Experience in the Same-Gender Environments and Low-Promotability Tasks

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Very Preliminary

Motivation

- Women often volunteer for or are assigned **low-promotability tasks (LPTs)**—tasks essential for group functioning but rarely rewarded.
- Examples: organizing meetings, taking notes, coordinating logistics.
- Such unequal allocation contributes to the **gender pay and promotion gap** (Babcock et al., 2017).

Research Question

- In same-gender groups, volunteering rates for LPTs are **similar** for men and women.
- The gender gap **emerges primarily in mixed-gender settings**.
- Raises a key question about whether these behaviors are socially learned or internalized through prior experiences.

Q: Do experiences in same-gender environments shape women's willingness to volunteer for LPTs when they later enter mixed-gender groups?

Conceptual Intuition

Babcock et al. (2017)'s main findings

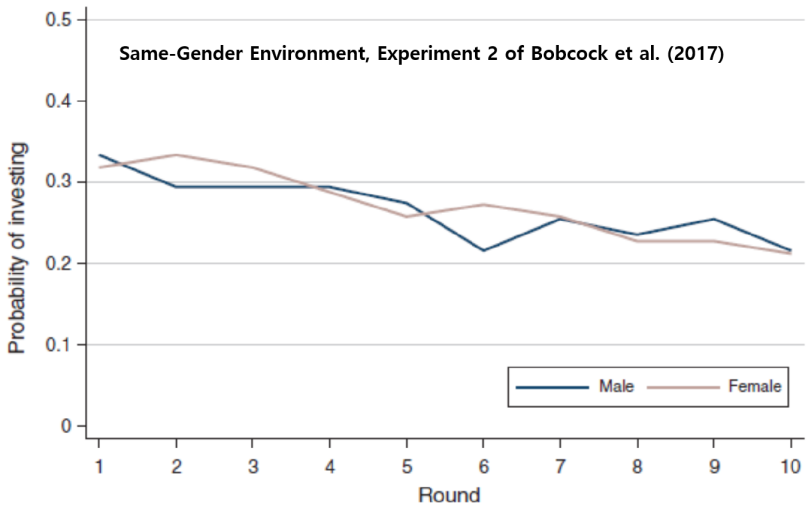


FIGURE 3. PROBABILITY OF INVESTING: EXPERIMENT 2

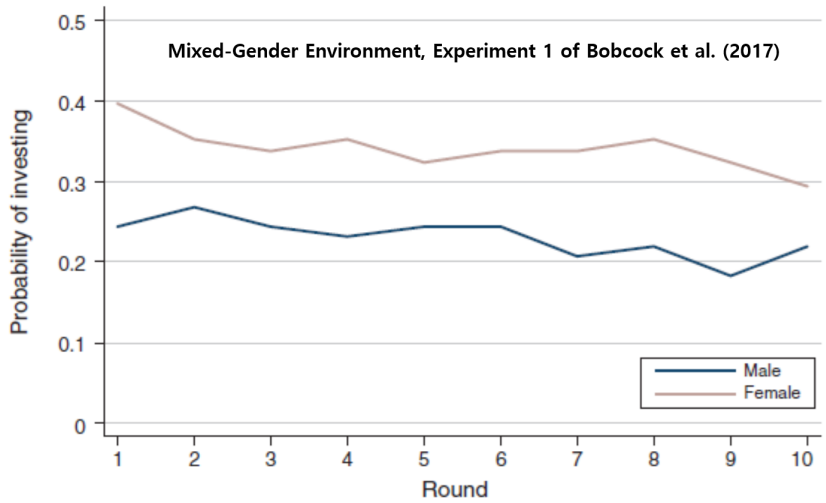
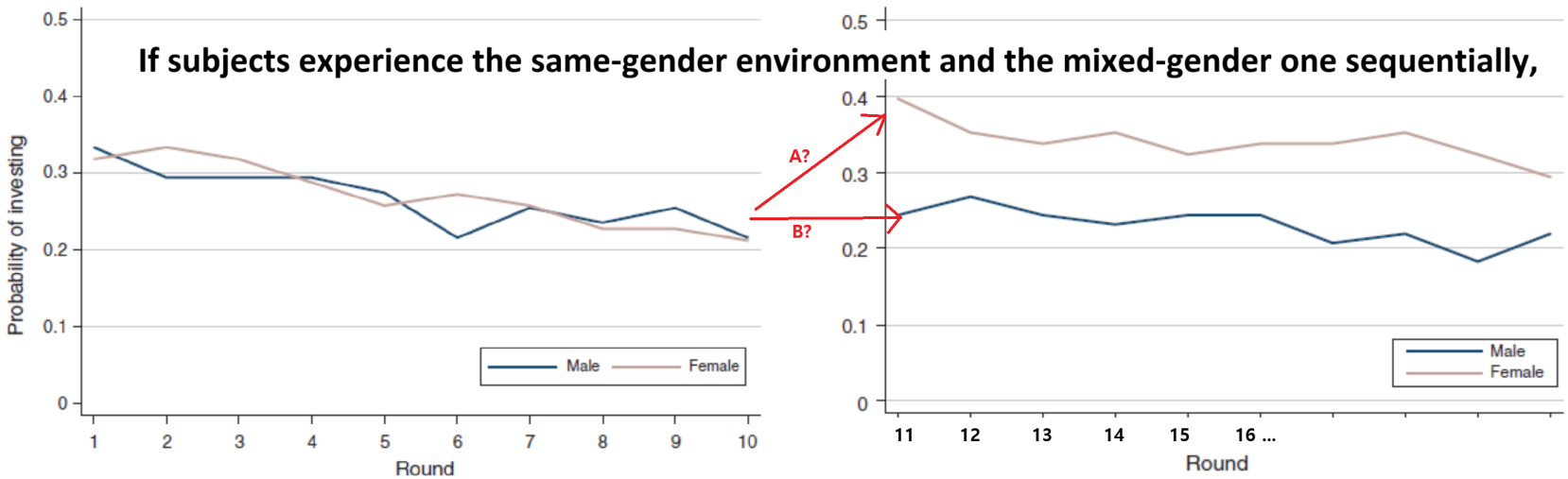


