

ONLINE APPENDIX

Relative Feedback Response in Competitive Environments

A Instructions

This appendix contains the instructions for each of the seven activities, translated from the original Spanish.

A.1 Introduction

SLIDE NUMBER 1

Introduction

- The following instructions will explain how you can earn money. The amount of money that each participant earns may vary considerably depending on the decisions the participant makes.
- Participants will interact only through computers. If anyone talks, makes any kind of signs, looks into other participant's computer, etc., we will terminate the experiment and will ask you to leave without any earnings.

SLIDE NUMBER 2

General overview

- In this experiment you will have to complete seven different activities. Only one of these seven activities – randomly selected – will be taken into account for your payment. Each of these activities has the same probability in being chosen.
- At the end of the experiment, we will put seven balls in a bingo cage and we will remove one of them to determine which of the seven activities will be taken into account for the payment of your earnings.

SLIDE NUMBER 3

- In addition to the payment of the randomly selected activity and your participation payment ($Q20$), you will receive $Q25$ for completing the seven activities.
- The seven activities differ. Several of them ask you to calculate the sum of five two-digit random number for 5 minutes. Before you start any activity, we will give you the opportunity to become familiar with the interface and to practice for five minutes.
- Then, before beginning each activity, we will explain to you how your earnings will be determined in case a particular activity is chosen.

A.2 Activity 1

SLIDE NUMBER 1

Activity 1 - Unitary

- For Activity 1 you will be asked to calculate the sum of five two-digit random numbers. You will have 5 minutes to calculate the correct sum of a series of these problems. You may not use calculator, but you can use a blank sheet of paper and pencil, which will be provided to you.
- You can send your response by clicking on the submit button. Upon entering your response, you will instantly know if it is correct or not.

SLIDE NUMBER 2

- If Activity 1 is randomly selected for payment, you will earn Q5 for each correct answer you get in 5 minutes. Your earning will not be reduced if your answer is incorrect.
- Upon completing this activity, you will only be able to see the number of correct answers you submitted.
- If you have any questions before beginning, please raise your hand.

A.3 Activity 2

SLIDE NUMBER 1

Activity 2 - Tournament

- As in Activity 1, you will have 5 minutes to calculate the correct sum of a series of five two-digit numbers.
- However, for this Activity, we will form groups (randomly) of four persons and only the person from each group that gets the most correct answers will receive earnings.

SLIDE NUMBER 2

- If this Activity is randomly chosen for payment, the person with the most correct answers will receive Q20 for each one. (In case of ties, the winner is whoever entered the last correct answer first). The rest of the people in that group will not receive any kind of payment.
- Upon finishing this activity, you will only see the number of correct answers you submitted.
- If you have any questions before beginning, please raise your hand.

A.4 Activity 3

SLIDE NUMBER 1 Activity 3 – Combination

- As in the last two Activities, you will have 5 minutes to calculate the correct sum of a series of five two-digit numbers.
- However, now you will be able to choose the payment scheme for the correct answers you get in this Activity. Specifically, you will be able to choose which percentage of the total payment you want to be by Unitary and which percentage by Tournament:

$$\begin{array}{l} \% \text{ Payment by Unitary } (Q5 \times \text{correct answer}) \\ + \% \text{ Payment by Tournament } (Q20 \times \text{correct answer, if you win}) \\ \hline 100\% \text{ (Total Payment)} \end{array}$$

SLIDE NUMBER 2

- The Payment by Unitary provides $Q5$ for each correct answer.
- The Payment by Tournament provides $Q20$ for each correct answer in this Activity (3), only if you get a higher number of correct answers than the number of correct answers that the other three participants in your group got in Activity 2 (Tournament) – that is, the Activity which you just completed. (In case of ties, the winner is whoever entered the last correct answer first).
- If you do NOT get more correct answers than the other participants in your group in Activity 2 (Tournament), the Payment by Tournament does not yield any payment.

