DO (WO)MEN PREFER (NON-) COMPETITIVE JOBS?[1]

Nabanita Datta Gupta[a] Anders Poulsen[b] Marie-Claire Villeval[c]

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Abstract: Men and women make different occupational choices in the labor market. This paper investigates whether differences in competitiveness (Gneezy, Niederle and Rustichini, 2003) can explain these choices. In our experiment we allow subjects to choose between a tournament and a piece-rate pay scheme before performing a task. Our main result is that women enter the tournament systematically less than men, and this is robust to various treatments. Risk attitude is the main determinant of women's choice, but does not influence men's choice. Males compete more against males than females except when they expect that women enter the competition. This behavior is at odds with subjects' beliefs about relative ability, and hence suggests a role for non-economic explanations.

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[a] Danish National Institute of Social Research, Herluf Trolles Gade 11, DK-1052 Copenhagen K, Denmark. E-mail: ndg@sfi.dk and Research Fellow, Institute for the Study of Labor (IZA), Bonn, Germany.

[b] Aarhus School of Business, Department of Economics, Silkeborgvej 2, 8000 Aarhus C, Denmark. E-mail: aup@asb.dk.

[c] GATE (CNRS – University Lumière Lyon – ENS, France), 93, chemin des Mouilles 69130 Ecully, France. E-mail: villeval@gate.cnrs.fr, and Research Fellow, Institute for the Study of Labor (IZA), Bonn, Germany.

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1. Introduction

Although in many countries women's educational attainment now exceeds men's, and women's labor market participation resembles that of men, women and men continue to work in very different jobs and sectors.[2] Men and women also operate within different incentive systems since firms with a higher percentage of women are more likely to offer piece rates.[3]

This paper contributes to the analysis of why women cluster in low-wage jobs with a predominance of piece-work.[4] We set up a laboratory experiment designed to shed light on whether men and women differ in their *competitiveness* and, if so, why this is the case. By competitiveness we mean propensity to prefer occupations where remuneration is based on relative performance (tournaments) over occupations where rewards are based on one's own performance only (piece rate).

Our experiment builds on and extends the experimental work on gender differences in competitiveness, initiated by Gneezy, Niederle and Rustichini, 2003. In their experiment, as the competitiveness of the environment is exogenously increased, men's performance

[2] For example, in the U.S., Blau, Simpson and Anderson, 1998 and Anker, 1998 report that nearly 55% of men and women would have to change jobs in order to attain occupational parity. A similar degree of gender occupational and sector segregation is seen in most other countries as well. The contribution of occupations to the overall gender wage gap is sizable, both in the U.S. (Bayard, Hellerstein, Neumark and Troske, 2003) and in Europe (Datta Gupta and Rothstein, 2004), Female occupations tend also to be characterized by flatter age-earnings profiles and fewer opportunities of promotion leading to lower accumulated life-time earnings. Bertrand and Hallock, 2001 find that women still have low access to top corporate jobs. Ierulli and Milgrom, 2004 show that rank differences among similarly qualified men and women in Sweden arise largely due to occupational and firm differences.

[3] See Goldin, 1986 and Brown, 1990 for U.S. evidence, Heywood, Siebert and Wei, 1997 for the U.K. and Heywood and Jirjahn, 2002 for Germany. Women's predominance in piece-rate schemes can be explained by neither their shorter expected tenures nor their family responsibilities (Jirjahn and Stephan, 2004).

[4] Economists have usually offered either supply-side explanations that emphasize the traditional role of women within the family affecting their human capital investment and career choices (Polachek, 1981), or demand-side explanations focusing on discrimination (Altonji and Blank, 1999; Neumark, Blank and Van Nort, 1996). Here we explore a hypothesis that could be added to the previous explanations.

increases too, whereas that of women remains the same. While in Gneezy et. al. subjects are exogenously allocated to work within a piece rate or a tournament payment scheme, in our laboratory experiment men and women *choose* their payment scheme.

In our experiment people choose their occupation in the following way: After two individuals have been randomly matched, each person observes indirectly the other person's gender. The subjects then simultaneously choose between working under a piece rate or a tournament payment scheme. If the piece rate scheme is chosen, a person gets a fixed amount per unit of output. If the tournament scheme is chosen by both persons, the one who produces most output gets a high amount per unit, and the other gets a lower amount. If only one person chose the tournament, she or he gets the high amount per unit. Once the payment scheme choices are made, subjects learn their opponent's choice and then start working by performing a real task, namely maze solving, as in Gneezy et. al., 2003. Finally, payoffs are received.

Intuitively, if men and women do indeed make different occupational choices, several factors can play a role: *First*, men and women may differ in their degree of risk aversion. This matters since the tournament is risky (whenever any positive probability is assigned to the opponent choosing the tournament too). *Second,* men and women may have different beliefs about their relative ability when matched with male or female opponents. If a person thinks he is better at performing the task than the opponent, the person should, if he is not too risk averse, choose the tournament. *Third,* men and women may have different beliefs about their male or female opponent's entry decision. This matters too, for if a person is very sure that the opponent will stay out of the tournament, he should enter the

tournament *even* if he believes he is worse at the task than the opponent.[5] Thus, for a person to arrive at a decision in our game, he must form two beliefs: One is about the opponent's likely choice of payment scheme. The second is how good the opponent is. In our design we measure both these beliefs, and evaluate their relative importance for the observed male and female payment choice behavior. Our main result is that 60% of men and only 34% of women choose the tournament. To check the robustness of this gender gap, we consider an extra treatment where we increase the expected payoff from the tournament relative to that of the piece rate. Both men and women choose the tournament more frequently, but men still enter significantly more than women.

How can these robust gender differences in competitiveness be explained? Consider first the risk explanation. Risk does not seem to matter for male choices. But those women who choose the tournament are less risk averse than those who chose the piece rate. Thus risk matters for women, but not for men.

Consider next beliefs about relative ability. Our data show that both the typical male and female believe they are better than both the average man and woman. They do not condition their entry decision on their belief about relative ability. Concerning subjects' beliefs about the opponent's entry decision, it turns out that both women and men believe that more males than women choose the tournament. But these beliefs only influence males' behavior: Males are more likely to choose the tournament when matched with a male than with a female opponent. Moreover, when matched with females, men are more

[5] It is certainly possible to imagine a society where everybody knows that women are better at some task than men, but where it is nevertheless conventional that males perform the task and not women. See also Holm, 2000.

likely to enter the more they believe the female opponent will enter. Women on the other hand do not seem to act on the basis of beliefs about opponent's likely entry decision.

All in all, therefore, our results point to the following determinants of male and female occupational choice behavior: Women are primarily influenced by their risk attitudes; men condition their behavior on the opponent's gender, and compete more against males than against females, except when matched with a female they think will compete, too. However, a significant part of the gender entry gap remains unexplained and our results suggest a role for non-economic factors, such as differences in the taste for competition between men and women.

Were males better at the task than women? There is no gender gap in performance and therefore no wage gap among the men and women who chose the piece rate. Similarly, no performance gap or wage gap are observed between the men and women who chose the tournament and whose opponent also chose the tournament. But when a man or a woman learns that s/he is the only one who chose the tournament, only males increase their performance in comparison with the piece-rate scheme. Men's performance is mainly influenced by the decision to enter the tournament and by the gender of the competitor: In particular, men decrease their performance when opposed to a woman, which is perhaps motivated by "chivalry". In contrast, females do not condition their effort on the incentive scheme. As a consequence, overall, one identifies a significant wage gap. In addition, we estimate that about one third of those women who chose the piece-rate payment scheme would have been better off by entering the tournament.

Section 2 presents the experimental design. Section 3 details the occupational choices by gender. Section 4 analyzes the determinants of these different occupational choices. Section 5 examines the performance associated to these choices and try to identify whether the subjects made the optimal choices conditional on their abilities. Then, Section 6 concludes and discusses the results.

2. Experimental design

In the following we describe the choice situation that subjects faced, how we measured risk aversion, subjects' beliefs about relative ability, and subjects' beliefs about other people's choice behavior. We start by describing the game that subjects played.

