Assessing Racial Disparities in Postsecondary Education

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Motivation

- 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
Considerable increase in share of URMs enrolled in college over past two decades

- Decrease in racial gaps relative to white students

- Large and persistent gender gaps
Larger racial gaps relative to enrollment

Racial gaps in graduation conditional on enrollment in any college have grown between 2005-2019
URMs 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
URMs 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 of black students follows a U-shape across ranking tiers

Share of white students increases outside of top 40, share of Hispanic students decreases
- 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)
Life-Cycle Perspective

- 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
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)
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.
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
NLSY97 Data

- 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

### Table

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<tr>
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<tbody>
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<td>College Degree</td>
<td>0.33</td>
<td>0.37</td>
<td>-0.10***</td>
<td>0.41</td>
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<td>Degree</td>
<td>Enrollment</td>
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<td>Mother Enrollment</td>
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<td>0.40</td>
<td>0.01</td>
<td>0.53</td>
<td>0.52</td>
<td>0.02</td>
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<td>Absence of Parent</td>
<td>0.70</td>
<td>0.72</td>
<td>-0.05</td>
<td>0.40</td>
<td>0.42</td>
<td>-0.04*</td>
<td>-0.31***</td>
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<tr>
<td>Ever Suspended</td>
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<td>0.38</td>
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<td>0.21</td>
<td>0.13</td>
<td>0.17***</td>
<td>-0.23***</td>
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<tr>
<td>Ever Attacked</td>
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<td>0.31</td>
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<td>0.17</td>
<td>0.16***</td>
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<td>Algebra 1 GPA</td>
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<td>-0.30***</td>
<td>2.58</td>
<td>2.70</td>
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<td>0.37***</td>
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<tr>
<td>9th Grade Eng. GPA</td>
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<td>2.52</td>
<td>-0.43***</td>
<td>2.70</td>
<td>2.89</td>
<td>-0.39***</td>
<td>0.37***</td>
</tr>
</tbody>
</table>

- 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.
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
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.
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