# CROSSING THE BRIDGE: RACE, MERITOCRACY, and TIMING OF COLLEGE COMPLETION

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## INTRODUCTION

Among the most-cited reasons for persistent racial inequality in socioeconomic status in the United States is disparity in college completion rates of racial minorities relative to whites. The general importance of earning a bachelor's degree continues to grow in post-industrial America, as the transformation of our national economy has made less viable the option of seeking employment with only a high school diploma in hand. According to recent statistics, the unemployment rate for job-seeking Americans who hold only a high school diploma is 9.4 percent, which almost doubles the 4.9 percent unemployment rate for holders of bachelor's degrees, and college graduates earn a median of more than $400 per week more than high school graduates who never attended college (Bureau of Labor Statistics 2012). These numbers suggest grim prospects for closing existing employment and income gaps between racial groups unless the average levels of academic attainment for blacks and Hispanics – whose academic outcomes lag behind those of whites and Asians – improve.

In response to the shifting economic landscape in the United States, many efforts have been made to improve access to postsecondary education for high school graduates regardless of background characteristics. However, greater prospects for a college education alone do not guarantee a better future for today's Americans, as many students struggle to complete their programs of study and fall short of college completion (Light and Strayer 2000). This is unfortunate, because data indicate that there is not much of a difference in employment and earning prospects for people who enroll in college and come away with no degree compared to those who never attend – the unemployment rate is only .7 percent lower for people who exit college without earning a credential than for those who enter the labor force immediately after earning a high school diploma, and median earnings for the former group exceed those of high school graduates by less than $100 per week (Bureau of Labor Statistics 2012). The takeaway point from this is clear: while reductions in college enrollment gaps are positive for our society, minority

groups must also close racial gaps in college completion in order to see significant socioeconomic progress on a group level.

*Timing of college completion as a critical outcome*

The importance of earning a college degree for reducing socioeconomic inequality is evident from the aforementioned BLS data. In addition to eventuality of graduation, however, the amount of time spent pursuing a bachelor's degree also has meaningful implications for racial inequality. Among college-goers who complete their degrees, those who graduate within four years receive a higher financial return on their credentials than do delayed graduates. This disparity in payoff is due, in part, to the fact that those who make later transitions to the career track have fewer wage-earning years between the start of their occupational careers and retirement than do those who graduate in a timely manner, assuming immediate employment (Taniguchi 2005). In addition, delayed completion means that graduates may find themselves managing other life transitions (e.g. marriage or birth of a child) earlier in their occupational careers than are comparably qualified people who are "on time" in their life course; these concurrent events may impact the amount of time that can be committed to career advancement or influence the selectivity of one's job search due to having to accommodate the needs of a partner or children. Lastly, delayed enrollees may meet with structural barriers to career mobility as a result of still-existing and often-overlooked forms of age discrimination (Neumark 2009) that could impact lifetime earnings and occupational enjoyment independent of self-determined career decisions. In combination, these realities mean that if racial differences in timing of college completion exist, groups that typically take longer to progress through this stage are getting smaller returns on postsecondary academic success than their more expedient counterparts. The ramifications of delayed graduation are becoming more consequential in the United States in recent times, as Astin and Oseguera (2005) report that fewer students were completing college in four years by 2000 than were doing so in the decade prior.

In this article, I explore the question of whether racial variance in duration between postsecondary enrollment and college completion exist, and, if so, whether racial inequality on measures

of prior academic merit is sufficient to explain it. I reveal the existence of racial differences in length of time between college enrollment and completion. In addition, I show that this inequality is not fully attributable to student background, nor to displayed academic merit prior to college entry (measured by high school grades and standardized exam scores), even after accounting for important characteristics of the high schools from which students graduate. Finally, I offer some ideas on what might explain these racial gaps, if not for academic ability.

## RELEVANT LITERATURE

### *Racial disparity in timing college completion*

An examination of college completion rates reveals a distinct race effect, with one recent study finding that 60% of white enrollees graduate within six years, as compared to 49% of Hispanics and 40% of blacks (Chronicle of Higher Education 2010). While many may argue that the overall completion rate falls short of ideal standards, there is no question that the particularly low success rate of blacks and Hispanics is a unique cause for concern. Racial gaps in labor market success have been attributed, in part, to variance in earned credentials, making the narrowing of the graduation rate gaps between whites and minorities a high priority among policymakers and advocates for racial equality.

### *The role of academic merit*

Much of the attention paid toward racial variance in college success is trained on the importance of college preparation. In sociological literature, college preparation is typically regarded as academic ability as measured by high school grades and, especially, by standardized exam scores (Deil-Amen and Turley 2007). These measures of achievement hold hallowed position as the operational indicators of academic merit and form the primary criteria on which college admissions are based. Indeed, formula-based admission processes that rely on these measures have been defended by both public and private universities as a just way to determine access to their institutions because they exclude known biased factors such as high school reputation and family background (Zink 1997).