SLIDE NUMBER 3

- If this Activity is randomly chosen for payment, and you get a higher number of correct answers than the number of correct answers that the other three participants in your group got in Activity 2 (Tournament), you will get:

$$\begin{array}{l} Q5 \times (\% \text{ Payment by Unitary}) \times (\# \text{ correct answers}) \\ + Q20 \times (\% \text{ Payment by Tournament}) \times (\# \text{ correct answers}) \end{array}$$

- If this Activity is randomly chosen for payment, and you do NOT get a higher number of correct answers than the number of correct answers that the other three participants in your group got in Activity 2 (Tournament), you will get:

$$Q5 \times (\% \text{ Payment by Unitary}) \times (\# \text{ correct answers})$$

SLIDE NUMBER 4

- On the next screen you will be asked to choose the percentage of the total payment you wish to be by Unitary and the percentage by Tournament. Then you will have 5 minutes to calculate the sums.
- Upon finishing this activity, you will only see the number of correct answers you obtained.
- If you have any questions before beginning, please raise your hand.

A.5 Activity 4

SLIDE NUMBER 1

Activity 4 – Combination II

- In this Activity you will have to make a similar selection as in Activity 3, with the exception that you will not be asked to sum more numbers. This time you will be able to choose the payment scheme for the correct answers you got in Activity 1 (Unitary). Specifically, you will be able to choose which percentage of the total payment you want to be by Unitary and which percentage by Tournament:

$$\begin{array}{r} \% \text{ Payment by Unitary } (Q5 \times \text{correct answer}) \\ + \% \text{ Payment by Tournament } (Q20 \times \text{correct answer, if you win}) \\ \hline 100\% \text{ (Total Payment)} \end{array}$$

SLIDE NUMBER 2

- The Payment by Unitary provides $Q5$ for each correct answer.
- The Payment by Tournament provides $Q20$ for each correct answer in Activity 1 (Unitary), only if you got a higher number of correct answers than the other participants in your group in Activity 1 (Unitary). (In case of ties, the winner is whoever entered the last correct answer first).
- If you did NOT get more correct answers than the other participants in your group in Activity 1 (Unitary), the Payment by Tournament does not yield any payment.

SLIDE NUMBER 3

- If this Activity is randomly chosen for payment, and you got the highest number of correct answers in your group in Activity 1 (Unitary) in comparison with the other participants in your group, you will get:

$$Q5 \times (\% \text{ Payment by Unitary}) \times (\# \text{ correct answers}) \\ + Q20 \times (\% \text{ Payment by Tournament}) \times (\# \text{ correct answers})$$

- If this Activity is randomly chosen for payment, and you did NOT got the highest number of correct answers in your group in Activity 1 (Unitary) in comparison with the other participants in your group, you will get:

$$Q5 \times (\% \text{ Payment by Unitary}) \times (\# \text{ correct answers})$$

SLIDE NUMBER 4

- On the next screen you will be able to see the number of correct answers that you got in Activity 1 (Unitary). Also, you will be asked to choose the percentage of the total payment you wish to be by Unitary and the percentage by Tournament for your answers, and you will not have to do any more sums in this Activity.
- Upon finishing this activity, you will only see the number of correct answers you obtained.
- If you have any questions before beginning, please raise your hand.

A.6 Activity 5

SLIDE NUMBER 1

Activity 5 – Ranking

- In this Activity you will not have to add up digits. This time we will ask you several questions about what think your position was in the ranking of the members of your group in relation to the number of correct answers.
- If this Activity is randomly chosen for payment, we will choose one of the questions randomly. If for the chosen question you guess your position in the ranking, you get $Q60$. If you do not guess your position, you get $Q10$.
- If you have any questions before beginning, please raise your hand.

A.7 Activity 6

SLIDE NUMBER 1

Activity 6 – Tournament II

- As in Activity 2, you will have 5 minutes to calculate the correct sum of a series of five two-digit numbers.
- For this Activity, you will be participating again with the same people from your group, and only the person of each group that gets the most correct answers will receive earnings.
- Before beginning the activity, you will see your ranking among the members of your group, in relation to the number of correct answers in Activity 2 (Tournament).

SLIDE NUMBER 2

- If this Activity is randomly chosen for payment, the person with the most correct answers will receive Q20 for each one. (In case of ties, the winner is whoever entered the last correct answer first. The rest of the persons in that group will not receive any payment.
- Upon finishing this activity, you will only see the number of correct answers you submitted.
- If you have any questions before beginning, please raise your hand.

A.8 Activity 7

SLIDE NUMBER 1

Activity 7 – Options

- In this Activity you will not have to add more numbers. This time you will have two options – OPTION A and OPTION B – that will pay money according to the color of the ball – green or blue – that leaves the bingo cage.

