Are There Racial Gaps in High School Leadership Opportunities? Do Academics Matter More?

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Participation in high school sports and leadership activities is typically associated with later adult earnings premia. In stark contrast to the large but diminishing racial disadvantage found in other measures of educational opportunity, this analysis of high school leadership development finds few examples of racial disadvantage in historical 1960 data, but an emerging disadvantage to black female students between 1972 and 2004. Earnings regressions reveal positive earnings premia to black women who engaged in sports and leadership activities as adolescents, but not to black men. Particularly large premia to higher math scores (or penalties to lower math scores) among black workers are also observed. These findings call into question any world-view in which U.S. wages are a simple function of observable worker qualifications, and highlight the continued need to monitor equitable access to educational opportunities in U.S. schools.

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Research on trends in the U.S. labor market describes increasing earnings inequality, both within and between racial groups, and an increasingly strong correlation between educational attainment and labor market opportunity (O'Neill 1990, Juhn, Murphy and Pierce 1993, Murnane, Willet and Levy 1995, Grogger and Eide 1995, Card and Lemieux 2001, Autor, Katz and Kearney 2006, 2008, Goldin and Katz 2007, Fryer 2010, Duncan and Murnane 2011). Over the past 50 years, public discussion and policies intended to foster equitable access to educational opportunities have placed particular emphasis on the availability of high quality academic instruction, and on strategies to boost the kind of learning captured by standardized test scores. Along some dimensions the net effect has been to reduce disparities between black and white U.S. students, while simultaneously improving typical educational outcomes for all. For example, over the past decade 70-80 percent of both black and white high school seniors report that they have completed a course in Advanced Algebra compared to a mere third of white students and less than one quarter of black students in the earliest years for which nationally representative statistics are available (statistics pulled from Jones 1984, Johnson 1984, Dalton et al. 2007, Loveless 2013).[1] This policy emphasis on academic coursework is partially motivated by studies showing a strong and growing correlation between standardized test scores, particularly math scores, and later measures of adult productivity or labor market success (Murnane, Willet and Levy 1995, Grogger and Eide 1995, Jencks and Phillips 1998). However, other research finds that social or "noncognitive" skills that are not captured by standardized test scores can nontheless enhance future academic achievement, and also predict higher adult wages conditional on

[1] The relative odds by race peaked at 95 percent in 2004, rising from less than 65 percent in the mid-1970s, and probably an even lower ratio in years before statistics were collected. After adjusting for differential rates of increase in the propensity to reach the senior year of high school, the shift is even more dramatic.

educational attainment (Bowles, Gintis and Osborne 2001, Heckman, Stixrud and Urzua 2006, Borghans, ter Weel and Weinberg 2008, Rowan 2011, Heckman and Kautz 2012, and Duncan and Dunifon 2012).

One strand of this research finds positive and increasing correlations between adult labor market opportunities and participation in extracurricular activities offered within most U.S. schools: sports teams and opportunities to strive for leadership roles in high school organizations including clubs, music and drama groups, and student publications (Barron, Ewing and Waddell 2000, Eide and Ronan 2001, Persico, Postlewaite and Silverman 2004, Kuhn and Weinberger 2005, Stevenson 2010, Weinberger 2014). A recent paper by Anderson and Lu (2014) identifies causal effects of school leadership experience among Chinese students who were randomly assigned to year-long leadership posts, with each leader randomly selected from a pair of students previously deemed by their teachers to be strong candidates. Other research suggests that positive outcomes among high school leaders reflect a combination of prior endowments and new skills acquired (Kuhn and Weinberger 2005, Dhuey and Lipscomb 2008, Rouse 2012). In an analysis of underrepresented students, Lozano (2008) finds that participation in high school activities is particularly important for those who are learning English as a second language. A unique feature of the high school organization is that, unlike a typical business organization, a large portion of the leadership will graduate each year leaving openings for aspiring new cohorts. This paper examines whether there is a racial differential in access to this set of potentially formative educational experiences, and begins to explore racial differentials in associated earnings premia.

Research on the earnings premium to leadership skills can be compared to a parallel line of inquiry into relationships between skills captured by cognitive test scores (as measured in adolescence) and adult earnings. A well-developed literature finds correlations between race and test scores; these correlations are believed by many to explain part of the racial differential in earnings (Neal and Johnson 1996, Farkas, et al., 1997). Certain educational interventions have been shown to improve test scores (Fryer 2010, Dobbie and Fryer 2011, Curto, Fryer and Howard 2011, Curto and Fryer 2014), or long-term outcomes (Goodman 2012, Goodman, Cortes and Nomi 2013, Cortes, Goodman, Nomi 2014; Weinberger 2013). However, education researchers have documented pervasive patterns of racial segregation and differential access to quality education both between schools and within schools, as adolescents are tracked into different levels of academic rigor (Jones 1984, 1987, Oakes 1990, Lucas 1999, Martin 2000). Segregation and differential educational access by race and socioeconomic status are a persistent and resilient feature of the U.S. education system (Clotfelter 2004, Boger and Orfield 2005, Rumberger and Palardy 2005, Duncan and Murnane 2011, Altonji and Mansfield 2011, Reardon 2011, Donnor and Dixson 2013). The extent to which these well-documented differences in access to educational opportunities are the cause of differences in later academic achievement is a controversial question.