Researchers acknowledge that there is validity in considering academic performance and standardized test scores as important predictors of college prosperity. Temple and Polk (1986) find that a weak academic record prior to college entry makes one more likely to fall short of college completion, although a strong academic record does not guarantee college success. Stumpf and Stanley (2002) assert that SAT scores tend to be good predictors of whether students graduate from the same institution that admitted them as freshmen, but that the predictive power of high school grades and standardized exam scores varies based on whether admitted students scored rank well on both measures or are lacking in one while strong in the other (as most colleges do not admit students who rank poorly on both measures of academic merit).

Despite the aforementioned research that shows the importance of early-career academic achievement for college success, there is ample reason to be skeptical that academic merit primarily explains racial gaps in timing of college graduation. First, unfortunately, although black and Hispanic students have made progress relative to whites and Asians in recent decades, wide racial gaps yet remain in high school achievement and standardized exam scores (Kao and Thompson 2003); therefore, supposedly objective merit-based admission practices, which are strongly correlated with socioeconomic advantage and other forms of privilege, serve to perpetuate the racial inequality that they purport to resolve. Furthermore, these measures of merit fall short of strongly predicting early success in college, although high school grades are preferable as a predictor, counter to the assumptions of a higher education system that is increasingly reliant on standardized exam scores when evaluating undergraduate applicants (Alon and Tienda 2007). Finally, the predictive power of high school grades and standardized performance for college prosperity varies by race, as high school GPA is a better predictor of success than are standardized scores for minority students (Hoffman and Lowitzki 2005).

In order to better estimate the true impact of high school academic success on racial gaps in timing of college completion, I examine several pre-college factors that potentially moderate this relationship. First, after accounting for the effects of prior academic successI investigate the impact of other ascribed characteristics, namely sex and socioeconomic status, on the relationship between merit

and the dependent variable, since these factors are known to exert powerful influence on academic outcomes. Second, I consider the effects of several high school characteristics that have been found theoretically important in the literature: school urbanicity, public vs. private school status, and academic rigor of one's school. Finally, in acknowledgment that age at college enrollment may influence time to degree due to external influences of life transitions such as marriage or parenting, (Jacobs and King 2002), and to account for the finding by Bozick and DeLuca (2006) that students who enroll in college more than a year after high school completion are much less likely to eventually graduate, I evaluate the impact of delaying postsecondary enrollment by more than one year.

I forward several theoretical predictions about the effects of my moderating concepts. First, I posit that racial gaps in time between college enrollment and earning of a bachelor's degree will be empirically observable. Second, due to the significant relationship between academic preparedness at the high school level and college success (Bowen, Chingos and McPherson 2009), I hypothesize that equalizing on measures of academic merit will significantly reduce the sizes of racial gaps in timing of college completion, but will not account for all of the variance on the outcome measure. I predict that school characteristics that have empirically been discovered as favorable in prior research – namely suburban location, high level of academic rigor and privately-funded institution – will reduce, but not explain, the racial gaps in timing of college completion. Finally, in accordance with Bozick and DeLuca's (2006) finding, I expect that timing of college enrollment will also be a very strong predictor of timing of college completion, and this variable will also reduce the racial gap in duration of college careers.

## DATA AND METHODS

### *Data*

Data used for this analysis are derived from variables in the first (base year) through fifth (fourth follow-up) waves of the restricted version of the Educational Longitudinal Study 1988 – 2000 (NELS:88-2000R), a decade-long cohort analysis conducted by the National Center for Education Statistics. The

overall survey is a representative sample of students in the United States and consists of approximately 12,140 students who were in 8th grade when the survey began. (Consistent with terms of data use for NCES restricted data, frequencies are rounded to the nearest 10.) I limit the sample to students who can be classified under one of four racial categories: White (approximately 8,320 participants), Black (n = ~1,180), Hispanic (n = ~1,620) and Asian (n = ~850). At the time of the final survey, most participants were approximately eight years removed from the end of their high school careers and a heavy majority had attempted postsecondary education at some level. The data I use are derived primarily from the third wave, released in 1992, which reports background characteristics, achievement data and high school characteristics from the fourth year of high school. The exception to this is the dependent variable, time to college completion, which is found in the final wave of the study.

*Treatment of data*

Due to missing data on SAT scores and high school grade point average, I evaluate the percentage of cases missing on each of these within categories of my primary independent variable, race. I discover that cases are not missing completely at random – black and Hispanic students are more likely than are white and Asian students to lack information for these measures. I compensate for this by imputing missing values based on all variables in the model except for the dependent variable. In order to reduce the risk of biasing estimates due to imputing based on assumed qualities of survey members, I run five iterations of imputation and then analyze the pooled average of these.

*Variables*

Table 1 displays the names and definitions of variables that represent the important concepts in my analyses. In addition, means for all variables and standard deviations for scale and ordinal variables are included in columns to the right.