If the ball is color...	OPTION A	OPTION B
...BLUE	Q55	Q145
...GREEN	Q45	Q0

- You will see ten decision rows. The number of blue (and green) balls varies according to the decision row. For each row you must choose between OPTION A or OPTION B.

SLIDE NUMBER 2

For this slide, the text was a voice-over of this image:

OPCIÓN A	Fila de Decisión	OPCIÓN B
55 45 45 45 45 45 45 45 45 45	1	145 0 0 0 0 0 0 0 0 0
55 55 45 45 45 45 45 45 45 45	2	145 145 0 0 0 0 0 0 0 0
55 55 55 45 45 45 45 45 45 45	3	145 145 145 0 0 0 0 0 0 0
55 55 55 55 45 45 45 45 45 45	4	145 145 145 145 0 0 0 0 0 0
55 55 55 55 55 45 45 45 45 45	5	145 145 145 145 145 0 0 0 0 0
55 55 55 55 55 55 45 45 45 45	6	145 145 145 145 145 145 0 0 0 0
55 55 55 55 55 55 55 45 45 45	7	145 145 145 145 145 145 145 0 0 0
55 55 55 55 55 55 55 55 45 45	8	145 145 145 145 145 145 145 145 0 0
55 55 55 55 55 55 55 55 55 45	9	145 145 145 145 145 145 145 145 145 0
55 55 55 55 55 55 55 55 55 55	10	145 145 145 145 145 145 145 145 145 145

- In decision row 1 there is 1 blue ball (and 9 green ones); in decision row 2, there are 2 blue balls and 8 green one...and so on until decision row 10, in which there are 10 blue balls and no green. (Note that there will always be 10 balls; what changes is the mix of blue and green balls according to the decision row).
- If this Activity is randomly selected for payment, we will throw a 10-sided die to choose a decision row and then we will draw a ball from the bingo cage to determine your payment, depending on the OPTION that you chose for that row.
- Please note Decision Row 1 (1 blue ball and 9 green balls):
- OPTION A pays $Q55$ if the blue ball comes out; or pays $Q45$ if one (out of 9) of the green balls comes out.
- OPTION B pays $Q145$ if the blue ball comes out; or pays $Q0$ if one (out of 9) of the green balls comes out.
- Note that the probability of drawing a blue ball in this row is 10% (1 blue ball out of 10); the probability of drawing a green ball in this row is 90% (9 green balls out of 10).
- As you move down the number of blue balls increase (and the number of green balls decreases). That is, the probability that the payment is defined by the blue ball (higher payments) increases for both options.

- In fact, for decision row 10 (the last row), there are only blue balls for both option. Therefore, the payment will be, with certainty, the one of the blue ball (100% probability). That is, for this row, you must choose between Q_{55} (OPTION A) and Q_{145} (OPTION B).

SLIDE NUMBER 3

- If Activity 7 is randomly chosen for payment, your earnings will be determined as follows:
- First we will throw a ten-sided die to choose the decision row that will determine your earnings. (Naturally, each decision row has the same probability of being chosen).
- Then, we will put the number of blue and green balls corresponding to the particular decision row in the bingo cage. We will draw a ball from the bingo cage and your earnings will be determined according to the color of the chosen ball and the option that you selected in the decision row.

SLIDE NUMBER 4

For this slide, the text was again a voice-over of the image of the decision rows (see slide 2 from this activity).

- Here is an example. Suppose that your earnings are determined according to this Activity, and that the number of the die is 7. This means that row 7 will determine your earnings and we will put 7 blue balls and 3 green balls in the bingo cage.
- If the bingo cage chooses a blue ball and for row 7 you chose OPTION A, your earnings would be Q_{55} . If for row 7 you chose OPTION B, your earnings would be Q_{145} .
- If the bingo cage chooses a green ball and for row 7 you chose OPTION A, your earnings would be Q_{45} . If for row 7 you chose OPTION B, your earnings would be Q_0 .

SLIDE NUMBER 5

- On the next screen you will see 10 decision rows and you will have to select the option you prefer for each row.
- If you have any questions before beginning, please raise your hand.