Regardless of the causes of differential educational outcomes, there are also persistent differences in labor market outcomes conditional on academic attainment. Careful ethnographic research following individuals into the labor market after high school graduation documents the very different sets of opportunities available to equally qualified black and white graduates of a single school (Royster 2003). In representative

U.S. samples, a ten percent racial gap in earnings persists even after meticulous controls for differences in the quality and quantity of educational attainment (Neal and Johnson 1996, Weinberger 1998, Weinberger and Joy 2007, Fryer 2010).

The statistical analysis offered here begins by describing the relative prevalence of participation in high school activities among black and white U.S. high school students, and how these have changed over time, using data on three different cohorts of U.S. high school seniors spanning 1972-2004, with additional historical context provided by a 1960 survey of U.S. high school students. These data cover a time period beginning shortly after the 1954 Brown decision, through periods of nominal desegregation and de facto resegregation, and ending with the most recent available data.

Following description of participation rates among high school seniors, supplemental Census data are used to produce estimates considering the full cross-section all U.S. adolescents, whether or not they attained the senior year of high school. Finally, a set of earnings regressions describes the relationship between a measure of social engagement during high school and later adult earnings, and how this relationship varies by race and gender.

In stark contrast to the racial disadvantage found in other measures of school achievement, this analysis of high school leadership development finds few historical examples of racial disadvantage across a wide range of high school activities, although racial differentials are emerging in more recent data. Overall, the observed patterns of participation vary more by gender than by race, with boys more active in sports and girls more active in student publications, performing arts (including music and drama), student government, and clubs (academic, vocational or hobby). In fact, in the earliest cohort of

1960 high school students, two measures of leadership skills-- the proportion of students reporting they filled leadership roles during high school, and leadership scores on a personality assessment--were somewhat higher in segregated black schools than in the full population of U.S. students. However, earnings regression analysis indicates that positive correlations between high school social engagement and later adult earnings are statistically significant for black female, white female and white male workers, but nonexistent for black male workers. In contrast, the correlation between high school math scores and adult earnings is stronger among black workers and white women than it is among white men. These findings call into question any world-view in which U.S. wages are a simple function of observable worker qualifications.

Data

The analysis is based on data from four longitudinal studies of high school students. The earliest is Project Talent, a study that included 5 percent of all students enrolled in U.S. high schools in 1960. The others are the more familiar NCES studies: The National Longitudinal Study of the High School Class of 1972, the National Education Longitudinal Study of 1988 (1992 seniors), and the Education Longitudinal Study of 2002 (2004 seniors). All four surveys include questions about extracurricular participation and leadership roles. The statistical analysis is weighted to reflect a representative sample of U.S. high school seniors.

Although each survey asks a slightly different set of questions about extracurricular participation, three of the surveys contain a subset of questions fully comparable across cohorts. Much of the analysis is limited to the five kinds of activities covered by these

comparable questions: Clubs (vocational, hobby or academic), student government, student publications, performing arts, and sports.[2] The Project Talent leadership and participation questions have an entirely different structure, and are not directly comparable. However, this cohort is included in the paper because it provides historical perspective and large sample sizes. Another advantage of the 1960 Project Talent study is that it includes a personality assessment administered during high school, including a leadership scale.[3]

In longitudinal surveys, coding of race presents some challenges in cases where there are conflicting self-reports in different waves of the survey. There are two possible reasons for conflicting reports; one is that an individual self-identifies with more than one racial category (either holding multiple identities at any given point in time or undergoing change in self-identity between survey waves), the second reason is that there is miscoding of some respondents' answers. In the case of completely random miscoding, there is likely to be a negligible number of minority group members miscoded into the larger majority group, but a relatively large number of majority group members miscoded (due to the large size of the majority group). To alleviate this final concern, individuals are included in the white category if they are ever coded as white in any survey wave. For this study, those included in the black category self-identified as black in at least one survey wave and never self-identified as white. This conservative categorization might

[2] Because the questions were asked in slightly different ways, some of these reflect aggregated categories. Performing arts includes music and theater, sports includes competitive and intramural, individual and team, varsity and junior varsity, and (to maintain comparability with the 2004 coding) cheerleading. An appendix table displays means when cheerleading is coded as a separate category in the two earlier cohorts.
[3] The 5 point leadership scale is described in Kuhn and Weinberger (2005). It is the sum of positive responses to 5 questions including "People naturally follow my lead," and "I am the leader in my group."

exclude some black respondents, but avoids mistakenly including individuals who were miscoded as black in a single survey wave.