2.1. The Occupational Selection Game

Interaction Structure. Participants are randomly matched in pairs. They then simultaneously choose between a piece rate payment scheme and a tournament payment scheme. Each individual is informed about his pair member's choice and then each individual performs a maze solving task, described below.

Payoffs. If an individual chooses the piece rate occupation, he is paid 4 points for every maze he subsequently solves. If he chooses the tournament, one of two cases occurs. *First*, if the pair member also chose the tournament, both are paid according to their relative performance in the second stage: The subject who produces most mazes receives the winner's prize, which is 6 points for every maze solved. The other subject receives the loser's prize, namely 1 point for every maze solved. In case of a tie, the winner is randomly selected. *Second*, if the pair member chose the piece rate, the player who chose

the tournament automatically receives the winner's prize, 6 points for every maze he solves.

Once the players have finished solving mazes, the player is informed about the number of mazes he has solved and about his payoff, but he does not learn the opponent's performance.

The Task. We looked for a task that was as gender neutral as possible. In Gneezy et al., 2003, subjects solved mazes for fifteen minutes, and no gender differences in performance under a piece rate scheme was found. We therefore adopted the same task.

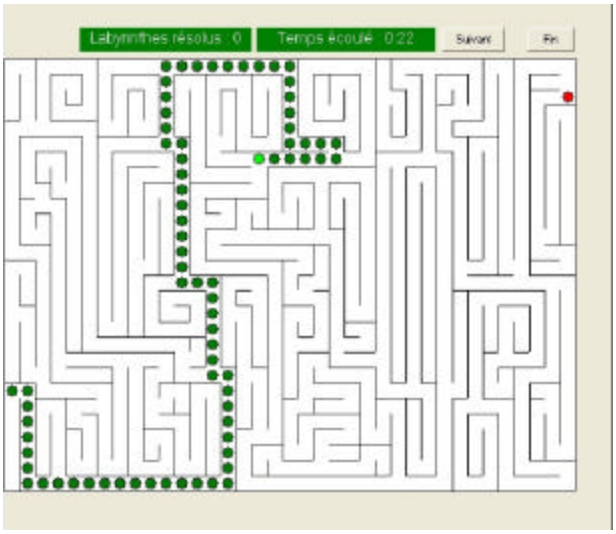

Fig. 1. The maze solving task

We selected fifty mazes, all of the same difficulty level. All the subjects, in all sessions, receive the same mazes in the same order and this is made common knowledge. On the computer screen (see Figure 1), a marker indicates the current position in the maze and it is possible to restart from any point already reached. A maze is solved as soon as the subject reaches the red point. A maze can be given up before being solved and the subject makes a

new maze appear by clicking the "next" button. The screen also indicates the number of mazes already solved and the time spent since the beginning of the task.

Before being informed of the rules of the game, subjects practiced the task by solving three mazes without any time constraint.

Gender Information. After two individuals are randomly paired, and before payment schemes are chosen, each subject is informed about the opponent's gender. This was done in the following way. First each subject receives a pseudonym from two predefined lists[6], according to the person's own gender.[7] Second, each person is informed of the opponent's pseudonym. We use this procedure to minimize biases (such as subjects suspecting that the experiment was about gender) and to preserve anonymity.[8] We make information about gender available in order to allow people to condition their beliefs and behavior on the opponent's gender.[9]

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[6] The pseudonyms correspond to the top ten baby names for each gender (RNIPP and INSEE Répertoire National d'Identification des Personnes Physiques). Female names are Chloe, Clara, Emma, Aurelia, Lea, Manon, Marie, Océane, Sarah, Carla. Male names are Alexandre, Antoine, Clement, Enzo, Hugo, Lucas, Maxime, Quentin, Theo, and Thomas. A similar procedure in used in psychology (Ingram and Berger, 1977).

[7] Subjects declared their gender in a pre-experimental anonymous questionnaire which also included questions on school, major, year in school, age, and previous participation in experiments.

[8] Gender is typically revealed via visual contact in all-female or all-male sessions (Brown-Kruse and Hummels, 1993; Nowell and Tinkler, 1994; Rapoport and Chammah, 1965; Cadsby and Maynes, 1998; Eckel and Grossman, 2001, 2003; Gneezy et al. 2003). We could not use this procedure because in mixed sessions, the subjects could not know the gender of their pair member. Sometimes gender is directly mentioned in the instructions (Holm, 2000) or announced by the experimentalist (Schwieren, 2002). Gender may instead be communicated by revealing opponents' first names (Schwieren and Sutter, 2003; Solnick, 2001); anonymity then requires that interacting subjects participate in different sessions.

[9] The importance of gender pairing has been mainly studied in bargaining. In purchasing cars, women receive better deals from men than from women (Ayres and Siegelman, 1995). Same gender bargaining pairs exhibit greater competition and retaliation than mixed pairs (Sutter, Bosman, Kocher and van Winden, 2003). An offer is more likely to be accepted if it comes from a woman and female pairs always reach an agreement (Eckel and Grossman, 2001). In contrast, Solnick, 2001 observes a higher rejection rate in female pairs. In different games, for example a prisoner's dilemma game, male pairs are characterized by a greater frequency of cooperative choices (Rapoport and Chammah, 1965). In a battle of the sexes game, subjects were more "hawkish" when their opponent was a female than when it was a male (Holm, 2000).

2.2. Measuring Risk Aversion

Risk aversion naturally influences the decision to choose the tournament payment scheme. For if the opponent chooses the tournament, a player who also goes into this payment scheme cannot be sure to win. If women are more risk averse than men, and if women are indeed less likely to enter the tournament than men, this would be evidence that what matters for occupational choice is risk.[10]

To measure risk aversion, we use the method in Weber et al., 2002.[11] In a post-experimental questionnaire (see Appendix 2) subjects rate the likelihood that they would engage in sixteen domain-specific risky activities, on a five-point scale ranging from 1 (”extremely unlikely”) to 5 (”extremely likely”). We consider three domains: Financial (8 items related to investment or gambling), Recreational (4 items), and Social (4 items). A subject’s risk attitude score is computed by summing up his answers to these sixteen items. The higher the score, the lower the degree of risk aversion.

[10] A meta-analysis of 150 studies in psychology shows that men take more risk than women, but the importance of the gender differences varies according to the decision situation (Byrnes, Miller and Schafer, 1999). Weber, Blais and Betz, 2002 conclude that women and men differ in both their perceptions of risk and their risk behavior in specific domains. Women are more risk averse than men in financial decision-making irrespective of framing or cost (Powell and Ansic, 1997; Barsky, Juster, Kimball and Shapiro, 1997); they invest less (Charness and Gneezy, 2004) or more conservatively (Jianokoplos and Bernasek, 1998); they are more reluctant to engage in gambling (Levin, Snyder and Chapman, 1988) and they prefer less risky gambles (Eckel and Grossman, 2003). However, some studies do not observe any gender difference in contextual decisions (Schubert, Brown, Gysler and Brachinger, 1999). Eckel and Grossman, 2000 remark that in those games where subjects are exposed to risk (e.g. proposers in UBG) there is no systematic difference.

[11] We decided not to use lottery choices to elicit risk attitudes because a regret felt after the decision to enter the tournament is likely to influence directly these lottery choices. Organizing the lottery before starting the game would have focused attention on the risk associated with the tournament choice and could have biased behavior. A psychometric scale is a more ”neutral” elicitation method in this context.

