An Empirical Analysis of 'Acting White'[*]

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October 7, 2006

[*] We are grateful to George Akerlof, Pol Antras, David Card, Prudence Carter, Kenneth Chay, William Darity, Federico Echenique, Ronald Ferguson, Edward Glaeser, Michael Greenstone, Jennifer Hochschild, Christopher Jencks, Adrianna Lleras-Muney, Lawrence Kahn, Lawrence Katz, Rachel Kranton, Steven Levitt, Glenn Loury, Linda Loury, Jens Ludwig, Franziska Michor, Ted Miguel, Emily Oster, Paul Peterson, Mica Pollock, Gavin Samms, Jesse Shapiro, and Andrei Shleifer for helpful comments and suggestions. Alexander Kaufman and Patricia Foo provided exceptional research assistance. Fryer thanks the Institute for Quantitative Social Science for invaluable support. Direct all correspondence to Fryer at Harvard University, 1875 Cambridge Street, Cambridge MA 02138 [e-mail: rfryer@fas.harvard.edu.] The usual caveat applies.

Abstract

There is a debate among social scientists regarding the existence of a peer externality commonly referred to as ‘acting white.’ Using a newly available data set, which allows one to construct an objective measure of a student’s popularity, we demonstrate that there are large racial differences in the relationship between popularity and academic achievement; our (albeit narrow) definition of ‘acting white.’ The effect is intensified among high achievers and in schools with more interracial contact, but non-existent among students in predominantly black schools or private schools. The patterns in the data appear most consistent with a model of peer pressure in which investments in education are thought to be indicative of an individual’s opportunity costs of peer group loyalty. Other models we consider, such as self-sabotage among black youth or the presence of an oppositional culture, all contradict the data in important ways. Eliminating racial differences in the relationship between popularity and achievement would have no effect on the average student, but may explain a significant portion of the gap among high achievers.

"Go into any inner city neighborhood, and folks will tell you that government alone can't teach kids to learn. They know that parents have to parent, that children can't achieve unless we raise their expectations and turn off the television sets and eradicate the slander that says a black youth with a book is acting white."

Senator Barack Obama, 2004 Democratic National Convention Keynote Address

I. Introduction

The racial achievement gap in education is a vexing reality. Black children enter kindergarten lagging whites, and these differences grow throughout the school years.[1] On every subject at every grade level there are large achievement differences between Blacks and Whites (Campbell, Hombo, and Mazzeo 2000, Neal 2004). The typical Black seventeen year-old reads at the proficiency level of the typical White thirteen year-old (Campbell, Hombo, and Mazzeo 2000). On the Scholastic Aptitude Test, Black students score, on average, more than one standard deviation below white college goers (Card and Rothstein 2004). Even in affluent neighborhoods, the racial divide is daunting (Ferguson 2001, 2002 and Ogbu and Davis 2003). Accounting for a host of background factors, the achievement gap remains essentially unchanged (Jencks and Phillips 1998).

Gaining a better understanding of the underlying causes of the achievement gap is a question of great importance. Neal and Johnson (1996) and O'neill (1990) find that most of the observed black-white differential in wages among adults disappears once pre-market test scores are taken into account. Thus, eliminating the test score gap that exists at labor market entry may be a critical component of reducing racial wage inequality.

A wide variety of possible explanations for the test score gap have been put forth. These explanations include differences in genetics (Hernstein and Murray 1994, Jensen

[1] This fact was first established by Coleman et al. (1966). For more recent analysis, see Campbell, Hombo, and Mazzeo (2000), Carneiro and Heckman (2002), Fryer and Levitt (2004, 2005), Neal (2004), or Phillips, Crouse, and Ralph (1998).

1973), differences in family structure and poverty (Armor 1992, Brooks-Gunn and Duncan 1997), differences in school quality (Cook and Evans 2000), racial bias in testing or teachers' perceptions (Delpit 1995, Ferguson 1998, Rodgers and Spriggs 1996), and differences in peer culture, socialization, or behavior (Austen-Smith and Fryer 2005, Cook and Ludwig 1997, Fordham and Ogbu 1986, Steele and Aronson 1998). The appropriate public policy choice to address the achievement gap may depend critically on the underlying source.

In this paper, we focus on a highly controversial and well-publicized aspect of Black peer culture – the existence of a peer externality commonly referred to as 'acting white.'[2] 'Acting White' describes a set of social interactions in which Black adolescents ridicule other black adolescents for investing in behaviors characteristic of whites (having an interest in ballet, raising their hand in class, or making good grades, e.g.).[3] A primary obstacle to the study of 'acting white' has been the lack of quantitative measures of the phenomenon. We focus on racial differences in the relationship between *popularity* and *academic achievement*, our (albeit narrow) definition of 'acting white'.

To circumvent the problems inherent in using self-reported popularity measures, we construct an index of social status. The index measures, for each student, the number of same-race friends within her school, weighted by the popularity of each friend. We implement the index using detailed information on friendship networks within schools

[2] It is imperative to note that there is nothing unique about Black culture. A version of 'acting white' is also prevalent in ethnographies involving the Buraku Outcastes of Japan (DeVos and Wagatsuma 1966), Italian immigrants in Boston's West End (Gans 1962), the Maori of New Zealand (Chapple, Jefferies, and Walker 1997), and the working class in Britain (Willis 1977), among others. In all cases high achievers receive a derogatory label from their peer group. For example, in the peer group society documented in Gans (1962), upward mobile youth interested in education were labeled "mobiles" and "sissies." See Fryer (2004) for a detailed discussion of these groups. Furthermore, we examine Hispanics in addition to blacks throughout this paper.

[3] There are many working definitions of 'acting white' which we discuss in section II.

available in the National Longitudinal Study of Adolescent Health (Addhealth). Addhealth is, in many respects, the ideal data for understanding the existence of 'acting white.' To our knowledge, it is the only available dataset that contains within-school friendship networks, from which it is possible to construct *objective* measures of social status, along with detailed data on parental characteristics, academic achievement, and so forth. The survey covers a sample of more than 90,000 junior high and high school students from 175 schools in 80 communities around the US.

Our empirical analysis of 'acting white' uncovers a rich set of new facts. In stark contrast to the previous literature (Cook and Ludwig 1997), Figure 1A demonstrates that there are large racial differences in the relationship between popularity and academic achievement. Among whites, higher grades yield higher popularity. For Blacks, higher achievement is associated with modestly higher popularity until a grade point average of 3.5, when the slope turns negative. A black student with a 4.0 has, on average, 1.5 fewer same-race friends than a white student with a 4.0. Among Hispanics, there is little change in popularity from a grade point average of 1 through 2.5. After 2.5, the gradient turns sharply negative. A Hispanic student with a 4.0 grade point average is the least popular of all Hispanic students, and has 3 fewer friends than a typical white student with a 4.0 grade point average. Put differently, evaluated at the sample mean, a one standard deviation increase in grades is associated with roughly a .103 standard deviation decrease in social status for Blacks and a .171 standard deviation decrease for Hispanics. For students with a 3.5 grade point average or better, the effect triples.

Racial differences in the relationship between popularity and achievement are robust across many alternative specifications, subsets of the data, and different definitions

of popularity or academic achievement. The 'acting white' effect differs slightly as children age. For Black students in junior high school (grades 7-9) a one standard deviation increase in grades is associated with a .13 standard deviation decrease in popularity; the decrease is .07 for high school students. Accounting for the number of students at each GPA level does little to temper the 'acting white' effect, suggesting that the supply of potential friends does not explain the phenomenon. Self-selection of students into particular activities (sports, band, debate, etc) matters little, and substitution towards other race friendships does not fully explain the stark difference in the popularity – achievement gradient. Using alternative measures of academic achievement confirms our results.

We argue that the empirical patterns are most consistent with a simple model of peer pressure. The principal idea is that individuals face a two-audience signaling quandary: signals that beget labor market success are signals that induce peer rejection. The model's two distinguishing predictions – racial differences in the relationship between peer group acceptance and academic achievement will exist and these differences will be exacerbated in arenas that foster more interracial contact or increased mobility – are borne out in the data. 'Acting white' is more salient in public schools and schools in which the percentage of black students is less than twenty, but non-existent among blacks in predominantly black schools or those who attend private schools. Schools with more interracial contact have an 'acting white' coefficient twice as large as more segregated schools (seven times as large for Black males). Other models we consider, such as self-sabotage among black youth or the presence of an oppositional culture identity, all contradict the data in important ways.

