Rank versus Inequality—Does Gender Composition Matter?

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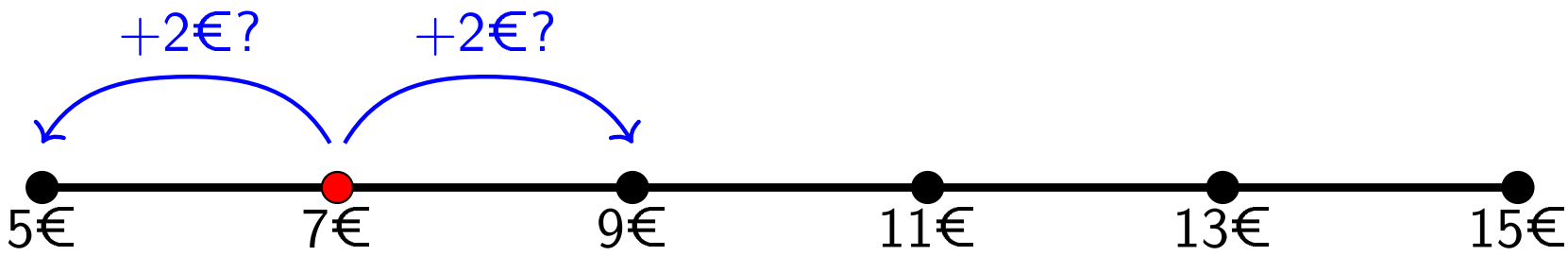
Questions

- Imagine that you earn 7€. There are five other people in the society. The income levels are shown above.

Questions



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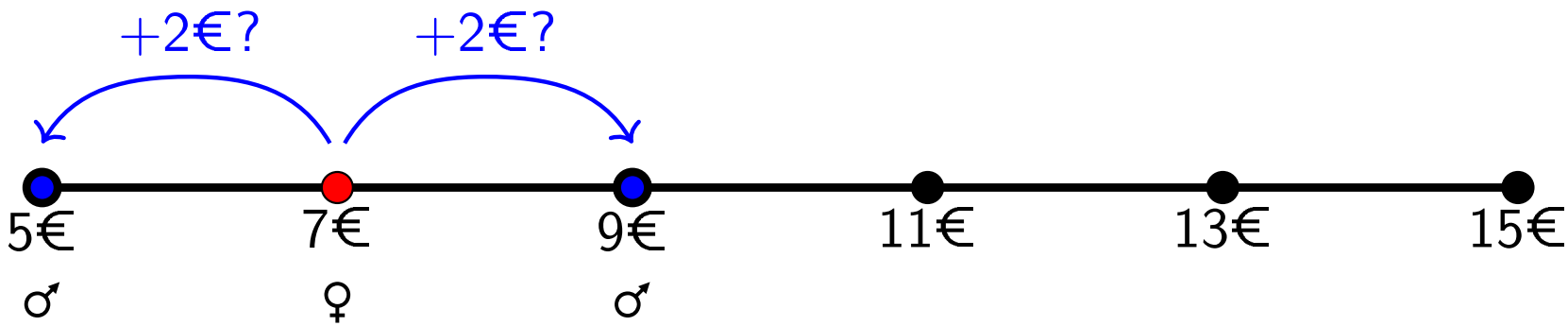
- You are asked to choose either one rank below or above you. The chosen one will get additional 2€. What would you do? (Kuziemko et al., 2014; Last-place aversion)

Questions



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- **Would your decision be affected if their genders are identical/different to you?**
- **Would the (perception of) luck determining the rank affect your decision?**

Backgrounds

On the concerns for the relative rank:

- Keynes (1930), Russell (1930), Duesenberry (1949), Easterlin (1974), Quiggin (1982), Frank (1985)...
- One line: "People care for the relative rank."

On the puzzling preferences/demand for redistribution:

- Meltzer and Richard (1981) and all "standard" public finance studies predict the poor should demand for redistribution.
- One possible explanation to the poor's low demand for redistribution: Reluctance to allocate downward to keep the rank, e.g., Last-Place Aversion (LPA, Kuziemko et al., 2014)
- Camerer et al. (2016)'s replication project questions credibility of the LPA. Martinangeli and Windsteiger (2020) claim that the experiment for the LPA should've been designed better.