Before beginning any analyses, I first set the parameters for inclusion in my sample. I am exploring racial differences in time to postsecondary completion among college enrollees, so I use a

recoded version of the variable *composite race* to limit my sample to the racial categories that I am evaluating. Much contemporary research on academic achievement and attainment gaps focuses specifically on black/white comparisons, but in so doing, scholars fail to assess circumstances and outcomes for a large portion of the college-eligible population. Of even greater concern, whatever influence research has on policy decisions might erroneously guide policy-makers toward solutions that address the black/white gaps, but fail to make major impact (or, even worse, have negative implications) for other racial minority groups. The racial classifications of "white", "black", "Hispanic" and "Asian" were selected as meaningful for my analyses; all else were relegated to missing values, both because of low sample sizes that made any potential claims about these groups suspect and the goal of assessing the four major racial classifications in the United States. For these analyses, students who identified as being members of more than one race are not included. In order to best evaluate differences between these racial groups, I create dummy variables for each.

This study examines factors that impact time to completion of requirements for a bachelor's degree amongst college attendees, so *time between college enrollment and bachelor's degree* is my dependent variable. While the variable that is available in NELS accounts only for elapsed time between enrollment date at one's first postsecondary institution and the date at which one completes requirements for a bachelor's degree – and drops all students who do not have a degree completion date – I believe that it is erroneous to exclude students who have enrolled and not yet graduated, as these students yet remain candidates for the degree and are likely to be qualitatively different from those who have completion dates. Reintroducing these students to the sample has its drawbacks, namely the risk of including people who never again resume their college careers, but Smart and Pascarella (1987) note that many students who "stop-out" of college prior to degree completion choose to resume their careers at later dates. Due to this, I recode students who have enrolled in college, yet not completed postsecondary careers by the date of last interview, and assign an arbitrary completion date of 11 years; this date is beyond the 10-year parameters for college completion (although most of my sample graduated high school in 2000, I also account for the possibility that some students exited high school early and subsequently enrolled in higher

education), so students who have yet to earn a degree are right-censored in my analysis. However, these cases are not included in the descriptive analysis of the outcome variable so that I do not bias group means in an upward direction.

I measure the occurrence of transition to status of college graduate using the constructed variable *graduated*. For the purpose of this study, I regard students as having achieved this status upon completion of requirements for a bachelor's degree; the actual date of degree conference is a less reliable measure because this date is dependent on the ceremonial practices of an institution and, therefore, does not inherently reflect the amount of time required for a person to earn his or her degree. This dichotomous dummy variable codes students for whom there is a date of completion as "1" and all others as "0".

In this research, I aim to compare students who are attending comparable institutions so that racial variance in time to degree is not attributable to characteristics of schools that students attend. Light and Strayer (2000) find that graduation rates are much higher at high-quality institutions than at lesser-regarded ones, and Melguizo (2008) shows that this relationship holds for racial minorities as well as for whites and accounts for some of the racial disparity in college completion. Opponents of Affirmative Action have argued that some racial variance in college success is due to a "mismatch" between the prestige level of one's university and the abilities of the minority students who are admitted, since minority admits tend to underperform relative to their white colleagues, but this is not borne out by empirical findings (Alon and Tienda 2005). In acknowledgement of these findings, I control for selectivity level of the first institution at which students enroll using an ordinal variable for which open enrollment schools are coded "1" and most selective institutions are coded "5". In addition, I control for in-state vs. out-of-state location of universities in order to account for self-selection by degree of student independence and, related to this, for access to familial support.

In order to test the relationship between pre-college academic success and time to college completion, I include *high school GPA*, a continuous variable that measures high school academic performance on a scale of 0.00 through 4.00. I recode this scale into a set of dummy variables so that I

am able to compare high- and low-achieving students to "C" students, who constitute the theoretical "average" student. I create four categories for use in some of my analyses, consistent with GPA conversions for letter grades on a A through F scale that allows for partial grades (e.g. C+ or B-): "A", comprised of students with GPA of 3.33 through 4.00; "B", which consists of students with GPA from 2.68 through 3.32; "C" for students with GPA of 2.00 through 2.67; and "D or F" for students with GPA that is equal to or less than 1.99. Note that the "A" category begins with a GPA that translates into a B+ average rather than an A-, but that this is also a starting point for consideration for honors at various levels of education, indicating that students who achieve at this level are considered high-achievers; I choose this number to be consistent with this perception.

The second measure of academic merit in this analysis is standardized exam scores. Despite evidence that they are a much weaker predictor of college outcomes than are high school grades (Bowen, Chingos and McPherson 2009), standardized exams continue to gain increasingly greater importance in the college admissions process (Buchmann, Condron and Roscigno 2010). This concept is represented by *SAT/ACT equated*. This measure is a continuous standardized test composite that rescales ACT exam scores to fit an SAT scale, which allows for a uniform assessment of students' performances on the two college admission exams in the United States.