In the historical 1960 Project Talent survey, the first national survey of U.S. high school students, the base year data collection effort did not include information about the race of each student. While follow-up surveys did collect this information, the sample sizes are far smaller in these follow-up surveys. Complete individual-level race data are available for a small subsample of students. Within this group with individual race self-identified, 69 percent of black students were drawn from high schools that reported at least 70 percent black enrollment, while only 22 percent came from high schools that reported less than 30 percent black enrollment (see Appendix Table A-1, Column 3). Among students drawn from schools that reported at least 70 percent black enrollment, 97 percent of those with known race are black. This evidence suggests that the vast majority of students in segregated schools are black, even when we cannot directly observe the race of individual students. Therefore, rather than compare black students to white students, the primary analysis of Project Talent data compares the much larger sample of students enrolled in segregated black schools to all U.S. students in 1960. Analysis of black individuals in the small subsample followed over time offers supplemental information, and the ability to observe some black students enrolled in predominantly white schools.

The 1960 estimates are not informative about long-term trends because the questions asked in the 1960 survey refer to the past three years, while the other surveys inquire only about the senior year of high school. However, the Project Talent data provide a remarkable opportunity to understand something new about our history.

Historical 1960 Participation Rates

Table 1 describes the prevalence of leadership roles in the 1960 Project Talent cohort. Statistics are computed first for all schools, then for all students in schools reporting 100 percent black enrollment, then for the broader set of schools reporting at least 70 percent black enrollment. This allows us to compare a predominantly black group of students to the typical U.S. student, despite the lack of individual-level information about race. Finally, estimates are computed for the small group of students known to be black, and subsets of this group: black students in predominantly black schools, and those in majority white schools, as well as means among all black students with race observed. In addition to leadership measures, estimates of the share of students with college-educated parents and average math z-scores are also included in Table 1.

This analysis shows clearly that in this early, very segregated cohort, participation in school leadership roles was quite high among black students. The measures available for this cohort indicate that about 60 percent of U.S. students in grades 10-12 reported serving in some leadership capacity in the three years preceding 1960 (Table 1, Column 1: 58 percent among boys, 64 percent among girls). Among black students the proportion was over 70 percent (Table 1, Columns 2-5). Black students, both young men and young women, also showed high scores on the leadership personality assessment; in contrast to the well-known disadvantage in math scores, black students surpassed the typical U.S. student on this measure by more than one-third of a standard deviation. Using these

aggregate measures, opportunities for black students to develop as leaders seem to have been plentiful in this very early cohort.

The composition of leadership roles varied somewhat by race and gender. Black students of both genders were more likely than the typical U.S. student to fill non-sports leadership roles, and this appears to have been true for those in both segregated black and predominantly white schools. Black young men were almost exactly as likely as typical U.S. young men to fill sports leadership roles. In segregated schools, black young women were quite a bit less likely than typical U.S. young women to fill sports leadership roles in these early days; meanwhile, black young women enrolled in predominantly white schools were quite likely to play a leading role in sports. Across school types, both male and female black students in 1960 were more likely than other students to fill at least one leadership role.

Prevalence of Participation, 1972-2004

Table 2 describes participation rates of high school seniors in each of the five activities. Participation rates are broken down by race, sex and cohort. In the 1972 cohort, black young men and black young women show similar or slightly higher levels of participation in most activities, when compared to white students of the same gender.[4] In the later cohorts, participation by black students is lower in several activities. However, overall patterns of participation are similar between races for most activities. In contrast, statistically significant *gender* differences in participation can be seen in each of these activities every year, favoring women in every case but sports.

[4] Linear probability model regressions confirm that in 1972 participation is not lower for black students in any of these activities with the exception of black women in student publications (22% vs 26%).

Table 3 describes the proportion of students serving in leadership roles during the senior year of high school. The first panel describes the proportion of students with leadership experience in any of the Table 2 activities. The next two panels break this down into sports leadership roles, and leadership roles for activities other than sports.

The Table 3, panel 1 statistics displayed in columns 1-3 describe levels and trends in the share of students engaged in any type of leadership activities. Levels are close to 30 percent for all groups in each year. There are no apparent time trends for either group of young men, with apparent upward trend among white young women, and downward trend among black young women.