Research Questions

Would the gender composition matter?

- What if the redistribution does not affect the relative position with respect to the different gender?

Would the perception of luck matter?

- Both Kuziemko et al. and Martinangeli and Windsteiger randomly assign the relative rank to subjects.
- When people feel "underplaced," would their allocation behavior be different?

Experimental Design - General

Within-subject design

What we had in mind:

- Other subjects' genders are revealed innocuously, without imposing a potential experimenter demand effect.
- Two factors—effort and luck—affect the observed rank.
- Subtle way to generate variation in relative rank and gender composition.

Experimental Design - Part 1

1. Subjects are informed the experiment consists of two parts.
2. Before Part 1, they answered short questionnaires, including gender, field of study, previous experience, etc.
3. Subjects are told that the better they perform in Part 1, the more likely they earn.
4. Part 1: Encryption Task (Erkal et al., 2011) for 5 mins. A random sequence of texts and a decoding table are shown. $+1$ when correctly decoding the texts.

Experimental Design - Part 1

Encryption task

Decode as many text sequences into numbers as possible

Correctly decoded text sequences: 0

Decoding table

letter	B	V	K	D	C	L	O	A	Y	F
corresponds to number	0	1	2	3	4	5	6	7	8	9

Text sequence: YDDYO

Your answer (enter only numbers):

Submit

Remaining time: 04:56

Experimental Design - Part 2

Make a decision for 5 rounds. In each round, a subject

1. chooses a nickname (only for the current round) from a list of gender-specific alternatives,
2. is randomly assigned to a group of six,
3. learns a relative rank of the "adjusted" performance,
   - Adjusted performance = [dice roll + 2]$\times$N(decoded Texts)
   - Only the ranks, neither adjusted nor actual performances, are revealed.
4. knows that the payoff of rank r subject is $17 - 2r$, and
5. **decides to allocate an additional 2 euros either to the rank-above or to the rank-below.**

Experimental Design - Part 2

Allocate additional money.

There are 2€ from an external source. You can assign the additional money to either a person at 1 rank above or below you.

(If you are ranked first or last, you will have only one option.)

When your decision is selected at the end of the experiment, the additional money goes to the person you chose. Of course, if someone else decides to give you the money, then you could get the additional money.

	Rank	Name	Earning
	1	Adam	15€
	2	Julia	13€
(you)	3	Diana	11€
	4	Patrick	9€
	5	Richard	7€
	6	Katherina	5€

Choose to whom you want to allocate the additional money.

Julia

Patrick

Continue

Experimental Design - post-experimental survey

1. "There were 18 (including you) in the experiment you just finished. Please give your best guess about your actual rank of the performance. (Write an integer between 1 and 18.)"
2. Please specify how you agree on the following statements:
   - "I feel that, overall, the random adjustment of the performance places me worse ranks than my actual ranks."
   - "I feel that the effect of random adjustment on the relative rank is stronger than that of actual performance."
   - "A society should accept inequality caused by differences in luck."