FIGURE 1. PROBABILITY OF INVESTING: EXPERIMENT 1

Conceptual Intuition

Our question



Would we observe (A) or (B)?

Related Literature

- **Gender difference in LPTs**: Babcock et al. (2017a, 2017b)
- **Replications and Field Evidence**: Villas-Boas et al. (2019), Banerjee and Mustafi (2025)
- **Task Assignment and Promotion Consequences**: Bircan et al. (2025)
- **LPTs in Higher Education**: Guarino and Borden (2017), O'Meara et al. (2017), Crimmins et al. (2023)
- **Single-Sex Schooling and Gendered Behavioral Patterns**: Lee et al. (2014), Booth and Nolen (2012), Booth et al. (2014), Laury et al. (2019), Kim et al. (2024)

Gap: None of these studies examine **LPT behavior** or **carry-over into mixed-gender settings**.

Our Contributions

We combine two strands of literature:

- Experimental work on gender gaps in low-promotability tasks.
- Empirical and experimental work on single-sex schooling and gender composition.

Methodologically, we use a sequential experimental design:

- Participants first interact in same-gender groups, then in mixed-gender groups, or vice versa,
- Allowing us to test for carry-over effects of earlier gender-homo(hetero)geneous experience on later LPT volunteering.

Experimental Design

Within-subject two-stage laboratory experiment:

- Each participant plays 14 rounds of "investment game."
- In each round, a subject is newly assigned to a group of three. Each group member simultaneously decides to *invest or not*.
  - If no one invests, every member earns 100 tokens.
  - If one invests, that member earns 125 tokens, and the other two earn 200 tokens. (Investment = LPT)
  - If two or more decide to invest, randomly-selected one earns 125 tokens, and the other two earn 200 tokens.
- In the *SameFirst* treatment, subjects play 6 rounds of the game with same-gender members, and then play 8 rounds of the game with at least one member of different gender.
- To counterbalance a potential order effect, we also ran the *MixedFirst* treatment, where the 8 rounds of the mixed gender group game come first.

Challenge in Task Structure

Challenge: How to inform gender compositions without raising an experimenter demand effect?

