# Class differences in social networks: Evidence from a referral experiment

## 5-min presentation

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# Motivation



≡        **FINANCIAL TIMES**        å

**Even a PhD isn't enough to erase the effects of class**

- Understand persistent class differences in labor the market, like the underrepresentation of Low-SES researchers in elite academic institutions (Stansbury and Rodriguez, 2024)

- Focus on the role of class biases in social networks and referrals

# Motivation



- Understand persistent class differences in labor the market, like the underrepresentation of Low-SES researchers in elite academic institutions (Stansbury and Rodriguez, 2024)
- Focus on the role of class biases in social networks and referrals

# Setting

- Universidad Autónoma de Bucaramanga (UNAB)
- Approx. 6000 students across all social classes
- Administrative data including SES, age, program, GPA, courses attended, year of entry, and the entry exam scores



Colombia

# Design: Referrals and Network

- Ask students to refer someone they have taken at least one course with
- Observe the entire co-enrollment network at UNAB

**Your recommendation**

We are interested in your recommendation of the person you consider best to solve similar problems to those in the **Math test**.

*Only someone with whom you have taken at least one class...

*We will not contact your recommendation...

Please write the name of your recommendation:
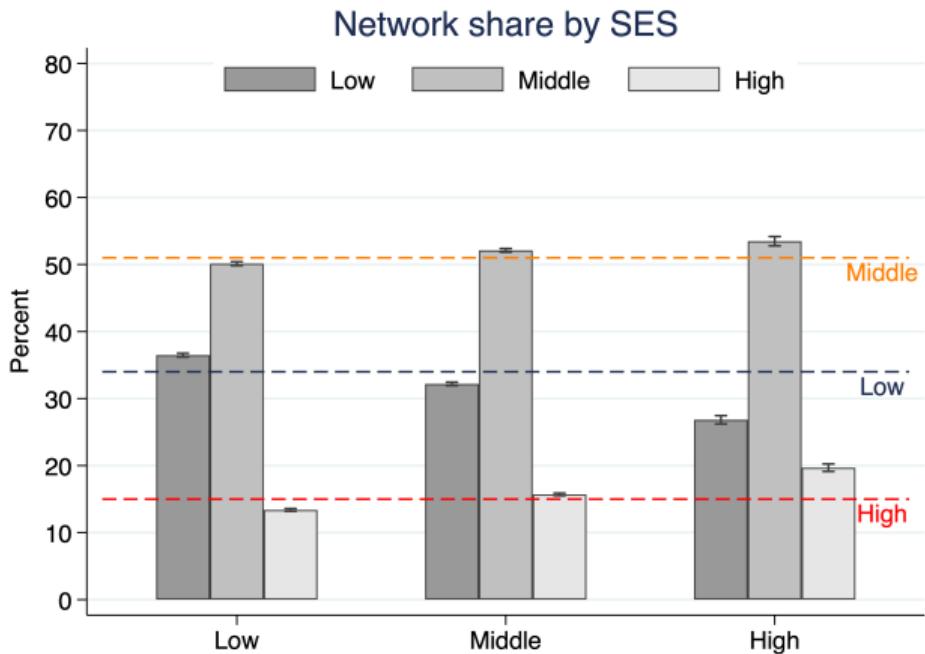
| John |
| --- |
| John Lennon (Music - 2018) |
| John Stuart Mill (Law - 2020) |
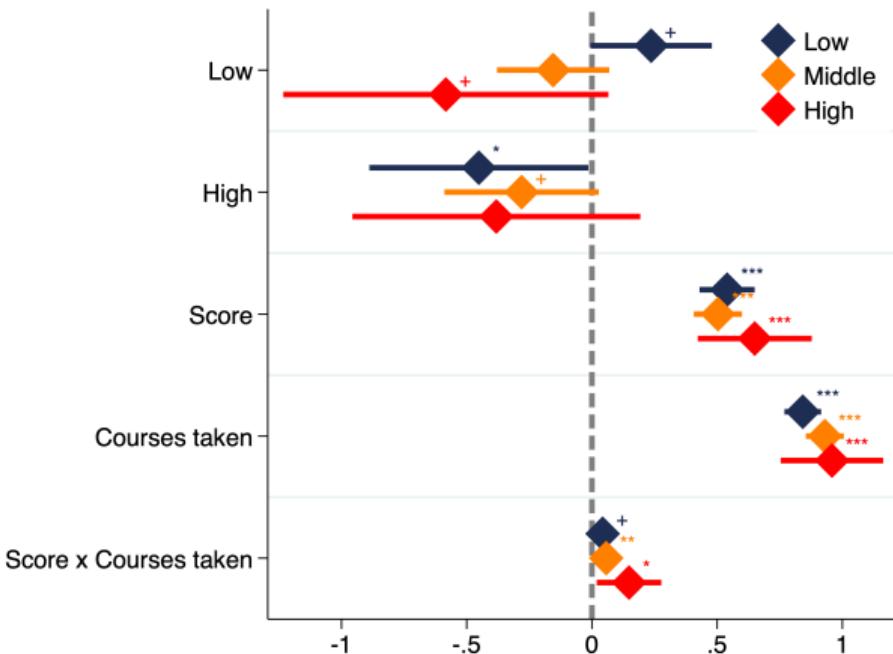
# Network-level SES shares