Experimental Design - Remarks

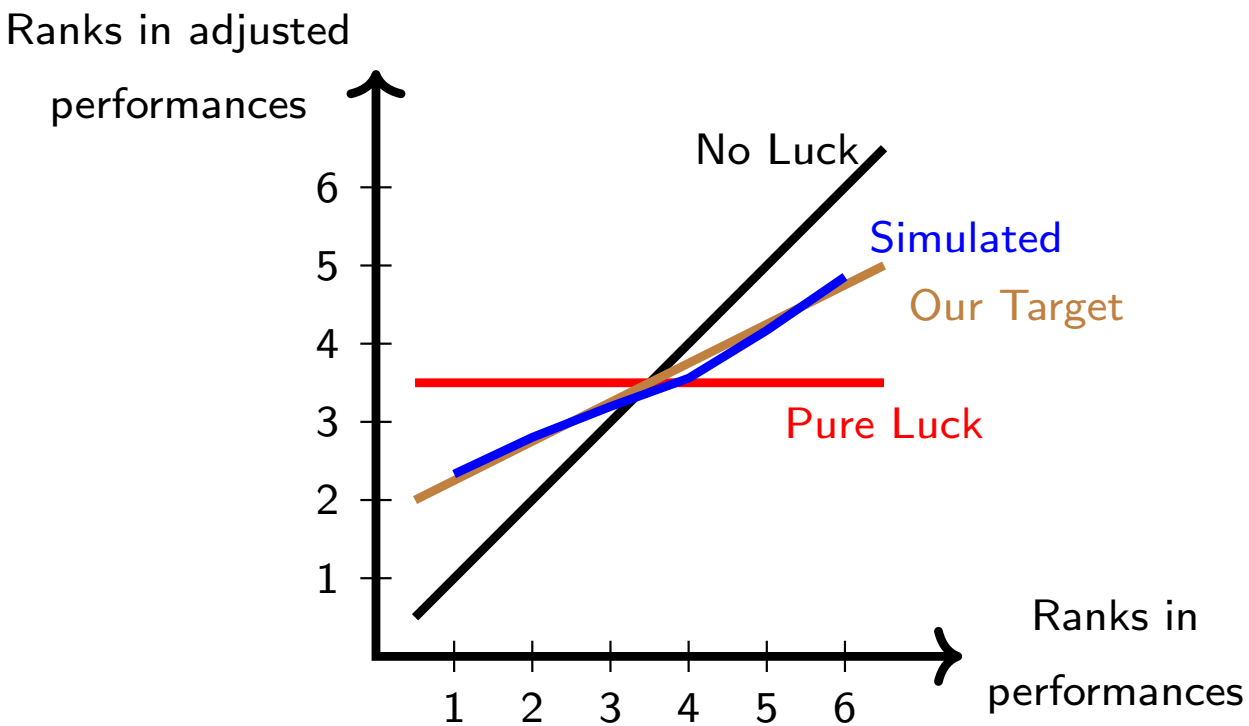
- The Encryption Task is known to be a gender-unbiased task.
- Subjects' gender is salient by choosing a nickname. We carefully select nicknames.
- We carefully choose the random scaling factor (dice+2) that determines the adjusted performance.

Name list (skip if time does not permit)

1. Collected 100 boy names and 100 girl names popular for babies born in the 1990s and 2000s, excluding known unisex names. (Most subjects were born in 1990s and 2000s.)
2. Asked 80 mTurk participants (whose composition is similar to the composition of the experiment subject pool) to classify the 200 names as male, female, or unsure/unisex.
3. Use 60 boy names and 60 girl names which the survey participants form a near-consensus as boy and girl names.
4. To avoid potential confusions, everyone receives different name options per round.

Adjusted performance (skip if time does not permit)

- If the random scaling factor varies too much, the actual performance would not matter for the relative rank.
- If the random scaling factor varies too little, so does the relative rank across rounds.
- We want the luck factor and the actual performance to equally account the relative rank. [Dice+2] does this job.



Procedure

- Nov 2021–Jan 2022 using the subject pool of the Mannheim Laboratory for Experimental Economics (mLab).
- Invitations were sent to the subject pool who had already provided their gender information in the recruitment system.
- 6 sessions with 18 subjects (9 females and 9 males).
- Conducted online and paid them via online transfers.
- Anonymity in several layers: Their Zoom profile photos and webcams were disabled. They renamed the displayed names to two arbitrary letters.
- On average, 10.33 euro for 40 minutes.

Hypotheses

1. Last-place aversion: The fifth-ranked subjects allocate money to the rank-below less than the subjects in other ranks.
2. Information about the genders of the rank-above and the rank-below does not affect the individual's allocation tendency.
3. Subjects who more strongly believe that their "actual" relative rank based on their performance is higher than the adjusted rank (due to bad luck) tend to redistribute less.

Results

Performance in Part 1

- On average, each subject decoded 24.79 text sequences (SD 3.93.)
- Min 15 and Max 36. Nonzero prob the rank in adj. performance can be switched.
- Corr(rank in actual performance, rank in adj. performance) = 0.41. Similar to our target.
- No gender difference in performance.
  24.76 (SD 3.78) for females and 24.81 (SD 4.11) for males (KS, $p = 0.60$; MW, $p = 0.90$).

