, men’s average forgone earnings are 1.37 and women’s average forgone earnings 1.89. Forgone earnings are not significantly different across gender (p = 0.141, two-sided Mann-Whitney U test). With advice men’s forgone earnings increase albeit not in a significant way: they are 1.41 if men receive advice from another man and 1.76 if

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\(^{16}\) Participants who solve ten problems correctly are considered to maximize their expected earnings independent of the payment scheme they choose. With ten correct answers, the probability of winning is almost 25%, thus the expected earnings under both payment schemes are almost the same.

\(^{17}\) The size of forgone earnings depends crucially on the parameters chosen. We therefore do not consider this to be an absolute, but rather a comparative measure of efficiency gains across different cases.
they receive advice from a woman. For women, the picture looks different. Women’s average forgone earnings go down with advice: they are 1.17 if they receive advice from a man and 0.85 if they receive advice from another woman.

Comparing forgone earnings with and without advice, we find a significant reduction in forgone earnings for women independent of the advisor’s gender, but no significant change in forgone earnings for men (p > 0.347, one-sided Mann-Whitney U test). Compared to a situation without advice, women’s forgone earnings are reduced by 38% with advice from a man (p = 0.033, one-sided Mann-Whitney U test) and by 55% with advice from a woman (p = 0.005, one-sided Mann-Whitney U test). There is a significant efficiency improvement in entry decisions among women, but not among men.18

**APPENDIX C. REASON GIVING**

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18 Note that, without advice, expected forgone earnings are particularly high among high-performers who do not enter the tournament (the typical female “mistake”) whereas they are lower among low-performers who enter the tournament (the typical male “mistake); see Niederle and Vesterlund (2007).
### Table C1: SUR Regressions of Reasons Given by Advisors (sample is the GB data set)

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Advice 'piece rate'</th>
<th>Advice 'tournament'</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SUR 1</td>
<td>SUR 2</td>
</tr>
<tr>
<td></td>
<td>(1a) (1b) (1c)</td>
<td>(2a) (2b) (2c)</td>
</tr>
<tr>
<td>Female advisor</td>
<td>0.045 -0.209* 0.066</td>
<td>0.040 -0.151 -0.102</td>
</tr>
<tr>
<td></td>
<td>(0.052) (0.109) (0.083)</td>
<td>(0.053) (0.109) (0.084)</td>
</tr>
<tr>
<td>Advisor's entry task 3</td>
<td>-0.021 0.249** -0.153*</td>
<td>(0.056) (0.114) (0.088)</td>
</tr>
<tr>
<td></td>
<td>(0.011) (0.024) (0.018)</td>
<td>(0.011) (0.023) (0.018)</td>
</tr>
<tr>
<td>Info task 2</td>
<td>0.001 0.001 0.010</td>
<td>0.001 0.003 0.009</td>
</tr>
<tr>
<td></td>
<td>(0.011) (0.024) (0.018)</td>
<td>(0.011) (0.023) (0.018)</td>
</tr>
<tr>
<td>Info task 2 - task 1</td>
<td>-0.008 -0.038 -0.042**</td>
<td>-0.007 -0.049* -0.035*</td>
</tr>
<tr>
<td></td>
<td>(0.013) (0.027) (0.020)</td>
<td>(0.013) (0.026) (0.020)</td>
</tr>
<tr>
<td>1st best performance</td>
<td>0.006 -0.008 -0.018</td>
<td>0.006 -0.014 -0.014</td>
</tr>
<tr>
<td>task 2</td>
<td>(0.008) (0.018) (0.014)</td>
<td>(0.009) (0.018) (0.014)</td>
</tr>
<tr>
<td>2nd best performance</td>
<td>-0.001 0.061** 0.045**</td>
<td>-0.001 0.060** 0.046**</td>
</tr>
<tr>
<td>task 2</td>
<td>(0.014) (0.029) (0.022)</td>
<td>(0.014) (0.028) (0.022)</td>
</tr>
<tr>
<td>Constant</td>
<td>-0.029 0.234 0.654***</td>
<td>-0.026 0.198 0.677***</td>
</tr>
<tr>
<td></td>
<td>(0.151) (0.318) (0.243)</td>
<td>(0.151) (0.309) (0.239)</td>
</tr>
</tbody>
</table>

Observations: 76 76 76 76 36 36 36 36 36
R-squared: 0.024 0.126 0.113 0.025 0.178 0.147 0.102 0.026 0.313 0.157 0.030 0.412