2.3. Measuring Beliefs about Relative Ability and about Opponent's Choice

Theoretically, a subject should enter the tournament if he sufficiently strongly believes that he can solve more mazes than the opponent. The more risk averse the person is, for the tournament to be optimal, the more convinced he must be that he is better than the opponent. Thus, for a given degree of risk aversion, the more able the person believes he is relative to the opponent, the more likely the person should be to enter the tournament. Any gender difference in payment schemes could result from men and women systematically differing in such beliefs. It is therefore interesting to measure subjects' beliefs about relative ability. From this point of view, overconfidence could influence entry decisions. As remarked by Hoelzl and Rustichini, 2005, if there is a huge literature on overconfidence, it is less studied for choice behavior.[12]

We elicit subjects' beliefs about relative ability as follows. After the three practice periods, and before they are informed about the game, subjects report the number of mazes they expect they can solve in fifteen minutes. Then, at the end of the session, we ask them to estimate the average performance of men and the average performance of women in their session (see Appendix 2).[13] Each accurate answer is paid 1 Euro. By considering the

[12] Closely related to beliefs about relative ability are "under-confidence" and "over-confidence". The former can prevent entry and the latter can give excess entry because individuals are too pessimistic or optimistic on their competence level compared to their pair member's. Recent examples in the literature show that men are typically more overconfident than women (Barber and Odean, 2001; Bengtsson, Persson and Willenhag, 2005). Exaggerating their control over events or their skill perceptions, a majority of individuals are unreasonably optimistic about their future (Taylor and Brown, 1988), they overestimate the precision of their knowledge (Lichtenstein, Fischhoff and Phillips, 1982) or they think they are above the median (Kahneman and Lovallo, 1993) or "better than the average". Overconfidence is responsible for many inefficiencies such as business entry mistakes (Camerer and Lovallo, 1999; Roll, 1986). Another bias arises from the "reference group neglect" (Camerer and Lovallo, 1999): when choosing to enter a competition, subjects neglect the fact that they are likely to compete with a subject who also thinks he is able to win.

[13] We acknowledge that we tend to overestimate the difference between own expectations and beliefs about the other's performance since the subjects report their beliefs about the others after being informed on their

difference between these measures, we obtain a measure of subjects' beliefs about relative ability, i.e., the extent to which a person feels better than the average male/female.

2.4. Measuring Beliefs about Opponent's Payment Scheme Choice

We also measure subjects' beliefs about their opponent's choice of payment scheme. We measure subjects' beliefs about the opponent's likely choice in the following way. After having performed the task and received payoffs, each subject is asked to predict the proportion of men and of women in the session who chose to enter the tournament.

These beliefs are important for several reasons. First, in addition to asking him/herself, "How good am I relative to my opponent?", a subject may ask: "What payment scheme will my opponent choose?". As mentioned earlier, a person who is sufficiently certain (relative to his degree of risk aversion) that he is better at performing the task than the opponent should choose the tournament, no matter what the opponent is expected to do. But other persons may start by posing themselves the second question first. If the answer here is "probably tournament", they proceed to answer the first question. If they feel sufficiently confident about relative ability, they enter, too.

Second, some subjects may completely ignore consideration of relative ability, and instead, based on knowing the opponent's gender, seek guidance from what is "appropriate" or "conventional" to do. There may be a social norm like "When a situation involves the option of competition, men should take the competitive option, but women

own actual result. However, these questions were not asked at the beginning of the session because it would have focused attention on gender issues.

should not."[14] If such norms are present in the subject pool, a male (female) subject matched with a female subject may decide to enter the tournament (piece rate), believing that the women (men) will make the opposite choice. If two men are matched, both then choose the tournament and compete. By measuring subjects' beliefs about the opponent's likely choice of payment scheme, we can see if such norms are active.

2.5. Logistics

The experiment was performed in the experimental laboratory of GATE (Groupe d'Analyse et de Théorie Economique) in Lyon, using the REGATE software (Zeiliger, 2000). Overall 240 under-graduate students (119 men and 121 women) participated in 12 one-shot sessions. 86 % of the subjects were recruited from undergraduate classes of three highly selective business and engineering schools. To be enrolled in these schools requires passing a very competitive pre-entry exam so that both men and women participating in our experiment are used to compete with students of both genders. The other subjects came from various universities of Lyon. Each session involved 20 subjects each, with at least 9 subjects of the same gender per session.[15] 50 mixed pairs, 40 female pairs, and 30 male pairs were matched, the difference being due to the special nature of one of the treatments described below. We organized first five sessions, involving 50 women and 50 men, with the base treatment described above.

Upon arrival the subjects randomly drew a ticket which assigned them a computer. They received the first part of the instructions, read aloud by the experimenter, describing the

[14] See, e.g., Holm, 2000.
[15] To avoid any difference in how subjects could be influenced by the gender of the experimenter, the experiment has been conducted in the presence of both a man and a woman.

nature of the maze solving task. After this subjects practiced by solving 3 mazes without any time constraint. The second part of the instructions were then distributed and read aloud. This explained how payment schemes were chosen, explained the performance stage, and how payoffs were determined. They filled in a questionnaire to check their understanding and any questions were answered in private.

Subjects then received their pseudonym and were randomly matched with another subject, and the latter person's pseudonym was revealed. Subjects chose their payment scheme and received feedback on their pair member's decision. After this each subject performed the task for 15 minutes (without any feedback about the opponent's performance). Subjects were then informed about their payoff, but not about the pair member's performance. Subjects were then requested to predict the number of men and women who chose the tournament, and to predict the average performance of males and of females. Finally, the questionnaire on risk attitude was completed.

On average a session lasted 70 minutes. The participants were paid at the rate 1 point = .25 Euro. They in addition received a show-up fee of 2 Euro, plus 2 Euro for the questionnaire on risk attitudes, and up to 4 Euro for accurate predictions of the payment scheme and of average performance of males and females. On average, women earned 16.6 Euro (standard deviation 5.4), and men earned 18.8 Euro (standard deviation 7.6). Subjects were paid in cash in a separate room.

3. Male and Female Payment Scheme Choices

34 % of women and 60 % of men choose the tournament payment scheme. This difference is statistically significant (Chi-square test, p=0.009). Thus more than two-thirds

of women stay out of the competitive occupation, whereas more than half of males enter this occupation.

The numbers just reported give the proportion of women and men who choose the tournament, irrespective of their opponent's gender. Do people condition their choice behavior on their opponent's gender? Women's entry rate into the tournament is 34.37 when paired with another woman, and 33.33 when paired with a man. This difference is not significant (chi-square test, p=0.941). Men's entry rate into the tournament when matched with a man or a woman is 62.50 and 55.55, respectively. Again, this difference is not significant (chi-square test, p=0.630).

It is thus mainly subjects' *own gender*, rather than *other* people's gender, that matters for occupational choices: Men are significantly more likely than women to choose the tournament, irrespective of what the opponent's gender may be. Precisely, of the men who were matched with men, 62.5 % entered, while the proportion of women entering was 33.33. This difference is statistically significant (chi-square test, p=0.048). Against female opponents, the proportions were 55.55 and 34.37, respectively, however not a statistically significant difference (chi-square test, p=0.145).

Do women never compete? A robustness check using different money payoffs. Are the very different male and female occupational choices a robust phenomenon? One way to do a robustness check is to change the relative attractiveness of the tournament and the piece rate and see if the observed male and female differences persist or disappear. That is, were the observed differences just an artifact of the particular payoff structure that we used, or do they survive such a change?

In three new sessions, involving 30 women and 30 men, we raised the expected money payoffs from choosing the tournament and lowered that from choosing the piece rate. In the tournament, the loser's prize was increased from 1 to 1.5 point per maze solved. Furthermore, the piece rate payment per maze was reduced from 4 to 3 points per maze solved. This is the only difference from the previous experiment.

The proportions of men and women choosing the tournament are now 93.33 and 63.33, whereas before they were 60 and 34, respectively (see Figure 2). Chi-square tests show that the differences between treatments are statistically significant (p=0.011 for women and p=0.001 for men). When considering subjects' behavior conditional on their opponent's gender, we find that men significantly increase their tournament choice relative to the initial treatment both when matched with men (88.89 versus 62.5, p=0.030) and with women (100 versus 55.55, p=0.013). Women increase their tournament choice when matched with women (65 versus 34.37, p=0.031), but not when matched with men (60 versus 33.33, p=0.172).

Our findings show that women condition their choice behavior on the economic environment when considering their occupational choice – it is, in other words, not the case that "women never compete". The propensity of women to enter the competitive occupation can be increased by raising the relative economic payoffs from competing. But the same policy also makes men more competitive, and the differences between male and female competitive choice behavior remain much the same as before. There is still a large and significant gender entry gap in the choice of the competitive occupation (63.33 vs. 93.33, chi-square test, p=0.005). In short, women do not systematically avoid competition,

but they need more incentives than men to reach a given level of entry into the competitive occupation. And the gender gap in choice of competitive occupations persists.

