Discussion:
The Gender Difference of Peer Influence in Higher Education
(Li Han and Tao Li)

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1 Peer effects in higher education

• Results
  (a) There are (strong) peer effects in higher education
  (b) Only females experience peer effects
  (c) Effects are asymmetric: smart help stupid, stupid do not hurt smart
  (d) Results are robust across outcome and treatment variables

• Contributions
  (a) New dataset (Chinese college), better suited for the question
  (b) Careful analysis of a quasi-randomized experiment
  (c) Interesting results, different from previous studies
2 Why China?

- Interesting in itself!

- Larger social interaction between students

\[ \Delta \text{outcomes} = PE \times \text{interaction} \times \Delta \text{peers} \]

- Students share small room for long period (4 years)

- Few other opportunities for voluntary social interaction

- Roommates in same year and same major

- Random component in dorm room assignment

  - Parents and students have no say in room assignment

  - Administration assigns students to rooms quasi-randomly

  - Room change strongly discouraged

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3 Randomized experiment

- An ideal experiment:

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Heterogeneous sample (college freshmen)

Treatment group (dorm A)  Control group (dorm B)
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Random assignment

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Outcomes (GPA) ↔ TE Outcomes (GPA)
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Avg treatment effect (TE)
4 Randomized experiment

- An ideal experiment:

  - Heterogeneous sample (college freshmen)
  - Random assignment
  - Treatment group (dorm A)
  - Control group (dorm B)
  - Outcomes (GPA)
  - TE
  - Avg treatment effect (TE)

- The quasi-experiment in this paper:

  - Heterogeneous sample (freshmen Chinese college)
  - Province P, major M
  - Provincial assignment
  - Treatment group PM
  - Control group PM
  - Outcomes (GPA)
  - TE
  - Avg treatment effect (TE)
  - Province P’, major M’
  - Quasi-random assignment
  - Treatment group P’M’
  - Control group P’M’
  - Outcomes (GPA)
  - TE
  - Avg treatment effect (TE)
5 Randomized experiment

- Quasi-random assignment of freshmen to dorms
  - Housing office copies student ID numbers from Excel file to vacancy list
  - Is this random?
  - Careful description of the process & randomization checks
  - Restrict to non-host-province subsample

- But: if assignment is random, then why is roommates’ ability different?
  - cf twin studies
  - Sampling error?
  - Is this random?
6 Gender differences in peer effects

\[
A_i = \beta_0 + \beta_1 P_i + \beta_2 O_i + X_i' \beta_3 + \varepsilon_i
\]

- **Outcome**: GPA
- **Peer ability**: CET
- **Own ability**: CET
- **Controls**: \(X_i\)

• **Results**
  - **Women**: \(\beta_1/\beta_2 = 0.71^{**}\)
  - **Men**: \(\beta_1/\beta_2 = -0.28\)

• **Technical remarks**
  - Need standard errors on the estimates of interest, i.e. \(\beta_1/\beta_2\)
  - Is the *difference* between men and women significant?
7 Gender differences in peer effects

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- **Results**
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- **Conclusions**
  “men compare more with the broader group whereas women care more about close relationships.”
  - Can we test this directly?
8 Gender differences in peer effects

\[ A_i = \beta_0 + \beta_1 P_i + \beta_2 O_i + X_i'\beta_3 + \varepsilon_i \]

\( A_i \) outcome (GPA) 
\( P_i \) peer ability (CET) 
\( O_i \) own ability (CET) 
\( X_i'\beta_3 \) controls 
\( \varepsilon_i \) error term

- Results
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  - Men: \( \beta_1/\beta_2 = -0.28 \)

- Conclusions
  “men compare more with the broader group whereas women care more about close relationships.”
  - Can we test this directly?
  - Is the interaction the same for females and males?

\[ \Delta \text{outcomes} = \text{PE} \times \text{interaction} \times \Delta \text{peers} \]
9 Gender differences in peer effects

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A_i = \beta_0 + \beta_1 P_i + \beta_2 O_i + X_i' \beta_3 + \varepsilon_i
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outcome (GPA) peer ability (CET) own ability (CET) controls

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\( \Delta \text{outcomes} = PE \times \text{interaction} \times \Delta \text{peers} \)

* “Females obviously work harder, ...” (p.3)
10 Gender differences in peer effects

\[ A_i = \beta_0 + \beta_1 P_i + \beta_2 O_i + X_i'\beta_3 + \varepsilon_i \]

\( A_i \) = outcome (GPA) \( P_i \) = peer ability (CET) \( O_i \) = own ability (CET) \( X_i'\beta_3 + \varepsilon_i \) = controls

- Results
  - Women: \( \beta_1/\beta_2 = 0.71^{**} \)
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- Conclusions
  “men compare more with the broader group whereas women care more about close relationships.”
  - Can we test this directly?
  - Is the interaction the same for females and males?

\[ \Delta \text{outcomes} = PE * \text{interaction} * \Delta \text{peers} \]

* “Females obviously work harder, ...” (p.3)
* “Males obviously play more soccer”

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11 Summarizing

1. A very nice paper!
   - Interesting topic
   - Carefully implemented empirical work
   - Provoking conclusions

2. Quasi-randomized experiment
   - Some doubts about the source of the identifying variation

3. Gender differences in peer effects
   - Need to test the difference
   - Can we directly test the hypothesis of interest?

4. External validity
   - The Gender Difference of Peer Influence in Higher Education in China
     \[ \Delta \text{outcomes} = \text{PE} \times \text{interaction} \times \Delta \text{peers} \]