Notes. *** p<0.01, ** p<0.05, * p<0.1. Seemingly Unrelated Regressions (SUR) with standard errors in parentheses. For the ease of result interpretation, SUR E results are displayed. Logit and probit regressions with seemingly unrelated estimation lead to similar results. The dependent variable Reason takes the value 1 if chosen by the advisor and 0 otherwise. Reason refers to Preference for competition, Self-confidence, and Risk of earnings in regressions (a), (b), and (c), respectively. The sample is the GB data set and advice "piece rate" for SUR 1 and 2, and the GB data set and advice "tournament" for SUR 3 and 4.
APPENDIX D. INSTRUCTIONS

Appendix D.1 Instructions in English

General Instructions

Only Advisors:

In the experiment today you will be asked to complete six different tasks. The method we use to determine your earnings varies across tasks. Before each task, we will describe in detail how your payment of that task is determined. Your total earnings at the end of the experiment is the sum of the following components: (1) A €5 show up fee; (2) €4 for completing Tasks 1-4; (3) In addition, for Tasks 1-4, we will randomly select one of the four tasks and pay you based on your performance in that task; (4) You will be paid for Tasks 5 and 6. Once you have completed all tasks we determine which of the first four tasks counts for payment by drawing a number between 1 and 4. At the end of the experiment, we ask you to stay seated. We will come to you and pay you in private. During the duration of the experiment the use of cell phones is prohibited.

Only Advisees:

The experiment today will begin with a waiting period of approximately 15 minutes. After these 15 minutes we will instruct you about the next steps. We are asking you to spend the waiting period silently at your assigned seats, without talking to each other or on the phone. You may read or engage in any other quiet activity as you wish. At the end of the experiment you will be paid €2 for having waited quietly.

In the experiment today you will be asked to complete five different tasks. The method we use to determine your earnings varies across tasks. Before each task we will describe in detail how your payment of that task is determined. Your total earnings at the end of the experiment is the sum of the following components: (1) A €5 show up fee; (2) €2 for the waiting period; (3) €4 for completing Tasks 1-4; (4) In addition, for Tasks 1-4, we will randomly select one of the four tasks and pay you based on your performance in that task; (4) you will be paid for Task 5. Once you have completed all tasks we determine which of the first four tasks counts for payment by drawing a number between 1 and 4. At the end of the experiment, we ask you to stay seated. We will come to you and pay you in private. During the duration of the experiment the use of cell phones is prohibited.

Advisors and Advisees:

It is important that you do not talk with one another for the duration of the experiment. We also ask you that you do not look at the screens of the other participants. You can ask us at any point in time. If you have a question, please raise your hand and one of the experimenters will come to you.

Task 1 – Piece rate

In Task 1 you have to calculate a series of sums of five two-digit numbers (see "Screenshot Task 1"). You will be given 5 minutes to calculate the correct sum of a series of these
problems. You cannot use a calculator to determine this sum. However, you are welcome to write the numbers down and make use of the provided scratch paper. You submit an answer by clicking the button "Next" with your mouse. When you submit an answer, the computer will immediately tell you whether the answer is correct or not and a new problem is generated. Your answers to the problems are anonymous.

If Task 1 is the one randomly selected for payment, then you earn 50 cents per problem you solve correctly in the 5 minutes. Your payment does not decrease if you provide an incorrect answer to a problem. We will refer to this payment scheme as the piece rate payment.

Are there any questions?

Control question

To ensure you correctly understood, how the payment for Task 1 is calculated, please answer the following question. Note that the numbers used in the question are not indicative of what constitutes a good performance in this task. After clicking the "Continue" button, the task will begin immediately.

Suppose you have solved 2 problems correctly and 3 problems incorrectly, what is your payment for Task 1 if it is chosen for payment?

**Task 2 – Tournament**

As in Task 1 you will be given 5 minutes to calculate the correct sum of a series of five 2-digit numbers. However, for this task your payment depends on your performance relative to that of a group of other participants. Each group consists of four people; the three other members of your group are located in the same row as you. If Task 2 is the one randomly selected for payment, then your earnings depend on the number of problems you solve compared to the three other people in your group. The individual who correctly solves the largest number of problems will receive €2.00 per correct problem, while the other participants receive no payment. If there are ties the winner will be randomly determined. We refer to this payment scheme as the tournament payment. You will not be informed of how
you did in the tournament until you have completed all five tasks.