Contemporary research finds a growing female advantage in college enrollment and completion (Buchmann and DiPrete 2006). This gender gap may have unique implications for the race gap in college education, as gender disparity in graduation rates has been thought to vary by race, although recent evidence suggests that this effect may be exaggerated (McDaniel, DiPrete, Buchmann and Schwed 2011). In acknowledgment of this debate, I include *gender* as an important demographic characteristic in order to measure the effect of this variable on race differences in timing of college completion. I account for this using a dummy variable, for which females are coded "1" and males are coded "0".

Socioeconomic status has long been shown to have a strong correlation with college graduation rates, as students who hail from better financial backgrounds are more likely to graduate than are their less-affluent counterparts (Alexander, Riordan, Fennessey and Pallas 1979). Independent of collinear

variables (e.g. grade point average, standardized exam scores and number of extracurricular activities in which one participated in high school), SES yet has a predictive power all its own. I include *socioeconomic status* as a second critical demographic characteristic in order to mute the effects of racial disparity in SES on my findings. This scale variable represents an index that is comprised of measures for mother's and father's occupational prestige, mother's and father's academic prestige, and family income.

Beyond individual and family characteristics that may influence timing of college completion, I suspect that high school characteristics impact timing of college completion by way of preparing (or failing to prepare) students for various components of the transition to the next level. Among the differences that may matter for college preparation is the urbanicity of the district within which a school is located. Roscigno, Tomaskovic-Devey and Crowley (2006) posit that the challenges that school districts face vary by urbanicity, presenting individual students and schools themselves with problems that cannot uniformly be addressed by federal policies. I argue that, even for students who emerge from the gauntlet that is public education in a struggling school district, the adjustment to college might be uniquely troublesome. To examine this, I include *high school urbanicity* as a set of dummy variables in my analyses, with urban schools standing as the reference category and suburban and rural schools as the comparison groups.

While college preparedness has been cited as an important factor in predicting postsecondary success, Fletcher and Tienda (2010) posit that even comparable academic performances in high school do not inherently indicate similar preparation due to variance in rigor of school curricula. Perhaps owing to the importance of high school academic intensity as preparation for college success, Ishitani (2006) discovers that college attrition rates are higher amongst students who attend low-intensity high schools than amongst those who attend more challenging ones. I therefore include high school intensity as an important predictive variable and measure its importance using *high school rigor quintile*. This ordinal variable categorically ranks schools according to an academic intensity index. Categories of this variable are ordered from weakest intensity – "lowest 20%" – to greatest level of difficulty at "highest 20%". I

anticipate that students who attend especially challenging high schools will adjust better to the college environment and, therefore, will have shorter time to degree than will students with like profiles who hail from less-rigorous schools.

The final school characteristic that I include in my models is the public or private status of a student's school. A recent study revealed that students who attend private schools are twice as likely as are those who attend public schools to graduate college (Ishitani 2006), and I suspect that time to degree is shorter for private school students than for enrollees at public institutions, as well. I measure this using a dummy variable, with "private" standing as the reference category. Owing to the known advantages that private schools have over public ones, I anticipate that students who attend private high schools will complete bachelor's degrees in a shorter time than will those who attend public schools.

The last variable that I introduce into my models is *timing of college enrollment*. Bozick and DeLuca (2006) report that delaying college enrollment by more than one year after high school graduation reduces one's likelihood of ever completing a bachelor's degree by 64 percent. I aim to discern the impact of delayed college enrollment on racial gaps in timing of completion by adding this dummy variable to the analysis. For this variable, "enrolled within one year of college eligibility" is coded "1" and all other enrollees are coded "0".

*Modeling strategy*

The outcome of interest for this project is time to bachelor's degree among college enrollees, so survival analysis is appropriate to assess this. My primary findings are derived from 9 models of Cox regression analyses. This survival analysis method is ideal for measuring the effects of multiple variables on risk of transition to a new status over time.

Prior to analyses, all models control for the selectivity level of first postsecondary institution of enrollment. In addition, all models also control for variance based on in-state vs. out-of-state enrollment. In the interest of training attention on the pre-college factors that this paper aims to highlight, corresponding coefficients for college characteristics are excluded from Table 2.

Model 1 compares time to college completion by race, with whites as the reference category. In Models 2 and 3, I assess the relationship between race and timing of college completion at similar schools after measures of academic preparedness and merit are introduced, these being high school GPA and the additional impact of SAT scores, respectively. Next, I assess the degree to which the effect of academic merit on college completion is moderated by other major ascribed attributes – the fourth model accounts for the known female advantage in eventuality of college completion, while the relationship between socioeconomic status of origin and racial variance in college completion is estimated in Model 5. In the next three models, I introduce high school characteristics as predictors of time to college degree: Model 6 estimates the impact of school urbanicity (urban schools are the reference category and the comparisons are suburban and rural schools), Model 7 examines the importance of high school course rigor and Model 8 assesses the difference between attending a public or private high school. Finally, Model 9 analyzes the role that delayed college enrollment plays in informing racial variance in timing of bachelor's degree completion.