Results

No Last-Place Aversion

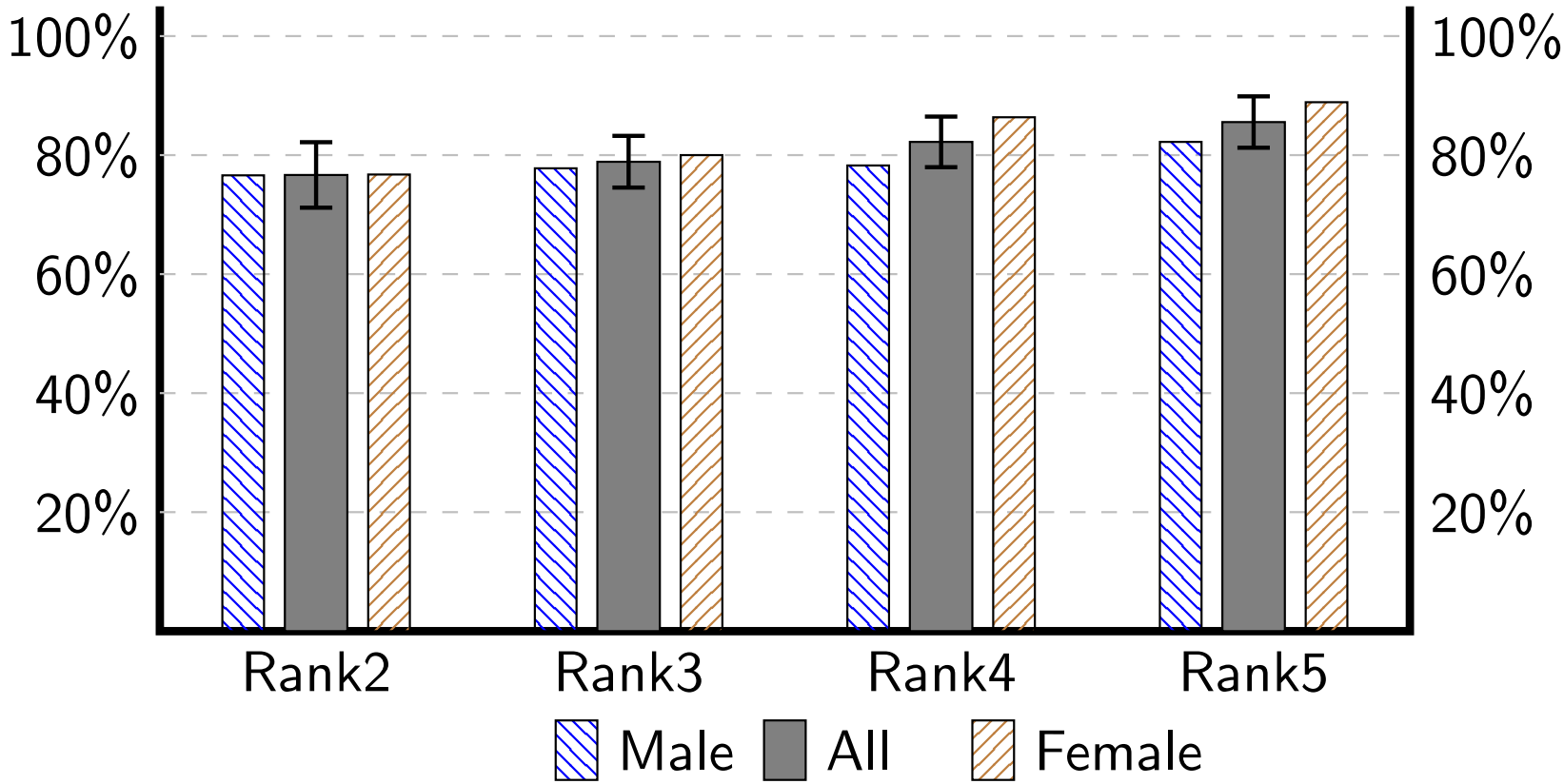


Figure 1: Proportions of allocating downward, by rank

The error bars represent standard errors clustered at the individual level.