Are there any questions?

Control question

To ensure you correctly understood, how the payment for Task 2 is calculated, please answer the following question. Note that the numbers used in the question are not indicative of what constitutes a good performance in this task. After clicking the “Continue” button, the task will begin immediately.

Suppose you have solved 2 problems correctly and 3 problems incorrectly, and that everybody else in your group solved 1 problem correctly. What is your payment for Task 2 if it is chosen for payment?

Suppose you have solved 2 problems correctly and 3 problems incorrectly, and that one person in your group solved 3 problems correctly. What is your payment for Task 2 if it is chosen for payment?

Task 3 – Choice

As in the previous two tasks you will be given 5 minutes to calculate the correct sum of a series of five two-digit numbers. However, now you have to choose which of the two payment schemes, piece rate or tournament, you prefer to apply to your performance in the third task.

If Task 3 is the one randomly selected for payment, then your earnings for this task are determined as follows. If you choose the piece rate you receive 50 Cents per problem you solve correctly. If you choose the tournament your performance will be evaluated relative to the performance of the other three participants of your group in the Task 2-tournament. The Task 2-tournament is the one you just completed. If you correctly solve more problems than the other three members of your group in Task 2, then you receive €2.00 for each correct sum, which is four times the amount from the piece rate. You will receive no earnings for this task if you choose the tournament and do not solve more problems correctly now, than the other three members of your group in the Task 2-tournament. If there are ties the winner will be randomly determined. You will not be informed of how you did in the tournament until all five tasks have been completed.

Only Advisors:

The computer screen following the control question will ask you to choose whether you want the piece rate or the tournament applied to your performance. You will then be given 5 minutes to calculate the correct sum of a series of five randomly chosen two-digit numbers.

Only Advisees:

(a) Advice

Before deciding on a payment scheme, you will receive some advice as to which one to choose. Your advisor is a person from the group next door who has already completed Tasks 1-4 and who knows how the members of his own group performed in Tasks 1 and 2. Each member of your group will be randomly assigned a different advisor. First, you are asked to send your advisor information on the number of problems you solved correctly in Tasks 1 and
2. Your advisor will then tell you whether he or she thinks you should enter the tournament and probably also give you a reason for his/her advice.

The next computer screen will ask you to enter the numbers of correct problems you solved in Tasks 1 and 2. You will then have to wait for a moment to receive a message from your advisor.

(b) Entry decision

The computer screen that informs you about the advice you received will ask you to choose whether you want the piece rate or the tournament applied to your performance. You will then be given 5 minutes to calculate the correct sum of a series of five randomly chosen two-digit numbers.

Advisors and Advisees:

Are there any questions?

Control question

To ensure you correctly understood, how the payment for Task 2 is calculated, please answer the following question. Note that the numbers used in the question are not indicative of what constitutes a good performance in this task.

Suppose you have chosen the piece rate and that you solved 3 problems correctly and 1 problem incorrectly. What is your payment for Task 3 if it is chosen for payment?

Suppose you have chosen the tournament. Suppose further that you solved 2 problems correctly and 3 problems incorrectly, and that everybody else in your group solved 1 problem correctly in Task 2. What is your payment for Task 3 if it is chosen for payment?

Suppose you have chosen the tournament. Suppose further that you solved 2 problems correctly and 3 problems incorrectly, and that another person in your group solved 3 problems correctly in Task 2. What is your payment for Task 3 if it is chosen for payment?

Task 4 – Payment scheme for Task 1

You do not have to add any numbers for the fourth task of the experiment. Instead we will pay you again for the number of problems you solved in Task 1 – Piece Rate. However, you now have to choose which payment scheme you want applied to the number of problems you solved. You can either choose being paid according to the piece rate, or according to the tournament.

If the fourth task is the one selected for payment, then your earnings for this task are determined as follows. If you choose the piece rate you receive 50 Cents per problem you solved in Task 1.

If you choose the tournament your performance will be evaluated relative to the performance of the other three members of your group in the Task 1-piece rate. If you correctly solved more problems in Task 1 than the other three members of your group did then you receive four times the earnings of the piece rate, which is €2.00 per correct problem. You will receive no earnings for this task if you choose the tournament and did not solve more problems correctly in Task 1 than the other members of your group. If there are ties the winner is
determined randomly.