B Additional tables

Table A1: Regression results for change in performance after feedback

	(1)	(2)	(3)
$Rank \in \{2, 3, 4\}$	0.367 (0.523)	-0.551 (0.709)	-0.608 (0.792)
$Ability : Activity_1$	-0.023 (0.105)	-0.002 (0.101)	0.011 (0.109)
$Competition : Activity_2 - Activity_1$	-0.388*** (0.094)	-0.378*** (0.080)	-0.369** (0.086)
$BeliefPay$	0.216 (0.314)	0.332 (0.290)	0.354 (0.282)
$Female$		-0.820 (0.776)	-0.778 (0.777)
$Rank \in \{2, 3, 4\} \cdot Female$		2.113* (0.832)	2.195* (0.867)
$Competitiveness_3$			-0.001 (0.008)
$SafeChoices$			-0.107 (0.102)
$Overconfidence$			-0.099 (0.173)
$Constant$	0.190 (1.063)	0.331 (1.115)	0.754 (1.059)
Observations	132	132	132
Clusters	33	33	33
R^2	0.159	0.2430	0.2496
BIC	558.5878	554.4886	567.9826
AIC	544.1738	534.309	539.1545

Notes: Dependent variable is the difference in number of correct answers between the two winner take all tournaments, after (activity 6) - before (activity 2) receiving feedback.

Standard errors are clustered at the group level. *, ** and *** indicate significance at the 5%, 1% and 0.1% levels, respectively.