**RESULTS**

My analyses reveal a persistent racial order in length of time between college enrollment and completion of bachelor's degree requirements: Asian students run statistically parallel to whites, while black and Hispanic students, respectively, lag behind even when predictive attributes are equalized.

Model 1 shows that black students are approximately 42 percent less likely to complete requirements for a bachelor's degree in a timely manner than are whites, while the disparity between whites and Hispanics is somewhat wider at just short of 50 percent; conversely, Asian students graduate at about a 13 percent faster rate than do whites in the initial model.

The meritocratic argument for college success – that college preparedness as measured by prior academic success is a major determinant of postsecondary success – is partially assessed in Model 2. When enrolling in similar institutions, the time to completion of degree requirements is very significantly predicted by a student's level of academic success in high school. While the gap between whites and

Hispanics is reduced by almost 3 percent – so that Hispanic students graduate at a 46 percent slower rate than do whites – the effect of equalizing on GPA is even stronger for blacks, with a reduced lag in completion timing from 42 percent to 30 percent. Asian students graduate at an 8.6 percent faster rate than do their white counterparts in this sample, although the latter difference is not statistically significant. Notably, this model reveals a very strong relationship between high school grades overall and timing of college completion, as students whose high school GPAs were above average enjoyed increasingly shorter time to completion than did average students, while low-achieving students take 64 percent longer than do average performers to complete bachelor's degree requirements.

Model 3 introduces the relationship between standardized exam performance and racial variance in the length of time it takes to earn a bachelor's degree. The white/black gap responds strongest to a leveling of SAT scores, as blacks who have comparable scores and similar high school grades to their white counterparts take 20 percent longer than white students to complete degree requirements, an improvement of 10 percent. The reduction in the white/Hispanic gap is more modest, but still notable at 4 percent, which mirrors the effect on the Asian/white gap, although the latter is not statistically significant. Independently, an increase of one point on one's SAT score improves the likelihood of timely graduation by .2 percent, meaning that the expectation of timely graduation increases by approximately 20 percent for each 100-point increase in SAT performance. In combination, high school GPA and SAT, long considered standard measures of college preparedness and upheld as the indicators of academic merit, account for a great degree of racial variance in timing of college completion, while a substantial gap yet remains net of these variables.

The female advantage in college completion is accounted for in Model 4. The introduction of gender to the overall model has a negligible effect on the relationship between race and timing of college completion. Independently, females are shown to enjoy a 26.4 percent advantage in duration of time between college enrollment and satisfaction of bachelor's degree requirements.

In Model 5, socioeconomic status is added to the analysis and found to be a strong predictor of time spent earning a bachelor's degree. For both blacks and Hispanics, the gap in time to college

completion relative to whites is reduced by approximately 8 percent when they are compared to peers who are of like socioeconomic standing when all preceding variables are held constant. The coefficient for Asians remains consistent with that of the previous model and continues to fall short of statistical significance. Improvement of one's socioeconomic status correlates with an improved likelihood of timely graduation of 48 percent. The race coefficients in this model reflect existing racial gaps after accounting for ascribed status and academic achievement, but neither ascription nor individual agency is able to deliver equality on the outcome variable between whites and non-Asian racial minorities – whites remain almost 13 percent more likely to graduate before blacks and more than 30 percent more likely to do so before Hispanics once these variables are controlled for. Also of note, the impact of school selectivity on the dependent variable is reduced when ascribed characteristics and academic success is accounted for.

Findings in Model 6 reveal no significant urban advantage in converting high school success into college completion in a timely manner, as students from urban, suburban and rural schools run virtually parallel in length of college careers when college characteristics and demographic data are accounted for and academic performance is equated. Likewise, the impact of the urbanicity of one's high school on timing of completion is also minimal.

In Model 7, the influence of high school intensity on the duration between college enrollment and completion of bachelor's degree requirements is shown. Results show that students from more rigorous high schools complete degree requirements approximately 30 percent faster than do those from the next-lowest quintile. When variance in the rigor of the academic curriculum is introduced into the analysis, the gap between whites and blacks in timing of completion widens by about 2 percent, while the divide between whites and Hispanics increases slightly and Asian students continue to run parallel to whites. The inclusion of high school intensity quintile reduces the effect of college selectivity on the dependent variable by 14 percent, implying the expected positive relationship between academic reputations of high schools and the prestige of the institutions to which students are admitted when all other factors are comparable.

The eighth model compares the impact of attending a private or public high school on college completion timing. Students who have attended a private high school graduate at a 28 percent faster rate than those who graduated from public schools. The racial gaps between whites and both blacks and Hispanics are reduced by approximately 2 percent once this variable is added to the previous model.