The next computer screen will tell you how many problems you correctly solved in Task 1, and will ask you to choose whether you would like to apply the piece rate or the tournament rate to your performance.

Are there any questions?

Control question

To ensure you correctly understood, how the payment for Task 4 is calculated, please answer the following questions. Note that the numbers used in the questions are not indicative of what constitutes a good performance in this task.

Suppose you have chosen the piece rate. Suppose further that you have solved 2 problems correctly and 3 problems incorrectly in Task 1. What is your payment for Task 4 if it is chosen for payment?

Suppose you have chosen the tournament. Suppose further that you have solved 2 problems correctly and 3 problems incorrectly in Task 1, and everybody else in your group solved 1 problem correctly in Task 1. What is your payment for Task 4 if it is chosen for payment?

Suppose you have chosen the tournament. Suppose further that you solved 2 problems correctly and 3 problems incorrectly, and that another person in your group solved 4 problems correctly in Task 2. What is your payment for Task 4 if it is chosen for payment?

Task 5 – Self-evaluation

In this task you are asked to guess your ranks of your performances in Tasks 1 and 2. Since there are four members in your group your rank may be between 1 and 4, with 1 being your rank if you (correctly) solved the largest number of problems in your group and 4 being your rank if you solved the lowest number.

For each correct guess you will receive €1. If your guess is not correct, you will receive no earnings for this guess. In case of ties in the actual ranks, we count every answer that could be correct as correct. For example, if the performance in the group was 5, 5, 4, 4, then an answer of “last position” and “third position” is correct for somebody who solved 4 problems correctly, and an answer of “first position” and “second position” is correct for somebody who solved 5 problems correctly. Note that the numbers used in this example are not indicative of actual performances in Tasks 1 and 2.

Are there any questions?

Control question

To ensure you correctly understood, how the payment for Task 5 is calculated, please answer the following questions. Note that the numbers used in the questions are not indicative of what constitutes a good performance in this task.

Suppose that in Task 1 you solved 3 problems correctly and the other members of your group solved, respectively, 1, 2, and 3 problems. Suppose further that you estimated your rank to be “second position”. What is your payment for this estimate?
Only Advisors:

Task 6 – Advice

In the room next to us there are other groups who also complete Tasks 1-4 (the same ones you just completed). At this point they have completed Tasks 1 and 2, but have not yet started with Task 3, that is, their next task is to decide between the tournament and the piece-rate. You will be randomly matched to one of them, whom we will refer to as your “advisee”, and your task is to advice your advisee in his or her choice between tournament and piece rate. Before you give your advice, your advisee will send you information on the number of problems he or she solved correctly in Tasks 1 and 2.

The first step is that you send your advisee a message telling him or her whether you recommend entering the tournament. In a second step you may give a reason for the advice you choose. For this purpose we provide you with a list of reasons. You may select as many reasons as you wish (including none, in case you don’t wish to select any of the reasons provided).

As a payment for this task you will receive 50% of the Task 3 earnings of your advisee. This means that if your advisee chooses the piece rate you receive 25 Cents (50% of 50 Cents) per problem he/she solves correctly. If your advisee chooses the tournament and his/her performance is better than the Task 2 performance of his/her group members, you receive €1.00 (50% of €2.00) for each problem he/she solves correctly. Finally, if your advisee chooses the tournament and his/her performance is not better than the Task 2 performance of his/her group members, you will receive no earnings. Note that you will be paid even if your advisee does not receive a payment for Task 3 (because Task 3 was not the one randomly selected for payment).

Are there any questions?

Control question

To ensure you correctly understood, how the payment for Task 5 is calculated, please answer the following questions. Note that the numbers used in the questions are not indicative of what constitutes a good performance in this task.

Suppose your advisee has chosen the piece rate. Suppose further that your advisee solved 3 problems correctly and 3 problems incorrectly. What is your payment for Task 6?

Suppose your advisee has chosen the tournament. Suppose further that your advisee solved 2 problems correctly and 1 problem incorrectly, and everybody else in his/her group solved 1 problem correctly in Task 2. What is your payment for Task 6?

Suppose your advisee has chosen the tournament. Suppose further that your advisee solved 2 problems correctly and 3 problem incorrectly, and another person in his/her group solved 3 problems correctly in Task 2. What is your payment for Task 6?

