Decomposing Differences in Black Student Graduation Rates between HBCU and non-HBCU Students

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Any opinions and conclusions expressed are those of the authors and do not necessarily represent the views of the Federal Reserve Bank of Atlanta or the Federal Reserve System.
Introduction and Background

• HBCU = Historically Black Colleges and Universities
  • institutions of higher education serving primarily African-American students; unique to the U.S.
  • rich history dating back to the end of the civil war
Geographical Distribution of HBCUs

Source: https://hbculifestyle.com/list-of-hbcu-schools/
Introduction and Background

- HBCU = Historically Black Colleges and Universities
  - institutions of higher education serving primarily African-American students; unique to the U.S.
  - rich history dating back to the end of the civil war
- Significant differences in educational and labor market outcomes between HBCU and non-HBCU graduates
  - disappear when student characteristics are controlled for
  - doesn't capture social, psychological, emotional benefits
- If outcomes are primarily attributable to differences in student characteristics, is there anything left for HBCUs to learn for further improving outcomes?
Dig Deeper into Differences in Outcomes

Student Outcome
(6-year black graduation rate)

~ 8pp difference in graduation rates
Dig Deeper into Differences in Outcomes

Student Outcome
(6-year black graduation rate)

Student Characteristics

Institutional Characteristics

Differences in Characteristics
### Differences in Characteristics

#### Institutional Characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>HBCU</th>
<th>non-HBCU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endowment-expense ratio</td>
<td>0.44</td>
<td>1.04</td>
</tr>
<tr>
<td>Revenue per fte - $1000s</td>
<td>28.8</td>
<td>31.3</td>
</tr>
<tr>
<td>In-state tuition and fees - $1000s</td>
<td>10.3</td>
<td>22.3</td>
</tr>
<tr>
<td>Student to Faculty ratio</td>
<td>15</td>
<td>14</td>
</tr>
<tr>
<td>Graduate program = 1</td>
<td>0.53</td>
<td>0.60</td>
</tr>
</tbody>
</table>

#### Student Characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>HBCU</th>
<th>non-HBCU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share of 1st gen. college students</td>
<td>39%</td>
<td>33%</td>
</tr>
<tr>
<td>Share of undergrads who receive a Pell grant</td>
<td>65%</td>
<td>32%</td>
</tr>
<tr>
<td>Avg SAT equiv. score of students admitted</td>
<td>867</td>
<td>1,064</td>
</tr>
<tr>
<td>Share of female students</td>
<td>61%</td>
<td>58%</td>
</tr>
<tr>
<td>Share of Non-Hispanic Black Students</td>
<td>82%</td>
<td>10%</td>
</tr>
<tr>
<td>Share of STEM graduates</td>
<td>16%</td>
<td>13%</td>
</tr>
<tr>
<td>Share of part-time students</td>
<td>14%</td>
<td>22%</td>
</tr>
</tbody>
</table>
Dig Deeper into Differences in Outcomes

Student Outcome
(6-year black graduation rate)

Student Characteristics

- e.g., does a low SAT score handicap HBCU students more or less than non-HBCU students?

Institutional Characteristics

- e.g., how important tuition is in determining HBCU outcomes vs. non-HBCU outcomes

Differences in Mechanisms
Methodology

• Data
  • Four-year public and non-profit private colleges, 2009-2018
  • U.S. Dept of Education’s Integrated Postsecondary Education Data System (IPEDS)
  • U.S. Dept of Education’s College Scorecard

• Analysis
  • Performed at the institutional level
  • Compare comparable institutions through propensity-score matching
  • Decompose difference in graduation rates across distributions
    • tells us how important differences in characteristics vs. differences in mechanisms are in determining differences in graduation rates
The theory in applying the matching methodology is that the more similar the "treated" (HBCU) and "control" (non-HBCU) samples are in their observed characteristics, the more similar they will be in their unobserved characteristics.

The chart shows the 6-year black graduation rate from 2009 to 2017 for HBCU, non-HBCU raw, and non-HBCU matched samples. The chart indicates a zero difference on average between HBCU and matched non-HBCU samples, with a difference of approximately 8 percentage points in graduation rates.
Distribution of Institutions Across Grad Rate

6-year black graduation rate

Kernal density

HBCUs
non-HBCUs

grbkaat6year_rate

HBCU  non-HBCU
Results and Implications - Characteristics

- Most important Characteristics Differences
  - **higher tuition and fees at non-HBCUs** increase graduation rate gap at the low end of the distribution
    - doesn't necessarily mean HBCUs should raise tuition – likely a correlation with other characteristics still left unmeasured
  - **lower SAT scores among HBCU students** at all points of the distribution increases graduation rate gap
    - HBCUs could skim the cream by rejecting lower SAT students to improve outcomes -- not consistent with a mission to undo effects of early systemic racism (perhaps manifested in lower SATs)
  - **lower share of part-time students** at all points of the distribution decreases graduation rate gap
    - fewer part-time students give HBCUs and edge; continue supporting focus on studies as full-time endeavor
Results and Implications - Mechanisms

• Most important differences in mechanisms
  • first-generation students at lower end of distribution have a harder time graduating from HBCUs than from non-HBCUs
  • students with similar SAT scores have a harder time graduating from HBCUs than from non-HBCUs

• HBCUs could devote more resources (through grants or federal funding initiatives) to students arriving at college without familial experiences to draw on and to students entering college needing more remedial attention (i.e., lower SAT scores)
Bottom Line

• Even if outcome differences are erased by comparing comparable institutions, digging deeper tells us how outcomes among HBCU institutions can be improved even more, relative to their non-HBCU counterparts.
Thank you.