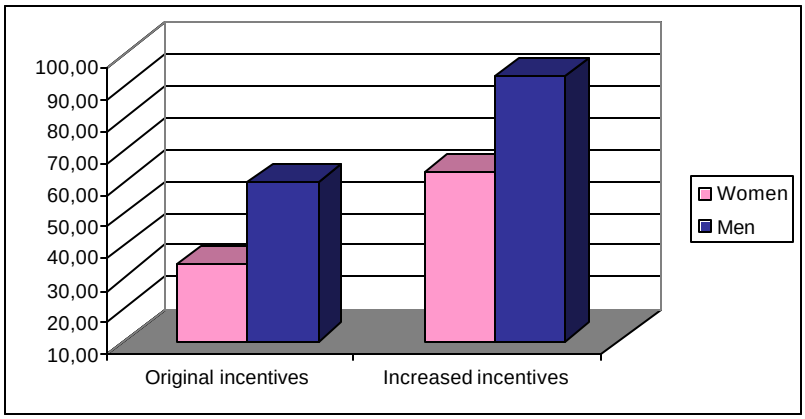

Fig. 2. Proportions of men and women choosing the tournament depending on incentives

4. Explaining the gender gap in tournament choice

In this section we seek to understand why there is such a large difference between the proportion of males and females who entered the tournament. We start by considering the separate roles of risk, of beliefs about relative ability, and of beliefs about other people's occupational decisions.

4.1. Risk aversion

The higher an individual's risk score, the less risk averse the person is. The average risk score is higher for men (mean = 49.2, S.D. = 6) than for women (mean = 48.2, S.D. = 7), and the distribution of risk score is more concentrated around the mean values for men than for women (see figure 3). However, the difference is not significant according to a Mann-Whitney test[16] ($p>|z| = 0.4790$).

[16] MWU test for Mann-Whitney U test in the rest of the paper.

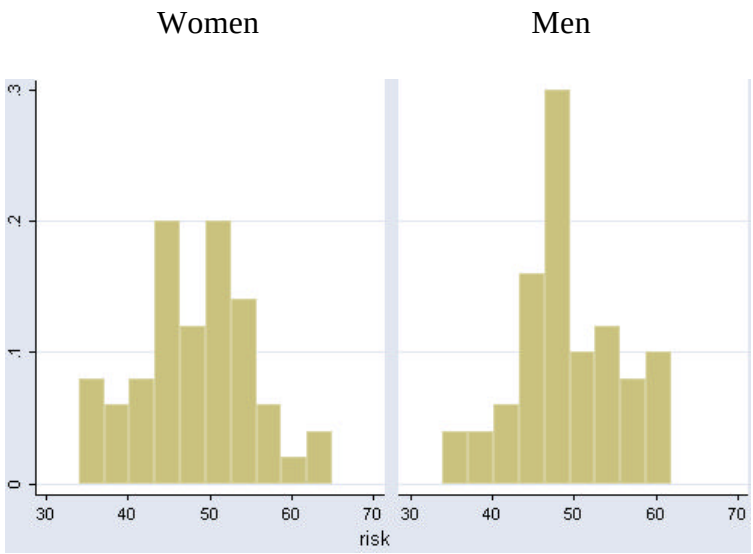

Fig.3. The distribution of risk score by gender (relative frequency)

The women who choose the tournament have a significantly higher risk score that those women who stay out of the tournament (mean 46.3 and 52, respectively, S.D.= 6 and 7.3; MWU test: p>|z| = 0.0116). In contrast, the men who decide to compete have the same risk score than those who stay out (mean = 49 and 49.3, respectively, S.D.= 6.4 and 6.3; MWU test: p>|z| = 0.7733). In sum, variations in risk aversion can explain variations in women's occupational choices, but not men's.

4.2. Beliefs about relative ability

The gender gap in entry into the tournament can be related to different beliefs regarding relative abilities. Men may be more confident than women, i.e., men may be more optimistic about their ability relative to the opponent.

Beliefs about own ability. Recall that at the beginning of the experiment subjects were asked to predict their own performance. Our data show that men and women on average have the same beliefs regarding their *own* expected performance (MWU test: p>|z| =

0.5408). On average women expect to solve 14 mazes (S.D.=5) and the number for men is 14.5 mazes (S.D.=5). Both are clearly optimistic if we examine their actual performance (see below). Moreover, those who enter the tournament are not more confident than those who choose the piece rate scheme, and this holds for both genders (MWU tests: p>|z| = 0.9841 for men and p>|z| = 0.4415 for women).

Beliefs about other people's ability. Considering beliefs about *other* players' abilities, subjects were in a post-experimental questionnaire asked to predict the average performance of males and females. The data shows that both men and women predict that women are less able than men at this task. On average, women believe that men solved 11 mazes on average and that women solved 9.4 mazes on average (S.D.= 3 in both cases, Wilcoxon test: p>|z| = 0.0000). Men have the same beliefs, believing that males solved 11.6 mazes and that women solved 9.9 mazes, respectively. (S.D.= 2 and 3, Wilcoxon test: p>|z| = 0.0000). Moreover, males and females do not make significantly different predictions about either female or male ability (MWU test: p>|z| = 0.2740 and p>|z| = 0.1905, respectively).

Beliefs about relative ability. Let us now combine a subject's belief about own ability and his/her belief about the opponent's ability.

Males and females have similar beliefs about their relative ability when are matched either with a man (MWU test: p>|z| = 0.3198) or with a woman (MWU test: p>|z| = 0.8312). Men are not more overconfident than women. In addition, males are not more overconfident relative to a male opponent compared to a female opponent (Wilcoxon test: p>|z| = 0.5010). Similarly, females are not more overconfident relative to a female opponent compared to a male opponent (Wilcoxon test: p>|z| = 0.1107).

73.07 % of the women who are matched with a woman believe they are "better than the average woman".[17] Of these women, 36.84 % choose the tournament. Among women who think they are less able than the average woman, 50% choose the tournament. The difference in entry rates is not significant (chi-square test: p=0.624). Next, among the women with male pair members, 85.71 % of women feel "better than the average man", and of those 50 % choose the tournament. Of the women who feel less able than the male opponent, all choose the piece rate. Thus, among those females who are matched with a male, only those who feel better enter the tournament, whereas this is not true for women who are matched with another female.

Turning to male subjects, 61.54 % of those matched with another man believe they are "better than the average man" and 50 % of those choose the tournament. The corresponding percentage for these men who do not feel better is 77.78% (the difference is not significant, chi-square test: p=0.506). Finally, among the males matched with a woman, 64.29 % expect to be better than the female opponent. 44.44 % of these men choose the tournament. 25% of the men who feel less able than women do the same, but the difference is not significant (chi-square test: p=0.174). Thus, males do not seem to condition their entry decision on the feeling of being better than the average subject.

When matched with a woman, overconfident males enter more than overconfident females (MWU test: $p>|z| = 0.0843$). When matched with a man, they do not enter more than overconfident females (MWU test: $p>|z| = 0.1947$). However, all together, beliefs

[17] For women matched with a woman (a man), the average expected difference is 7.3 (4.8) mazes when feeling better than the average category of the opponent and it is 3 (3.5) when feeling less able. For men matched with a woman (a man), the average expected difference is 6.4 (6.8) mazes when feeling better than the average category of the opponent and it is 3 (3.4) when feeling less able.

about relative abilities seem to matter little for subjects' choice of payment schemes. These results suggest that subjects are characterized by "reference group neglect" (Camerer and Lovallo, 1999), i.e., they tend to disregard the quality of their potential competitor.

4.4. Beliefs about the competitiveness of the environment

As we argued earlier, the gender entry gap may also be due to men and women forming different beliefs about other people's likely occupational choice. In particular, whatever the beliefs regarding relative abilities, a person should rationally choose the tournament if he/she expects the pair member to choose the piece-rate pay scheme (because one then automatically receives the winner's prize). The observed gender gap could therefore be rationalized by females being systematically more likely than males to believe that their opponent would choose the tournament.