The paper concludes with a back of the envelope calculation of what would happen to the racial achievement gap if 'acting white' did not exist. Although racial differences in the relationship between popularity and grades are pronounced, the resulting effect on achievement is less so. Eliminating 'acting white' would have no effect on the average student, but can potentially explain 11.3% of the black-white test score gap and 23% of the Hispanic-white test score gap among high achievers.

The remainder of the paper is structured as follows. Section II provides a brief review of the literature on 'acting white.' Section III describes and summarizes the data used in the analysis. Section IV estimates the relationship between popularity and academic achievement among racial groups. Section V develops a two-audience signaling model, that highlights the tradeoff between peer group acceptance and academic achievement, which is consistent with the data. Section VI concludes. There are two appendices: an appendix which reconciles our results with those found in previous analysis of nationally representative data, and a data appendix which provides the details of our sample and definitions of relevant variables.

II. Background and Previous Literature

'Acting white' is a slippery and politically loaded phrase, with little consensus on a precise definition. Neal-Barnett (2001) assembled student focus groups in an attempt to deduce what specific behaviors led to accusations of 'acting white.' The list included being enrolled in honors or advanced placement classes, speaking standard English, wearing clothes from the Gap or Abercrombie and Fitch (instead of Tommy Hilfiger or FUBU), and wearing shorts in the Winter! While we are cognizant of the complications

and nuances in what is often meant by 'acting white,' our data are not rich enough to test many of the plausible definitions.[4] As such, for the purposes of this paper, *we say 'acting white' exists if there are statistically significant racial differences in the relationship between popularity and grades.*

For nearly two decades, there has been a rancorous debate among sociologists, cultural anthropologists, newspaper journalists and policy wonks on the existence of 'acting white'. Fordham and Ogbu (1986) set the stage with analysis of "Capital High," a predominantly black high school in a low-income area of Washington, D.C. Fordham and Ogbu (1986) argue for the existence of an oppositional culture among black youth that eschew behaviors traditionally seen as the prerogative for whites. Following this work, there has been a flurry of conflicting opinions as to the nature, extent, and definition of 'acting white'. Ethnographic evidence is hopelessly divided, and the only two nationally representative studies dismiss 'acting white' as nothing more than an urban (or more precisely, ethnographic) legend.

An interesting feature of the ethnographic literature is that many studies report some negative relationship between "white behaviors" and social status among blacks.[5] The key differences lie in the fact that many of the authors do not report that academic achievement, per se, is identified as a "white behavior." That is, the literature paints a picture whereby Black kids do not ridicule other Black kids for making good grades – instead, they ridicule them for the behaviors that are often associated with good grades (answering questions in class, being in advanced classes, or proper diction e.g.). Even when academic achievement is highly correlated with "white behaviors," many authors

[4] See Ferguson (1998) for a very nice discussion.
[5] See, for example, Ferguson (2001), Roderick (2003), Horvat and Lewis (2003), Bergin and Cooks (2002), Datnow and Cooper (1996), Chin and Phillips (2004), Farkas et. al (2002), and Tyson et. al. (2004).

seemingly prefer to make a distinction between resenting achievement and resenting behaviors that are associated with achievement.[6]

Although understanding the precise behaviors that lead to accusations of 'acting white' may be useful in designing effective policies. The first-order problem is whether racial differences in the relationship between social status and achievement exist, as such differences feed into student's investment decisions regarding human capital, social affiliations, and so on.[7]

There have been two previous studies on the existence of 'acting white' using nationally representative data (Cook and Ludwig 1998 and Ainworth-Darnell and Downey 1998), both based on the National Educational Longitudinal Study (NELS). These studies provide evidence that peer group norms are not significantly different between black and white 10th graders by examining the relationship between self-reported measures of popularity and dichotomous measures of academic achievement. Cook and Ludwig (1997) find that high-achievers are actually more popular than low-achievers, and that this positive achievement-popularity relationship is not significantly different between whites and blacks – if anything, the relation is stronger among blacks, providing evidence that suggest the 'acting white' phenomenon is not empirically important.[8]

One shortcoming of the previous work is that it relies on self-reported measures of popularity. The NELS contains a question that asks if the student "thinks others see

[6] This reticence could be due, in part, to the fear that some may equate 'acting white' with Black cultural dysfunctionality. Yet, economic theory informs us that 'acting white' is an equilibrium phenomenon; it is the consequence of two-audience signaling (see Austen-Smith and Fryer 2005). As such, any group presented with the same set of payoffs, strategies, and so on, would behave identically.

[7] For example, some black students may be accused of 'acting white' because of the way they talk or dress, not because they get good grades. This may be because they are in high-ability classes (AP, Honors, etc) where there are few black students, and consequently their social circle may have few blacks. See Ferguson (2001).

[8] Their results hold even when they control for nonacademic variables that influence popularity, including family income and participation in varsity sports or band (Cook and Ludwig 1997).

him/her as popular." The answer choices are: not at all; somewhat; or very; over 80% of the respondents categorized themselves as somewhat or very popular. It is doubtful that individuals truthfully report potentially self-damaging information.[9] The result is a classic measurement error problem which may lead to misleading inferences (beyond greater standard errors) if the error in the self-reported variable is related to race or achievement levels.[10]

Another weakness with the previous studies is that achievement levels are defined dichotomously. Cook and Ludwig (1997) use two such measures: (1) whether the student earns "mostly A's in math," and whether the student is in the honor society. When we investigate how popularity varies across a continuous measure of achievement (GPA) using their data and our basic specification, we find that 'acting white' exist and is robust to including myriad controls. See Appendix A and Table 6.

III. The Data

The National Longitudinal Study of Adolescent Health (Addhealth) database is a nationally representative sample of 90,118 students entering grades 7 through 12 in the 1994-1995 school year. A stratified random sample of 20,745 students was given an additional (and remarkably comprehensive) in-home interview; 17,700 parents of these children were also interviewed. Thus far, information has been collected on these students at 3 separate points in time: 1995, 1996, and 2002. There are 175 schools in 80

[9] A classic example of this is that roughly 25% of non-voters report having voted immediately after an election. See Tanur (1992) for more examples of this bias. We are grateful to Jennifer Hochschild for pointing us to this literature.

[10] Another potential weakness with the previous studies is that achievement levels are defined dichotomously. Cook and Ludwig (1997) use two such measures: (1) whether the student earns "mostly A's in math"; and whether the student is in the honor society. When we investigate how popularity varies across a continuous measure of achievement (GPA) using their data and our basic specification, we find that 'acting white' exist and is robust to including a myriad controls. See Appendix A and Table 5.

communities included in the sample, with an average of more than 490 students per school, allowing within school analysis. Students who are missing data on race, grade level, or attend schools that do not assign grades are dropped from the sample.

A wide range of data are gathered on the students, as described in detail on the Addhealth website (http://www.cpc.unc.edu/projects/addhealth). For our purposes, the key feature of the Addhealth data is the detailed information regarding friendship associations in schools. All students contained in the in-school survey were asked, "List your closest male/female friends. List your best male/female friend first, then your next best friend, and so on." Students were allowed to list as many as 5 friends from each sex. Each friend can be linked in the data and the full range of covariates in the in-school survey (race, gender, grade point average, etc) can be gleaned from each friend. The next section details how we take this information on friendship linkages within schools and construct an index of popularity.

To circumvent the problems inherent in using self-reported measures of popularity, we make use of the information on friendship networks within schools to construct an "objective" measure of social status. Each student was asked to list 10 friends in their school. Instead of using raw counts, our measure of popularity for an individual *i* depends on the number of same-race students, *j*, that list *i* as a friend, weighted by the popularity of each *j*.[11] The key innovation here is that we want a student to be more popular the more popular her friends are. That is, if students A and B have the same number of individuals who list them as a friend – student A will be more popular if

[11] We emphasis same-race friends, because we believe it is most consistent with the sociological notion of 'acting white.' All our results are robust to including popularity from all racial groups.

and only if her friends are more popular. We call this the Spectral Popularity Index and provide a formal definition in the next section.[12]

Summary statistics for the variables we use in our core specifications are displayed by race in table 1, with White and Black referring solely to non-Hispanic whites and Blacks, respectively.[13] Hispanics include any individual who checked yes to the question: "Are you of Hispanic or Spanish origin." Our primary outcome variable is the spectral popularity index. The index is normalized such that it has a mean of 0 and a standard deviation of 1. On average, Blacks and Hispanics are less popular than whites. Whites are .142 above the mean in popularity whereas blacks are .024 below the mean, yielding a black-white difference in popularity of .166. Hispanics are .141 below the mean popularity, yielding a Hispanic-white gap of .283. The table also indicates the average number of friends students have from different racial backgrounds.[14] Friendship networks are remarkably segregated, the typical Black and White student each has exactly one friend of a different race.