Our approach: Silhouettes

Decide to invest or not

Your group composition is as follows:

YOUR MEMBER 1	YOU	YOUR MEMBER 2
		

Experiment Procedure

- Zoom-administered real-time online experiment
- LIONESS (Live Interactive ONline Experimental Server Software)
- University students aged 18 or over, in Korean
- 5 sessions (78 participants) for *SameFirst*, 4 sessions (72 participants) for *MixedFirst*.
- Random regrouping with gender-composition constraints
- On average 15,700KRW (about 11 USD).
- Mobile payment credit (Naver Pay) corresponding to the cash value of one randomly-selected round

Experiment Procedure

- Collecting **gender**, birth year, and contact info when subjects sign up for participation.
- Turndown unmatched participants (e.g., when 11 males and 8 females showed up in the Zoom waiting room, 5 males and 2 females were turned down.)
- 14 rounds of investment game, no feedback
- Post-experiment survey collects:
  - Likert-scale questions
    - "I feel pressure to invest,"
    - "I expect someone else with the same gender of mine would invest,"
    - "I care about how others regard my decisions,"
    - "I volunteer a reluctant task if someone had to do,"
    - "I enjoy playing a leader role,"
    - "I respond to the social expectations," and
    - "I argue with friends who have different opinions."
  - Types of the middle and high schools attended
  - Two hypothetical questions "assigning an investment" as a boss: One with 2M and 1F, and the other one with 1M and 2F.

Key Measures

- **Primary outcome:** Frequency of investment intentions (Probability of volunteering for an LPT)
- **Secondary outcomes:**
  - Round-to-round learning
  - Interaction with group gender composition.
- **Treatment variables:** Initial environment (same-gender vs. mixed-gender). Gender composition of the group

Preliminary Findings

- Twelve (6M6F) or eighteen (9M9F) subjects per session.
- Average age: 23.3 years; (Men: 23.6 vs Women: 23.05, no significant difference on two-sided t-test).
- Over the course of the fourteen rounds groups succeed in investing 73.81% percent of the time (vs. symmetric mixed Nash equilibrium: 54% and Babcock et al.: 84.2%)

Preliminary Findings

Table 1: Balance Test: Treatment Randomization Check

Variable	SameFirst	MixedFirst	Diff	P-value
Female	0.50 (0.50)	0.50 (0.50)	0.00	1.000
Age	22.41 (3.08)	22.24 (2.73)	0.17	0.714
experience	1.92 (0.27)	1.94 (0.23)	-0.02	0.601
nFriends	1.19 (0.40)	1.04 (0.20)	0.15	0.004*
SingleSexSchool	0.51 (0.50)	0.47 (0.50)	0.04	0.622
selfPressure	2.13 (1.35)	2.21 (1.21)	-0.08	0.702
sameGenExp	2.74 (1.41)	2.83 (1.42)	-0.09	0.699
concernOthers	1.87 (1.22)	1.90 (1.29)	-0.03	0.880
volunteer	3.49 (1.15)	3.32 (1.25)	0.17	0.396
leader	2.78 (1.40)	2.58 (1.30)	0.20	0.369
socialConcern	3.42 (1.12)	3.47 (1.17)	-0.05	0.794
nonConfirmity	2.99 (1.21)	2.86 (1.40)	0.13	0.557

Preliminary Findings

Females seem to invest a bit more than males in the later (mixed-gender) rounds.

