

# Assessing Racial Disparities in Postsecondary Education

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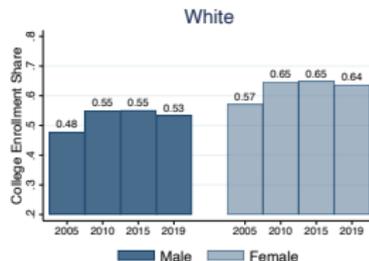
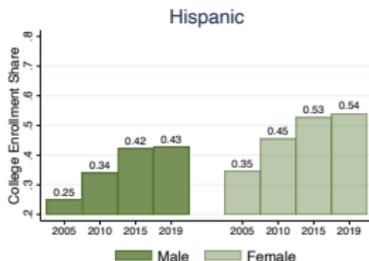
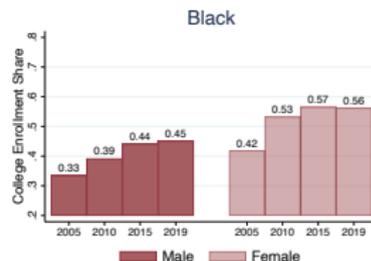
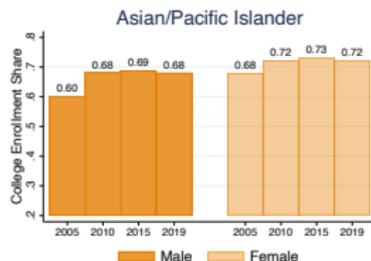
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- Education wage differentials have expanded substantially since 1980 (Autor et al., 2020)
- Role of human capital in explaining racial differences in earnings has grown over time (Thompson, 2021)
- Characterizing racial inequalities in higher education is relevant for understanding racial disparities in labor market outcomes

- Broad characterization of current racial gaps in educational attainment:
  - Enrollment and graduation outcomes by institution type
  - Comparison to gender gaps within racial groups
- Review of findings on barriers to postsecondary education access:
  - Financial constraints, informational frictions, and academic preparation
- Differential role of specific skills (English vs. math) in explaining racial gaps in college graduation

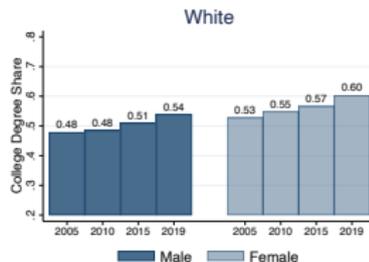
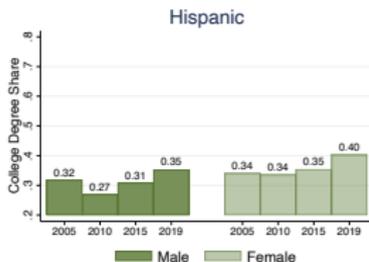
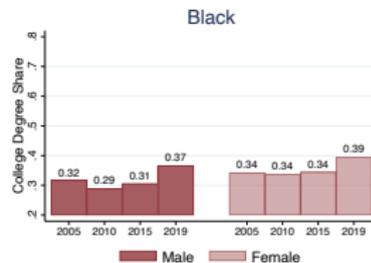
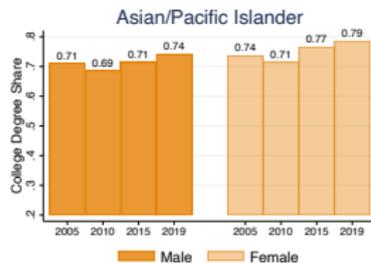
# Characterizing Racial Gaps in Higher Education

# College Enrollment by Race and Gender



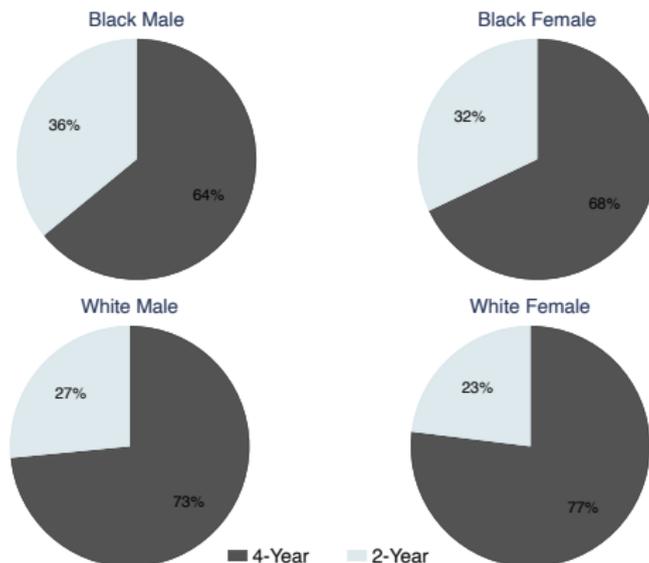
- Considerable increase in share of URM students enrolled in college over past two decades
  - Decrease in racial gaps relative to white students
- Large and persistent gender gaps