Appendix E.2 Instructions in Spanish

Instrucciones
**Only Advisors:**

En el experimento de hoy, te pediremos que completes seis tareas diferentes. El método que usamos para determinar tus ingresos varía entre las tareas. Antes de cada tarea, describiremos en detalle cómo se determina la remuneración de esa tarea. El total de tus ingresos al final del experimento es la suma de los siguientes componentes: Recibirás (1) 5,00 Euro por participar en el experimento. (2) 4,00 Euro por completar las Tareas 1-4. (3) Adicionalmente, de las Tareas 1-4, escogeremos una de las cuatro tareas al azar y te pagaremos basado en tu resultado en esa tarea. (4) Te pagaremos por las Tareas 5 y 6. Una vez que hayas terminado todas las tareas, determinaremos cuál de las primeras cuatro tareas cuenta para la remuneración tirando un número entre 1 y 4. Después de que hayas terminado el experimento, te pedimos que te esperes en tu mesa, vendremos a tu mesa y te pagaremos tus ingresos en privado. Durante todo el experimento, el uso de los móviles está prohibido.

**Only Advisees:**

El experimento de hoy empezará con un periodo de espera de aproximadamente 15 minutos. Después de esos 15 minutos te daremos las instrucciones para los siguientes pasos. Te pedimos que esperes en silencio en el asiento que te ha sido asignado y que no hables con ninguno de los otros participantes o por el móvil. Si quieres puedes leer algo o hacer otra cosa en silencio. Al final del experimento, recibirás 2,00 Euro por haber esperado en silencio. En el experimento de hoy, te pediremos que completes cinco tareas diferentes. El método que usamos para determinar tus remuneraciones varía entre las tareas. Antes de cada tarea, describiremos en detalle cómo se determina la remuneración de esa tarea. El total de tus ingresos al final del experimento es la suma de los siguientes componentes: Recibirás (1) 5,00 Euro por participar en el experimento y (2) 2,00 Euro por esperar durante el periodo de espera. (3) 4,00 Euro por completar las Tareas 1-4. (4) Adicionalmente, de las Tareas 1-4, escogeremos una de las cuatro tareas al azar y te pagaremos basado en tu resultado en esa tarea. (5) Te pagaremos por la Tarea 5. Una vez que hayas terminado todas las tareas, determinaremos cuál de las primeras cuatro tareas cuenta para la remuneración tirando un número entre 1 y 4. Después de que hayas terminado el experimento, te pedimos que te esperes en tu mesa, vendremos a tu mesa y te pagaremos tus ingresos en privado. Durante todo el experimento, el uso de los móviles está prohibido.

**Advisors and Advisees:**

Es importante que no hables con ninguno de los otros participantes hasta que termine el experimento. Te pedimos que no mires las pantallas de los otros participantes. Puedes preguntarnos en cualquier momento. Si tienes una pregunta, levanta la mano y alguien de nosotros vendrá a tu mesa para responder a la pregunta.

Tarea 1 - Remuneración por unidad

En la Tarea 1, deberás calcular sumas de cinco números de dos cifras (véase Pantalla de la Tarea 1). Tendrás 5 minutos para calcular la suma correcta de una serie de este tipo de problemas. No puedes usar una calculadora para determinar la suma. Pero puedes anotar los números en los papeles de borrador y usar los papeles de borrador que te hemos entregado. Para mandar una respuesta pulsa el botón Siguiente con el ratón. Cuando mandes una respuesta el ordenador te comunicará inmediatamente si la respuesta es correcta o no y se creará una nueva secuencia de cinco números. Tus respuestas a los problemas son anónimas. Si la Tarea 1 es la que resulta seleccionada al azar para la remuneración, te pagaremos 0,50 Euro por cada problema que hayas resuelto correctamente en los 5 minutos. Tus ingresos no
disminuyen si das una respuesta incorrecta a un problema. Llamaríamos a este modo de remuneración, remuneración por unidad.

¿Hay alguna pregunta?

Test

Para asegurar que entiendes correctamente como se calcula la remuneración de la Tarea 1, te pedimos que respondas a la siguiente pregunta. Los números usados en la pregunta son simplemente a título ilustrativo y no indican un buen resultado en esta tarea. Después de pulsar "Continuar", la tarea empezará en seguido.

Supón que has resuelto 2 problemas correctamente y 3 problemas incorrectamente, ¿cuáles son tus ingresos para la Tarea 1 si es escogida para los ingresos?