- 51 % of UNAB is **Middle-SES**, 35 % **Low-SES**, and 15 % **High-SES**
- Network shares are very different from the UNAB population
- Why?



Network share by SES

# No bias against Low-SES in referrals

- **Low-SES** referrers are biased
  against High-SES and favor
  their own

- **Middle-SES** referrers are
  marginally biased against
  High-SES

- **High-SES** referrers are
  marginally biased against
  Low-SES but do not favor
  their own

# Conclusion

- Individuals across SES refer equally well . . .
- . . . but **prefer** nominating similar others in terms of SES
- Network composition matters more than biases in referrals

# Reading

- Reading score and tie strength are strong predictors of referrals
- No interaction between reading score and tie strength
- No evidence for a Low-SES bias [Alt. Specification]

|  | (1) | (2) | (3) |
|---|---|---|---|
| Low-SES | 0.143* | -0.007 | -0.007 |
|  | (0.086) | (0.101) | (0.102) |
| High-SES | -0.293** | -0.271* | -0.275** |
|  | (0.128) | (0.139) | (0.139) |
| Nominee score |  | 0.566*** | 0.513*** |
|  |  | (0.044) | (0.048) |
| Tie |  | 0.949*** | 0.939*** |
|  |  | (0.031) | (0.032) |
| Score × Tie |  |  | 0.030 |
|  |  |  | (0.018) |
| Observations | 128847 | 128847 | 128847 |
| Ind. | 673 | 673 | 673 |
| Chi-test | 10.81 | 1117.46 | 1145.58 |

# Math

- Math score and tie strength are strong predictors of referrals
- Significant but small interaction between math score and tie strength
- No evidence for a Low-SES bias  Alt. Specification

|  | (1) | (2) | (3) |
|---|---|---|---|
| Low-SES | 0.161* | -0.013 | -0.015 |
|  | (0.086) | (0.099) | (0.100) |
| High-SES | -0.309** | -0.343** | -0.361** |
|  | (0.131) | (0.142) | (0.144) |
| Nominee score |  | 0.662*** | 0.546*** |
|  |  | (0.040) | (0.042) |
| Tie |  | 0.885*** | 0.851*** |
|  |  | (0.029) | (0.029) |
| Score × Tie |  |  | 0.089*** |
|  |  |  | (0.019) |
| Observations | 128150 | 128150 | 128150 |
| Ind. | 669 | 669 | 669 |
| Chi-test | 12.38 | 1122.75 | 1154.40 |