Not surprisingly, young men are more likely to report leadership roles in athletics, while young women are more likely to report leadership roles in other activities. Strong upward trends in sports leadership are seen for all groups except black young women (Table 3, panel 2).[5] Both black young men and black young women face significant downward trends in non-athletic leadership roles (Table 3, panel 3). This is an emerging racial disparity that was not present in the high schools of 1960 or 1972.

Previous research on the labor market for white men has found similar wage premia for sports participants, whether in leadership roles or not, and for leaders of other activities (Kuhn and Weinberger 2005, Weinberger 2014). Therefore, panel 4 describes trends in the share of students engaged in either of these. Trends in the Table 3, panel 4 aggregate statistics describing the share of students engaged in either sports or non-athletic leadership are also presented graphically in Figure 1. This representation emphasizes the downward trend, which is particularly strong among black female

[5] Note that the representation of sports leaders increased with no corresponding increase in the share of students participating in sports; either sports teams began to assign more co-captains, teams became smaller, or students began to participate in more teams per year.

students. Figure 1 (and the fourth panel of Table 3) shows that in 1972 black high school seniors engaged in these roles at least as much as white students of the same gender. By 1992, a statistically significant disadvantage can be seen among black young women, and the disadvantage grew even larger by 2004.

However, a different perspective can be gained by considering this shift in the context of decreasing rates of high school dropout. Figure 2 depicts the result of the following thought experiment: What if we consider the entire birth cohort of young people, whether or not they reached the senior year of high school? Estimates of the share of each cohort persisting to the senior year of high school multiplied by the Figure 1 estimates yields a dropout-adjusted set of estimates describing the propensity of a young person to become a high school senior engaged in a sports or leadership role.[6] This depiction reveals that the apparent downward trends among black high school seniors are not present when the entire birth cohorts are considered. Today, as more young people persist in school, they are not becoming either more or less likely to engage in sports or other leadership roles. This perspective also reveals that, although there was no racial gap among high school seniors in the earlier years, the underlying racial gap in reaching the senior year of high school led to a large racial gap in opportunities to fill these roles, even in 1972. The overall size of the racial gaps depicted in Figure 2 did not change as racial gaps in high school graduation rates diminished, due to the

[6] Drop-out adjusted estimates describe the approximate share of the full age-18-population in sports or other leadership role, computed as the product of Table 3 share among high school seniors and the approximate share of 18-year-olds reaching the senior year of high school, estimated as the share of 18-year-old who are either enrolled in school or already graduated high school during the closest Census year (reported in Appendix Table A-3). Standard error of the product of two random variables X*Y is approximated by mean(X)*se(Y)+mean(Y)*se(X).

countervailing downward trends in opportunities for black high school seniors depicted in Figure 1.

The policy implications of this shift in opportunities for social engagement depend on the answers to many questions that are beyond the scope of this analysis. It is important to remember that opportunities to learn academic skills improved dramatically over this period, with growing shares of students enrolled in higher mathematics courses. Funding constraints and "No Child Left Behind" legislation might lead some educators or taxpayers to accept lower participation in extracurricular activities as a natural tradeoff against greater academic engagement. Without claiming to identify what those tradeoffs might be, I conclude by presenting a set of earnings regressions describing the correlation of adult earnings with both the measure of social engagement depicted in Figure 1 and mathematics test scores.

The first panel of Table 4 presents wage regressions for the sample of students who were high school seniors in 1992, now observed as adult full-time workers in 1999. In this set of regressions, black women, black men and white women all have higher premia to higher math scores (or larger penalties to lower math scores) than white men. Black and white women also have higher earnings if they participated in sports or other leadership roles as high school seniors, with premium similar to that for white men. However, black men do not have a positive coefficient in this row. Those who participated in sports or other leadership roles as high school seniors earn almost exactly as much as those who did not. To clarify that the difference in coefficients between columns 2 and 4 is not driven by a non-linearity with respect to math scores, the column 5 regression restricts the sample of white men to those with scores more than 0.1 s.d.

below the average. Within this group of low-scoring white men, math scores are irrelevant to earnings, those who participated in sports or non-athletic leadership roles earn a large premium, and (quite notably) average weekly earnings are 25 percent higher than for the average black man. Results for the earlier cohort, displayed in panel 2, describe similar patterns. One possible interpretation of this finding is that occupations conferring a premium on the skills associated with sports or other leadership roles are simply not available to black men, while those conferring a premium on the skills associated with math scores are. In this case concentration on academics might be a reasonable individual-level reaction to current structures, but policymakers working toward social justice or efficiency must continue efforts to open opportunities for all to fully utilize their abilities.