C Additional figures

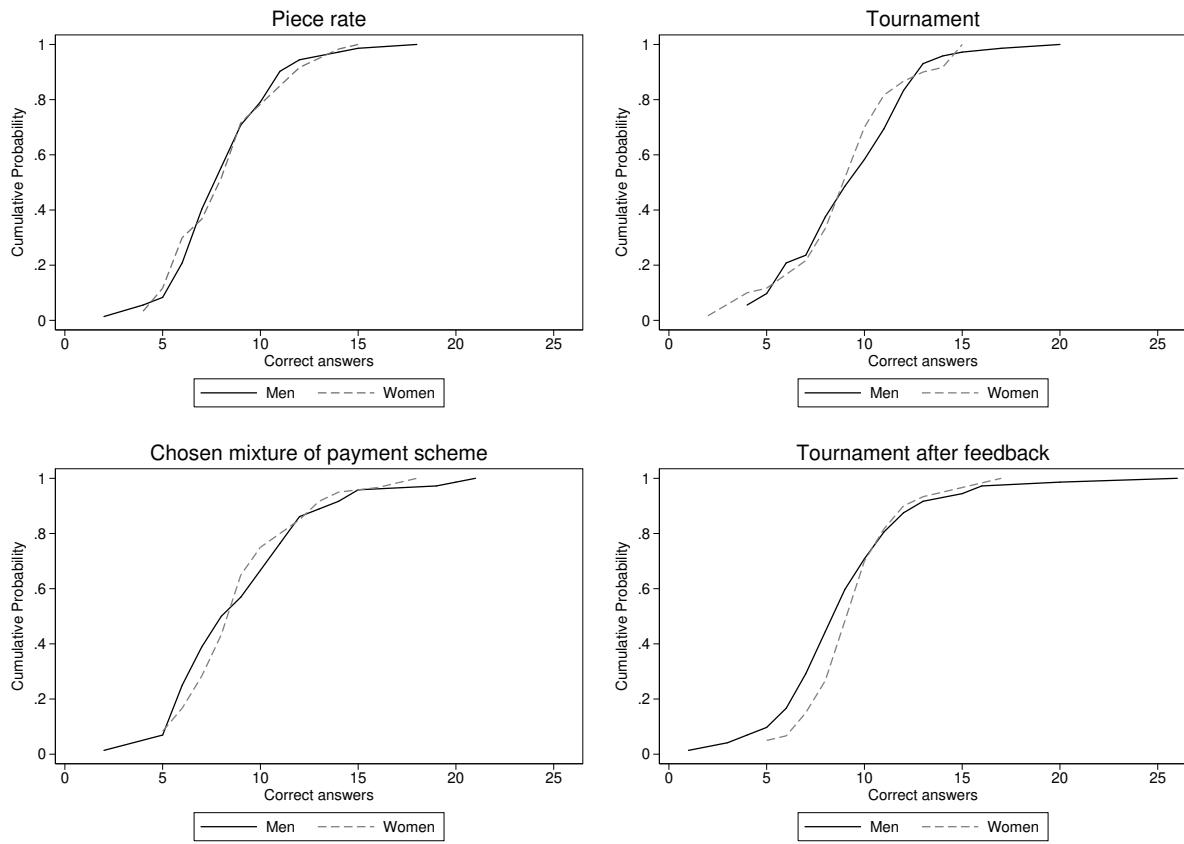


Figure A1: CDFs of performance on the real-effort task by gender

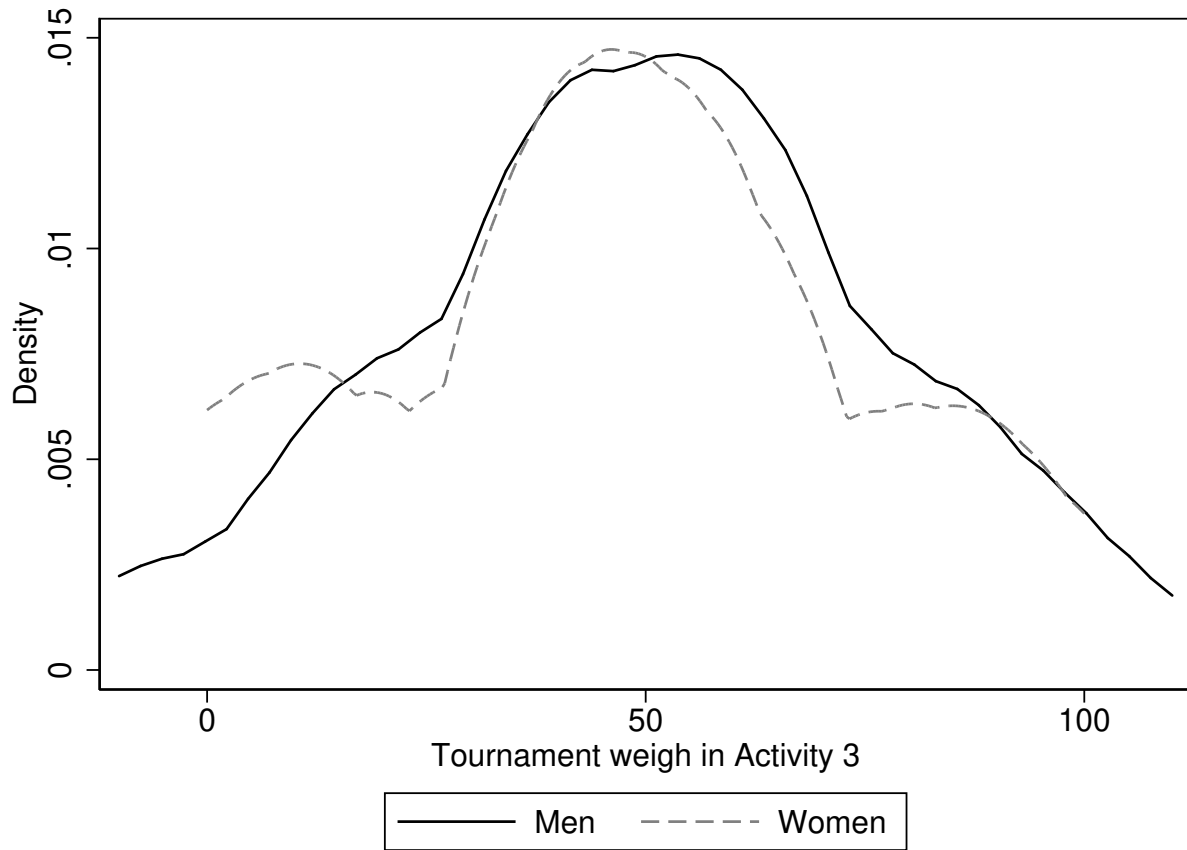


