Team competition: Eliminating the gender gap in competitiveness

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Motivations

- Gender gap in income and social positions.
- Several possible explanations: lower ability of women, discrimination, men and women differ in their propensity to enter competitive environments.
Motivations (2)

- Recent research papers study this gender gap in the lab (Niederle and Vesterlund (2007)).
- Main idea: choice between a remuneration that does not involve any competition (piece rate) and one that does (tournament).
  - High performing women do not enter enough.
  - Low performing men enter too much.
Motivations (3)

Why?
- Cannot be explained by differences in performance.
- Men are more overconfident than women: only explains a small part of the gender gap.
- Controlling for differences in confidence, risk and feedback aversion, there still remains a substantial gap in tournament entry (tournament-specific factors: thrill/fear of competition).
Motivations (4)

Harmful consequences of the gender gap in tournament entry:
- No diversity at the top of hierarchies.
- Lowers the average performance of candidates.
Aim of the experiment

- See whether the possibility to enter a tournament as a team decreases the gender-gap in tournament entry.
- If such is the case, see what are the explaining factors of the reduction of the gender-gap.
- Explain further why men enter tournaments more often than women.
Potential effects of team on gender gap in tournament entry

- Factor 1: Change in the probability of winning.
- Factor 2: Beliefs about one’s team chances to win the tournament.
- Factor 3: Ambiguity, Risk and Feedback aversion.
- Factor 4: Influencing each other’s payoffs within the team.
- Factor 5: Competing as part of a team.
The Experiment

- The experimental design builds on that of Niederle and Vesterlund (2007).
- Additions of 5 two-digits numbers (no gender difference in performance expected).
- 8 tasks.
- What changes across tasks is the remuneration scheme.
The Experiment

- Participants were informed of the nature of the tasks only immediately before performing the task.
- Two tasks were randomly selected at the end of the experiment and determined the payoffs.
- Participants learned their absolute performance but not their relative performance after each task.
First Tasks

- Task 1. Piece Rate: 50 cents per correct answer.
- Task 2. Individual Tournament: 1 euro per correct answer if winner.
- Task 3. Choice between Piece Rate and Individual Tournament (against a past performance of a random opponent).
- Task 4. Choice between Piece Rate and Team Tournament.

Team Tournament:

- 2 opponents (randomly drawn among other participants).
- 1 teammate (among those who chose the team tournament).
- Each member of the winning team earns 1 euro (50 cents in case of a tie) * average perf of the team.
76 subjects: 37 women, 39 men.
Men are slightly better than women but not significantly so.
51% of women and 85% of men chose to enter the individual tournament (women represent 36,5% of entrants).
This difference is significant with a two-sided Mann-Whitney test ($p=0.002$).
The decisions to enter the individual tournament are in line with Niederle and Vesterlund:

- Differences in overconfidence, risk and ambiguity aversion explain part of the gender gap in tournament entry, but not all of it.
- The remaining reason is attributed to a difference in the taste for evolving in a competitive environment.
Predicted gender gaps

- 47% of participants would maximize their expected payoffs by choosing the IT.
  - 49% of men.
  - 46% of women.
- 64% of participants would maximize their expected payoffs by choosing the TT.
  - 67% of men.
  - 62% of women.
- Neither one of these predicted gender gaps is significant.
Proportion of entrants men and women in the individual tournament (IT) and team tournament (TT)
Entry in the team tournament

- 59% of men and 62% of women enter the team tournament ($p=0.82$): women represent 50% of entrants.
- Men enter less than predicted by payoff-maximizing choices ($p=0.49$).
- Women do not enter the tournament significantly more often when it is team-based ($p=0.48$).
- Men enter significantly less as part of a team than alone ($p=0.02$).
Proportion of men and women entering the IT and TT conditional on performance quartile
Logit of Tournament-Entry Decision (Tasks 3 and 4)

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- The fact that the tournament is team-based reduces the gender gap in entry.
- Men enter less as part of a team than alone, Women do not enter significantly more often.
Belief-assessment questions

- Participants had to guess the mean task 2 performance of the participants in their session.
- Guess of the task 2 performance of one’s teammate and opponents (task4).
The role of beliefs

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- **Guesswin** = 1 if the beliefs of the subject are consistent with winning the tournament, 0 otherwise.

- Controlling for beliefs explains part of the disappearance of the gender gap...⇒ the gender gap in overconfidence is reduced when the tournament is team-based.

- But not all of it.
Tasks 3 bis and 4 bis

- **Task 3 bis.** Choice between submitting task 1 performance to Piece Rate or Individual Tournament. Task 3 bis=Task 3 except for the fact that the participant does not have to actually perform in a competitive environment.

- **Task 4 bis.** Choice between submitting task 1 performance to Piece Rate or Team Tournament.
The Role of the Taste for Competition

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Controlling for general factors explains part of the disappearance of the gender gap...⇒ Being part of a team reduces gender differences in overconfidence, risk and ambiguity aversion.

A significant part of the disappearance of the gender gap remains unexplained.
Task 5

- Task 5. Choice between Individual Piece Rate and Team Tournament with a teammate of the same level (TTid).

**TTid:**
- 2 opponents (randomly drawn among other participants).
- 1 teammate (among those who chose the TTid, the one whose task 2 perf is the closest from the participant’s)
- Task 5=Task 4 except for the fact that there is no more uncertainty on one’s teammate’s ability to solve additions.
The role of uncertainty about one’s teammate’s ability

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- Coefficient of Female*Team unchanged => Men, more than women do not like to perform with an uncertainty on their teammate’s ability and this is a big driving force of the disappearance of the GG.
Proportion of men and women entering the tournaments conditional on performance quartile
Performances of men and women entrants and of those who chose to enter the TT in the 3 tournaments

The decrease of performance in the team tournament is due to the crowding out of high-performing men and not to shirking of entrants.
Main results

- Gender Gap in individual tournament entry.
- No more gender gap in team tournament entry.
- Women do not enter more in the team tournament but many men why away from the competition when it is team-based.

Why?

- Men less confident as part of a team.
- The gender gap in risk and ambiguity aversion is reduced when the tournament is team-based.
- Men (and especially high-performing men) more than women dislike the uncertainty about their teammate’s ability.
Is team competition the solution?

- The fact that the tournament is team-based negatively affects the quality of the pool of entrants.
- The team tournament where the subject knows the ability of his teammate (no gender gap in entry either $p=0.52$) is a better alternative.
- Membership to a group might entice women to enter the competition more often and high-performing may be willing to enter the team competition if their teammate is a fellow group member $\Rightarrow$ follow-up experiment.