Tarea 2 - Competición

Como en la Tarea 1, tendrás 5 minutos para calcular la suma correcta de una serie de cinco números de dos cifras escogidos al azar. Pero en esta tarea, tu remuneración depende de tu resultado en relación con el resultado de un grupo de otros participantes. Cada grupo está compuesto de cuatro personas; los otros tres miembros de tu grupo están en la misma fila que tú. Si la Tarea 2 es la que resulta seleccionada al azar, tus ingresos dependen del número de problemas que resuelves tú en comparación con los otros tres miembros del grupo. La persona que resuelva el número más grande de problemas correctamente recibirá 2,00 Euro por cada problema que haya resuelto correctamente, mientras los otros miembros del grupo no reciben remuneración. Si hay empate la persona que gane se determinará al azar. Calificamos a este modo de remuneración, remuneración por competición. No se te informará de cómo te haya ido la competición hasta que hayas terminado las cinco tareas.

¿Hay alguna pregunta?
Para asegurar que entiendes correctamente cómo se calcula la remuneración de la Tarea 2, te pedimos que respondas a las siguientes preguntas. Los números usados en la pregunta son simplemente a título ilustrativo y no indican un buen resultado en esta tarea. Después de pulsar "Continuar", la tarea empezará en seguido.

Supón que has resuelto 2 problemas correctamente y 3 problemas incorrectamente, y que todos los demás de tu grupo han resuelto 1 problema correctamente. ¿Cuáles son tus ingresos para la Tarea 2 si es escogida para determinar los ingresos?

Supón que has resuelto 2 problemas correctamente y 3 problemas incorrectamente, y que una persona de tu grupo ha resuelto 3 problemas correctamente. ¿Cuáles son tus ingresos para la Tarea 2 si es escogida para determinar los ingresos?

Tarea 3 - Selección del modo de remuneración

Como en las dos tareas anteriores, tendrás 5 minutos para calcular la suma correcta de una serie de cinco números de dos cifras escogidos al azar. Pero ahora debes escoger cual de los dos modos de pago, remuneración por unidad o remuneración por competición, prefieres aplicar a tu resultado en la tercera tarea.

Si la Tarea 3 es seleccionada para la remuneración, entonces tus ingresos para esta tarea se determinan como sigue. Si escoges la remuneración por unidad, recibes 0,50 Euro por cada problema que resuelves correctamente. Si escoges la remuneración por competición tu resultado será evaluado en relación con el resultado de los otros tres participantes de tu grupo de la competición en la Tarea 2. La competición en la Tarea 2 es la que acabas de completar. Si resuelves más problemas correctamente que los otros tres miembros de tu grupo en la Tarea 2, recibes 2,00 Euro por problema correcto que es cuatro veces la cantidad de la remuneración por unidad. No recibirás un ingreso para esta tarea si escoges la competición y no resuelves más problemas correctamente ahora que los otros miembros de tu grupo han resuelto en la competición en la Tarea 2. Si hay empates la persona que gana se determinará al azar. No se te informará de cómo has salido de la competición hasta que hayas terminado las cinco tareas.

Only Advisors:

La pantalla siguiente te pedirá escoger si quieres aplicar la remuneración por unidad o la remuneración por competición a tu resultado. Después, tendrás 5 minutos para calcular la suma correcta de una serie de cinco números de dos cifras escogidos al azar.

Only Advisees:

(a) Consejo

Antes de decidir sobre el modo de remuneración, recibirás consejo sobre qué modo de remuneración escoger. La persona que te dará consejo es una persona del grupo en el otro aula que ya ha terminado las Tareas 1-4 y que sabe cómo les fue a los otros miembros de su propio grupo en la Tarea 1 y 2. Cada miembro de tu grupo recibirá consejo de una persona distinta, asignada al azar. Primero, deberá mandarle a la persona que te aconseja la información sobre el número de problemas que hayas resuelto correctamente en las Tareas 1 y 2. Después, la persona que te aconseja te dirá si opina que deberías entrar en la competición y
probablemente también te dará una razón para su consejo.

La pantalla siguiente te pedirá introducir los números de problemas que hayas resuelto correctamente en las Tarea 1 y 2. Después, tendrás que esperar un momento para recibir el mensaje de la persona que te aconseja.

(b) Decisión sobre el modo de remuneración

La pantalla en la que aparece el consejo te pedirá escoger si quieres aplicar la remuneración por unidad o la remuneración por competición a tu resultado. Después, tendrás 5 minutos para calcular la suma correcta de una serie de cinco números de dos cifras escogidos al azar.