# Reading (Low-SES vs others)

- Alternative specification with binary Low-SES
- No evidence for a Low-SES bias
- Consistent with main model
  `Return`

|  | (1) | (2) | (3) |
|---|---|---|---|
| Low-SES | 0.199** | 0.041 | 0.042 |
|  | (0.083) | (0.100) | (0.100) |
| Nominee Score |  | 0.561*** | 0.509*** |
|  |  | (0.044) | (0.048) |
| Tie |  | 0.951*** | 0.941*** |
|  |  | (0.031) | (0.032) |
| Score × Tie |  |  | 0.029 |
|  |  |  | (0.018) |
| Observations | 128,847 | 128,847 | 128,847 |
| Ind. | 673 | 673 | 673 |
| Chi-test | 5.73 | 1100.40 | 1127.92 |

# Math (Low-SES vs others)

- Alternative specification with binary Low-SES
- No evidence for a Low-SES bias
- Consistent with main model
  Return

|  | (1) | (2) | (3) |
|---|---|---|---|
| Low-SES | 0.220*** | 0.049 | 0.050 |
|  | (0.083) | (0.097) | (0.098) |
| Nominee Score |  | 0.653*** | 0.538*** |
|  |  | (0.040) | (0.041) |
| Tie |  | 0.887*** | 0.854*** |
|  |  | (0.029) | (0.030) |
| Score × Tie |  |  | 0.088*** |
|  |  |  | (0.019) |
| Observations | 128,150 | 128,150 | 128,150 |
| Ind. | 669 | 669 | 669 |
| Chi-test | 7.02 | 1124.24 | 1156.08 |

# Reading across SES

- Restrict sample by referrer SES
- Low-SES bias against other SES
- No evidence for a bias against Low-SES Alt. Specification

|  | Low-SES (1) | Middle-SES (2) | High-SES (3) |
|---|---|---|---|
| Low-SES | 0.266* | -0.202 | -0.275 |
|  | (0.155) | (0.149) | (0.369) |
| High-SES | -0.307 | -0.254 | -0.511 |
|  | (0.268) | (0.186) | (0.377) |
| Nominee score | 0.548*** | 0.483*** | 0.553*** |
|  | (0.076) | (0.067) | (0.179) |
| Tie | 0.873*** | 0.991*** | 0.986*** |
|  | (0.046) | (0.046) | (0.128) |
| Score × Tie | 0.019 | 0.021 | 0.145** |
|  | (0.027) | (0.027) | (0.072) |
| Observations | 54611 | 64596 | 9640 |
| Ind. | 275 | 340 | 58 |
| Chi-test | 531.49 | 553.06 | 97.57 |

# Reading across SES (Low-SES vs others)

- Alternative specification with binary Low-SES
- Low-SES bias against other SES
- No evidence for a bias against Low-SES
- Consistent with main model
  Return

|  | Low-SES (1) | Other-SES (2) |
|---|---|---|
| Low-SES | 0.312** | -0.160 |
|  | (0.153) | (0.137) |
| Nominee score | 0.545*** | 0.486*** |
|  | (0.076) | (0.062) |
| Tie | 0.876*** | 0.996*** |
|  | (0.046) | (0.044) |
| Score × Tie | 0.019 | 0.036 |
|  | (0.027) | (0.025) |
| Observations | 54611 | 74236 |
| Ind. | 275 | 398 |
| Chi-test | 517.41 | 627.40 |

## Math across SES

- Restrict sample by referrer SES
- Low-SES bias against High-SES
- High-SES bias against Low-SES Alt. Specification

|  | Low-SES (1) | Middle-SES (2) | High-SES (3) |
|---|---|---|---|
| Low-SES | 0.208 | -0.101 | -0.986** |
|  | (0.150) | (0.145) | (0.469) |
| High-SES | -0.619** | -0.313 | -0.269 |
|  | (0.283) | (0.195) | (0.381) |
| Nominee score | 0.540*** | 0.526*** | 0.730*** |
|  | (0.064) | (0.060) | (0.128) |
| Tie | 0.814*** | 0.870*** | 0.929*** |
|  | (0.041) | (0.043) | (0.128) |
| Score × Tie | 0.067** | 0.096*** | 0.160 |
|  | (0.028) | (0.029) | (0.097) |
| Observations | 55531 | 62492 | 10127 |
| Ind. | 283 | 327 | 59 |
| Chi-test | 525.71 | 561.64 | 110.76 |