Results

Gender Composition and Willingness to Allocate Downward

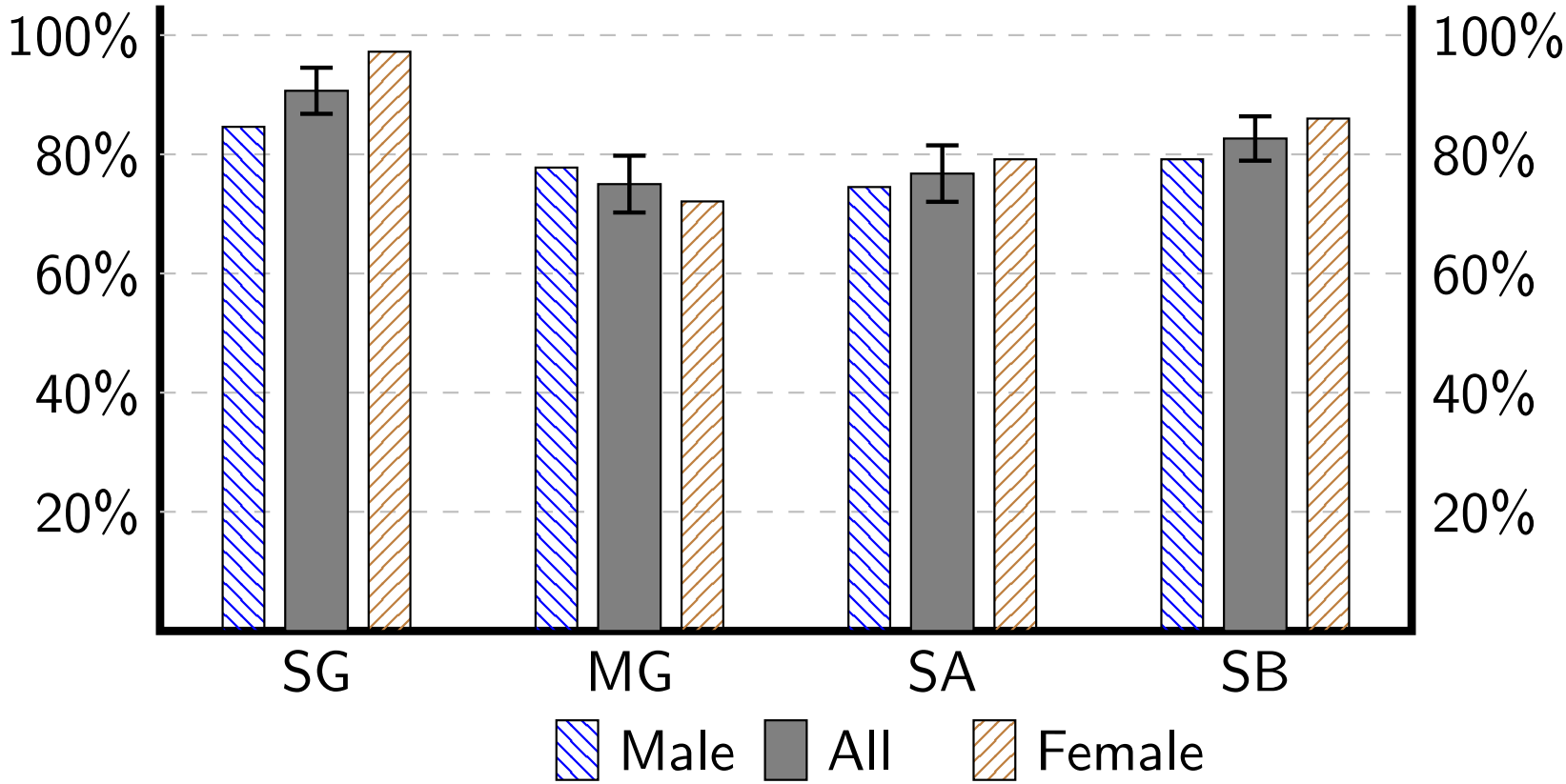


Figure 2: Proportions of allocating downward, by gender composition

SG/MG=rank $r-1$ and $r+1$ have the same/different gender.
SA/SB=the rank above/below has same gender.

Females are reluctant to allocate money to a rank-below male.