Conclusion

This analysis of racial differentials in access to opportunities for leadership development in U.S. high schools finds a new trend with no historical precedent. Using data from 1960 through 2004, black students appear to have had similar rates of participation in a wide range of extracurricular activities and leadership roles when compared to white students of the same gender until quite recently. Black students in 1960 also displayed very strong leadership scores on a personality assessment. In recent years, a racial differential in opportunities for high school seniors to participate in sports or other leadership roles appears to be emerging. This gap is particularly apparent for black women. Black female high school seniors are currently about 30 percent less likely

than white students to fill at least one leadership role during the senior year of high school. This was not true thirty or forty years ago.

These findings are in sharp contrast to a parallel line of research on mathematics education and test scores, where historical racial disadvantage in opportunities and outcomes are diminishing. Earnings regressions describing relationships between high school characteristics and adult earnings reveal particularly strong correlations between math scores and earnings for black high school graduates. However, the earnings premium to the kind of social engagement indicated by high school participation in sports or other leadership roles is inexplicably absent for black men. Current policies that focus on academics and test scores have the potential to improve labor market opportunities for new cohorts of black students, but work still remains to ensure equitable access to both educational opportunities and employment that fully utilizes the capabilities of black men and women in the U.S.

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Table 1—Project Talent Leadership Measures for 1960 High School Students (Grades 10-12).

	All Students	Students in Schools Reporting 100 percent Black	Students in Schools Reporting at least 70 percent Black	Black Students in Schools Reporting at least 70 percent Black	All Black Students Followed in Longitudinal Subsample	Black Students in Schools Reporting Less than 30 percent Black
Men						
Any Leadership Role in the past 3 years	0.58 (0.00)	0.72 (0.01)	0.72 (0.01)	0.72 (0.01)	0.72 (0.01)	0.69 (0.02)
Sports Team Captain in the past 3 years	0.36 (0.00)	0.37 (0.01)	0.39 (0.01)	0.35 (0.01)	0.40 (0.01)	0.48 (0.02)
President of a Club in the past 3 years	0.45 (0.00)	0.62 (0.01)	0.61 (0.01)	0.62 (0.01)	0.60 (0.01)	0.52 (0.02)
Leadership Z-Score	0.00	0.40	0.37	0.35	0.30	0.19
Math Z-Score	0.01	-1.05	-1.01	-0.89	-0.75	-0.40
Parent is a College Graduate	0.16 (0.00)	0.11 (0.00)	0.11 (0.00)	0.13 (0.01)	0.13 (0.01)	0.11 (0.01)
Sample Size	130,322	4,941	5,935	1,080	1,790	518
Women						
Any Leadership Role in the past 3 years	0.64 (0.00)	0.71 (0.01)	0.72 (0.00)	0.72 (0.01)	0.73 (0.01)	0.73 (0.02)
Sports Team Captain in the past 3 years	0.42 (0.00)	0.30 (0.01)	0.33 (0.01)	0.31 (0.01)	0.35 (0.01)	0.49 (0.02)
President of a Club in the past 3 years	0.46 (0.00)	0.63 (0.01)	0.64 (0.01)	0.64 (0.01)	0.62 (0.01)	0.54 (0.02)
Leadership Z-Score	0.06	0.57	0.52	0.53	0.46	0.24
Math Z-Score	-0.32	-1.10	-1.09	-1.00	-0.93	-0.70
Parent is a College Graduate	0.15 (0.00)	0.11 (0.00)	0.11 (0.00)	0.11 (0.01)	0.12 (0.01)	0.14 (0.01)
Sample Size	132,761	6,256	8,250	1,871	2,752	632

Sample: Students in grades 10-12 with nonmissing data on high school leadership roles.
Note: Student Race is known for only a small proportion of column 1-3 observations.
Note: Z-scores are normalized to have mean zero and standard deviation one among all men within each grade (10, 11 and 12), including those with missing data on high school leadership roles.
Note: Sample sizes are slightly smaller for both Z-scores.
Standard errors in parentheses.

Table 2 –Extracurricular Activities Participation Rates for Three Cohorts of U.S. High School Seniors, by Race and Gender.