# Math across SES (Low-SES vs others)

- Alternative specification with binary Low-SES
- Low-SES bias against other SES
- No evidence for a bias against Low-SES
- Consistent with main model
  Return
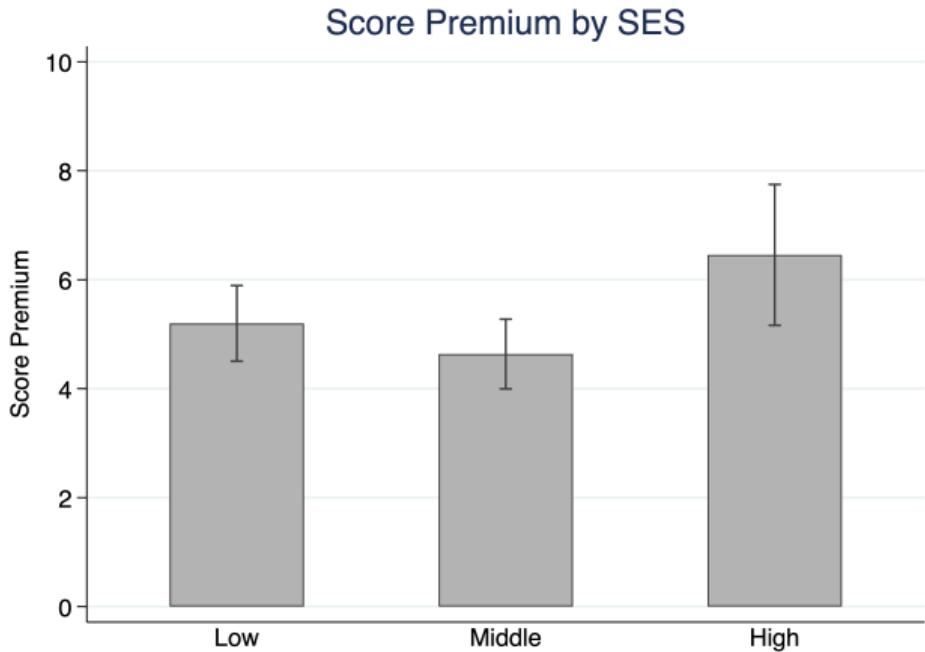
|  | Low-SES (1) | Other-SES (2) |
| --- | --- | --- |
| Low-SES | 0.296** | -0.138 |
|  | (0.147) | (0.136) |
| Nominee score | 0.533*** | 0.541*** |
|  | (0.063) | (0.055) |
| Tie | 0.820*** | 0.882*** |
|  | (0.042) | (0.042) |
| Score × Tie | 0.064** | 0.106*** |
|  | (0.028) | (0.027) |
| Observations | 55531 | 72619 |
| Ind. | 283 | 386 |
| Chi-test | 523.84 | 647.99 |