The remainder of Table 1 presents summary statistics for the other variables used in our analysis. The most important of these covariates is a composite measure of grade point average (GPA) that we constructed. Each student was asked, "At the most recent grading period, what was your grade in each of the following subjects?" The subjects included were English/Language Arts, Mathematics, History/Social Studies, and Science.[15] Each of these grades was given on a 4.0 scale (A= 4, D or Lower =1). Relative

[12] The Spectral Popularity Index is a special case of the Spectral Segregation Index developed in Echenique and Fryer (2005).
[13] A detailed description of these variables and their construction can be found in Appendix B.
[14] The rank correlation between the Spectral Popularity Index of an individual *i* and the number of students who list *i* as a friend is .74.
[15] In calculating the GPA of each student, we only used courses in which valid grades were received, as some students did not take particular subjects in every grading period. Students who did not have a grading

to whites, Blacks and Hispanics have lower grades (3.0 grade point average relative to 2.5).[16]

Other variables used as controls include: parental education, parental occupation, various school activities (varsity sports, student government, and cheerleading) and school characteristics. There are substantial differences across races on many of these variables. Black and Hispanic students come from lower socio-economic status families (mother and father less likely to be college educated and work in professional jobs), are more likely to live in urban neighborhoods and less likely to attend private schools, and so on. While this may seem like a stylized set of covariates to use, they comprise all the social and demographic variables available in the in-school survey of 90,118 students.[17]

We strongly caution against a causal interpretation of the coefficients on the covariates, which we view as proxies for a broad set of environmental and behavioral factors. Even our main parameter is not void of the potential for reverse causality. We implicitly assume that high grades cause lower popularity; it is plausible that low popularity causes high grades. Given our interest is in the racial differences in this relationship, there is less worry.

IV. Measuring Popularity

We measure popularity using a measure of social connections in networks developed in Echenique and Fryer (forthcoming). Below we provide a skeletal derivation.

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period that academic year were told to provide grades from the last grading period of the previous academic year. Students in schools that do not assign grades were dropped from the sample.

[16] There is some evidence that blacks overstate their grades (Bauman 1996). Our calculations, using the National Educational Longitudinal Study which contains transcript data and self-reported grades, suggests that blacks exaggerate their grades by .3 grade points, on average.

[17] A much more exhaustive set of covariates is available for individuals who completed the in-home survey (covering approximately ¼ of the sample).

The basic building block for our measure of popularity is a set of individuals *V*, who belong to the same race/ethnicity and information on whether any two individuals in *V* are socially connected. Our measure identifies popularity of the members of a group with the intensity of the social connections among the members of that group.

Given two individuals, *v* and *v′* in *V*, let $r_{vv'} \in \{0,1\}$ denote whether or not they interact socially. The data used in this paper asks students to name their 10 closest friends. We say that $r_{vv'} = 1$ if *v′* names *v* as one of her friends.[18]

Let *B* be a matrix with as many rows and columns as members of *V*, and typical entry $r_{vv'}$. The matrix *B* summarizes all the information on same-race connections among the members of the race. A popularity index is a function that assigns a real number *P(B)* to each matrix *B* of same-race connections, along with functions assigning a real number $p_v(B)$ for each individual member *v* of *V*, such that P(B) is the average of the individual $p_v(B)$.

There are three properties that jointly define the spectral index. The first property requires that an increase in same-race connections imply an increase in popularity. A matrix *B′* has more intense connections than matrix *B* if each individual *v* has more friends of her race in *B′* than in *B*. Say that a popularity index satisfies the property of <u>monotonicity</u> if, whenever *B′* has more intense interactions than *B*, *P(B)≤P(B′)*.

The second property is a normalization of the index. A popularity index is <u>homogeneous</u> if, when all individuals in *B* have exactly *d* same-race friends, *P(B)=d*.

[18] What is essential for our framework is that $r_{vv'} > 0$ if and only if $r_{v'v} > 0$; see Echenique and Fryer (2005).

We introduce some additional concepts to present the third property. Let N_v be the set of *v's* friends of her same race – her connections in *V*. In a similar vein, consider all friends (in *V*) of *v's* friends, and friends of friends of friends, and so on. The resulting set of individuals, with direct or indirect connections to *v*, is called the connected component of *B* that *v* belongs to; denote this set of individuals by C_v.

The third property says that $p_v(B)$ should be the average $p_{v'}(B)$ among *v's* same-race friends, relative to the average popularity of the individuals in *v's* connected component. In symbols, if P^{C_v} is the average popularity of individuals in C_v, a popularity index satisfies <u>linearity</u> if

$$p_v(B) = \frac{1}{P^{C_v}} \sum_{v' \in N_v} r_{vv'} p_{v'}(B)$$

There are two qualitative assumptions behind the linearity property. The first is that *v's* popularity depends on the popularity of her friends'. The second is that the dependence is modulated by the connected component's popularity. A decrease in the popularity of one of *v's* friends will affect *v* less if *v* is in a high popularity component.

The spectral index is the (unique) index that satisfies the properties of monotonicity, homogeneity, and linearity (Echenique and Fryer forthcoming).

An Example – Markovian Middle School.

In this section, we provide a precise example on how we calculate popularity using the theoretical apparatus above and data on friendships within schools from the Addhealth.

Consider an elite middle school – Markovian – which consists of 15 students: Larry, Andrei, Franziska, Claudia, Phillip, Jeremy, Jens, Ronald, Gerhard, Katherine, Rachel, Drew, Jerry, Matt, and Loser. The top panel of Table 2 shows the (hypothetical) data gleaned from these individuals when they were asked to list 5 friends. Larry includes Gerhard, Claudia, Andrei, and Jens as friends, while Jeremy only list Andrei and Gerhard. Loser's list contains the same students as Larry's, but no one else has loser on their list. This will be reflected in his popularity. Recall, our measure of popularity for an individual *i* depends on the number of students, *j*, that list *i* as a friend, weighted by the popularity of each *j*.

The middle panel of Table 2 translates the data in the upper panel into a matrix of social interactions (*B* from the formal model) which describes whose connected to whom. Absent any information on the strength of connections, we simply assume that individuals are either connected or not and denote a connection with a value of 1. For each individual in the school, the column represents their list in the upper panel; rows provide data on all individuals who listed them. For instance, the column for Loser has 5 1s for all the individuals he list as friends. Yet, because no one lists Loser as a friend, the row associated with Loser contains all zeros.

The bottom panel of Table 2 presents the Spectral popularity of each student in Markovian Middle School. The most popular student is Gerhard, with an index value of 9.6. Eleven of the fifteen students list Gerhard as a friend. Andrei is the second most popular student, with popularity of 7.41. Rachel is the least popular. Katherine and Rachel both have one friend, but Rachel's friend (Claudia) is less popular than Katherine's friend (Andrei), thus (by our linearity property) Katherine is more popular

than Rachel. Drew, Matt, and Jerry are all friends with one another and no one else at the school. By our homogeneity condition, each has a popularity of 2.

There are several noteworthy caveats to our measure of popularity. First, it is possible that, given our data, we are not capturing the most popular kids in schools. It is possible that the captain of the football team or the most beautiful female students are quite "popular," but few others report them as friends. Similarly, to the extent that students have friendship connections outside of school (through religious groups, boy scouts, and so on), these connections will not be captured in our index.

Despite these caveats, the index formalized in this paper is much more appealing than measures that have been previously used. The previous measure (Cook and Ludwig 1997) took on 3 values. Our index takes on values between 0 and 479 (mean=6.65, sd=14.89), which introduces more variation to understand the relationship between popularity and academic achievement. Further, our measure is objective and does not depend on individual notions of popularity.