Women (men) paired with a woman believe that on average 45.02% (43.56%) of women enter. Thus both men and women share the same belief about women's entry rate (Mann-Whitney test: $p>|z| = 0.4178$). Similarly, women (men) paired with a man believe that on average 67.86% (62.53%) of men enter. Thus, again, men and women have the same belief about men's entry rate (Mann-Whitney test: $p>|z| = 0.4101$).

The empirical gender gap in tournament choice is accurately predicted by both men and women. Beliefs about the opponent's likely payment scheme can thus not explain the observed gender difference in tournament choice.[18]

[18] Moreover, subjects do not underestimate the willingness of others to compete, in contrast with the theory of competitive blind spots (see also Camerer and Lovallo, 1999).

We can also ask: Within each gender, do those who choose the tournament tend to believe that their opponent will choose the piece rate? As shown in Table 1 below, this is not the case.

Table 1. Beliefs of male and female subjects regarding the likelihood of opponent's tournament choice, conditioned on gender

Subjects' gender	Male		Female	
Choice of the subject	Piece-rate	Tournament	Piece-rate	Tournament
Male pair member	64.77	60.89	59.20	79.39
(Mann-Whitney tests)	(p>|z| = 0.6210)		(p>|z| = 0.0810)	
Female pair member	29.96	61.68	41.56	50.55
(Mann-Whitney tests)	(p>|z| = 0.0604)		(p>|z| = 0.0758)	

Note: The numbers are read as follows. For example, the men who choose the piece-rate when they are matched with another man believe that on average 64.77% of men entered the tournament.

Except in all-male pairs, where the difference is not significant, subjects who choose the tournament are *more* likely to think that their opponent of some gender is likely to enter the tournament, compared to those who choose the piece rate. The largest difference is observed for men matched with women: the males who choose the tournament believe that most women enter. In contrast, those men who choose the piece rate believe that most women made the same choice. Most of the subjects who chose the tournament expect that the opponent chooses the tournament, too.[19]

[19] We acknowledge that our measure of expectations about other people's entry decisions is not perfect, since the beliefs were measured after the subject received feedback about the opponent's choice. A subject thus

4.5. Econometric analysis

So far we considered the impact of certain key variables separately. Table 2 reports the results of an econometric analysis, with a separate regression for each gender.[20]

These regressions show that females condition their entry decision on their risk attitude: those who have a higher risk score (i.e. a lower risk aversion) are more likely to choose the tournament. Recall that women do not differ from men in terms of risk aversion, but unlike men risk aversion matters for female behavior.

In contrast, while risk attitude does not matter for males' behavior, the opponent's gender does: males are more likely to choose the tournament when matched with another man than when matched with a women. Furthermore, when matched with a women, the more likely a male is to believe that the female opponent will choose the opponent, the more likely the male is to choose the tournament himself. In other words, males do not want to "stay out of the competition" if they expect that their female opponent enters the competition.

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knew the real decisions of 2 subjects out of 20 in the lab. In two of the sessions we asked the subjects to state their belief about their pair member's choice after they have made their own decision but *before* they learned the opponent's choice. They were paid 1 Euro for an accurate answer. The results remain the same: 62.5 % of the women who believed that their pair member, irrespective of his/her gender, chose the tournament chose the tournament too, while all of the women who believed that their pair member chose the piece rate, choose the piece-rate too. The corresponding rates for men are 50% and 50%. This tends to indicate that those beliefs were not salient for people when making their choices and that people apparently do not take advantage of the possibility of being the only person to choose the tournament.

[20] Other models were estimated in which we tested for measures of confidence such as beliefs about own ability or the degree of optimism (i.e. the difference between predicted and actual individual performance). We also built a measure of the "better than the average" phenomenon by only considering positive values of the "expected relative ability" variable. However, the quality of the model was not increased and these variables were not significant. Further, a number of background subject characteristics such as age, school type (management, engineering, economics), experience (whether participated in an experiment before) were tried in these regressions but were found not to have additional explanatory power.

Table 2. Tournament pay scheme choice (Probit model)

Variables	Women	Men
Constant	-5.5623**	-0.9731
	(0.015)	(0.596)
Male pair member	-1.8562	3.1766**
	(0.448)	(0.019)
Risk score	0.0807**	-0.0295
	(0.047)	(0.412)
Expected relative ability when paired with a woman	0.0274	0.0453
	(0.597)	(0.585)
Expected relative ability when paired with a man	0.1777	-0.0564
	(0.326)	(0.229)
Beliefs about the entry rate when paired with a woman	0.0287	0.0475**
	(0.123)	(0.036)
Beliefs about the entry rate when paired with a man	0.0395	-0.0055
	(0.166)	(0.638)
LR $?^2$	13.77	10.25
Prob>$?^2$	0.0323	0.1146
Log Likelihood	-20.0345	-22.5521
Pseudo R^2	0.2558	0.1851
N	40	40

Note: p-values in parentheses. **significant at 5% level.

Note that this observation is not inconsistent with the fact that, as seen earlier, males choice did not vary with the opponent's gender (cf. Section 3): Most males who entered the tournament, when matched with women, believed the females would choose the tournament (see Table 1), causing the aggregate proportion of males choosing the tournament when matched with females to be as large as the proportion matched with males.

4.6. Allowing subjects to choose which gender to interact with

In our experimental design subjects were, before choosing their payment schemes, informed about the opponent's pseudonym, and this allowed them to deduce whether their opponent was male or female. But our results indicating that female subjects did not condition their entry decision on the opponent's gender could be due to this weak gender revelation procedure.[21]

We therefore considered a stronger procedure where subjects could *choose* whether to interact against a male or a female. Would this affect choices? In particular, would the propensity of, say, a female who *chose* a female partner to choose the tournament be different from that of a female who, as in our initial design, was *exogenously allocated* to playing against another female?

We ran four additional sessions involving 41 women and 39 men. Each subject saw on his screen the pseudonyms of two subjects (instead of only a single name as in the initial treatment), one female name, the other a male name. The subject then chose one of the two subjects as his/her pair member, before selecting the payment scheme.[22] The rest of the game and the payoffs remain the same as in the initial treatment.

Choice of gender. 68.29 % of women and 71.79% of men choose to be paired with a woman (the difference is not significant according to a chi-square test: p=0.733). Both

[21] A stronger procedure would be to directly inform the subject about the gender of the opponent. As already mentioned, the latter procedure may however direct subjects' attention to the gender issue and may distort their behavior.

[22] Since matching is simultaneous, the person who has been selected by a subject may have chosen another pair member. A subject is, however, always matched with the person he chose. Suppose, for example, that subject X chooses Y who chooses Z. Suppose also they all choose the tournament. X's performance is then compared with Y's. Y is not informed about this, and Y's payoff only depends on the performance comparison between Y and Z.

percentages are significantly different from a random choice (one-sided binomial tests: p=0.0137 for women and p=0.0047 for men).

Choice of payment scheme conditional on chosen gender. Figure 4 displays the entry rates into the tournament by males and females, when exogenously matched with a person of some gender and when having chosen an opponent with that gender. Of the women who chose to be matched with another women 57.14 % chose the tournament, while only 34 % of the women who were exogenously matched with a women chose the tournament (MWU test: p>|z| = 0.0795). The propensity of women who chose males to enter the tournament, and for males choosing males or females, is not significantly different compared to the case where these subjects were exogenously matched with an opponent of that gender.

Within the treatment allowing for the choice of the opponent's gender, the women's entry rates in female pairs (57.14) and in mixed pairs (46.15) are not significantly different (Mann-Whitney test: p>|z| = 0.5166). Similarly, the men's entry rates in male pairs (72.73) and in mixed pairs (75.0) are not different (Mann-Whitney test: p>|z| = 0.8852).

Even though they have the same degree of risk aversion in both treatments (MWU test: p>|z| = 0.8106), when women can choose whether to interact with a male or a female, the overall proportion of women entering the tournament increases from 34.0 to 53.66 (MWU test: p>|z| = 0.0608). Men's entry rate into the tournament also increases, from 60 to 74.36, but not significantly so (Mann-Whitney test: p>|z| = 0.1574). The gender entry gap into the tournament is 20.7 points, instead of 26 in the base treatment, and is still significant (MWU test: p>|z| = 0.0557).