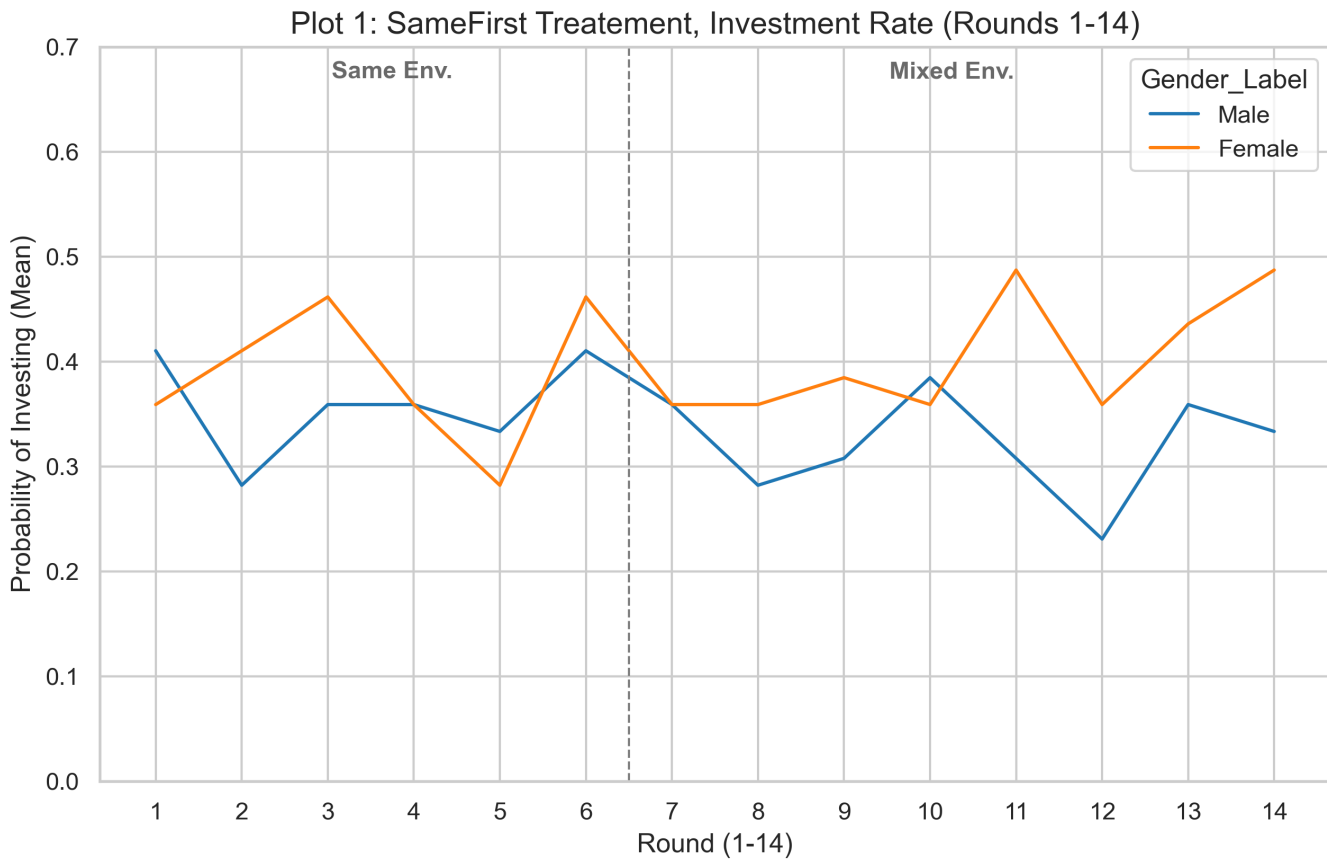


Figure 1: SameFirst treatment result

Preliminary Findings

Females seem to invest more than males in the later (same-gender) rounds.