A more intuitive test of the reasonableness of our popularity measure is to correlate it with activities which one believes, ex ante, to contain more popular kids (comparing math club and non-math club students, e.g.). A simple comparison of means reveals that students in sports are .242 standard deviations more popular than kids who are not in sports. Students in government (.337) and cheerleading (.239) are also more popular, whereas students in the book club (-.101) and math club (-.02) are less popular.

IV. Racial Differences in the Relationship between Popularity and Achievement

Figure 1A presents the relationship between popularity and grades among whites, blacks, and Hispanics in the raw data. At low grade point averages, there is little difference among racial groups in the relationship between popularity and grades; blacks are more popular than whites. At roughly a 2.5 GPA (an even mix of B's and C's) racial differences start to emerge. Hispanic students lose popularity at an alarming rate after this cut-off – while Blacks and Whites continue to garner friends as their grades increase; the white slope is steeper. Black popularity peaks at a grade point average of roughly 3.5 and turns down afterward. Blacks with straight A's are as popular as Blacks with a 2.9 GPA. Whites continue to gain popularity as their grades increase.

Racial differences in the popularity-grades gradient may be due to various background factors that are positively related to popularity (having high income parents, e.g.). Figure 1B estimates a non-parametric relationship between popularity and grades for Blacks, Hispanics, and Whites, controlling for background factors including school fixed effects. [19] Our core set of controls include gender, age, parental education and occupation, a measure of (self-reported) effort, and various school activities such as cheerleading, athletics, and student government. Figure 1B demonstrates that including these controls shrinks the popularity differential among low achievers while maintaining

[19] To understand the details, consider the following model: $popularity = H(grades) + X\gamma + e$. We cannot estimate this directly because we do not know H(.).
But, $E(popularity \mid grades) = H(grades) + E(X \mid grades)\gamma + E(e \mid grades)$. Taking the difference, $popularity - E(popularity \mid grades) = [X - E(X \mid grades)]\gamma + [e - E(e \mid grades)]$. Thus, to obtain $H(grades)$, one needs to: (1) obtain estimates of E(popularity|grades) by running a non-parametric regression of popularity on grades; (2) obtain estimates of E(X|grades) by running a non-parametric regression of X on grades; (3) compute popularity - E(popularity|grades) and X - E(X|grades); (4) obtain $\hat{\gamma}$ by estimating the linear regression:
$popularity - E(popularity \mid grades) = [X - E(X \mid grades)]\gamma + [e - E(e \mid grades)]$; and (5) estimate $popularity - X\hat{\gamma} = H(grades) + e$ (non-parametric regression of $popularity - X\hat{\gamma}$ on grades).

the shape of the popularity-grades gradient. Black and Hispanic high achievers continue to be much less popular than similar whites.

Figure 2 estimates a similar non-parametric relationship between popularity and grades for Blacks, Hispanics, and Whites, by gender. The relationship is remarkably similar between boys and girls. One caveat: black high achieving boys have fewer friends than black high achieving girls. Students in public and private schools face a very different tradeoff between popularity and grades, as demonstrated in Figure 3. Public schools mirror the aggregate data presented in Figure 1B. In private schools, Whites with higher grades are not as popular as their lower achieving peers; the most popular students have a GPA of roughly 2.0 (C average). For blacks, the gradient is virtually flat. In levels, Blacks are substantially less popular than whites, which is an artifact of our same-race popularity measure.

Table 3 presents a series of estimates designed to understand the existence of 'acting white' among Blacks and Hispanics; providing numbers (and standard errors) to the figures we described. Econometrically, our analysis is of the form:

$$(2) \quad Spectral\ popularity_{i,s} = \beta_0 + \beta_1 \cdot Achievement_i + \beta_2 \cdot Black_i + \beta_3 \cdot Black_i \cdot Achievement_i + \beta_4 \cdot Hispanic_i + \beta_5 \cdot Hispanic_i \cdot Achievement_i + \gamma \cdot X_i + \theta \cdot Z_s + \eta_s + \varepsilon_{i,s}$$

where X_i denotes an array of individual level variables for agent i, Z_s represents school level variables, and η_s denotes an exhaustive set of school dummies. The model is estimated on a sample of only Black, White, and Hispanic students; thus β_2 and β_3 are interpreted as black coefficients relative to whites and β_4 and β_5 are Hispanic coefficients relative to whites. We refer to β_3 and β_5 as the 'acting white' coefficients for Blacks and

Hispanics, respectively. The dependent variable is our spectral popularity index. The independent variables are constant across columns and include: (self-reported) grades and effort, socioeconomic background (parental occupation and education), and school activities (cheerleading, sports, and student government). In all cases the estimation is done using weighted least squares, with weights corresponding to sample weights provided in the data, and includes school fixed effects. By comparing students who attend the same school (and likely live in similar neighborhoods), one controls for different grading standards, social norms, and mean popularity levels across schools.[20] As noted above, this may seem like a stylized set of covariates to include. They comprise many of the social and demographic variables available in the in-school survey. Our approach is to control for these variables and see whether or not there are any racial differences in the relationship between popularity and grades left to be 'explained.[21]'

Column 1 of Table 3 estimates our specification on the full sample of students. These results confirm the results illustrated in Figure 1; the 'acting white' coefficient is large and statistically significant for Blacks and Hispanics. To account for the non-linearity inherent in the relationship between popularity and achievement, we group students into four categories based solely on GPA: 1 to 2.0, 2.0 to 3.0, 3.0 to 3.5, and 3.5 and higher.[22] These categories are roughly aligned with the changes in slope apparent in Figure 1B.

[20] For instance, if high-achieving black students attend schools where grading standards are lax and popularity levels inflated, then this specification will purge the upward bias.
[21] We have also run all regressions with effort*race interactions. The results are very similar with slightly higher standard errors.
[22] The results to come are similar if one includes higher order polynomials on grades as regressors, though the interpretation of the coefficients is more convoluted.

The salience of 'acting white' increases monotonically with achievement. For low achievers (students with less than a 2.0 GPA) there is no 'acting white' effect, which is consistent with Figure 1B. For students with a 3.5 GPA or better, the 'acting white' coefficient is -.329, over three times the magnitude of the effect in the overall sample. This captures the divergence in popularity among black and white high achievers depicted in figure 1B. For Hispanics, the results are more mixed. The smallest effect exists among low achievers, but 'acting white' is most salient among Hispanics with grade point averages between 3 and 3.5.

A. Sensitivity Analysis and Extensions of the Basic Model

In an effort to uncover other factors that are associated with 'acting white,' Tables 4 and 5 explore the sensitivity of our results across a wide variety of sub-samples of the data and alternative specifications. We estimate separate regressions for each indicated sub-sample of the data. Table 4 estimates regressions on the full sample of students; table 5 restricts the sample to students with a 3.5 GPA or better (hereafter referred to as "high achievers"). In most cases the qualitative results are identical, though the magnitude of the 'acting white' coefficient is 3 to 4 times as large among high achievers. We report only the 'acting white' coefficients for Blacks and Hispanics, the coefficient on grades, and associated standard errors. The top row of the tables present the baseline results from columns 1 and 5 in table 3, respectively.

As one peruses the tables, it becomes evident that the 'acting white' phenomenon is robust across most subsets of the data, though there are a several notable exceptions. 'Acting white' is modestly more prevalent among Black males relative to Black Females,

and this is especially true among high achievers.[23] Whether or not one uses the sample weights provided in the Addhealth data matters little. 'Acting White' is large in public schools and non-existent among blacks in private schools. This latter finding may partially explain why black kids in private schools appear to do especially well (Akerlof and Kranton 2002, Neal 1997 and Grogger and Neal 2000).[24]

ALTERNATIVE MEASURES OF POPULARITY

The 'acting white' coefficient is also robust to different measures of social status. We include the following three alternative measures of popularity: (1) non-normalized Spectral popularity; (2) same-race friends – measured as how many individuals *j* put *i* down as a friend (*not* weighted by the popularity of each *j*); (3) all-race popularity; and (4) other-race popularity. All these measures have been normalized such that they have a mean of zero and a standard deviation of one. The sign and magnitude of the 'acting white' coefficient for Blacks and Hispanics is robust across the first three measures. The positive coefficient on other-race popularity suggests that blacks and Hispanics substitute towards other-race friends in the presence of 'acting white'. The magnitude of the coefficient, however, is significantly smaller so that on net, 'acting white' (race effect minus the substitution effect) still dominates.[25] Blacks and Hispanics with a GPA above 3.5 are actually losing other-race friends, exacerbating the effect of 'acting white' among

[23] Plotting race-specific popularity and grades by race and gender reveals that popularity decreases for black boys earlier (3.25 GPA relative to a 3.5 GPA) and the gradient for high achievers is steeper.
[24] We have also investigated whether 'acting outlier' is the underlying problem and not 'acting white' as such, by estimating the relationship between popularity and grades among whites in schools with low average test scores. Whites in these schools continue to have a positive relationship between popularity and grades.
[25] The bulk of the substitution effect is occurring among students with a GPA between 3.0 and 3.5, especially among blacks. Including controls for number of "potential friends" (i.e. number of same-race students in GPA category by school) does little to change this.

this select group. This result is troubling, as one would hope that high achieving minority students could find refuge among high achieving whites.[26]

We also investigated the number of fights that a student had been involved in as a measure of popularity (or social status more generally). There were marked differences in the relationship between grades and fights; black students were much more likely to be involved in fights as their grades increased. Hispanics followed a similar pattern.