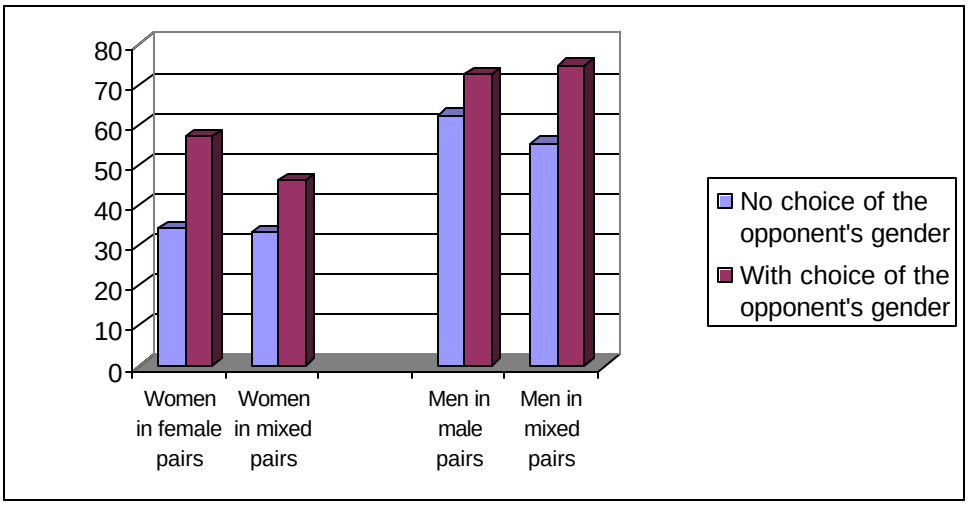

Fig.4. Proportions of males and females choosing the tournament depending on the possibility to choose the opponent's gender

All in all, we can interpret our findings from this "robustness check" of our gender revelation as follows: Men and women have a preference for interacting with women rather than with men. The women who chose a female partner choose the tournament significantly more often than when exogenously assigned to a female opponent. For males, on the other hand, the chosen gender does not make a difference for subsequent behavior compared to the initial treatment where gender was exogenously imposed.

5. Performance analysis

In this last section, we analyze the relationships between the gender entry gap with performance and payoff by gender.

Overall performance. Over all occupations, the average female performance is 10.4 mazes, and 12.8 mazes for men (standard deviations: 3 mazes). The difference is significant (MWU test: $p>|z| = 0.0006$). But rather than measuring performance in general, one should consider performance conditional on having chosen a certain payment scheme.

Thus we should consider performance in the piece-rate scheme, in a "one-person tournament" (i.e., the subject chose the tournament and the opponent chose the piece rate), and a "double-tournament" (i.e., both chose the tournament).

Performance conditional on payment scheme. Figures 5 and 6 show the distribution of performance for each gender in each of these three environments. We consider whether there still are gender differences in performance. Under the piece-rate scheme, women solve 10.5 mazes on average (S.D.=3) and men solve 11.6 (S.D.=3) and this difference is not significant (MWU test: $p>|z| = 0.2490$). This result is similar to what was observed by Gneezy et al., 2003. Not surprisingly, the performance of those who chose the piece-rate does not vary with the gender of the pair member (MWU tests: $p>|z| = 0.3757$ for women and $p>|z| = 0.9382$ for men). In double tournaments, women solve on average 11 mazes (S.D.=3) and men solve 12.5 mazes (S.D.=3). Once more, this difference is not significant (MWU test: $p>|z| = 0.2264$).

Consider then the one-person tournament. Here women on average solve 9.6 mazes (S.D.=3), while men solve 14.5 (S.D.=3) mazes, and this difference is significant (MWU test: $p>|z| = 0.0021$).

Thus the men and women who chose a piece-rate scheme, or who were involved in a double-tournament, perform equally well. In contrast, the men involved in single tournaments performed better than the corresponding group of women.

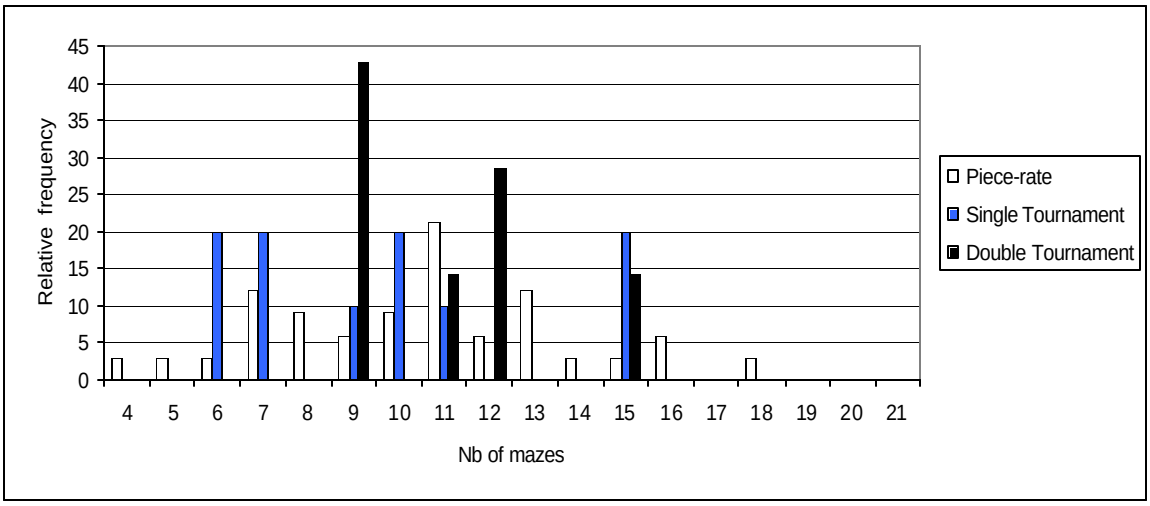

Fig.5. Women's performance distribution by mode of payment

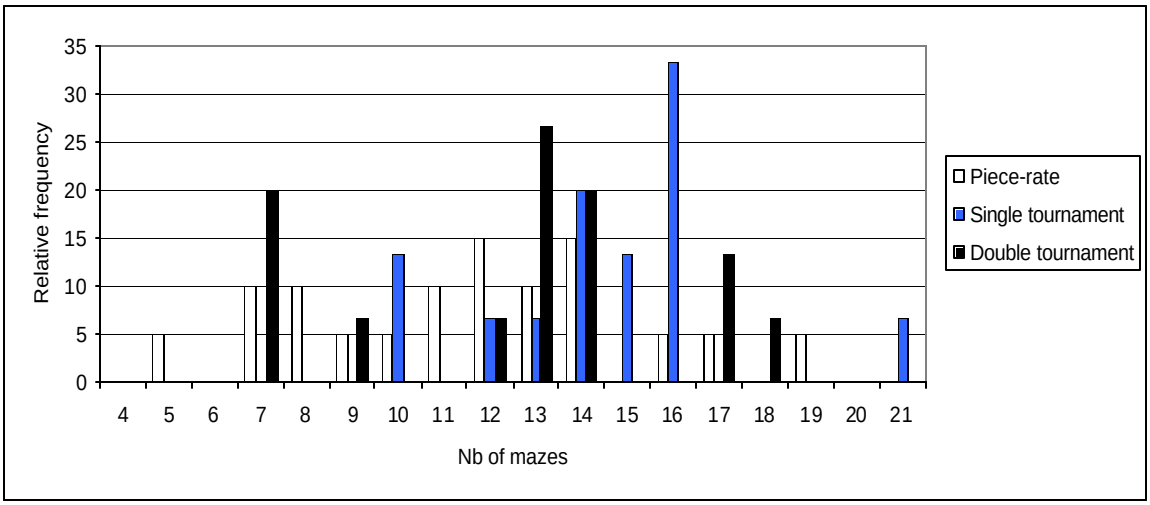

Fig.6. Men's performance distribution by mode of payment

Within-gender performance differences across chosen payment schemes. *Women.* The women who chose the tournament did not perform better than those who chose the piece-rate scheme (MWU test: p>|z| = 0.6356). Moreover, the performance of the former group does not vary with whether their competitor chose the tournament, too, or not (MWU test: p>|z| = 0.2774). This seems to indicate that women's performance is not strongly

related to the nature of incentives. Moreover, whereas we may have expected that any process of self-selection among women should have given higher performance for women who chose the tournament, this is not the case.