The final model shows a strong relationship between timing of college enrollment and duration of time between enrollment and degree completion – students who enroll within one year of high school completion graduate at a rate almost 300 percent faster than those who delay enrollment beyond one year. However, inconsistent with my prediction, racial variance in timely enrollment is found to have a weak impact on gaps between white students and Hispanics, which remains strongly significant. The white/black gap in time to completion is reduced by approximately 2 percent, which causes this coefficient to fall from statistical significance. Measured against the baseline model (Model 3), the additional variables in this model have accounted for 30 percent of the difference in timing of graduation between blacks and whites.

**DISCUSSION**

The results of my analysis support many of my hypotheses and fail to provide evidence for a few. Of most overall importance, I confirm that, while measured pre-college achievement is a strong predictor of timing and eventuality of college graduation, merely equating students on these variables is not sufficient to eliminate the racial gaps in timing of college completion. If we accept standardized exam scores and high school GPA as legitimate indicators of academic merit – as they are explicitly deemed to be by admissions committees – then we should hope to notice a stronger relationship between these achieved measures and college completion, but this is simply not the case. Indeed, while one's academic track record is an important factor in gaining admission to colleges and universities of choice, race remains a significant predictor of postsecondary success.

Turning to the influences of other ascribed characteristics on the relationship between race and timing of college completion, race remains a strong predictor of time to degree after the effects of gender

and socioeconomic status are measured. The gender gap in time between college enrollment and fulfillment of graduation requirements strongly favors females, but does not reduce the racial disparities on the dependent variable. This finding implies, as claimed by McDaniel, Buchmann, DiPrete and Schwed (2011), that the relationship between race and the gender gap in higher education may be overstated. Socioeconomic status has a strong reductive effect on racial gaps in time to college completion, but these inequalities do not disappear when comparing students from similar socioeconomic backgrounds, signaling a race effect that operates independent of parental educational, occupational and financial differences. (An important caveat is that, as Oliver and Shapiro [1995] report, the impact of financial status is likely understated by merely controlling for SES, since whites tend to own several times the household wealth of minorities who are at the same income level.) Perhaps most surprising is the finding that accounting for SES barely influences the relationship between high school GPA and timing of tertiary school completion, given existing findings that financial standing explains racial disparities in ability to translate strong academic track records into timely college enrollment for black and Hispanic students.

This research supports the findings of prior literature that high school characteristics impact the college graduation gap between black and Hispanic students and their white and Asian counterparts, and I find evidence that students who attended academically rigorous high schools are much more likely than those who were prepared at less-challenging schools to graduate college in a timely manner, but that accounting for this factor slightly increases the gap in timing of college graduation between white students and both black and Hispanic students rather than reducing it. This means that differences in the difficulty of high school curricula are not a strong explanation for racial variance in the duration to degree completion. Increase in the academic rigor level of high school reduces the impact of variance in high school academic performance and standardized exam scores, indicating that there is less difference between high-achievers and their lower-performing peers in college preparedness at rigorous schools than at weaker schools. This finding suggests that, in addition to variance between school types, preparedness

of students for college success also varies within schools, consistent with a similar finding by Fletcher and Tienda (2010).

The strongest identified predictor in my analyses is timing of college enrollment. The revelation that on-time enrollees are approximately 300 percent more likely than those who delay enrollment for more than one year evidences the importance of remaining on a persistent track throughout one's academic career. The detriment of delaying college entry is clear for all races, although the impact of this decision appears to be slightly stronger for black students (as the gap between blacks and whites falls from significance, while the white-Asian and white-Hispanic gaps remain unmoved).

*Some possible explanations*

This analysis shows that non-Asian racial minorities take longer to progress through the college process than do whites, even when they are equally prepared in high school and hail from similar socioeconomic backgrounds. Therefore, some alternative explanations must be found for this inequality.

One consideration that should be accounted for is the reality that equalizing on socioeconomic status offers researchers only a limited way to measure the financial resources that families are able to direct toward their children's educations. While family income is a meaningful measure of financial resources, it pales in comparison to family wealth, which captures financial wellbeing of a family over time. Research by Oliver and Shapiro (1995) revealed that white families commanded, on average, eight times the wealth of black households when annual income was controlled for, so accurately measuring wealth would allow researchers to better estimate the degree of financial strain that funding college careers of students places on their families.

In addition to considerations of how well families are able to meet the expenses of a college education, differences in level of parents' education also may have ramifications on timing – and eventuality – of college completion. Parents who have, themselves, attained college degrees are likely to be better resources to students who are navigating life as college students; likewise, those whose parents

have little or no experience with postsecondary education may have to seek out other, perhaps less-trusted or less-accessible, sources of information in order to learn how to thrive in the college environment.