ALTERNATIVE MEASURES OF ACHIEVEMENT

Our results are also robust to different notions of academic achievement. We include three additional measures of achievement: math and science grades, participation in academic clubs such as math club, book club, foreign language clubs and so on, and Peabody vocabulary test scores. In all cases, the magnitude of the 'acting white' coefficient is less than our baseline specifications, though math and science grades and academic clubs are both negative and statistically significant.

Test scores, in lieu of grades, provide different results. The coefficient on black*grades is -.002 and the coefficient on Hispanic*grades is -.4. This is surprising, but quite consistent with the intuition behind 'acting white,' assuming that test scores are less observable by one's peer group than grades. In particular, grades are likely more observable to peers than test scores. In an environment where 'acting white' exist, one would expect to see steeper (negative) relationship between grades and popularity.

BY GRADE LEVEL

[26] We are by no means implying that high achieving whites are in any way *refusing* to befriend minorities; only reporting a correlation in the data.

Theoretically, one could imagine that the prevalence of 'acting white' could change as students are maturing and developing their identities (Cross and Fhagen-Smith 2001). We estimate our main fixed effects equation separately for each grade level from 7 to 12, though we only report 'acting white' coefficients for 7th, 9th, and 12th grades. 'Acting White' changes slightly as children age, and most pronounced amongst ninth-graders. We have also pooled grades 7-9 (junior high school) and 10-12 (high school). The 'acting white' coefficient is twice as large in junior high school relative to high school, though we caution against making too much of the difference.[27]

ACCOUNTING FOR THE SUPPLY OF HIGH ACHIEVING BLACK STUDENTS

One possible reason that blacks face a steeper popularity-grades gradient is a supply shortage of high achieving black students. If students tend to associate with other students with similar backgrounds (in terms of race, grades, neighborhood location, etc), then one might observe a steep trajectory for blacks at higher GPA levels simply due to the fact that there are few blacks in their classes. Sociologists have argued for some time that this is a likely reason for the alienation of black high achieving students. If so, this potentially provides a different qualitative understanding of the 'acting white' phenomenon.[28]

We account for the number of same-race students with similar grades in each school, by dividing the GPA distribution into four categories: less than 2.0, 2.0 – 3.0, 3.0

[27] There are many reasons 'acting white' could be more salient in junior high school relative to high school including identity development, selection of low-achieving students out of high school, or compression of the grade distribution in high school due to 'acting white' in earlier grades. We are unable to adequately test between these competing hypotheses.

[28] The supply of students with particular grades is itself an endogenous outcome of 'acting white,' thus these results should be interpreted with some care.

– 3.5, and greater than 3.5. Within each grade category, we count the number of students by race separately for each school, and we include this variable as an independent regressor in our basic model, linearly.[29] Accounting for the supply of black high achievers has a modest effect on the 'acting white' coefficient, reducing it from -.103 to -.081, and virtually no effect on other covariates.[30]

STUDENT ACTIVITIES

There are many opportunities in schools for students to self-select into particular activities, ensuring that most of their peer interactions are with other students with similar interests. This includes organized sports and cheerleading, various clubs (languages, math or science, drama, or debate), band and music, or the national honor society. These activities likely differ in their affirmation of high achievement; the honor society likely affirms achievement in a way that organized sports does not. Yet, across this diverse set of potential student activities, only one eliminates the racial difference in the relationship between social status and achievement: the national honor society. In all other activities, there remains a substantial gap, suggesting that self-selection into extra-curricular activities does not eliminate the effects of high grades among blacks and Hispanics. Thus, the hypothesis by some that high-achieving blacks take up extracurricular activities to deflect hostility (e.g. Farkas et al 2002) is not borne out in the data.

[29] Thus for each school, there are 12 categories of students (three race categories times four GPA categories) and we count how many students there are in each category.

[30] We have repeated this specification among students from junior high schools and high schools, respectively. In both instances, accounting for the supply of black high achievers modestly reduces the racial difference in the popularity-grades gradient. The magnitude of the effect remains higher among junior high school students. We have also partitioned the number of potential friends into 20 equally sized bins and included them as dummy variables. Using this non-linear approach modestly decreases the 'acting white' effect.

INTERRACIAL CONTACT

The most striking aspect of tables 4 and 5 is how the coefficient on 'acting white' varies in arenas with more or less interracial contact. Remarkably, schools that are less than 20 percent black have the largest 'acting white' effect for Blacks and Hispanics.[31] Schools in which blacks comprise greater than 80% of the student body there is no 'acting white' effect. Indeed, in all black schools, the coefficient on black*grades is positive.[32]

Results in tables 4 and 5 are also contrasted between high and low segregated schools. The amount of segregation in any school A is measured as:

$$(3) \qquad \text{Segregation}_A = \frac{\text{Expected(CrossRace Friends)} - \text{Observed(Cross Race Friends)}}{\text{Expected(CrossRace Friends)}},$$

where cross race friends refers to the total number of friends from each race with students from different races.[33] The expected number of cross race friends is the sum of the expected value for each race combination, omitting friends of the same race. The expected number of friends between race *i* and race *j* is equal to the total number of friends of race *i* multiplied by the probability that an individual of race *i* is friends with a student of race *j*.

The segregation index ranges from -1 (pure out race preference) to 1 (total segregation). A value of 0 indicates that there is no group preference: friends are random

[31] This is true even after controlling for the number of blacks within a school or controlling for the number of blacks with similar grades.
[32] To test the robustness of this finding, we estimated an identical specification on NELS data – obtaining very similar results.
[33] This index is a modification of Freeman (1978) and related to Echenique and Fryer (2005). For a complete derivation, see the Addhealth's School Network Variables Codebook available at: http://www.cpc.unc.edu/projects/addhealth/codebooks/wave1.

with respect to race. The measure of segregation was calculated for each school and divided the set into high and low segregation school; cutting at the school median.

Surprisingly, blacks in more segregated schools incur less of a tradeoff between popularity and achievement. The coefficient on the 'acting white' term is twice as large in schools that are above the median in terms of segregation (-.055 compared to -.136).[34] Among high achievers, the differences are more stark (-.102 and -.485). In addition, Figure 4 which estimates (non-parametrically) the relationship between popularity and grades, accounting for our core set of controls, in high and low segregation schools provides more evidence attesting to the fact that 'acting white' is particularly salient among high achievers and those in schools with more interracial contact.

Using the Moving to Opportunity (MTO) experiment, which assigned housing vouchers via random lottery to public housing residents in five large cities, Kling and Liebman (2004) and Kling, Ludwig, and Katz (2005) provide evidence of gender differences in the effect of the treatment on a variety of outcomes for youth. Females exhibit lower arrests rates, improvements in education and mental health, and are less likely to engage in risky behaviors. Males, on the other hand, were more likely to engage in risky behaviors, had no decrease in arrests rates, and experienced more physical health problems (injuries or accidents, e.g.). These results suggest that males and females may respond to their environments in distinct ways; 'acting white' may well be the underlying cause.

One way to test this general hypothesis with the current data is to examine gender/race differences in the relationship between popularity and grades in schools with

[34] This result is robust to accounting for the potential supply shortage of black students in very integrated schools.

more or less interracial contact. Results are presented in the bottom row of Tables 4 and 5. Consistent with the evidence from MTO, 'acting white' is twice as large for high achieving males relative to high achieving females in low segregation schools. The coefficient on black*grades for males in low segregation schools is seven times as large as the identical coefficient estimated on the full sample.