# Graduation Conditional on Enrollment by Race and Gender



- Larger racial gaps relative to enrollment
- Racial gaps in graduation conditional on enrollment in any college have grown between 2005-2019

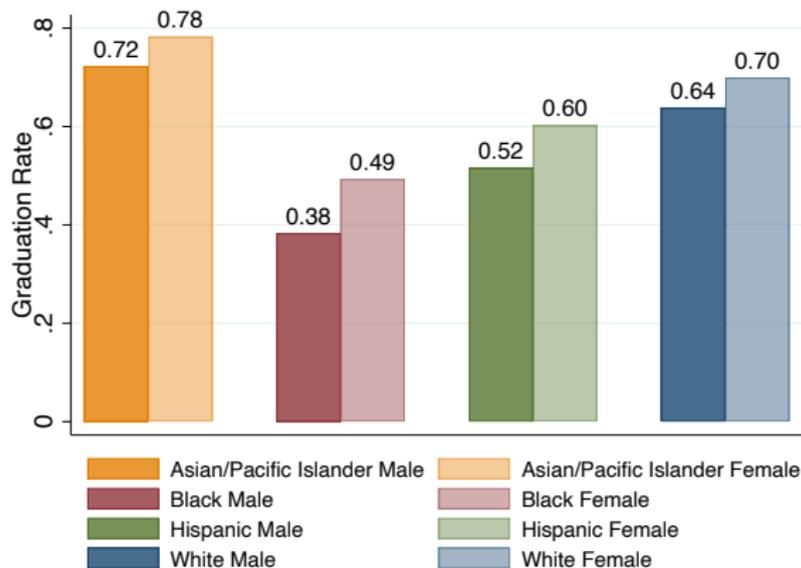
# Enrollment by Level Across Demographic Groups



- URM students much more likely than white students to enroll in two-year institutions
- Males are more likely to enroll in two-year institutions across all races