In Gneezy et al., 2003, the women who exogenously worked under a piece-rate scheme did not increase their performance when competing with men, but they did when competing with women only. Here, when they are involved in a double tournament, women perform better when their opponent is a male (mean=12.0, S.D.=5) than when it is a female (mean=10.2, S.D.=3), but this difference is not significant (MWU test: $p>|z| = 0.3543$). All in all, therefore, women self-select into the tournament in terms of their risk aversion, but this does not lead to different performance.

Additional information can be drawn from the treatments in which we either increased the monetary attraction of the tournament or allowed the subjects to choose the gender of their pair member. If we pool all the data together, the average performance of women is 10.6 in the piece rate, 10.09 in the one-person tournament and 12.08 in the double tournament. Women perform significantly more when involved in a double tournament than in the other environments (MWU test: $p>|z| = 0.0068$). An interpretation is that if more women enter competition in comparison with the base treatment, i.e. even those who have a higher risk aversion, they work harder to increase their probablity to win the tournament.

Men. In contrast, the men who chose the tournament perform better than those men who chose the piece-rate scheme (MWU test: $p>|z| = 0.0441$). Moreover, males perform equally

well in single as in double tournament (MWU test: p>|z| = 0.1164).[23] It indicates that men's performance is increased as soon as a high prize is at stake. However, men are better performers when they are opposed to males than to females in a double-tournament. On average they solve 9.0 mazes (S.D.=4) when competing against a woman and 13.4 (S.D.=3) when competing against another man and the difference is significant (MWU test: p>|z| = 0.0664). Thus, when facing a woman in the tournament, men perform less than under a one-person tournament! Chivalry may explain such a behavior.[24] All this suggests that, as soon as they have decided to enter the competition, men's performance is strongly related both to the nature of incentives and to gender pairing in the competition.

Regression analysis. We initially estimated a model in which choice of payment scheme was endogenous in a treatment-effects model using full-information maximum likelihood methods[25] in which tournament choice was the endogenous treatment dummy and number of mazes solved the continuous outcome variable. However the results showed that the two processes should be treated independently. Thus, Table 3 displays the results of separate OLS regressions of performance by gender in which the mode of payment is treated as exogenous.

[23] This is also true in the two other treatments in which we either increased the attraction of the tournament or allowed the subjects to choose the gender of their pair member.
[24] See Eckel and Grossman, 2001, about chivalry in ultimatum bargaining games.
[25] Procedure treatreg in STATA.

Table 3. Performance (OLS model)

Variables	Women	Men
Constant	7.0880***	8.1457***
	(0.000)	(0.000)
Choice of the tournament	-1.4163	2.5705**
	(0.199)	(0.016)
Competition	2.3889	-4.4765**
	(0.205)	(0.025)
Competition with a male opponent	-0.5644	4.0618**
	(0.815)	(0.042)
Expectations on own ability	0.2502***	0.2366***
	(0.006)	(0.004)
Prob>F	0.0535	0.0009
R^2	0.1836	0.3333
Adjusted R^2	0.1110	0.2740
N	50	50

Note: p-values in parentheses. "Competition" is coded one in case of a double-tournament, and 0 otherwise. ***significant at 1% level, **significant at 5% level.

Table 3 confirms our previous analysis. Women's performance depends neither on the nature of incentives nor on the gender of the competitor. One only observes that those women who felt more confident performed better under all types of environments. In contrast, men's performance is increased in the presence of higher incentives and decreased by the presence of a woman in the competition, in contrast to Gneezy et al., 2003.

How big is the gender wage gap? All payment schemes considered together, men earned on average 24.3% more than women and the difference between average women's and men's payoffs is significant (MWU test: p>|z| = 0.0563). The gender wage gap is significant neither when they choose the piece-rate scheme (MWU test: p>|z| = 0.2490), nor when they are involved in a double-tournament (MWU test: p>|z| = 0.8319) but it is highly significant in one-person tournaments (MWU test: p>|z| = 0.0021). When they choose to

enter the competition, women increase their average payoffs by 31.04% (MWU test: p>|z| = 0.0233) and men increase them by 40.86% (MWU test: p>|z| = 0.0250). The overall wage gap is thus mainly driven by the fact that a higher proportion of men compared to women enter the tournament and perform at a high level in one-person tournaments without any competition. We could therefore reasonably wonder whether this gap would diminish if more women entered the competition

Did women made the optimal choices? It is difficult to identify what the subjects would have earned by choosing another payment scheme than their actual choice since performance partly depends on the incentive scheme. However, we have seen that women's performance is not significantly affected by the payment scheme. Thus, one calculates the potential payoff of a woman who chose the piece-rate scheme if she had chosen the tournament, assuming that she keeps solving the same number of mazes and that her opponent behaves exactly as s/he did –which is a very strong assumption. We obtain that 33.33% of these women would have earned more by making the alternative choice. Similarly, if one calculates the potential payoff of those women who entered the tournament under the alternative payment scheme, we obtain that only 11.76% of these women would have earned more by making the alternative choice. This tends to indicate that women don't enter tournaments frequently enough.

6. Discussion and conclusion

This paper explores the hypothesis that males and females have different preferences regarding the competitiveness of jobs that contribute to explain their different occupational choices. Experimental evidence shows that women choose to enter a tournament in a lower

proportion than men. This gender entry gap is robust to different treatments in which we vary either the attraction of the competition in terms of expected utility or the mode of composition of the pairs. It is however observed that the female entry rate in the competition may be increased by offering women higher incentives or by allowing them to choose their group of opponents. We have considered three main explanations of the gender entry gap: different degrees of risk aversion, different beliefs about relative abilities and different beliefs about the competitiveness of the environment. Risk aversion clearly matters in explaining the willingness of most females to stay out the competition, whereas it does not influence men's choices. Many men and women are over-confident but relative abilities are not able to predict the entry decisions of either gender. Both men and women make accurate predictions about the gender entry gap. However the perception of the competitiveness of the environment does not strongly influence entry decisions.

The lack of influence of the beliefs about relative abilities tends to support the "reference group neglect" hypothesis suggested by Camerer and Lovallo, 1999 about entry decisions into more general competitive markets: Individuals who are willing to compete because they feel better than the average tend to forget that they are likely to face opponents who also think they are abler than the average. Our experiment shows that this neglect is familiar to both men and women.

Other recent experimental studies of the relationships between gender and competition show contrasted evidence regarding the influence of relative abilities on the observed gender entry gap into the competition. For example, Vandegrift, Yavas and Brown, 2004 observe that gender does not explain entry decisions into tournament in a winner-take-all

condition after controlling for skills: Men enter more than women because they have higher abilities. These results are observed in a repeated game where subjects are able to learn their actual relative ability. In contrast, our experimental design is based on a one-shot game in which the entry decision is made only once and in which relative ability can only be assessed in terms of beliefs. In real firm settings, competitors do not usually know their relative ability ex ante notably because they are not always informed on their competitors' characteristics. In addition, Vandegrift et al., 2004, also observe that when the structure of the tournament is changed (i.e. when several prizes are at stake in the tournament), men enter the tournament at higher rates than women even after controlling for abilities. Niederle and Vesterlund, 2005 also observe a gender gap in competition entry and they show that this gap can be explained neither by performance before and after the pay scheme choice has been made. They also show that men are more overconfident than women about their performance ranking; however only a small share of the gender entry gap can be related to different beliefs on performance ranking. These results are notably observed in a context where the success in tournament is determined by performance in a past piece-rate occupation. In contrast, in our design, people have to form beliefs both about their relative ability and the other's decision to enter the competition and the success in tournament is determined by performance once the choice to enter the competition has been made, like in real firm settings. In most cases however, neither a lack of ability nor a deficit in confidence can explain the low entry rate of women into the competition.