The fact that 'acting white' is more prevalent in schools with more interracial contact is surprising, but consistent with our two-audience signaling model that we describe in the next section and growing evidence that there can be significant pressure in racially heterogeneous schools to toe the racial line (Tatum 1997).

VI. A Simple Model of Peer Pressure[35]

A number of stylized facts emerge from the analysis of the preceding sections. There are large racial differences in the relationship between popularity and grades. These differences are roughly three times as large for black students with a 3.5 grade point average or higher. 'Acting White' is more salient in public schools and among children from low education families. Accounting for self selection into extra-curricular activities or the supply of black high achievers does little to undermine the effect. Environments with more interracial contact are associated with a steeper popularity-grades gradient among blacks; seven times as large for high achieving black males. The results are not an artifact of our particular measure of popularity. While there is some substitution towards other-race friends in the presence of 'acting white,' the magnitude is small.

[35] The model presented in this section is a variant of Austen-Smith and Fryer (2003) and Austen-Smith and Fryer (2005).

In this section, we consider the extent to which a two-audience signaling model can successfully account for this set of facts.

Let there be a continuum of individuals with unit mass, a finite set of firms, and a (suitably anthropomorphized) peer group. There are two discrete stages of an individual's life: "school years" and "employment years," denoted $\tau \in \{0,1\}$. Nature moves first and distributes an innate ability, θ, to each student according to a smooth common knowledge cumulative distribution function (CDF) *F*. Abilities, once disseminated, are fixed. An individual is endowed with one unit of non-storable time in each period; the allocation of which is common knowledge.

At the start of each period, an individual's stage τ time allocation problem is influenced by whether or not she is an accepted member of her peer group. Peer groups are valued because, other things equal, leisure time spent in the group is more enjoyable than leisure time spent outside the group. If an individual is not an accepted member, then she makes decisions without reference to the group. If she is an accepted group member, then she may be called upon to make some observable time contribution to the group. That is, in each stage τ, Nature chooses a required time contribution $\kappa_\tau \in [0, \bar{\kappa})0 < \bar{\kappa} < 1$, from the individual to the group, according to a smooth common knowledge CDF $G_\tau(\kappa_\tau)$. We assume the school year contribution is expected to be no greater than the post-school year contribution.

In the "school years," individuals allocate effort between leisure, group commitments, and a once-and-for-all investment in education; $s \in [0,1]$. The cost of

investing *s* for an individual with ability θ is denoted $c(s,\theta)$.[36] The cost function is assumed to be strictly increasing and convex in education, strictly decreasing in innate ability and to satisfy the single-crossing property. To ensure that all ability types choose interior education levels, we further assume that $\lim_{s\to 0} c_s(s,\cdot) = 0$ and $\lim_{s\to 1} c_s(s,\cdot) = \infty$.

At the end of the school years, an individual's education level is fixed and firms choose wage offers to maximize expected profit. Because firms do not observe an individual's innate ability, the wage offered to any potential employee is that individual's expected marginal product conditional on her observed schooling. Given our empirical bent, we are not interested in the details of the wage-offer schedule. As such, we simply assume that individuals are paid a wage equal to their expected marginal product, $\omega(s) \geq 0$, and (where appropriate) specify the firms' responses to any out of equilibrium action by an individual.

Let $\alpha_\tau \in \{0,1\}$ denote whether the individual is rejected $(\alpha_\tau = 0)$ or accepted $(\alpha_\tau = 1)$ by his or her peer group in τ.[37] If an individual is rejected by the group during the school years, she cannot be accepted in the post-school years; however, an individual accepted by the group in the school years may be rejected in the post-school years.[38] Let $u(l_\tau | \alpha_\tau)$ be the individual's stage τ payoff from leisure $l_\tau \in [0,1]$, conditional on the group's decision. If an individual is an accepted group member in some τ and is asked to make a contribution κ_τ, let $\delta_\tau \in \{0,1\}$ denote an individual's decision on whether or not to comply (respectively, $\delta_\tau = 1$ or $\delta_\tau = 0$). Thus, an individual's stage 0 payoff from

[36] This is in addition to the direct opportunity cost of effort used for education in the school years.
[37] We assume throughout that the peer group is nonempty and sidestep the interesting issue of endogenous peer group formation, given the empirical focus of the current paper.
[38] This is without any loss of generality (Austen-Smith and Fryer 2003)

choosing δ_0, given the individual's innate ability, school year education decision, and required contribution κ_0 can be written as: $u(1-s-\alpha_0\delta_0\kappa_0|\alpha_0)-c(s,\theta)$. Assume $u(l|\cdot)$ is twice differentiable concave, increasing in *l* over the range (0,1), and no leisure is worthless irrespective of group acceptance. Further, we assume that both total and marginal values from consuming any strictly positive amount of leisure are greater as an accepted group member than otherwise.

At the beginning of the employment years, the group makes another acceptance decision, and Nature reveals an individual's post-school year time commitment to the group, κ_1. Then, each individual decides whether or not to contribute to the group, and makes work-force effort decision $e\in[0,1]$. Any student who is accepted by the group and contributes in the post school years receives a lifetime utility benefit β.[39] The employment years payoff can be written as: $u(1-e-\alpha_1\delta_1\kappa_1|\alpha_1)-e\omega(s)+\rho\alpha_1\delta_1\beta$, where $\rho\in(0,1)$ is a standard discount factor.

Suppose an individual is accepted by his peers in the school years. At the beginning of the employment years, the group decides whether to accept or reject the individual. Then, Nature randomly chooses the group contribution, κ_1, required of each individual and they decide whether to make the contribution. The realization κ_1 and the individual's decision are observed by the group. Let $\alpha_\tau\psi(\delta_\tau,\kappa_\tau)$ be the stage τ payoff to the group from action α_τ, given the individual makes decision δ_τ when the required

[39] In the infinite horizon version of the model (Austen-Smith and Fryer, 2003), the value β is explicitly derived as an equilibrium payoff to a repeated interaction game between the individual and the group. As such, it depends on school-year decisions, among others. In the two-period model, it is enough for there to be some reason for the individual to contribute in the post-school years if required to do so.

contribution is κ_τ, where for all $\kappa_\tau \geq 0$, $\psi(1,\kappa_\tau) = \max\{\varepsilon, \kappa_\tau\} > \psi(0,\kappa_\tau) = \min\{0, -\kappa_\tau\}$. The key feature of the group's payoffs is that the group is strictly worse off having accepted an individual who chooses not to make her required contribution than it would be were such an individual rejected.

Solving the preceding model yields three results. First, no equilibria exist in which all types adopt distinct education choices; all equilibria must involve some pooling. This result is illustrated in Figure 5, which depicts the net utility accruing to a type $\hat{\theta}$ individual. As shown in the figure, at any given educational investment level, *s*, the individual's net payoff is strictly greater being accepted than being rejected by the group, and further, in each case the net payoff is strictly quasi-concave in educational effort with an interior maximum.

Second and most interesting, after application of a standard belief-based equilibrium refinement (the D1 criterion), all equilibria involve a partition of individual abilities into at most three intervals, which is depicted in Figure 6. A (possibly empty) set of the lowest ability types and the set of highest ability types reveal themselves through a separating education strategy; ability types in the middle interval pool on a common education level. Only types in the lower intervals are accepted by the group. It is worth emphasizing that nothing is built into the model that requires accepted types to adopt a common educational investment; it is an equilibrium outcome. This partition produces novel predictions as one varies the wage structure, group size and value of membership, and the types of social interactions involved.

The two-audience signaling model has two clear predictions – racial differences in the relationship between social status and academic achievement will exist and these

differences will tend to be exacerbated in environments with more interracial contact and increased mobility – both of which are consistent with the empirical evidence presented in section IV. In addition, Black high achievers also report more risky behaviors (smoking, drinking, lying to their parents, fighting) and less happiness than White high achievers, which is consistent with the signaling aspects of the model.

Next, we outline two popular alternative models typically used to explain 'acting white,' and show that they contradict the data in important ways.