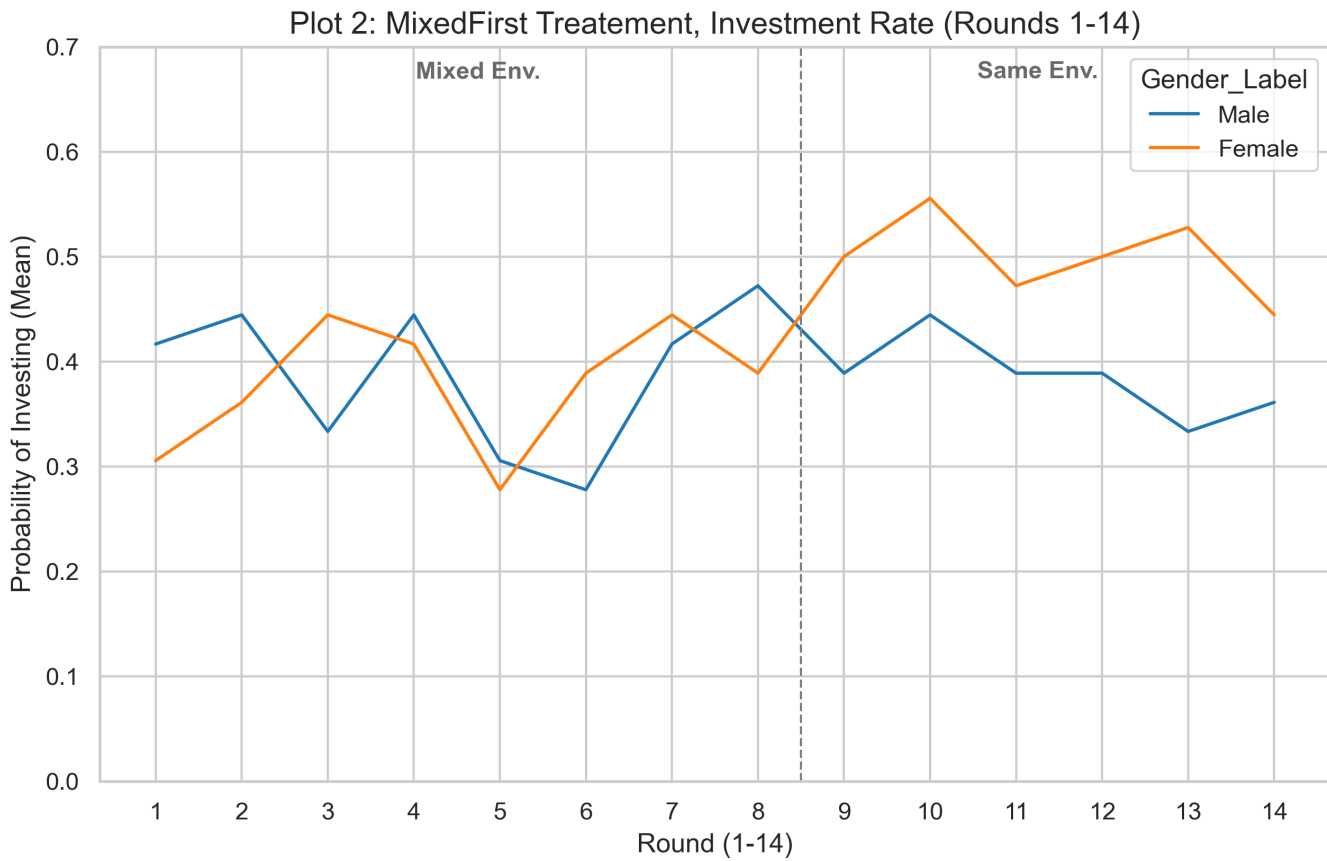


Figure 2: MixedFirst treatment result

Preliminary Findings

Minority in gender composition (e.g., minority female in 1F2M group) does not seem to affect the investment decision.