Results

SG and MG only

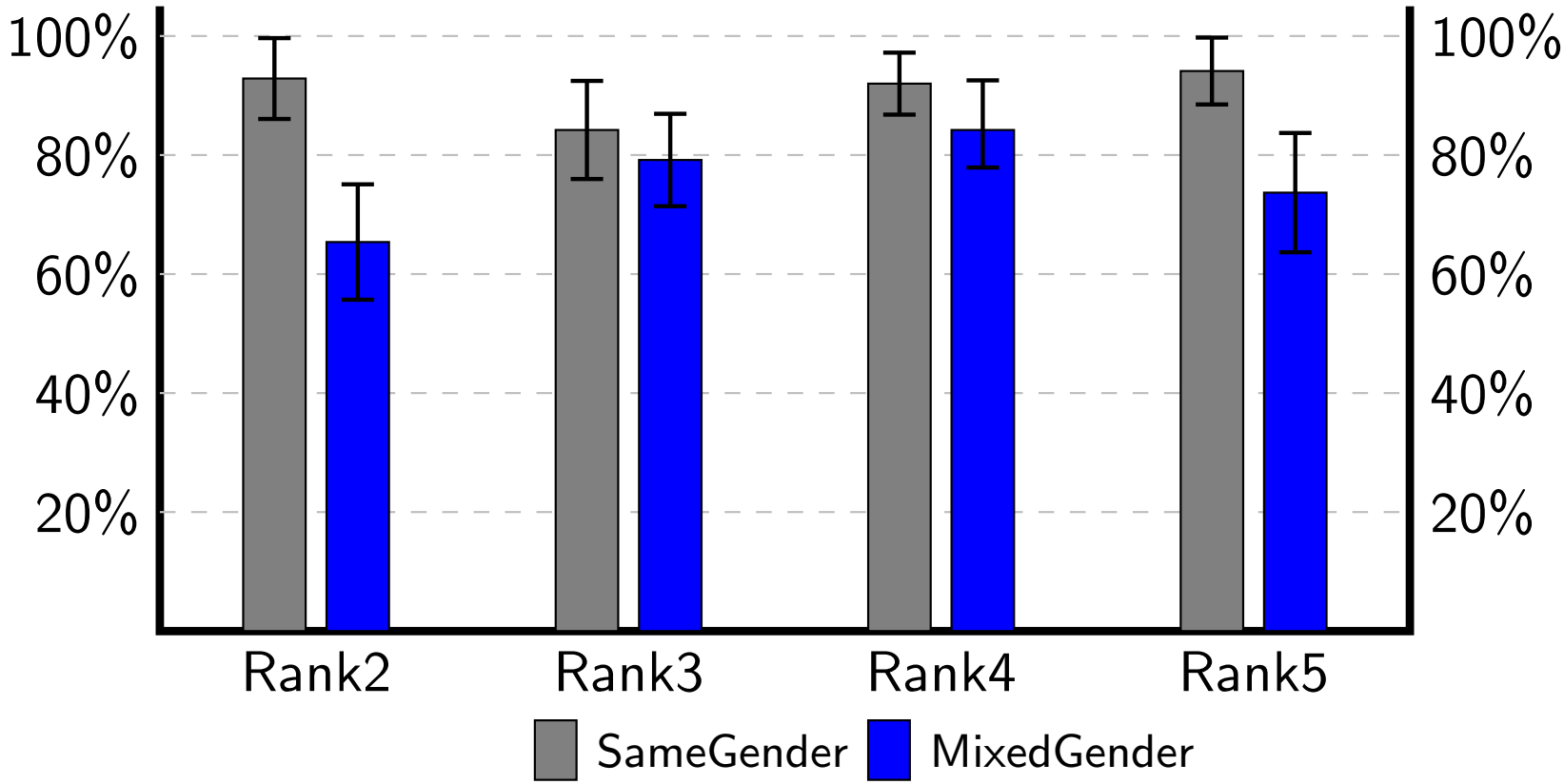


Figure 3: Proportions of decisions allocating the rank-below in SG and MG, by rank

