

Racial Equality in Graduation Rates at Selective Institutions: Accounting for Pre-College Differences

Despite the decades of research and reforms intended to reduce inequalities in education, recent literature confirms that, among those students who attend college, sizable racial gaps appear in nearly every measure of student success in college. Black and Hispanic students tend to receive lower grades (GPAs) (Hu & St. John, 2001; Kuh, et al., 2007), drop out more frequently (St. John, et al., 2001), and graduate at lower rates (Astin & Oseguera, 2005; Snyder, et al., 2008) than do their White and Asian counterparts. However, the magnitude of the racial inequalities in college graduation rates, as suggested by aggregated national statistics, can be misleading. Although there are clear racial differences in college outcomes, there are also clear racial differences in college inputs – the knowledge, skills, habits, and experiences students bring with them to college. For example, Barton (2003) reports racial gaps in fourteen pre-college correlates of student achievement, indicating that racial minorities are more likely than their White peers to have multiple “risk factors” that curtail academic success (Hoffman, et al., 2003, p. 62).

Perhaps when these pre-college factors are controlled statistically, *net* college outcomes may be racially equitable. Some studies even suggest that, when background characteristics like socioeconomic status, grades, and motivation are controlled, there is actually a *positive* association between minority status and educational outcomes (Light & Strayer, 2002; Murtaugh, Burns, & Schuster, 1999; Nora, Cabrera, Hagedorn, & Pascarella, 1996; Peng & Fetters, 1978; Perna & Titus, 2005). But recent findings from Alon (2007), dealing specifically with students attending highly selective institutions, suggest Black and Hispanic students have a lower probability of graduation than their White peers, even when controlling for family

background and academic preparation.

To develop effective policies and programs aimed at reducing these racial gaps, policy-makers and educators must have a more comprehensive understanding of their underlying causes. This study examines several factors that may prove to be the root of racial gaps in graduation rates. Specifically, this study serves as an empirical examination of whether racial inequalities in four-year graduation rates at competitive-entry colleges and universities remain after accounting for a wide range of race-specific pre-college influences.

Methods

This study uses data from 2,590 students (696 White, 695 Asian, 608 Black, 591 Hispanic) at 22 institutions participating in the National Longitudinal Survey of Freshmen, a six-year study of students at selective colleges and universities. These analyses employ random intercept multi-level models with logit link functions, thus accounting for the dichotomous nature of the outcome variable (1 = graduated from original school within four years, 0 = did not) and institutional differences in overall graduation rates. Independent variables reflect five categories of students' pre-college characteristics that might affect their subsequent graduation: *Demographic* (gender, first-generation), *Academic* (AP coursework, ACT/SAT), *Sociocultural* (cultural capital, social capital), *Psychological* (self-efficacy, aspirations), and *Financial* (income, unmet need). Variables are centered around the grand mean for the entire sample (except gender, with female=1, male=0) and are added simultaneously to each model. To account for the potential that students' pre-college characteristics have race-conditional effects on the likelihood of graduation (e.g., SAT scores are more predictive of White students' graduation than of Hispanic students' graduation), I split the sample into race-homogenous groups and build separate models for each racial group. Accordingly, although variable

coefficients can differ across races, the models' structural composition will be the same for all racial groups.

Results from the multilevel models are drawn from HLM program output for the population-average estimates (sometimes called marginal estimates) with robust standard errors. The intercept for each race-specific model indicates the log-odds that a male student of a given race graduates from his original college within four years, if he was otherwise like the average student in the overall sample of 2,590 students with regard to all included variables. To ease interpretation, these log-odds are converted into race-specific (and sex-specific) probabilities of graduation and compared across races to compute predicted racial gaps.

Results

With few exceptions, White and Asian students begin college with significant academic, psychological, sociocultural, and financial advantages over their Black and Hispanic peers (see Table 1 for details).

Table 1
Racial Differences in Pre-College Characteristics (Mean Scores)

	White	Black	Hispanic	Asian
Demographic				
First generation	4%	10%	17%	9%
Female student	51%	64%	56%	53%
Academic				
SAT score (verbal + math)	1,363	1,209	1,288	1,378
Number of Advanced Placement courses taken	3.7	2.8	3.4	4.3
Sociocultural				
Cultural capital (max=44)	14.4	11.6	14.8	13.3
Social capital (max=16)	11.4	9.8	10.7	9.5
Psychological				
Self-efficacy (max=24)	18.8	19.1	19.0	18.1
Aspirations (aspirations for graduate school=3)	2.5	2.7	2.6	2.6
Financial				
Income, in \$25k intervals	3.51	2.85	2.93	3.25
Estimated first-year college costs	\$27,905	\$27,500	\$28,834	\$27,838
Unmet need	\$3,489	\$4,486	\$4,444	\$2,890

Note. Mean values are listed; chi-square or ANOVA tests of significance have p-values of .05 or less.

As Table 2 shows, fewer than fifty percent of Black men actually graduate within four years. Fewer than seventy percent of Black women or Hispanic men graduate within four years; White and Asian students of both sexes graduate at higher rates. Both the actual and predicted graduation rates also indicate that racial gaps in graduation rates are larger among men than among women.