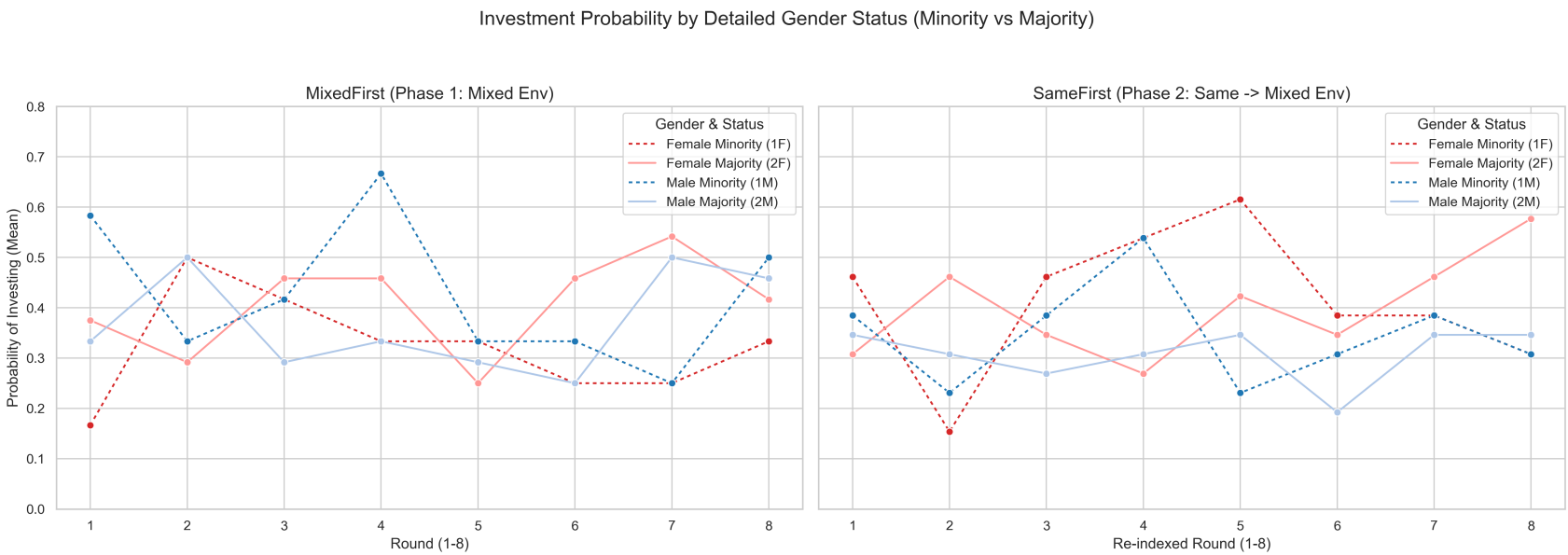


Figure 3: Majority effect on the investment decision

Preliminary Findings: SameFirst Treatment

Females do not seem to do LPTs more than males.

Table 2: Marginal Effects of Investment: SameFirst Treatment

	Full (1–14R)		**Phase 1 (Same, 1–6R)**		**Phase 2 (Mixed, 7–14R)**	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Female	0.0604	0.0874	0.0299	0.0635	0.0832	0.1045
	(0.4172)	(0.1950)	(0.6940)	(0.3610)	(0.2901)	(0.1480)
Round	0.0003	0.0004	0.0026	0.0023	0.0072	0.0072
	(0.9269)	(0.9060)	(0.8282)	(0.8430)	(0.2173)	(0.2090)
Controls	No	Yes	No	Yes	No	Yes
selfPressure	-	0.0722***	-	0.0940***	-	0.0556*
concernOthers	-	0.0620*	-	0.0414	-	0.0765**
Observations	1092	1092	468	468	624	624

Notes: Dependent variable: individual investment decision (1–invest, 0–don't invest). Survey controls include self-Pressure, sameGenExp, concernOthers, volunteer, leader, socialConcern, nonConfirmity. The table presents marginal effects of Probit regression. Standard errors are clustered at the individual level. *p*-values are reported in parentheses.

Preliminary Findings: MixedFirst Treatment

Females do LPTs (insignificantly) more in the same-gender environment after experiencing the mixed-gender environment.

Table 3: Marginal Effects of Investment: MixedFirst Treatment

	Full (1–14R)		**Phase 1 (Mixed, 1–8R)**		**Phase 2 (Same, 9–14R)**	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Female	0.0434	0.0028	-0.0105	-0.0418	0.1158	0.0638
	(0.5534)	(0.9640)	(0.8891)	(0.5310)	(0.2237)	(0.4350)
Round	0.0060	0.0061	0.0038	0.0037	-0.0115	-0.0110
	(0.2106)	(0.2060)	(0.6287)	(0.6350)	(0.2611)	(0.2770)
Controls	No	Yes	No	Yes	No	Yes
selfPressure	-	0.1161***	-	0.0957***	-	0.1438***
concernOthers	-	-0.0392*	-	-0.0193	-	-0.0661**
Observations	1008	1008	576	576	432	432

Notes: Dependent variable: individual investment decision (1–invest, 0–don't invest). Survey controls include self-Pressure, sameGenExp, concernOthers, volunteer, leader, socialConcern, nonConfirmity. The table presents marginal effects. Standard errors are clustered at the individual level. *p*-values are reported in parentheses.

Preliminary Findings: Pooled individual investment decision

Given experiencing the same-gender environment first, females do LPTs more than males in the mixed-gender environment.