Finally, students may be quite academically capable of thriving in the classroom, but may yet find the college experience more difficult to navigate if they feel socially isolated. For minority students, many of whom may be attending school with non-minorities for the first time due to the still-segregated academic paths that the majority of students follow prior to college entry, the importance of finding welcoming peers, a place where cultural values are appreciated, or even mentors among faculty who hail from similar backgrounds, may be underserved within college environments that are predominantly white, an assertion that is supported by the finding that black students report feeling more supported at historically-black colleges and universities than at predominantly-white institutions.

**CONCLUSION**

Overall, my analyses reveal that the race of a student informs likelihood of timely college graduation, even after controlling for type of college attended and accounting for individual background characteristics, high school characteristics, academic merit and timing of college enrollment. Doubtless, there exist factors of influence that I have not accounted for, but this research yet convincingly answers the question of whether racial gaps in timing and eventuality of college completion are best attributed to variance in displayed academic ability – they are clearly not.

Academic merit does, indeed, matter greatly for the timing of college completion, a finding that is consistent with my earlier prediction. Of the two measures examined in this research, high school grades more strongly influence the amount of difference between racial groups, although standardized exam performance is revealed as strongly influential in its own right. Confirmation of the importance of both SAT scores and high school GPA lend credibility to the practice of taking both of these measures into account during admissions processes rather than only one or the other, although what they really represent in terms of college preparedness is less than clear. Ostensibly, these measures are purported to reflect the school commitment, work habits and cognitive abilities of students, traits that should translate favorably

into success in college for those who possess them. However, it also is possible that the school environments that enable such performances on average also play a contributing role in preparing high school students for next-level success.

Importantly, the findings in this analysis betray the popular assertion that observable racial inequalities throughout stages of the status attainment process reflect social class differences rather than race-based ones. While the strong reductive effect of SES on duration gaps between whites and both blacks and Hispanics demands attention, wide disparities still persist when controlling for social class – the race of respondents still clearly has predictive power all its own. While virtually no difference exists between the front-running white and Asian categories and the advantage of these two groups over blacks and Hispanics stands out most, I call particular attention to the racial gap between blacks and Hispanics in timing of college completion, net of all other measured variables. While blacks benefit from strong performances, such that equalizing on school characteristics and academic merit reduces the white/black graduation gap to non-significance, Hispanics actually fall further behind blacks when these factors are leveled. Most notable is the strong impact of high school grades on the timeliness of college graduation amongst blacks (reducing the gap in likelihood of timely graduation between blacks and whites by 12 percent) as contrasted with the very small effect on the white/Hispanic gap. The disparity in the impact of SAT performance is not as wide, but is nevertheless more prominent than is any difference in the effect of measured school or individual characteristics. Certainly, the uniquely weak predictive power of academic success for the college graduation of Hispanics is a matter that requires further scrutiny.

This study is not without limitations. First, my approach to operationalizing time to degree leads to results that predict the length of time that is spent pursuing a bachelor's degree, but I do not allow for a finite end to this quest. For some people, returning to college simply will not be the chosen option, so although these cases are treated as ongoing, their inclusion is likely to bias results in an upward manner. I answer this objection by noting that even those who withdraw from college remain degree-eligible, and that it is, therefore, substantively more suspect to regard their college careers as having been terminated rather than suspended. In addition, a second critique might be that I do not differentiate between those

who enroll directly into a 4-year college after high school and those who pursue a non-traditional route aside from delayed enrollment, such as going to a community college or attending a 4-year college on a part-time basis. This further analysis is well worth doing, but my decision to exclude this approach from this paper does not detract from my objective of determining the duration between first enrollment in a postsecondary institution and earning a bachelor's degree, since no postsecondary enrollment option makes one ineligible to earn a bachelor's degree going forward and, as Bowen, Chingos and McPherson (2009) note, community college is often an indirect path to a bachelor's degree for those who cannot gain direct admission to a 4-year institution.

Going forward, research must identify processes through which racial differentiation exists net of factors that should rightly determine outcomes in an ideal meritocracy. If academic prowess and cognitive skills are not the great equalizers in the quest for a college degree, then the responsibility of researchers is to learn how this relationship can be strengthened -- by way of either improving the ability of high school GPA and standardized exam scores to truly capture these attributes, enabling these factors to better translate into next-level success, or some combination of both -- and the call to policy-makers is to make it so.

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Table 1: Means, standard deviations and descriptions for variables used in analysis: High school seniors from the National Educational Longitudinal Survey of 1988 – 2000