Alternative Models of 'Acting White'

A. <u>An Oppositional Culture Identity Model</u>

The most prominent theory to explain the stylized facts put forth is the oppositional culture hypothesis, developed in Fordham and Ogbu (1986).[40] The hypothesis states that the observed disparity between blacks and whites stems from the following factors: (1) white people provide them with inferior schooling and treat them differently in school; (2) by imposing a job ceiling, white people fail to reward them adequately for their academic achievement in adult life; and (3) black Americans develop coping devices which, in turn, further limit their striving for academic success. Fordham and Ogbu (1986) suggest the problem arose partly because white Americans traditionally refused to acknowledge that black Americans were capable of intellectual achievement, and partly because black Americans subsequently began to doubt their own intellectual ability, began to define academic success as white people's prerogative, and began to

[40] Since then, efforts have been focused on refuting Fordham and Ogbu's hypothesis, not developing alternative theories.

discourage their peers, perhaps unconsciously, from emulating white people in striving for academic success.

The Fordham and Ogbu hypothesis can be directly imputed into a simple economic model of identity and human capital acquisition, ala Akerlof and Kranton (2000, 2002). In their language, identities are accompanied by certain "prescriptions" that define appropriate behaviors for a person of that type. When an individual makes decisions in line with these prescriptions, there is a utility benefit. In standard models, a student invests in human capital until the marginal cost of investment equals the marginal benefit of that investment. Fordham and Ogbu (1986) argue that institutional discrimination lowers the marginal benefit of investment for certain minority groups. As a rational response, these minorities began to equate educational achievement with whiteness, thereby altering the prescriptions (e.g. what it means to "be black").

The predictions of the oppositional culture identity model face mixed success in terms of the patterns observed in the data. Consistent with the theory, there are no racial differences in the relationship between popularity and achievement among blacks in private schools and from high socioeconomic status families, as these environments likely change identity prescriptions. It is unclear what the oppositional identity model predicts about the salience of 'acting white' as a function of the percentage of black students in a school.[41]

[41] Oppositional culture might be more prevalent in predominantly black or highly segregated schools and less prevalent in integrated schools. As opportunities and the likelihood of success increases, the oppositional culture model predicts that incentives to develop oppositional identities decrease and hence, 'acting white' decreases. The countervailing effect is that black identities likely become less salient as the percentage of blacks in a school increase (similar to "American" identities becoming more prevalent in one travels abroad). Which effect will dominate is unclear.

The theory, however, does quite poorly in explaining why 'acting white' does not exists in predominantly black schools. Indeed, Fordham and Ogbu (1986) base the oppositional culture hypothesis on observations in an all black high school, yet we find little evidence in support of their theory.

B. A Sabotage Model

Another explanation for racial differences in the relationship between social status and achievement is that blacks simply sabotage their high achieving peers.[42] McWhorter (2000) is a prominent advocate of this view.

Consider the following skeletal outline of a sabotage model. Imagine a world with two neighborhoods: a majority community and a minority community, each containing many individuals. Individuals come in two flavors: high ability and low ability, which are determined by Nature and publicly observed within a community. There are two states of the world: discriminatory and fair; which are unknown. Individuals observe their ability type and make a dichotomous human capital decision. Assume that human capital is less costly to obtain for high ability workers. Individual utility is partly determined by what others (outside the community) perceive about their ability.

Firms observe each individuals level of human capital and decides whether or not to hire them. When the state of the world is discriminatory, firms refuse to hire minority workers. In a fair state, workers are hired if and only if they have invested in human capital. Assume that payoffs are such that low ability types never have incentive to acquire human capital.

[42] There are several mechanisms that could lead to such behavior. The most simplistic is that black and Hispanic cultures are dysfunctional; punishing successful members of their group rather then rewarding their success.

In this framework, low ability agents have incentive to "hold back" individuals with high ability when the cost of doing so is less than the net benefit; independent of the state of the world. As more high ability individuals invest in human capital and garner success, the world may be revealed to be fair, putting the onus of non-achievement on low ability individuals. Thus, the net benefit of sabotage is increasing in the fraction of individuals who escape.

The sabotage theory, irrespective of the details, is at odds with the fact that blacks in predominantly black schools face no tradeoff between social status and achievement – the 'acting white' coefficient is weakly positive in these schools. The theory also does not adequately explain why 'acting white' is particularly salient in schools with more interracial contact.

VII. Can 'Acting White' Explain Racial Differences in Achievement?

We conclude with the following thought experiment: "What fraction of the racial test score gap could be 'explained' if racial differences in the relationship between popularity and grades did not exist?"

To estimate this, we begin by equating the black and white grades-popularity relation. We then calculate what black grades would have been in the absence of 'acting white.' The second step in the thought experiment is to estimate a test score-grades relationship specifically for blacks to determine how their increased counterfactual grades feed onto higher test scores. Then, test scores are predicted from counterfactual grades using the relationship between test scores and grades among blacks in the actual data.

Results from estimates of the above procedure are quite informative. For the average black student, eliminating racial differences in 'acting white' actually increases the test score gap. This is due to the fact that among students with relatively low grade point averages (where the bulk of the blacks reside), blacks are more popular than whites. For Hispanics, eliminating differences reduces the test score gap by roughly 4% for the average student. For students with GPAs of 3.5 or greater, peer pressure is an impediment; accounting for 11.3% of the black-white test score gap and 23% of the Hispanic-white gap.

For nearly 20 years, there has been a debate among social scientists on the extent and potential impact of negative peer sanctions often referred to as 'acting white.' The *consensus gentium* is: (1) 'acting white' does not exist in nationally representative samples, and (2) to the extent that it is discernible in data, it is concentrated in low-income minority schools. This paper demonstrates that the facts point in the exact opposite direction: 'acting white' is observable in nationally representative data, but non-existent in predominantly black schools. There is, however, a crucial point of agreement. We, like Ferguson (2001), Cook and Ludwig (1997), and Ainsworth-Darnell and Downey (1998), find no empirical support for the oppositional culture hypothesis described in Fordham and Ogbu (1986).

Most importantly, we demonstrate that the relationship between popularity and academic achievement is categorically different between racial groups, and this difference is remarkably robust across a variety of different specifications, sub-samples of the data, and definitions of social status. Particularly interesting is that high achieving students and students in environments with more interracial contact are most burdened by

‘acting white.’ Eliminating racial differences in the relationship between popularity and achievement has no effect on the mean student or students who attend predominantly black schools – but could potentially be a major reason for the underperformance of minorities in suburban schools or the lack of adequate representation of Blacks and Hispanics in elite colleges and universities.

Finally, we argue (and provide circumstantial evidence) that ‘acting white’ is an equilibrium phenomenon, the consequence of two-audience signaling; not self-sabotage among blacks or the result of an oppositional cultural identity that declares education useless. While the evidence in favor of the two-audience signaling model is far from overwhelming, it is the only model we consider that does not directly contradict the data in fundamental ways.

Appendix A: Reconciling our Results with the Previous Literature

Table 6 estimates the prevalence of 'acting white' among eighth and tenth grade students in the NELS. The equation estimated is identical to that implemented in the Addhealth data, described by equation (2). Popularity is measured as a dichotomous variable; equal to one if students in class see the respondent as very popular and equal to zero if not.[43] The independent variables vary by column and are generally increasing from left to right.

Columns 1 and 5 of table 6 show that there is a positive relationship between grades and popularity, though the relationship is smaller for blacks, which is consistent with 'acting white.' The 'acting white' coefficient is large and statistically significant for Blacks in both eighth and tenth grades, but never statistically significant for Hispanics. Columns 2 and 6 include controls for test score, effort, SES, gender, and extracurricular activities (athletics, student government, and cheerleading). The coefficient on grades and the acting white coefficient change little, suggesting that black-white differences in covariates are not driving the negative 'acting white' coefficient (similar to the results in the Addhealth).[44]

Columns 3 and 7 include controls for school characteristics. Private school attendance is associated with greater reported popularity, but the inclusion of school characteristics does not alter the 'acting white' coefficient. Columns 4 and 8 present results with the inclusion of school fixed-effects. These results are consistent with our previous analysis using the Addhealth. There is no statistical difference between

[43] In the raw data, the measure takes on three values, whether or not students see the respondent as: (1) very popular; (2) somewhat popular; or (3) not popular at all. Only 15% of the 10th grade sample (and 18% of the 8th grade sample) reported being not popular at all – thus we merged responses (2) and (3). See the data appendix for details.

[44] Including the interactions Black*Test Score, Black*Effort, or Black*SES does little to alter the results.