Figure A2: Competitiveness as measured by tournament weight in activity 3

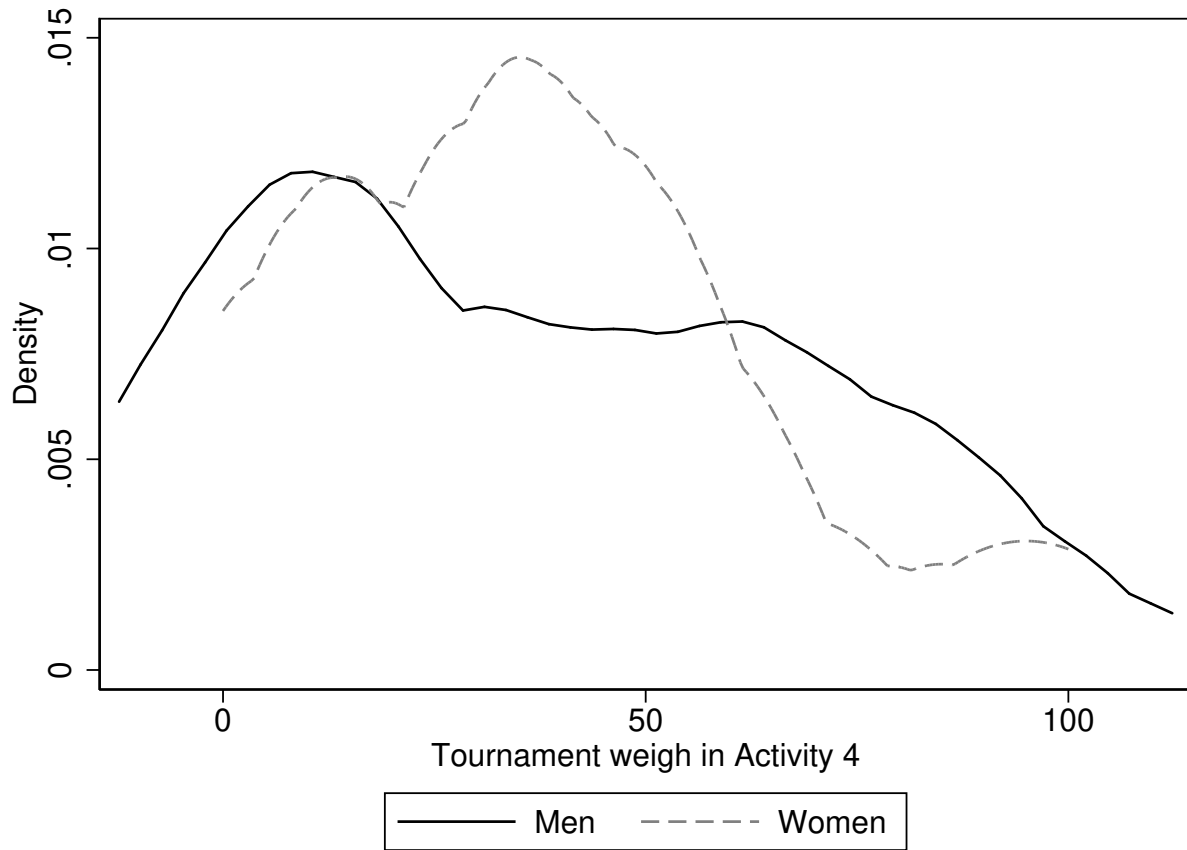


Figure A3: Competitiveness as measured by