	1972 Seniors	1992 Seniors	2004 Seniors
Clubs (academic, vocational or hobby)			
Black Men	0.53 (0.02)	0.27 (0.02)	0.30 (0.02)
Black Women	0.59 (0.01)	0.42 (0.02)	0.32 (0.02)
White Men	0.44 (0.01)	0.39 (0.01)	0.36 (0.01)
White Women	0.51 (0.01)	0.46 (0.01)	0.42 (0.01)
Student Government			
Black Men	0.18 (0.01)	0.12 (0.02)	0.11 (0.01)
Black Women	0.28 (0.01)	0.18 (0.02)	0.15 (0.01)
White Men	0.18 (0.00)	0.13 (0.01)	0.10 (0.00)
White Women	0.20 (0.00)	0.17 (0.01)	0.16 (0.01)
Student Publications			
Black Men	0.17 (0.01)	0.10 (0.01)	0.13 (0.01)
Black Women	0.22 (0.01)	0.16 (0.02)	0.19 (0.01)
White Men	0.14 (0.00)	0.14 (0.01)	0.12 (0.01)
White Women	0.26 (0.01)	0.25 (0.01)	0.20 (0.01)
Performing Arts			
Black Men	0.34 (0.01)	0.25 (0.02)	0.25 (0.01)
Black Women	0.43 (0.01)	0.35 (0.02)	0.34 (0.02)
White Men	0.26 (0.01)	0.22 (0.01)	0.22 (0.01)
White Women	0.39 (0.01)	0.33 (0.01)	0.34 (0.01)
Sports*			
Black Men	0.68 (0.02)	0.56 (0.02)	0.55 (0.02)
Black Women	0.50 (0.01)	0.34 (0.02)	0.34 (0.02)
White Men	0.58 (0.01)	0.55 (0.01)	0.50 (0.01)
White Women	0.47 (0.01)	0.39 (0.01)	0.41 (0.01)
Sample Sizes			
Black Men	947	421	868
Black Women	1171	524	937
White Men	6672	3416	4018
White Women	6500	3655	4055

* Sports includes cheerleading, for comparability across years. See Appendix Table A-2 for estimates with cheerleading omitted.

Table 3 –High School Leadership Rates for Three U.S. Cohorts, by Race and Gender.

	1972 Seniors	1992 Seniors	2004 Seniors
Any Leadership Role*			
Black Men	0.32 (0.02)	0.28 (0.02)	0.30 (0.02)
Black Women	0.30 (0.01)	0.30 (0.02)	0.23 (0.01)
White Men	0.29 (0.01)	0.36 (0.01)	0.32 (0.01)
White Women	0.30 (0.01)	0.37 (0.01)	0.36 (0.01)
Sports Team Leadership*			
Black Men	0.18 (0.01)	0.21 (0.02)	0.22 (0.01)
Black Women	0.11 (0.01)	0.13 (0.01)	0.10 (0.01)
White Men	0.15 (0.00)	0.24 (0.01)	0.21 (0.01)
White Women	0.11 (0.00)	0.15 (0.01)	0.17 (0.01)
Other Leadership Role			
Black Men	0.19 (0.01)	0.11 (0.02)	0.14 (0.01)
Black Women	0.23 (0.01)	0.21 (0.02)	0.17 (0.01)
White Men	0.20 (0.00)	0.19 (0.01)	0.18 (0.01)
White Women	0.25 (0.01)	0.28 (0.01)	0.26 (0.01)
Sports or Other Leadership*			
Black Men	0.72 (0.01)	0.58 (0.02)	0.61 (0.02)
Black Women	0.58 (0.01)	0.45 (0.02)	0.44 (0.02)
White Men	0.64 (0.01)	0.63 (0.01)	0.58 (0.01)
White Women	0.57 (0.01)	0.53 (0.01)	0.54 (0.01)
Sample Sizes			
Black Men	947	421	868
Black Women	1171	524	937
White Men	6672	3416	4018
White Women	6500	3655	4055

* Sports includes cheerleading, for comparability across years. See Appendix Table A-2 for estimates with cheerleading omitted.

Table 4—Weekly Earnings Premia to High School Leaders or Sports Participants, Conditional on Math Scores, for Two Cohorts, By Race and Gender

	(1)	(2)	(3)	(4)	(5)
	Black Women	Black Men	White Women	White Men	White Men with Lower Scores
1992 Students, Earnings 1999					
Wage Regressions:					
High School Leadership or Sports	0.181 (0.098)+	-0.009 (0.087)	0.093 (0.025)**	0.106 (0.028)**	0.111 (0.043)**
Math Z-Score	0.242 (0.088)**	0.089 (0.042)*	0.118 (0.015)**	0.056 (0.014)**	-0.025 (0.039)
R-squared	0.22	0.03	0.08	0.03	0.01
Means:					
Leadership or Sports	0.46	0.63	0.56	0.62	0.55
Math Z-Score	-0.73	-0.89	0.04	0.00	-0.95
Weekly Earnings (standard deviation)	$509 (235)	$525 (219)	$546 (396)	$703 (517)	$667 (543)
Observations:	350	297	2438	2673	1113
1972 Students, Earnings 1979					
Wage Regressions:					
High School Leadership or Sports	0.067 (0.036)+	-0.038 (0.044)	0.020 (0.015)	0.041 (0.014)**	0.061 (0.022)**
Math Z-Score	0.086 (0.021)**	0.084 (0.021)**	0.093 (0.008)**	0.026 (0.007)**	0.046 (0.019)*
R-squared	0.05	0.03	0.06	0.01	0.01
Means:					
Leadership or Sports	0.60	0.72	0.59	0.64	0.56
Math Z-Score	-1.19	-1.05	-0.14	0.00	-0.98
Weekly Earnings (standard deviation)	$451 (201)	$566 (243)	$477 (196)	$685 (370)	$672 (324)
Observations:	582	523	3326	4421	1899