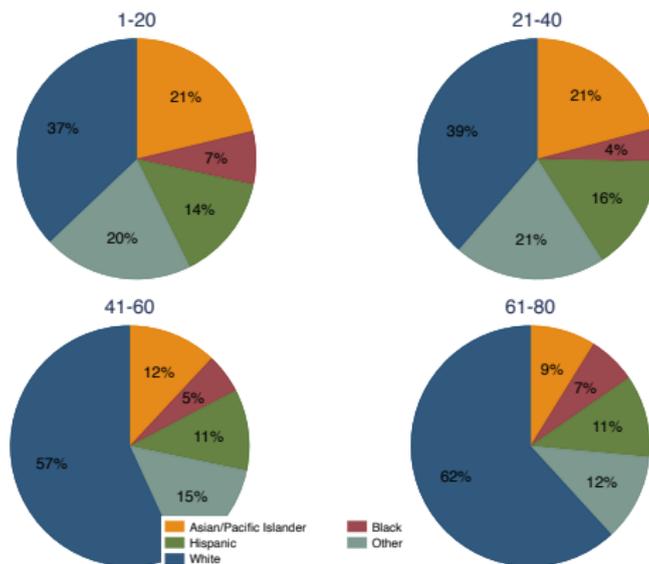
Other Groups

# Graduation Rates by Race and Gender



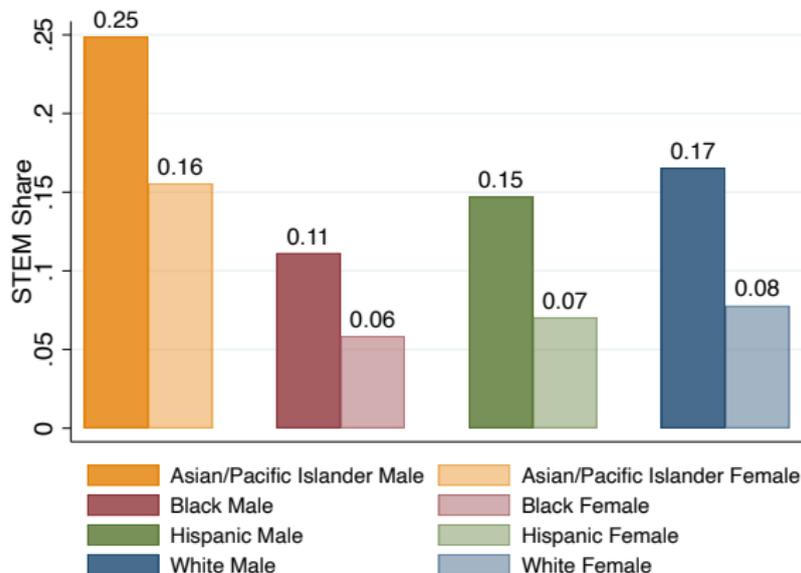
- URM's much less likely to graduate in 150% of normal time at four-year institutions conditional on enrollment
- Females are more likely to graduate across all races

# Enrollment by Race Across Institution Rankings



- Enrollment of black students follows a U-shape across ranking tiers
- Share of white students increases outside of top 40, share of Hispanic students decreases

# STEM Degree Attainment by Race and Gender



- Substantial gap across black and white males
- Comparable across females of most racial groups

# Recap of Racial Gaps in Higher Education

- URM students have experienced an important increase in postsecondary participation over the last two decades, leading to a decrease in racial gaps
- Reduction in racial gaps is not observed when considering Bachelor's degree attainment conditional on enrolling in any postsecondary education institution
- Gender gaps in postsecondary participation among URM students are at least as large as the racial gaps
- U-shape of black student enrollment across institution ranking tiers
- URM students are less likely to graduate in a STEM field relative to white students

# Barriers to Postsecondary Education Access

- Inflation-adjusted tuition and fees at four-year institutions have more than doubled since 1990
  - In 2020, represented 21% (13%) of median annual household income for black (white) families relative to 12% (8%) in 2000
- Higher dependence on loans has an asymmetric effect across racial groups (Chakrabarti et al., 2020)
- Two perspectives: time of enrollment vs. life-cycle

# Financial Constraints at the Time of Enrollment

- Mixed evidence on importance of credit constraints at time of enrollment
  - Little effect of parental layoffs during adolescence (Hilger, 2016) or moderate increases in resources (Bulman et al., 2021)
  - Expanding access to credit, need-based grants, and subsidies can increase enrollment (Castleman & Long, 2016; Teng Sun & Yannelis, 2016; Bettinger et al., 2019)
  - Increasing borrowing limits among college enrollees has led to increases in borrowing (Black et al., 2020; Denning & Jones, 2021)

- Hinges on dynamic complementarities in child investments
- Constraints when children are young may make later investments unproductive (Hai & Heckman, 2017; Caucutt & Lochner, 2020)
- Financial constraints may be important, but unlikely to be only determinant of racial gaps
  - Cannot explain large gender gaps within URM groups

# Informational Frictions

- A large fraction of high-achieving, low-income students do not apply to selective institutions (Hoxby & Avery, 2013)
  - Providing information about aid and admissions to this group increased applications and attendance (Hoxby & Turner, 2015)
- Evidence from the Texas admissions system suggests that URM students may not have more biased beliefs over admissions probabilities relative to white students (Black et al., 2020)

# Academic Preparation and Skills

- Differences in human capital are important in explaining racial gaps in college enrollment (Aucejo & James, 2019) and graduation (Arcidiacono & Koedel, 2014)
  - Substantial racial gaps in achievement across all levels of compulsory education
- Verbal skills explain more of college enrollment and graduation outcomes relative to math skills (Aucejo & James, 2021)
  - Researchers and policymakers tend to focus on math skills

# Recap of Barriers to Postsecondary Education

- Financial constraints both at the time of enrollment and throughout the life cycle are a potentially important barrier
- Informational frictions are important for high-achieving, low income students
- Academic preparation and skills are important determinants of educational outcomes and racial gaps

# Role of Math and Verbal Skills in Explaining Racial Gaps

- Longitudinal survey of nationally-representative sample born between 1980-1984
- Detailed information on background characteristics and educational experiences
- High school transcript records for a subsample of participants
  - Focus on Algebra 1 and 9th grade English course grades as measures of academic preparation