tournament weight in activity 4

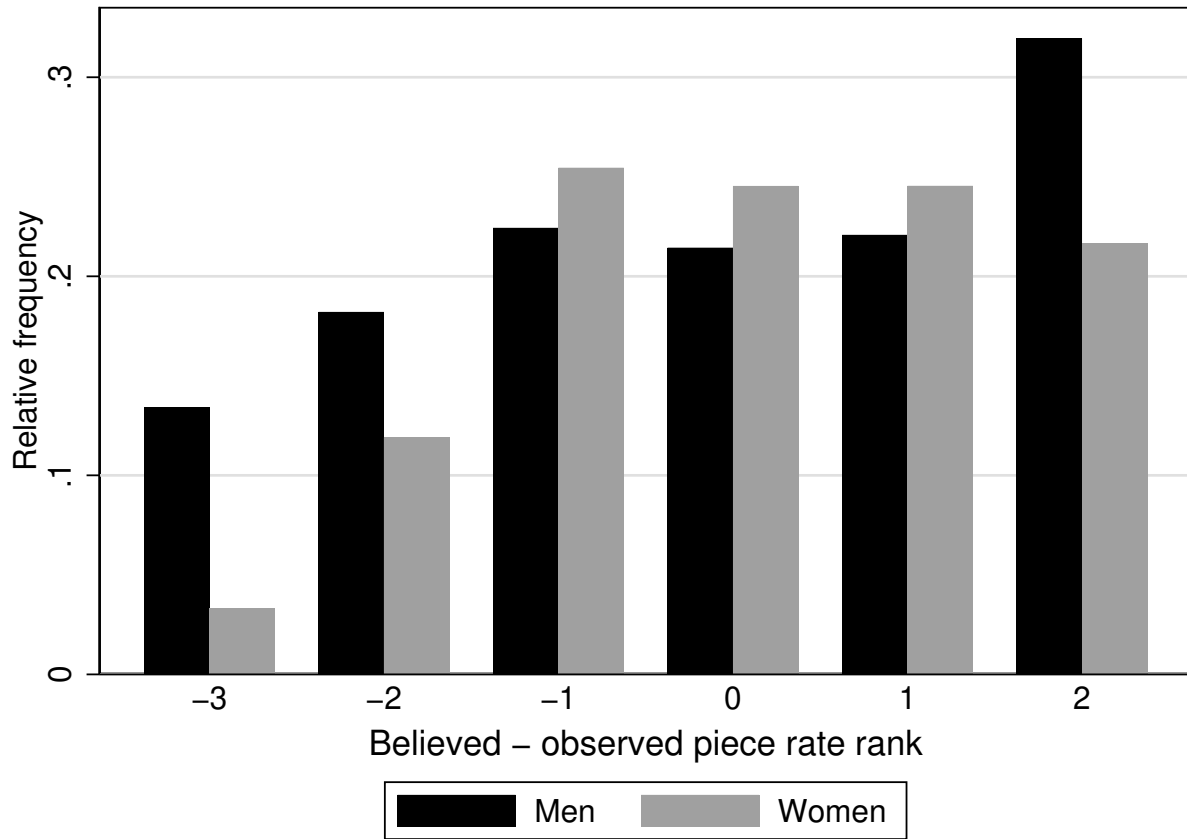


Figure A4: Overconfidence over piece-rate performance

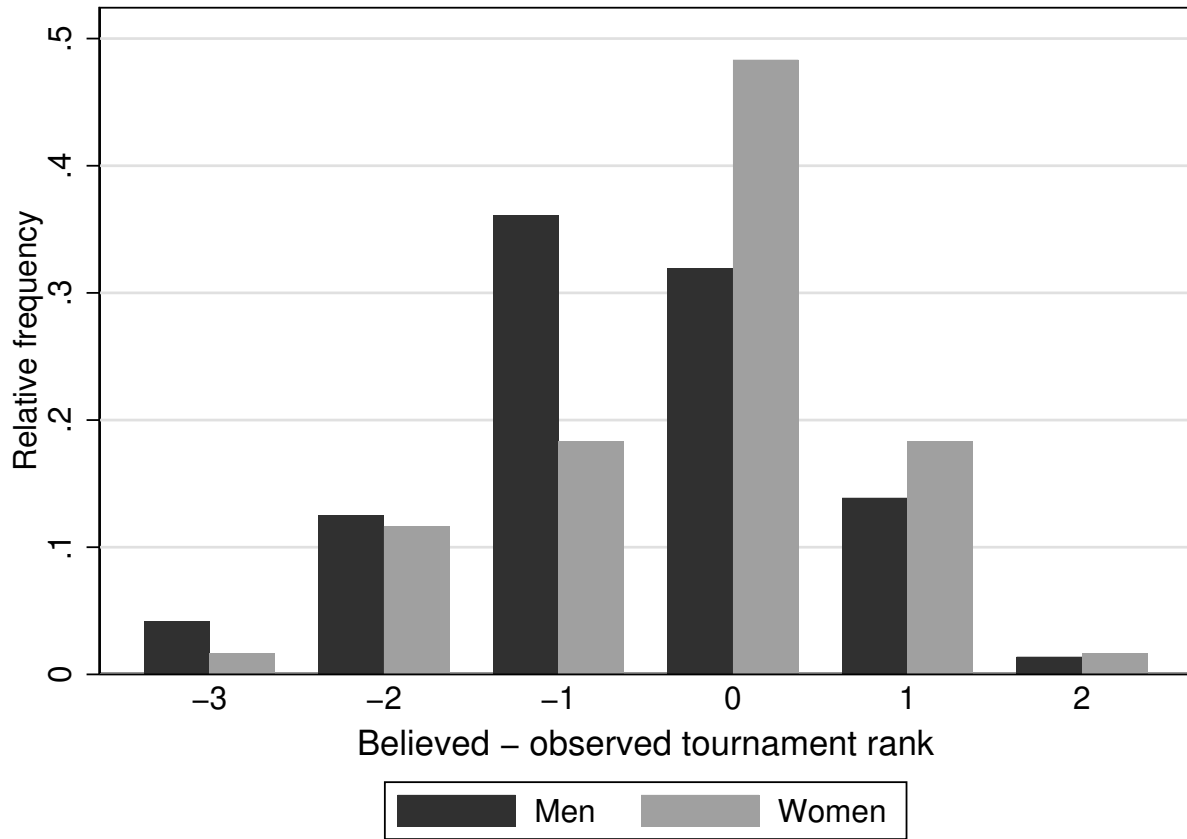