Results

Perceptions of Performance

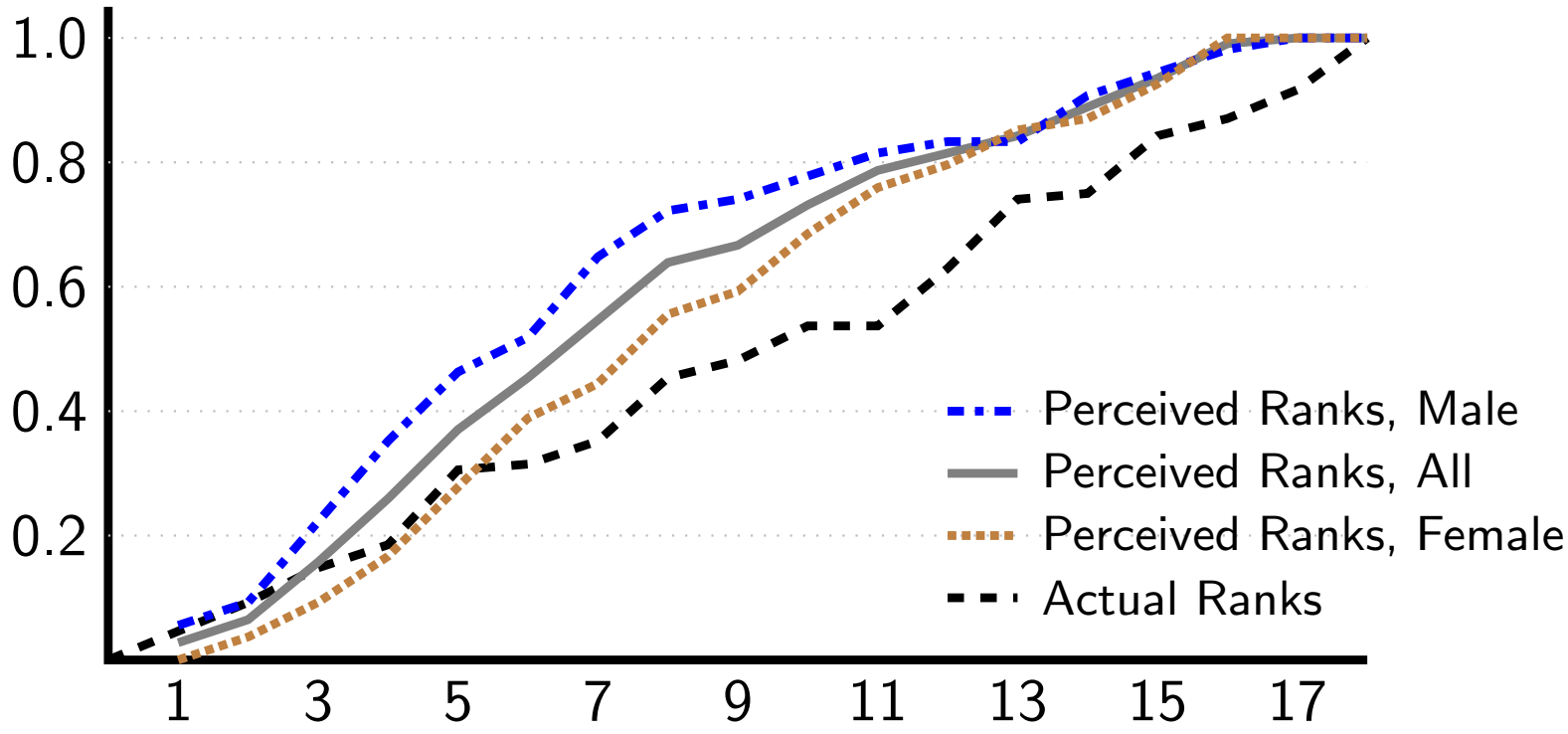


Figure 4: Empirical cumulative distribution functions for relative ranks

Males overconfident by 2.5 ranks. Females overconfident by 0.85 ranks. 1 lower rank $\Rightarrow$ 0.74 more overconfident ($p < 0.001$). Some evidence for LPA of males in MG ($p = 0.261$).

Results

Perceptions of luck and allocation decisions

- PerceptionLuck: Validity check. Significant correlation between overconfidence and PerceptionLuck (ρ=0.2160, $p < 0.001$).
- ImportanceLuck: male subjects more agreed that the luck factor's impact was stronger than the actual performance than female subjects did (KS, $p = 0.017$), echoing the overconfidence of male subjects. No other effects.
- SocietyLuck: the subjects who more strongly agree with the statement allocate the additional money to the rank-below less ($p = 0.061$).

Take-away Messages

- Participants show solidarity in same-gender settings.
- This solidarity is mainly driven by women.
- The effects of gender composition on rank-reversal aversion could have interesting real-world implications (for instance gender differences in approval for social policies that target mostly women or men).
- possible explanation: women more sensitive to experimental conditions + solidarity higher among women
- LPA seems to matter only in MG, and perhaps that is why we have observed mixed evidence for LPA in other studies.