Our experiment then suggest that non economic factors play a role in occupational choices of both men and women. Non-economic factors affect women's competitive

behavior: Females who chose a female partner compete significantly more relative to when they were exogenously assigned a female partner. The mere option to affect the gender composition increases female competitiveness. Note that this result differs from the finding that women compete more in exogenous all-women groups than in exogenous mixed groups (Gneezy et. al. (2003). We show that female competitiveness is higher in endogenous female pairs than in exogenous female pairs. As regards men, much of their observed behavior seems somewhat difficult to explain by economic determinants: They only condition their decision to enter the competition on being opposed to another man, or to a woman but only if they expect a high female entry rate. We may interpret this, seemingly, non-economic male behavior in various ways. It may, for example, be an expression of unconscious social norms, stipulating that men "must", or "should", compete (i.e., choose the tournament) whenever the opponent is thought to compete – whereas women should be "careful" or "choosy" and only choose the competitive option when this is clearly deemed favorable. The observed male behavior conforms somewhat to such a norm since men always compete more against males than against females, and compete against females when the latter are thought to compete. Similarly, only women who are not too concerned about risk choose the tournament.

Another, complementary, explanation of observed male behavior is evolutionary: In the daily struggle for survival faced by our ancestors, males competed for females, and those males who performed best had the most offspring. This story finds some resonance in our data, too, since in our experiment men compete less against women than against men – but if the male believes that the female will compete (i.e., according to the gender norm

described here, effectively "behave like a man") then the male is more likely to compete, too. Of course, these explanations are rudimentary, and we only outline them to indicate the need for further research. Moreover, these factors in no way negate the role of economic variables, such as the overall attractiveness of the two payment schemes.

This gender entry gap generates a gender gap in earnings. Interestingly, there is no gender difference in performance in extreme situations, i.e. neither when the subjects choose the piece-rate payment scheme nor when they compete against an opponent once they have chosen the tournament. Two main differences oppose men and women's performance. First, men increase their performance as soon as they decide to enter the competition, women don't. Second, men increase their performance when opposed to a man in the competition and decrease it when opposed to a woman, perhaps by chivalry. Women increase their performance when opposed to a man but the difference is not significant. Should women enter more the competition? At the price of some assumptions, we show that about one third of those women who chose the piece-rate would have been better off by entering the competition. In addition, we show that those women who actually compete are successful: 71% win the tournament whereas only 40% of men win the tournament. All together, these results suggest that we should incorporate more behavioral considerations in the economic analysis of gender differences on the labor market.

Appendix 1. Instructions

You are participating in an experiment on decision-making organized for the GATE - CNRS and the Aarhus School of Business in Denmark. During this session, you can earn money. The amount of your earnings depends on your decisions and the decisions of another participant you will interact with. During the session, your earnings are expressed in points with the following conversion rule:

1 point = 0.25 €

At the end of the session, you will be paid in cash your earnings obtained during this session after they have been converted into Euros. We will add up to these earnings an additional amount of money (a show-up fee of 2 € + a minimum amount of 2 € for your participation to a post-experimental questionnaire). You will get paid in a separate room in order to preserve confidentiality, on presentation of the ticket that you have randomly drawn from the envelope upon entering the laboratory. The whole session lasts about one hour long.

Before starting the session, you are kindly requested to enter personal information about your gender, your age, your school, your level and field of studies and whether you have already participated in an experiment in economics. These anonymous pieces of information will remain confidential.

During this session, you will perform a task on your computer. This task consists of solving mazes. You are going to practice now by solving three mazes in order to get familiar with the task at hand.

As soon as you click the button "start", a maze appears on your screen. Starting from the green point located at the left of your screen, you can move in this maze by using the mouse of your computer. The path you follow appears in green and a marker always indicates your current position in the maze. You can move forward, stop or restart from any point already reached whenever you want. You can also give up a maze before solving it and make another one appear by clicking the button "next". The maze is solved as soon as you reach the red point located at the right of the screen. You are always indicated the time spent since you clicked the "start" button. All the participants can see the same three mazes.

When you have completed these three practice periods, you will be requested to answer the following question: "In your opinion, how many mazes do you think you could solve in 15 minutes?". The results of these practice periods and the answer to this question have definitely no consequences on the rest of the session, either on the person you will interact with, or on your earnings. After a moment, you will receive the instructions for the rest of the session.

If you have any questions, please raise your hand. Someone will answer your questions privately. Throughout the entire session, talking is not allowed.

Instructions (continued)

[The instructions below were distributed to the participants when all of them had completed the practice periods and answered the question]

During this session, you are paired with another participant.

Both you and the participant you are paired with have to perform a task. The task consists of solving mazes during a limited period of time of 15 minutes. The number of mazes you solve contributes to determine your earnings. The session consists of three stages.

In the first stage, you are allocated a pseudonym (a fake first name). Then, we propose you the pseudonyms of two participants in this session and we ask you to choose among these two persons the participant you will interact with.

In the second stage, you choose between two possible modes of payment, Mode A and Mode B. Your choice of the mode of payment and the choice of your co-participant determine the number of points you receive for each maze you solve personally.

You choose	And your co-participant chooses		You receive personally		
Mode A	**Mode A or mode B**	⇨	**4 points** for each maze you solve, no matter the number of mazes solved by the participant you are paired with		
Mode B	**Mode A**		**6 points** for each maze you solve, no matter the number of mazes solved by the participant you are paired with		
Mode B	**Mode B**	⇨ ⇨	**6 points** for each maze you solve if you solve more mazes than your co-participant	**1 point** for each maze you solve if you solve fewer mazes than your co-participant.	If you solve the same number of mazes as your co-participant, a random draw determines which of you two receives **6 points** for each maze s/he solved and which of you two receives **1 point** for each maze s/he solved.

You choose between Mode A and Mode B by clicking one of the two buttons available on your computer screen. Your choice is registered once you click "OK".
You are informed on the choice of your co-participant before moving to the third stage.
In the third stage, you perform the task of solving mazes during 15 minutes. Time is deducted as soon as you click the "start" button. To make a new maze appear on your screen, you can click the "next" button. The number of mazes you have currently solved is always visible on your screen, as the time already spent since the beginning of the task solving. All the mazes have a solution. All the participants receive the same mazes in the same order.

At the end of the 15 minute-period, you are informed about your payoff and the session is over. Then you can fill a post-experimental questionnaire in, whose details will be indicated on your screen.

If you have any questions, please raise your hand. Someone will answer your questions privately.

Appendix 2. Post-experimental questionnaire

You are kindly requested to answer the following questionnaire that consists of two parts. By answering these questions, you can earn between 2 and 5 Euros more. The answers to these questions are anonymous and confidential. Communication is not allowed.

1st part
You will receive 1 Euro for each correct answer to the following questions.
For your information, in this session, there were ___ women and __ men.
Question 1. In your opinion, what is the average number of mazes solved by the women in this session (including yourself if you are a woman)?

Question 2. In your opinion, what is the average number of mazes solved by the men in this session (including yourself if you are a man)?

Question 3. In your opinion, how many women in this session have chosen mode B (including yourself if you are a woman)?

Question 4. In your opinion, how many men in this session have chosen mode B (including yourself if you are a man)?

2nd part. You earn 2 € for sure by answering the following 16 questions.

For each of the following statements, please indicate **the likelihood** that you engage in each activity or behavior, by using the following scale, and by entering a number between 1 (very unlikely) and 5 (very likely):

1	2	3	4	5
Very unlikely	Unlikely	Not sure	Likely	Very likely

Betting a day's income at a high stake play card game : ___
Getting next to a river in flood to take pictures that you can sell to the press: ___
Investing 10% of your annual income in a moderate growth mutual fund: ___
Defending an unpopular issue that you believe in at a social occasion: ___
Co-signing a new car loan for a friend: ___
Deciding to share an apartment with somebody you don't know well: ___
Investing 5% of your annual income in a very speculative stock: ___
Going camping in the wild: ___
Taking a week's income to play at the casino: ___
Going a two-week vacation in a third-world country without prearranged hotel accommodation: ___
Spending money impulsively without thinking about the consequences: ___
Trying bungee jumping: ___
Lending a friend an amount of money equivalent to one month 's income: ___
Investing in a business that has a good chance of failing: ___
Approaching your boss to ask for a raise: ___
Dating someone you are working with: ___

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