



Unveiling Gendered and Racialized Dynamics in Undergraduate Data Science Education: A Mixed-Method Analysis of Peer-to-Peer Educational Environments

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BACKGROUND

- Data science, a rapidly growing STEM field, exhibits persistent low participation rates among women and underrepresented minorities (URMs), including Black and Hispanic individuals.
- The intersectionality of gendered and racialized dynamics in undergraduate data science education has been rarely studied.

OBJECTIVE

- This study aims to illuminate gendered and racialized dynamics and their intersectionality in undergraduate data science education.

INNOVATION

- A comprehensive mixed-method analysis of peer-to-peer educational environments
 - Administrative records: Course-taking patterns
 - Student surveys: Socio-psychological measures
 - Student interviews: In-depth experiences and perspectives

CONTEXT

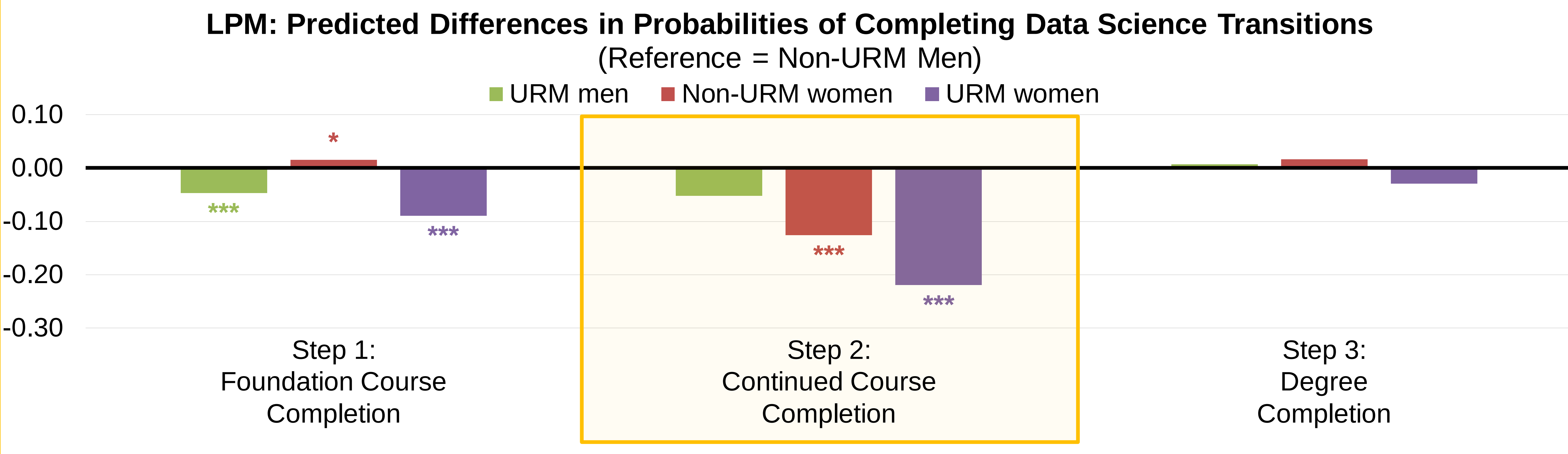
- UC Berkeley is renowned for its pioneering commitment to launching the undergraduate Data Science Education Program (DSEP) in 2015.
- UC Berkeley's DSEP has rapidly expanded with a particular focus on broadening the participation of women and underrepresented minorities (URMs) in undergraduate data science education.

METHODS

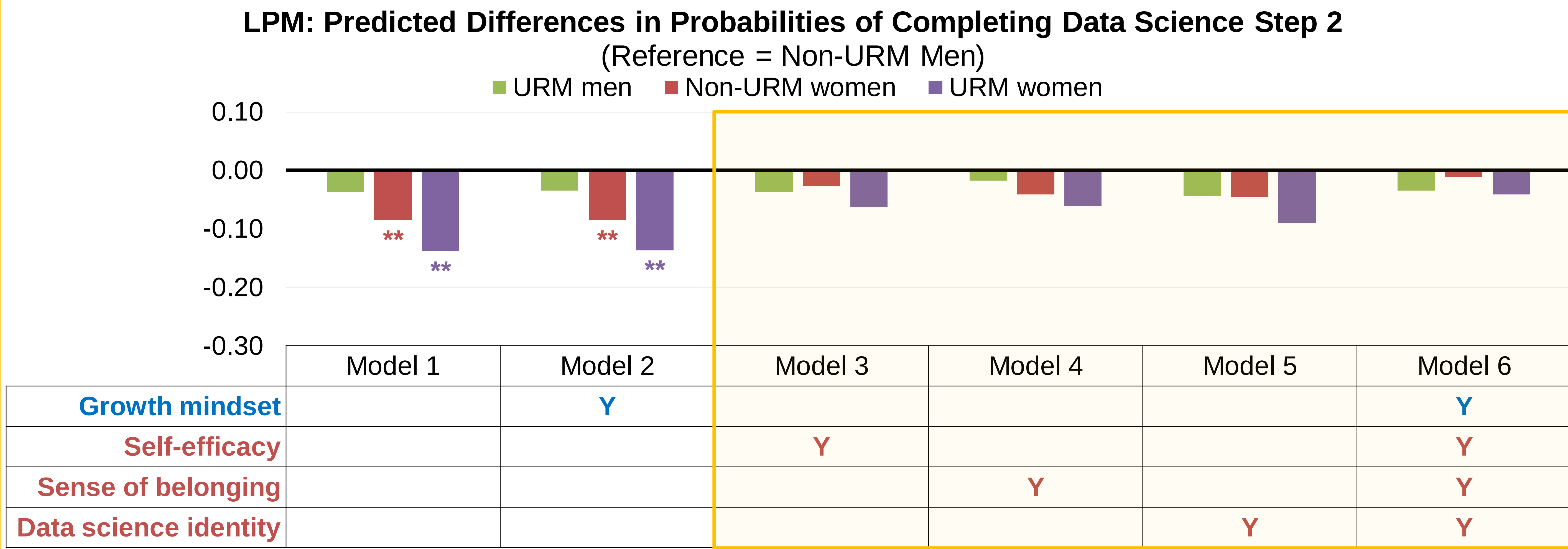
- Data
 - Administrative records:
 - College graduates (N = 16,965; SP2020-SP2022)
 - Student surveys:
 - Foundations course students (N = 1,296; SP2020-FA2022)
 - Student interviews:
 - Foundations course students (N = 55; SP2020-FA2022)
- Analysis
 - Quantitative Analysis: Linear Probability Modeling (LPM)
 - Covariates:
 - Demographic: family SES, first-generation student status, transfer, nationality, age, and graduation term
 - Educational: high school GPA, SAT and ACT scores, intended college major, college course GPAs
 - Qualitative Analysis:
 - Grounded theory approach with cyclical coding by 4 assistants

RESULTS

Administrative records



Student Surveys



Student Interviews

- Peer-to-peer environments are highly gendered and racialized.
- URM women experience difficulties in locating role models, mentors, or study group collaborators.

POSTER



CONCLUSIONS

- Women of color face heightened difficulties in persisting in undergraduate data science education.
- Building a campus community that supports marginalized students is essential for improving diversity and inclusion in data science workforce development.

CONTACT