Dependent Variable: Log of weekly earnings 7 years after high school, inflation adjusted to 1999 levels, among full-time workers.
Sample: Full-Time workers with race, math scores and high school activities known; race and gender categories noted in each column heading; column 5 restricted to those with math scores < -0.1 sd units.
Leadership or Sports refers to senior year of high school.
To facilitate comparisons, math Z-scores are renormalized to have mean zero and standard deviation one within each white male earnings regression sample.

Appendix Table A-1:
Statistics Describing Between-School Segregation in 1960 (Project Talent Data)
Distribution of Students across Schools Reporting Low vs. High Proportion of their Students are Black, and Distribution of Black Students across Schools

	Share of All U.S. Students Surveyed	Share of All Students with Student Race Known	Share of all Black Students (if Student Race Known)	Observed Share Black in This Category of School Among Students with Race Known
School-Reported Share Black:				
Zero	0.47	0.50	0.01	0.00
More than zero, Less than 10%	0.31	0.33	0.08	0.01
More than 10%, Less than 20%	0.06	0.05	0.08	0.06
More than 20%, Less than 30%	0.02	0.01	0.05	0.14
More than 30%, Less than 40%	0.00	0.00	0.01	0.29
More than 40%, Less than 50%	0.00	0.00	0.01	0.34
More than 50%, Less than 60%	0.00	0.00	0.00	n/a
More than 60%, Less than 70%	0.00	0.00	0.00	n/a
More than 70%, Less than 80%	0.00	0.00	0.05	0.76
More than 80%, Less than 90%	0.00	0.00	0.03	0.94
More than 90%, Less than 100%	0.00	0.00	0.04	0.88
100%	0.05	0.02	0.58	0.99
No Report	0.08	0.08	0.06	0.03
Sample Size	263,084	116,954	4,542	

Appendix Table A-2—Means when cheerleading is excluded from sports (compare to tables 2 and 3)

	1972 Seniors	1992 Seniors	2004 Seniors
Sports, excluding cheerleading			
Black Men	0.66 (0.02)	0.55 (0.02)	n/a
Black Women	0.34 (0.01)	0.24 (0.02)	n/a
White Men	0.57 (0.01)	0.55 (0.01)	n/a
White Women	0.32 (0.01)	0.31 (0.01)	n/a
Cheerleading			
Black Men	0.06 (0.01)	0.02 (0.01)	n/a
Black Women	0.31 (0.01)	0.17 (0.02)	n/a
White Men	0.05 (0.00)	0.02 (0.00)	n/a
White Women	0.29 (0.01)	0.12 (0.01)	n/a
Sports Team Captain, excluding cheerleading			
Black Men	0.18 (0.01)	0.21 (0.02)	n/a
Black Women	0.07 (0.01)	0.09 (0.01)	n/a
White Men	0.14 (0.00)	0.23 (0.01)	n/a
White Women	0.05 (0.00)	0.11 (0.01)	n/a
Sample Sizes			
Black Men	947	421	868
Black Women	1171	524	937
White Men	6672	3416	4018
White Women	6500	3655	4055

Appendix Table A-3—Share of 18-year-olds in high school or already graduated.

	1970 Census	1990 Census	2000 Census
Black Men	0.67 (0.01)	0.85 (0.00)	0.85 (0.00)
Black Women	0.73 (0.01)	0.89 (0.00)	0.90 (0.00)
White Men	0.85 (0.00)	0.90 (0.00)	0.91 (0.00)
White Women	0.85 (0.00)	0.91 (0.00)	0.92 (0.00)
Sample Sizes			
Black Men	2180	11362	13010
Black Women	2236	11174	13212
White Men	15855	67347	71245
White Women	15813	64679	68298