# No differences for Score Premium by SES

◦ Middle-SES refer slightly worst (joint F-test, $p < 0.1$)
Return



Score Premium by SES
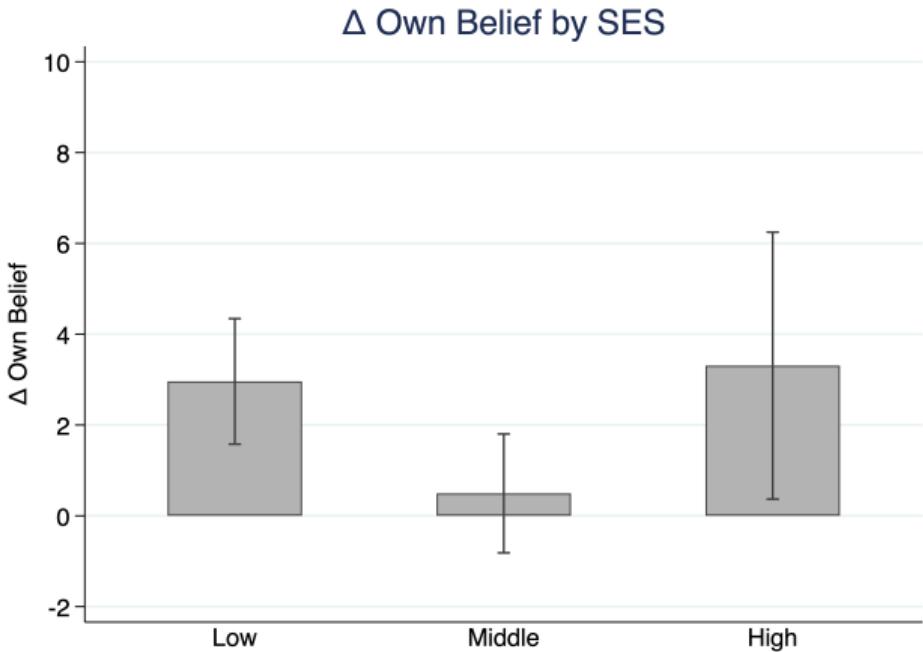
# No differences for own score beliefs by SES
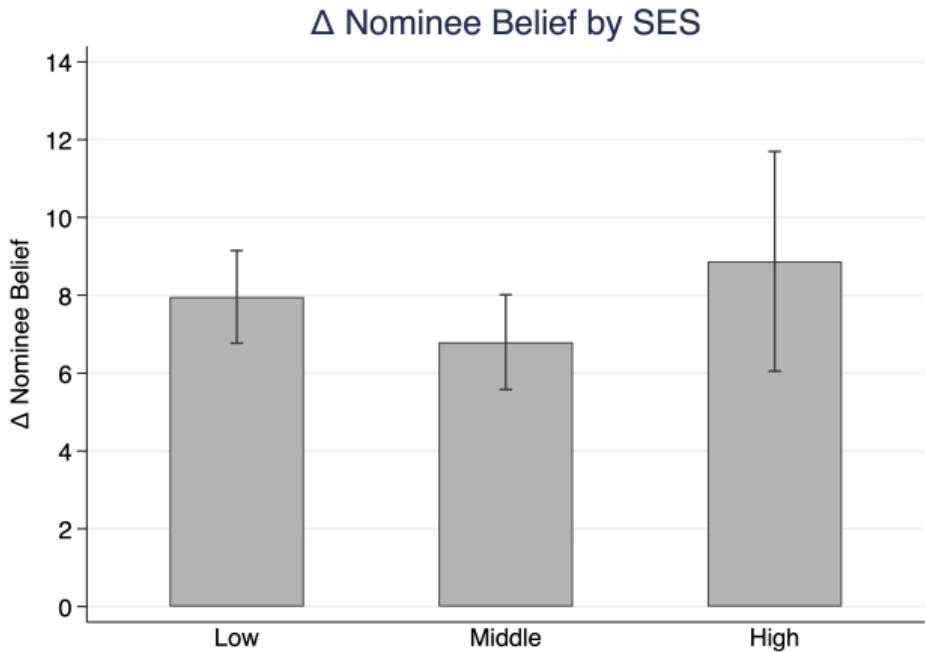
- Middle-SES are slightly more accurate (joint F-test, $p < 0.1$) Return