Advisors and Advisees:

¿Hay alguna pregunta?

Test

Para asegurar que entiendes correctamente como se calcula la remuneración de la Tarea 3, te pedimos que respondas a las siguientes preguntas. Los números usados en la pregunta son simplemente a título ilustrativo y no indican un buen resultado en esta tarea.

Supón que has seleccionado la remuneración por unidad y que has resuelto 3 problemas correctamente y 1 problema incorrectamente. ¿Cuáles son tus ingresos para la Tarea 3 si es escogida para los ingresos?

Supón que has seleccionado la remuneración por unidad y que has resuelto 2 problemas correctamente y 3 problemas incorrectamente, y que todos los demás de tu grupo han resuelto 1 problema en la Tarea 2 correctamente. ¿Cuáles son tus ingresos para la Tarea 3 si es escogida para determinar los ingresos?

Supón que has seleccionado la competición y que has resuelto 2 problemas correctamente y 3 problemas incorrectamente, y que una persona de tu grupo ha resuelto 3 problemas en la Tarea 2 correctamente.

¿Cuáles son tus ingresos para la Tarea 3 si es escogida para los ingresos?

Tarea 4 - Decisión remuneración de Tarea 1

En la cuarta tarea del experimento, no tienes que sumar números. En vez de eso, te pagaremos otra vez por el número de problemas que hayas resuelto en la Tarea 1 remuneración por unidad. Pero ahora debes decidir cuál de los modos de remuneración quieres aplicar al número de problemas que hayas resuelto. Puedes escoger entre ser pagado según remuneración por unidad o según remuneración por competición. Si la cuarta tarea es la seleccionada para la remuneración, tus ingresos para esta tarea se determinan como sigue. Si escoges la remuneración por unidad recibes 0,50 Euro por problema que hayas resuelto correctamente en la Tarea 1.

Si escoges remuneración por competición, tu resultado será evaluado en relación con el resultado de los otros tres participantes de tu grupo en la Tarea 1 remuneración por unidad.

Si has resuelto más problemas correctamente en la Tarea 1 que los otros tres miembros de tu grupo, recibes cuatro veces la remuneración de la remuneración por unidad que es equivalente
a 2,00 Euro por problema correcto. No recibirás un ingreso para esta tarea si escoges la competición y no has resuelto más problemas correctamente que los otros miembros de tu grupo en la Tarea 1. Si hay empate la persona que gana se determinará al azar.

La pantalla siguiente te dirá cuantos problemas has resuelto correctamente en la Tarea 1, y te pedirá escoger si quieres que se aplique la remuneración por unidad o la remuneración por competición a tu resultado.

¿Hay alguna pregunta?

Test

Para asegurar que entiendes correctamente como se calcula la remuneración de la Tarea 4, te pedimos que respondas a las siguientes preguntas. Los números usados en la pregunta son simplemente a título ilustrativo y no indican un buen resultado en esta tarea.

Supón que has seleccionado la remuneración por unidad y que has resuelto 2 problemas correctamente y 1 problemas incorrectamente en la Tarea 1. ¿Cuáles son tus ingresos para la Tarea 4 si es escogida para los ingresos?

Supón que has seleccionado la competición y que has resuelto 2 problemas correctamente y 3 problemas incorrectamente en la Tarea 1, y que todos los demás de tu grupo han resuelto 1 problema en la Tarea 1 correctamente. ¿Cuáles son tus ingresos para la Tarea 4 si es escogida para los ingresos?

Supón que has seleccionado la competición y que has resuelto 2 problemas correctamente y 3 problemas incorrectamente en la Tarea 1, y que una persona de tu grupo ha resuelto 4 problemas correctamente en la Tarea 1. ¿Cuáles son tus ingresos para la Tarea 4 si es escogida para los ingresos?

Tarea 5 - Auto evaluación

En esta penúltima tarea te pedimos estimar la posición de tu resultado en la Tarea 1 y 2. Como hay cuatro miembros en tu grupo tu posición puede tener un valor entre 1 y 4 donde 1 es tu posición si has resuelto (correctamente) el número más grande de problemas en tu grupo y 4 es tu posición si has resuelto el número más pequeño.