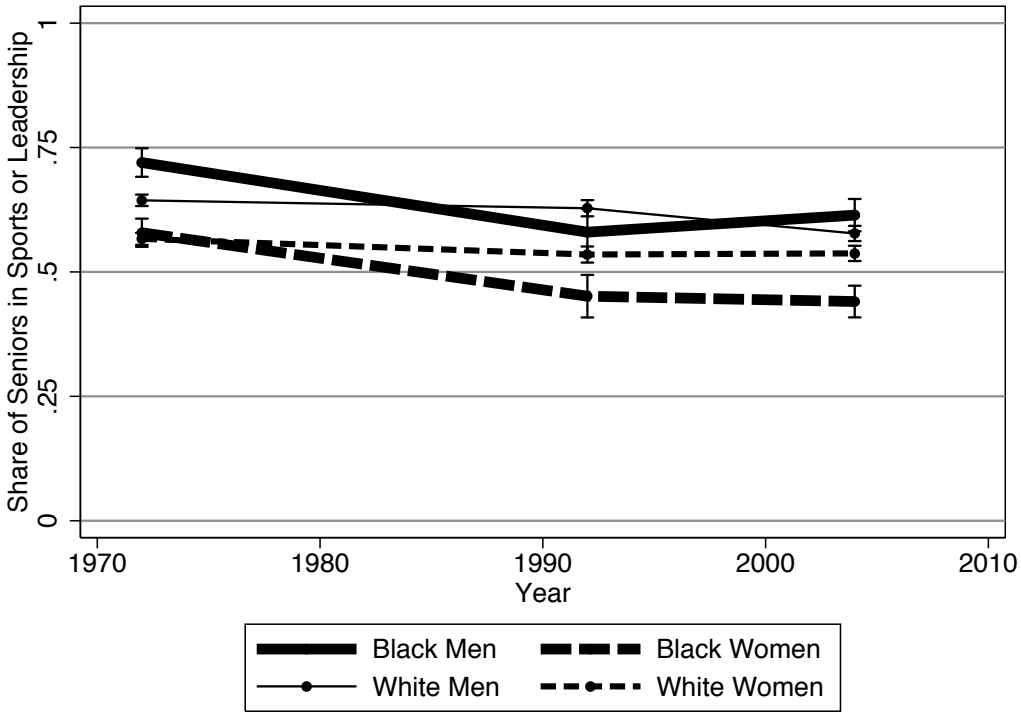

Figure 1-Trends in the Share of High School Seniors Reporting Sports Participation or Non-Athletic Leadership Roles, By Race and Gender

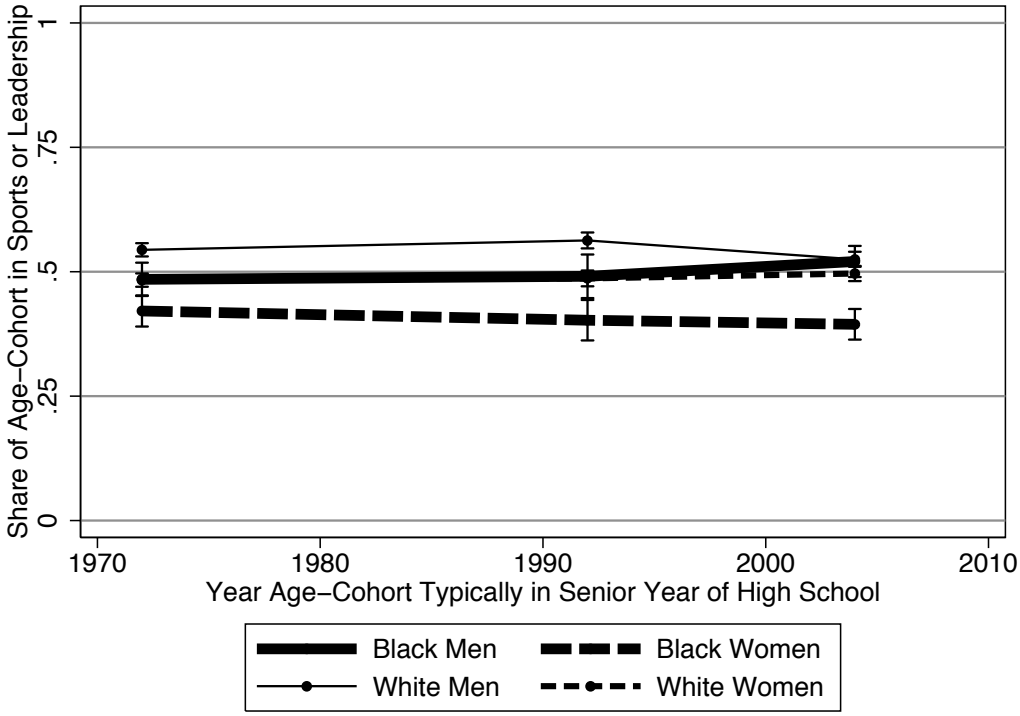

Figure 2-Dropout-Adjusted Trends in the Share of Each Age-Cohort with Senior-Year Experience in Sports or Non-Athletic Leadership Roles, By Race and Gender