Table 4: Marginal Effects of Investment: Interactions

	Pooled Data (All Rounds)		Same Environment Only		Mixed Environment Only	
	(1)	(2)	(3)	(4)	(5)	(6)
SameFirst	-0.0508	-0.0915	-0.0591	-0.0958	-0.1022	-0.1409*
	(0.525)	(0.166)	(0.599)	(0.348)	(0.235)	(0.053)
Female	0.0428	-0.0106	0.1131	0.0566	-0.0103	-0.0603
	(0.548)	(0.867)	(0.211)	(0.490)	(0.888)	(0.365)
Interaction	0.0185	0.1000	-0.0814	-0.0090	0.0956	0.1806*
(SameFirst×Female)	(0.859)	(0.273)	(0.478)	(0.932)	(0.383)	(0.057)
Round	0.0030	0.0032	-0.0042	-0.0037	0.0056	0.0058
	(0.277)	(0.250)	(0.595)	(0.631)	(0.244)	(0.227)
Key Controls						
selfPressure	-	0.0970***	-	0.1192***	-	0.0806***
		(0.000)		(0.000)		(0.000)
volunteer	-	0.0503**	-	0.0405	-	0.0585**
		(0.022)		(0.149)		(0.015)
sameGenExp	-	-0.0184	-	-0.0491**	-	0.0044
		(0.255)		(0.012)		(0.794)
Observations	2100	2100	900	900	1200	1200

Notes: SameFirst is a dummy indicating whether the same-gender environment games were played first. The table presents marginal effects of Probit regression. *p*-values based on clustered standard errors are reported in parentheses.

Preliminary Findings: Pooled group investment decision

Female-only groups succeed more (=at least one does LPTs). This pattern is more distinct when they experienced mixed-gender environments first. (Is it a sort of female solidarity?)

Table 5: Marginal Effects on Group Success Rate (Coordination)

	Pooled Data (All Rounds)		Same Environment Only		Mixed Environment Only	
	(1)	(2)	(3)	(4)	(5)	(6)
SameFirst	-0.0148	-0.0307	0.0862	0.0698	-0.0605	-0.0756
	(0.690)	(0.349)	(0.263)	(0.362)	(0.242)	(0.130)
Female	0.0668**	0.0456*	0.1005**	0.0906**	0.0406	0.0099
	(0.030)	(0.099)	(0.029)	(0.041)	(0.307)	(0.792)
Interaction	-0.0618	-0.0261	-0.1615**	-0.1370*	0.0079	0.0509
(SameFirst × Female)	(0.227)	(0.582)	(0.036)	(0.064)	(0.891)	(0.336)
Round	-0.0010	-0.0009	0.0052	0.0050	0.0003	-0.0001
	(0.684)	(0.698)	(0.502)	(0.519)	(0.952)	(0.987)
Key Controls						
selfPressure	-	0.0368***	-	0.0388***	-	0.0356***
		(0.001)		(0.008)		(0.006)
Observations	2100	2100	900	900	1200	1200

Notes: Dependent variable: group success (1-at least one invests, 0-otherwise). The table presents marginal effects of probit regression. P-values based on clustered standard errors are reported in parentheses.

Preliminary Findings

Single-gender schooling experience weakly affect the decisions, in a mixed way.