| Variable name | Description | Metric | Mean | S.D. |
|---|---|---|---|---|
| ***Timing of college completion*** | | | | |
| Time to college completion | Number of years between enrollment at first "real" postsecondary institution and completion of requirements for bachelor's degree | Scale | 4.53 | 1.07 |
| ***Education*** | | | | |
| High school GPA | Self-reported grade point average at the end of 12$^{th}$ grade | Scale | 2.69 | .77 |
| SAT/ACT scores equated | Composite scale of SAT scores and ACT scores that have been rescaled to an SAT scale | Scale | 839.77 | 232.88 |
| High school intensity | Ordinal variable that ranks high school rigor into five quintiles of difficulty | 1 = lowest 20%<br>5 = highest 20% | 2.90 | 1.41 |
| Urban HS | High school located in urban area | 0 = no<br>1 = yes | .28 | -- |
| Suburban HS | High school located in suburban area | 0 = no<br>1 = yes | .40 | -- |
| Rural HS | High school located in rural area | 0 = no<br>1 = yes | .31 | -- |
| Private HS | Graduated from a private high school | 0 = no<br>1 = yes | .12 | -- |
| Selectivity | Level of selectivity of first postsecondary institution | 1 = open enrollment<br>5 = highly selective | 2.66 | .07 |
| Out-of-State | Student's college in different state than last high school | 0 = no<br>1 = yes | .17 | -- |
| Timely college enrollee | Enrolled in college within one year of graduating high school | 0 = no<br>1 = yes | .62 | -- |
| ***Socioeconomic status*** | | | | |
| Composite SES | Continuous measure constructed from parent survey that incorporates father's education level, mother's education level, father's occupation, mother's occupation, and family income | Scale | -.03 | .81 |
| ***Sex*** | | | | |
| Female | Dummy variable constructed from recoding of F4SEX. | 0 = male<br>1 = female | .052 | -- |

**Table 1 cont'd**

| Variable name | Description | Metric | Mean | S.D. |
|---|---|---|---|---|
| ***Race*** | | | | |
| White | Dummy variable for respondent race (single race identification) | 0 = no<br>1 = yes | .70 | -- |
| Black | Dummy variable for respondent race (single race identification) | 0 = no<br>1 = yes | .10 | -- |
| Hispanic | Dummy variable for respondent race (single race identification) | 0 = no<br>1 = yes | .14 | -- |
| Asian | Dummy variable for respondent race (single race identification) | 0 = no<br>1 = yes | .07 | -- |

Table 2. Odds ratios for Cox regression of years to bachelor's degree on race, education, institutional characteristics and timing of college enrollment [1]

| | Model 1 Exp(B) | Model 2 Exp(B) | Model 3 Exp(B) | Model 4 Exp(B) | Model 5 Exp(B) | Model 6 Exp(B) | Model 7 Exp(B) | Model 8 Exp(B) | Model 9 Exp(B) |
|---|---|---|---|---|---|---|---|---|---|
| **RACE (REF = WHITE)** | | | | | | | | | |
| **Black** | **0.583*** ** | **0.700*** ** | **0.801** ** | **0.790** ** | **0.867*** | **0.863*** | **0.841*** | **0.865*** | **0.885** |
| **Hispanic** | **0.519*** ** | **0.547*** ** | **0.607*** ** | **0.610*** ** | **0.696*** ** | **0.693*** ** | **0.682*** ** | **0.701*** ** | **0.703*** ** |
| **Asian** | **1.126*** | **1.086** | **1.047** | **1.040** | **1.055** | **1.053** | **0.998** | **1.035** | **1.039** |
| ***HS GPA (REF = C AVERAGE)*** | | | | | | | | | |
| *HS GPA: A average* | | *1.243*** * | *1.178*** * | *1.167*** * | *1.180*** * | *1.181*** * | *1.137*** * | *1.140*** * | *1.129*** * |
| *HS GPA: B average* | | *1.153*** * | *1.127*** * | *1.120*** * | *1.126*** * | *1.127*** * | *1.093*** * | *1.094*** * | *1.082*** * |
| *HS GPA: D or F average* | | *0.336*** * | *0.384*** * | *0.390*** * | *0.392*** * | *0.392*** * | *0.459*** * | *0.460*** * | *0.502*** * |
| ***STANDARDIZED EXAMS*** | | | | | | | | | |
| *SAT score* | | | *1.002*** * | *1.002*** * | *1.001*** * | *1.001*** * | *1.001*** * | *1.001*** * | *1.001*** * |
| **ASCRIBED CHARACTERISTICS** | | | | | | | | | |
| Female | | | | 1.264*** | 1.280*** | 1.280*** | 1.289*** | 1.296*** | 1.292*** |
| SES | | | | | 1.483*** | 1.481*** | 1.446*** | 1.409*** | 1.361*** |
| **HS URBANICITY (REF = URBAN)** | | | | | | | | | |
| Suburban | | | | | | 0.986 | 1.003 | 1.085* | 1.075 |
| Rural | | | | | | 0.980 | 1.018 | 1.118* | 1.107* |
| **HS CHARACTERISTICS** | | | | | | | | | |
| HS rigor quintile | | | | | | | 0.772*** | 0.774*** | 0.798*** |
| Private HS | | | | | | | | 1.280*** | 1.260*** |
| **COLLEGE ENROLLMENT TIMING** | | | | | | | | | |
| Within 1 year of HS graduation | | | | | | | | | 3.916*** |

[1] controlling for selectivity level of institution and in-state college enrollment