Table 2
Actual and Predicted Four-Year Graduation Rates and Racial Gaps

	Males				Females			
	White	Black	Hispanic	Asian	White	Black	Hispanic	Asian
Actual Graduation Rate	74.6%	49.1%	64.3%	77.1%	77.1%	64.8%	71.2%	75.7%
Predictive Model Equalizing Pre-College Characteristics	72.7%	59.0%	65.9%	78.6%	77.8%	75.0%	75.4%	78.3%
	W-B	W-H	W-A		W-B	W-H	W-A	
Actual <i>Gaps</i> in Graduation Rates	25.5%	10.3%	-2.5%		12.3%	5.9%	1.4%	
Predictive Model Equalizing Pre-College Characteristics	13.7%	6.8%	-6.0%		2.8%	2.4%	-0.5%	

Note. Predicted graduation rates reflect the likelihood that students of a particular race and sex, who are otherwise like the average student in the whole sample (on measured variables), will graduate from his/her original institution within four years. Following historical precedent, racial gaps are calculated as the (predicted) graduation rate for White students minus the (predicted) graduation rate for minority students [W = White; B = Black; H = Hispanic; A = Asian]. Negative numbers reflect Asian students having higher predicted graduation rates than their otherwise similar White peers.

Even when pre-college characteristics are statistically equalized, White students of both sexes still are predicted to outperform their Black and Hispanic counterparts, with Asian students generally outperforming all other racial groups. However, these models suggest the racial gaps would close dramatically were all students to enter college with identical pre-college characteristics. Pre-college characteristics account for roughly forty percent of the White-Black $[(23.8 - 13.7) / 23.8 = 42.4\% \text{ reduction}]$ and White-Hispanic $[(12.1 - 6.8) / 12.1 = 43.8\%$

reduction)] gap among men; for women, pre-college characteristics explain more than seventy percent of the White-Black (75.4% reduction) and White-Hispanic (72.1% reduction) gaps.

The broad conclusion to be drawn from these analyses is both straightforward and predictable. White and Asian students, on the whole, *do* graduate at rates higher than Black or Hispanic students. White and Asian students also generally have more-advantageous pre-college characteristics. These race-specific differences in pre-college characteristics account for the majority of the racial gaps in four-year graduation gaps among female students; but they explain less than half of the racial gap for men. Thus, although pre-college characteristics *contribute* to racial gaps in four-year graduation rates, such characteristics *do not explain away* all of the gaps.

Discussion and Implications

Based on years of research documenting significant racial differences in students' home environments, K-12 school quality, and test scores (e.g., Barton, 2003; Cabrera & La Nasa, 2000; Entwisle, et al., 2005; Reardon & Galindo, 2009), nearly every college-effects model acknowledges the influence of students' pre-college characteristics (e.g., Bean & Eaton, 2000; Kuh, et al., 2006; Terenzini & Reason, 2005). Consistent with this body of literature, the current study finds racial differences in nearly all measures of pre-college characteristics: White and Asian students generally come to college with advantageous educational, sociocultural, psychological, and financial backgrounds. Such a finding becomes somewhat more remarkable when one remembers that the sampled students are among the nation's best high school graduates. Of the 22 schools analyzed, all but one have median SAT scores above 1,200 and admit the majority of their first-year students from the top ten percent of students' high school classes.

Thus, more than a century after W.E.B. DuBois (1903) charged "talented tenth" with the

task of leading the fight against White oppression, many in the Black and Hispanic “talented tenth” have pre-college experiences that place them in a disadvantageous position (relative to White and Asian students) from which to pursue social change. The inequalities of pre-college characteristics seem more likely to perpetuate, rather than alleviate, the long-term racial inequalities DuBois sought to rectify. Indeed, results from the current study confirm that these pre-college inequalities have effects that persist through students’ entire college careers: differences in pre-college characteristics make non-trivial contributions to eventual racial gaps in four-year graduation rates.

Nevertheless, even when students’ pre-college characteristics are statistically modeled as equal, racial gaps in four-year graduation rates remain clear, particularly among men. This finding contrasts starkly with other research suggesting that racial minorities would outperform White students if they were to enter college with the same academic, social, or financial backgrounds (e.g., Light & Strayer, 2002; Peng & Fetters, 1978; Perna & Titus, 2005). Although these racial differences in pre-college characteristics likely contribute to lower grades for Black and Hispanic students (Massey, 2007) which, in turn, may contribute to racial differences in subsequent measures of college success (Desjardins, et al., 2002; Kuh et al., 2007), this study’s findings reinforce Alon’s (2007) contention that racial differences in family background and educational preparation are only *partly* responsible for the racial gaps in graduation rates at selective institutions.

One possible conclusion, then, is that the colleges and universities these students attend are not only perpetuating the race-related educational inequalities manifest during students’ lives outside of college but are actually *exacerbating* those inequalities. Such a conclusion would fit with the widely-held notion of America’s selective institutions of higher education as “ivory

towers" with discriminatory racial climates that contribute to the reproduction of America's social stratification. Although further analyses are required before colleges themselves can be blamed for expanding racial inequality in educational attainment, results from this study confirm the relevancy of asking a critical but uncomfortable question: *Might selective colleges and universities themselves be contributing to, rather than ameliorating, racial inequality in the United States?*

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