# Descriptive Statistics

	Black			non-URM			Racial Gap
	Total	Fem.	Diff.	Total	Fem.	Diff.	non URM-Black
College Degree	0.33	0.37	-0.10***	0.41	0.48	-0.13***	0.08***
Degree   Enrollment	0.45	0.47	-0.06	0.55	0.61	-0.11***	0.10***
Mother Enrollment	0.40	0.40	0.01	0.53	0.52	0.02	0.13***
Absence of Parent	0.70	0.72	-0.05	0.40	0.42	-0.04*	-0.31***
Ever Suspended	0.44	0.38	0.14***	0.21	0.13	0.17***	-0.23***
Ever Attacked	0.38	0.31	0.18***	0.25	0.17	0.16***	-0.14***
Algebra 1 GPA	2.21	2.35	-0.30***	2.58	2.70	-0.23***	0.37***
9th Grade Eng. GPA	2.33	2.52	-0.43***	2.70	2.89	-0.39***	0.37***

- Unconditional gender gaps in graduation within URMs tend to be larger than racial gaps
- URMs have lower levels of parental education
- Large racial and gender gaps in performance in math and English courses

# Gaps in Skills Explain Disparities in Degree Attainment

- A simple OLS regression analysis shows:
  - Racial gaps are largely explained by performance in algebra 1 and English, while the gender gap is explained by over 60%
  - Larger role of English performance relative to math to explain college graduation and racial gaps in educational attainment

# Recap of the Role of Math and Verbal Skills

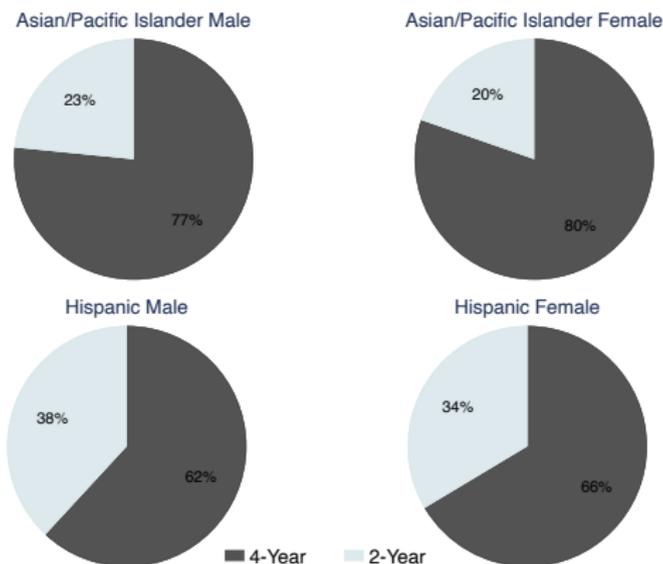
- Large racial and gender gaps in performance in Algebra 1 and 9th grade English
- These differences fully explain racial gaps between black and non-URM students in college graduation
  - Also explain over 60% of the gender gap
- Effect of an increase in 9th grade English GPA is roughly double that of an increase in Algebra 1 GPA

# Conclusion

- Racial gaps in college enrollment have decreased over time, but large differences persist
  - Gender gaps within race are often larger than racial gaps
- Differences in academic preparation and skills are an important determinant of racial gaps
  - English skills are more important than math skills in explaining differences in graduation outcomes
- Understanding of skills that explain education outcomes is critical in addressing racial gaps

# Additional Slides

# Enrollment by Level Across Demographic Groups



- Patterns of enrollment by institution level for Hispanic students are similar to black students
- Asian/Pacific Islander students have a lower share of enrollment in two-year institutions relative to all other groups

# Gaps in Skills Explain Disparities in Degree Attainment

	(1)	(2)	(3)	(4)
Male	-0.125*** (0.024)	-0.048** (0.022)	-0.071*** (0.022)	-0.049** (0.022)
Black	-0.083*** (0.031)	-0.008 (0.030)	0.029 (0.029)	0.050* (0.029)
Hispanic	-0.116*** (0.036)	-0.061* (0.035)	-0.034 (0.034)	-0.026 (0.034)
Male*Black	0.000 (0.044)	0.015 (0.042)	0.024 (0.041)	0.022 (0.041)
Male*Hispanic	-0.019 (0.048)	-0.055 (0.047)	-0.049 (0.045)	-0.042 (0.045)
Algebra 1 GPA		0.077*** (0.011)	0.069*** (0.010)	0.062*** (0.010)
9th Grade English GPA		0.152*** (0.011)	0.133*** (0.011)	0.123*** (0.011)
Family Controls	No	No	Yes	Yes
Behavior Controls	No	No	No	Yes
R2	0.03	0.16	0.21	0.23
N	3,009	3,009	3,009	3,009

- Racial gaps largely explained by performance in algebra 1 and English, gender gap reduced by over 60%
- Larger effect of English performance relative to math