Δ Own Belief by SES
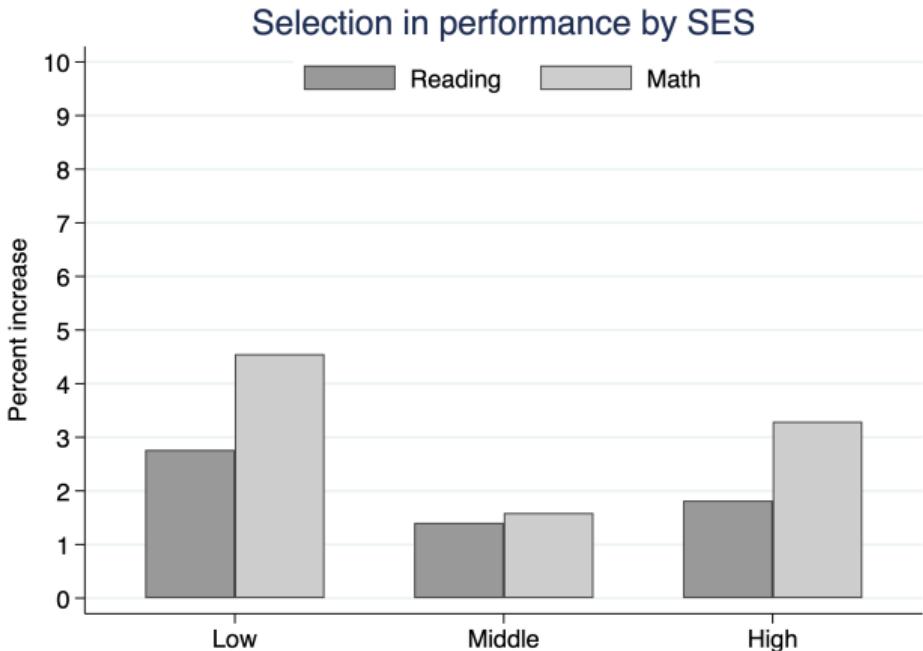
# No differences for nominee score beliefs by SES

- No difference (joint F-test, $p = 0.41$) `Return`



Δ Nominee Belief by SES

# Strong selection by Low-SES
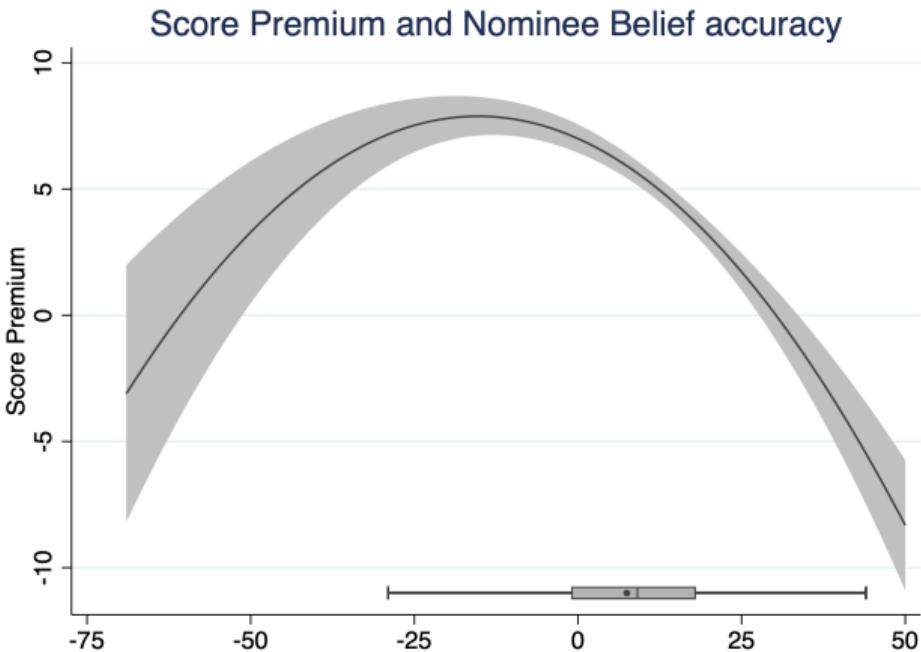
- Significant Low-SES selection ($t$-tests, $p < 0.01$)
- Other SES groups do select less ($t$-tests, $p > 0.05$) Return



Selection in performance by SES

# Nominee Beliefs are rewarded for accuracy

- Negative coeffient is explained by quadratic shape
  Return



Score Premium and Nominee Belief accuracy

# Own score beliefs are rewarded for accuracy

○ Positive coeffient is explained by quadratic shape and extreme outliers Return



Score Premium and Own Belief accuracy