Geographical Representation of Author Country among Peer Reviewers and Publishing Success at 60 STEM Journals

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Background

- Evaluator diversity discussed as source of global disparities in science publishing[1,2]
- Prior evidence of reviewer same-country preference were confounded[1,2] or had small samples[3]
- Lacking evidence on policies to mitigate effects of low reviewer diversity (e.g., diversification, anonymization)

Objectives

- Test for 2 necessary components of "geographical representation bias"
  1) Peer reviewers from the same country as the corresponding author are more favorable compared to those from a different country
  2) Corresponding authors have differential access to these same-country reviewers.
- Test whether hiding author identities (double-anonymization) reduces reviewer same-country preferences

Data & Methods

- Metadata from Institute of Physics Publishing on 204,718 submissions to 60 STEM journals, 2018 to 2022
- Linear probability models with fixed effects
  - Manuscript and reviewer fixed effects control for submission quality and baseline reviewing standards
- Instrumental variables analysis of randomized rollout of voluntary double-anonymization policy
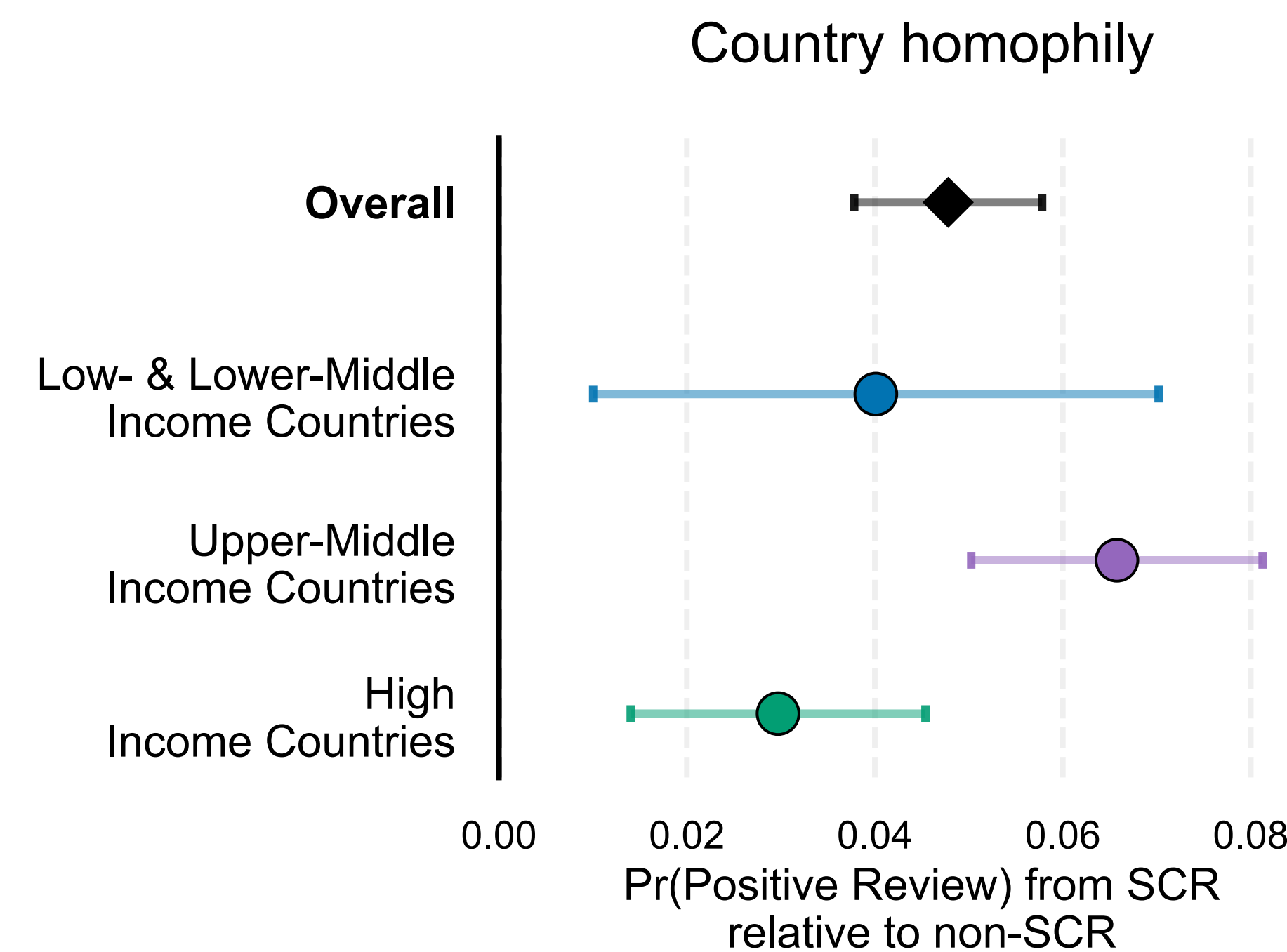
Results