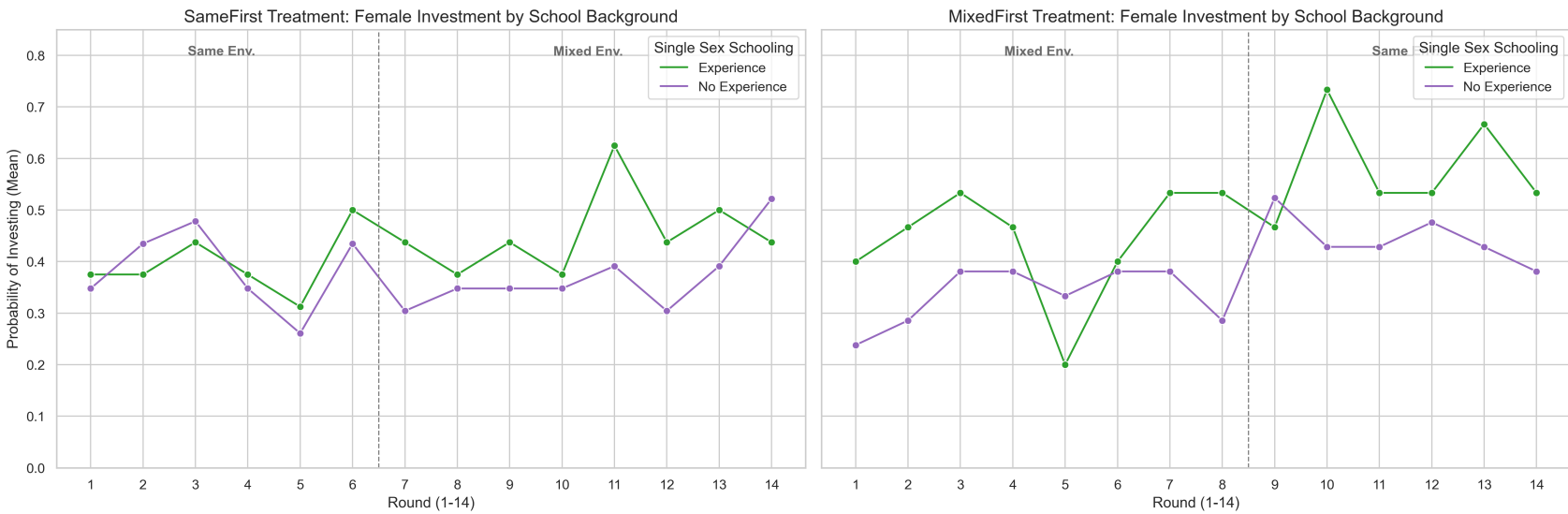


Figure 4: The effect of single-sex schooling experience, female only

Preliminary Findings: School Experience effect

Females with single-gender school experience tend to invests more, and such a tendency is more distinct in the mixed-gender environments.

Table 6: Marginal Effects of Investment: Interactions (Female Only)

	Pooled Data (All Rounds)		Same Environments Only		Mixed Environments Only	
	(1)	(2)	(3)	(4)	(5)	(6)
SameFirst	-0.0049	0.0113	-0.0943	-0.1085	-0.0363	0.0088
	(0.953)	(0.884)	(0.486)	(0.439)	(0.699)	(0.925)
Girl School	0.1180	0.1371*	0.1305	0.1126	0.1093	0.1612**
	(0.145)	(0.074)	(0.268)	(0.313)	(0.170)	(0.041)
Interaction	-0.0637	-0.0401	-0.1162	-0.0445	-0.0259	-0.0412
(SameFirst × Girl School)	(0.631)	(0.747)	(0.447)	(0.767)	(0.851)	(0.749)
Round	0.0089**	0.0091**	-0.0042	-0.0041	0.0122*	0.0121*
	(0.015)	(0.016)	(0.723)	(0.726)	(0.072)	(0.074)
Key Controls						
selfPressure	-	0.0770***	-	0.0926***	-	0.0666**
		(0.005)		(0.004)		(0.019)
Observations	1,050	1,050	450	450	600	600

Notes: Dependent variable: individual investment decision (1–invest, 0–don't invest). Survey controls include self-Pressure, sameGenExp, concernOthers, volunteer, leader, socialConcern, nonConfirmity. The table presents marginal effects (dy/dx) at the means. Standard errors are clustered at the individual level. p-values are reported in parentheses.

Preliminary Findings: Assigning LPTs

Previous studies report that females are more requested to do LPTs (Babcock et al., 2017; Bircan et al., 2025) , with expecting that females would accept the request.

We find the opposite. Both males and females request a hypothetical male subject to do LPTs.

(Recall two of the post-experiment questions were: "If you were a boss, who would you assign an investment among the following three?")

- When asked to pick one among 2 males and 1 female,
  - **77.3% of males and 76% of females** picked a male. (It would've been 66.6% if they pick randomly.)
- When asked to pick one among 1 male and 2 females,
  - **48% of males and 56% of females** picked a male. (It would've been 33.3% if they pick randomly.)

Is it due to unexplored cultural differences? Or perhaps due to mandatory miliary service experiences?

Summary of Preliminary Findings

We examine whether experiences in same-gender environments affect actions in mixed-gender environments. We found, so far:

1. Given experiencing the same-gender environment first, females do LPTs more than males in the mixed-gender environment.
2. But SameFirst experience overall decreases the investment tendency in the mixed-gender environment.
3. Female-only groups' coordination failure is lower. This pattern is more distinct when they experienced mixed-gender environments first.
4. Single-gender school experience makes females to do LPTs more, particularly in the mixed-gender environment.
5. In hypothetical questions, both males and females pick a male as the one who should do the investment, quite contradictory to the previous report.

Discussions

- Policy implications?
- Further things we need to analyze data?
- Other ways of interpreting data?