Por cada estimación correcta recibirás 1,00 Euro. Si tu estimación no es correcta, no recibirás ingresos para esa estimación. Si hay empates en las posiciones, contaremos cada respuesta que podría ser correcta como correcta. Por ejemplo, si el resultado en el grupo era 5, 5, 4, 4, entonces una respuesta cuarta posición y una de tercera posición es correcta para alguien que haya resuelto 4 problemas correctamente y una respuesta de primera posición y segunda posición es correcta para alguien que haya resuelto 5 problemas correctamente. Los números usados en este ejemplo son simplemente a título ilustrativo y no indican un resultado real en la Tarea 1 y 2.

¿Hay alguna pregunta?

Test

Para asegurar que entiendes correctamente como se calcula la remuneración de la Tarea 5, te pedimos que respondas a las siguientes preguntas. Los números usados en la pregunta son simplemente a título ilustrativo y no indican un buen resultado en esta tarea.
Supón que has resuelto 3 problemas correctamente y que los otros miembros de tu grupo han resuelto 1, 2 y 3 problemas respectivamente en la Tarea 1. Supón además que has estimado que tienes la segunda posición. ¿Cuáles son tus ingresos para esta estimación?

*Only Advisors:*

Tarea 6 - Consejo

En el aula de al lado hay otros grupos que también hacen las Tareas 1-4 (las mismas que acabas de hacer). En este momento, ellos han terminado la Tarea 1 y 2, pero aún no han empezado con la Tarea 3, es decir, su siguiente tarea es decidir entre la remuneración por competición y la remuneración por unidad. Estarás asignado al azar con una persona de los otros grupos - le llamaremos la persona que recibe el consejo y tu tarea es aconsejar a la persona que recibe el consejo en relación a su decisión entre remuneración por competición y remuneración por unidad. Antes de que des tu consejo, la persona que recibe el consejo te mandará la información sobre el número de respuestas correctas que haya tenido en la Tarea 1 y 2.

El primer paso es que le mandes a la persona que recibe el consejo un mensaje diciendo si le aconsejas entrar en la competición. En el segundo paso, puedes dar una razón para el consejo que hayas escogido. Te daremos una lista de razones. Puedes seleccionar tantas razones como quieras (incluyendo ninguna, en el caso que prefieras no seleccionar ninguna de las razones propuestas).

Como remuneración para esta tarea, recibirás el 50% de la remuneración de la Tarea 3 de la persona que recibe tu consejo. Es decir que si la persona que recibe el consejo decide escoger la remuneración por unidad recibes 0,25 Euro (50% de 0,50 Euro) por problema que resuelva correctamente. Si la persona que recibe tu consejo decide escoger la remuneración por competición y su número de respuestas correctas en la Tarea 3 es mayor que el número de respuestas correctas de los otros miembros de su grupo en la Tarea 2, recibes 1,00 Euro (50% de 2,00 Euro) por cada problema que resuelva correctamente. Finalmente, si la persona que recibe tu consejo decide escoger la remuneración por competición y su número de respuestas correctas en la Tarea 3 no es mayor que el número de respuestas correctas de los otros miembros de su grupo en la Tarea 2, no recibirás ningún ingreso. Ojo: Te pagaremos también si la persona que recibe tu consejo no recibe un ingreso por la Tarea 3 (porque la Tarea 3 no ha sido la seleccionada al azar para los ingresos).

¿Hay alguna pregunta?

Test

Para asegurar que entiendes correctamente como se calcula la remuneración de la Tarea 6, te pedimos que respondas a las siguientes preguntas. Los números usados en la pregunta son simplemente a título ilustrativo y no indican un buen resultado en esta tarea.

Supón que la persona que recibe tu consejo ha seleccionado la remuneración por unidad. Supón además que la persona que recibe tu consejo ha resuelto 3 problemas correctamente y 3 problemas incorrectamente. ¿Cuáles son tus ingresos para la Tarea 6?

Supón que la persona que recibe tu consejo ha seleccionado la remuneración por competición. Supón además que la persona que recibe tu consejo ha resuelto 2 problemas correctamente y 1 problema incorrectamente, y que todos los demás de su grupo han resuelto 1 problema en la
Tarea 2 correctamente. ¿Cuáles son tus ingresos para la Tarea 6?

Supón que la persona que recibe tu consejo ha seleccionado la remuneración por competición. Supón además que la persona que recibe tu consejo ha resuelto 2 problemas correctamente y 3 problemas incorrectamente, y que una persona de su grupo ha resuelto 3 problemas en la Tarea 2 correctamente. ¿Cuáles son tus ingresos para la Tarea 6?