Figure 1 *Same-country reviewers (SCRs) are more likely to give positive reviews compared to non-SCRs on the same manuscript.*

Figure 2 *Authors from countries well-represented in the reviewer pool are most likely to be reviewed by SCRs.*

- SCRs were ~5 p.p. more likely to give positive reviews
  - Relative SCR positivity higher for all income groups
- Pearson corr. = 0.9761 between SCR access for a country's authors and country's representation in overall reviewer pool
  - USA, China, India had SCRs 8-9x as often compared to similarly wealthy countries
  - HIC vs. LLMIC authors had SCRs >2x as often
- Hiding author identities did not cause a significant reduction in country homophily (0.67 p.p., P = 0.0742)

Conclusions

- Both components of "geographical representation bias" present in our data
- Double-anonymization ineffective at reducing country homophily, supporting calls for diversification policies

References

1. Smith OM, Davis KL, Pizza RB, et al. Peer review perpetuates barriers for historically excluded groups. Nat Ecol Evol. 2023;7(4):512-523. doi:10.1038/s41559-023-01999-w
2. Murray D, Siler K, Larivière V, et al. Author-Reviewer Homophily in Peer Review. Scientific Communication and Education; 2018. doi:10.1101/400515
3. Tomkins A, Zhang M, Heavlin WD. Reviewer bias in single- versus double-blind peer review. Proc Natl Acad Sci USA. 2017;114(48):12708-12713. doi:10.1073/pnas.1707323114
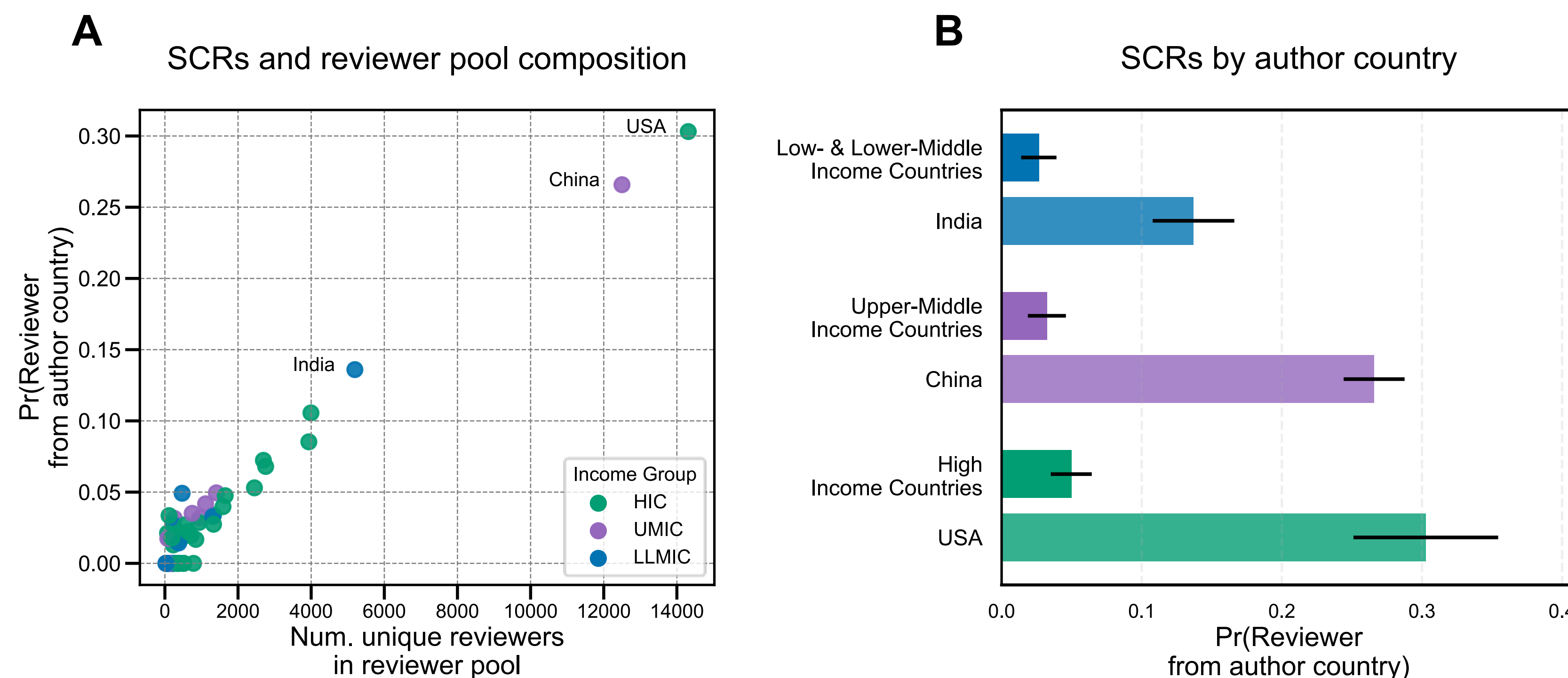
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