Figure A5: Overconfidence over tournament performance

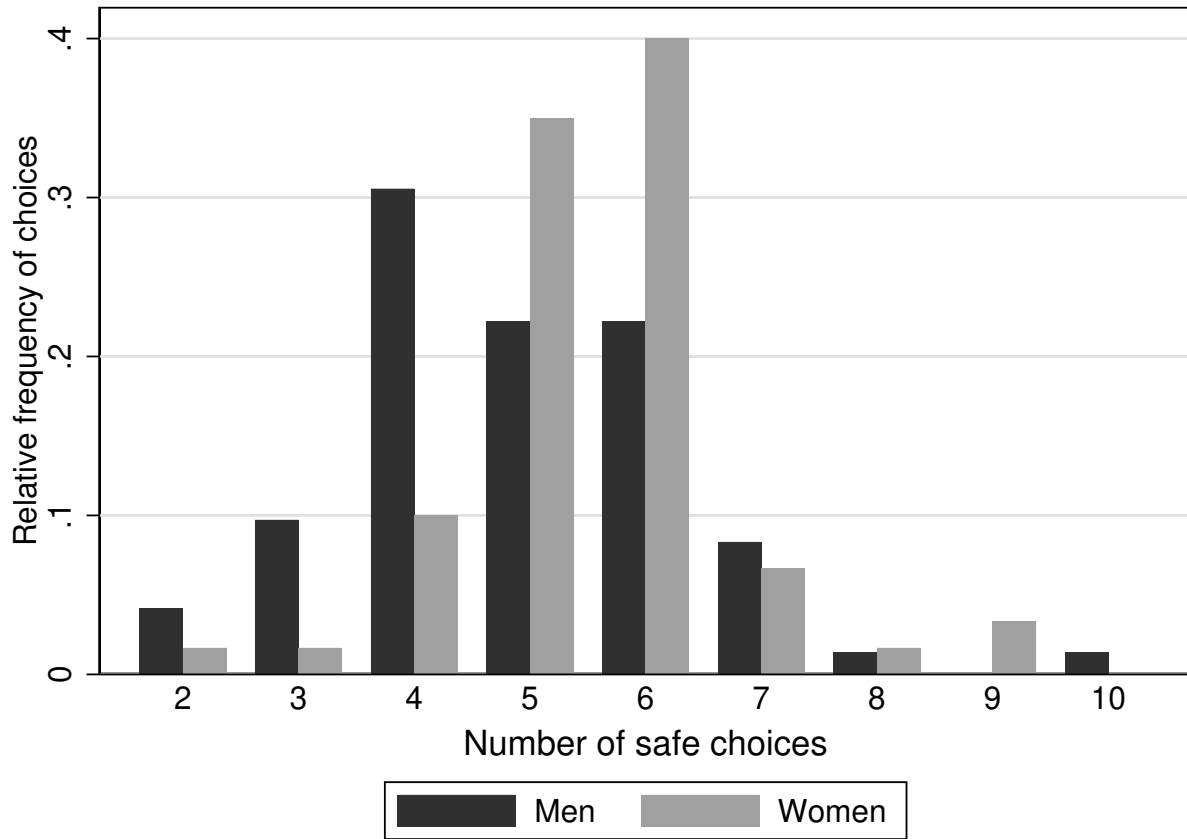


Figure A6: Number of safe choices in the risk elicitation task