Hispanics and Whites in the relationship between popularity and grades in the NELS. Other coefficients stay essentially the same.

Appendix B: Data Description

The Longitudinal Study of Adolescent Health (Addhealth)

Grades

Students were asked "At the most recent grading period, what was your grade in each of the following subjects?" where the subjects were English/Language Arts, Mathematics, History/Social Studies, and Science, and possible answers were A, B, C, or "D or lower". Assuming student answered that their school grades on a letter basis, we averaged the grades in these 4 subjects according to a 4.0 scale (i.e. A=4.0, B=3.0, C=2.0, and D or lower=1.0).

Race

Students were asked "What race are you?" and "Are you of Hispanic or Spanish origin?" Non-Hispanic white, black, or Asians were coded as separate values. Students answering yes to the latter question were coded as Hispanic. Answers to the former question could include multiple races; non-Hispanic mixed race students (i.e. students selecting multiple races) were also coded separately.

Gender

Students were asked "What sex are you?" Male or female.

Age

Students were asked "How old are you?" Answers range from 10 to 19, where 19 indicates age is 19 or older.

Effort

Students were asked "In general, how hard do you try to do your school work well?" Possible answers were "I try very hard to do my best"; "I try hard enough, but not as hard as I could"; "I don't try very hard at all"; and I never try at all". We coded these on a 1-4 scale where 4 represents the highest level of effort (i.e. the first response) and 1 represents the lowest.

Athletics

Students were asked whether they were participating or planned to participate in a number of clubs or teams. This variable was coded as one if any of the following teams were indicated: baseball/softball, basketball, field hockey, football, ice hockey, soccer, swimming, tennis, track, volleyball, wrestling, or other sport.

Student Government

This variable was coded as one if student indicated he/she participated in the student council.

Cheerleading

This variable was coded as one if student indicated he/she participated in the cheerleading or dance team.

Parental Education

Student was asked how far in school their mother and father went. This variable is coded as one if the parent graduated from a college or university, or if they had professional training beyond a four-year college. If the student doesn't know the exact level of education, it is coded as missing. Otherwise, other educational levels are coded as zero.

Parental Occupation

We coded two variables each for the mother and father. The first is based on the student's description of their mother or father's job—whether they are "white collar professionals". It was coded as one if according to the student, the parent's occupation is "Professional 1" (such as doctor, lawyer or scientist); "Professional 2" (such as teacher, librarian, nurse); "Manager" (such as executive or director); or "Technical" (such as computer specialist or radiologist). Other professions are coded as zero. If the parent doesn't work or is disabled or retired, it is coded as missing. The second variable is coded as one if the parent is a housewife or househusband, according to the student, and zero otherwise.

Urban/Suburban/Rural and Public/Private School

We created dummies for whether the school is public or private and whether it is located in an urban, suburban, or rural setting, according to the school administrator questionnaire.

Percent Teachers Black/Asian/Hispanic

These variables are taken from the school administrator's answer to the question "Approximately what percentage of your full-time classroom teachers are of each of the following races?" where races listed include black, Asian, and Hispanic.

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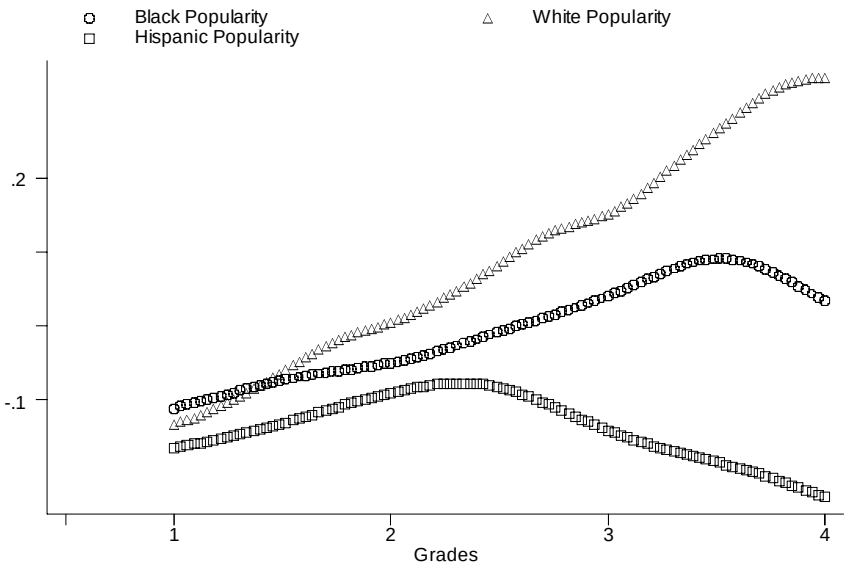


Figure 1A: Spectral Popularity and Grades by Race, Raw Data

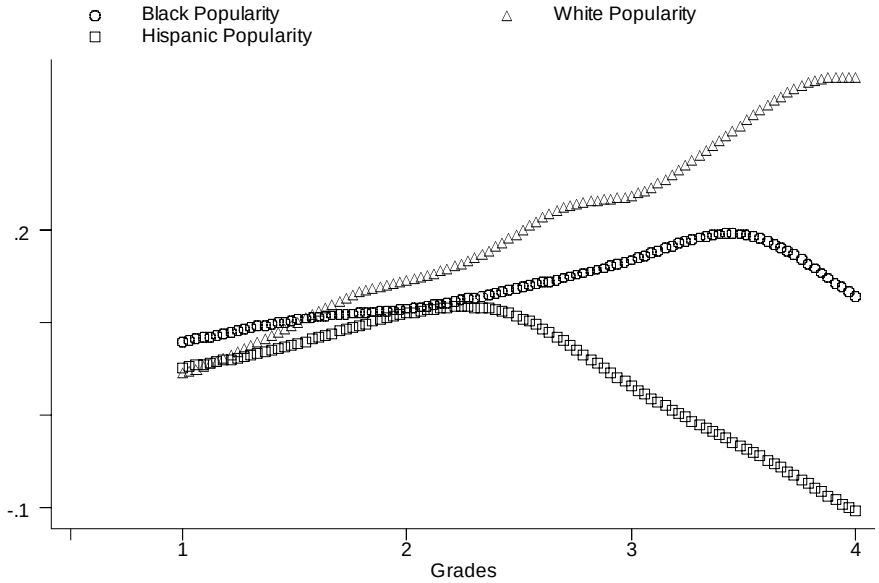


Figure 1B: Spectral Popularity and Grades by Race, With Controls

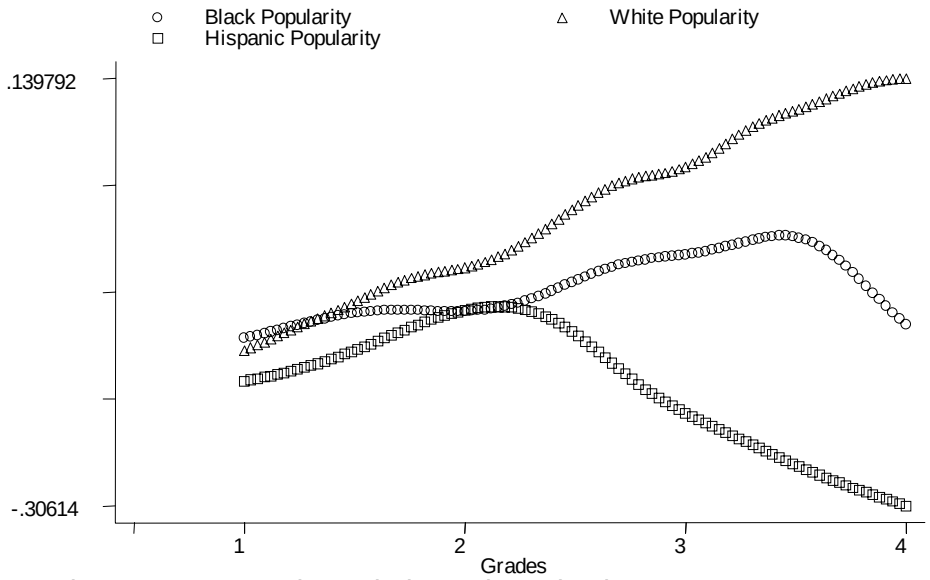


Figure 2A: Spectral Popularity and Grades by Race, Boys

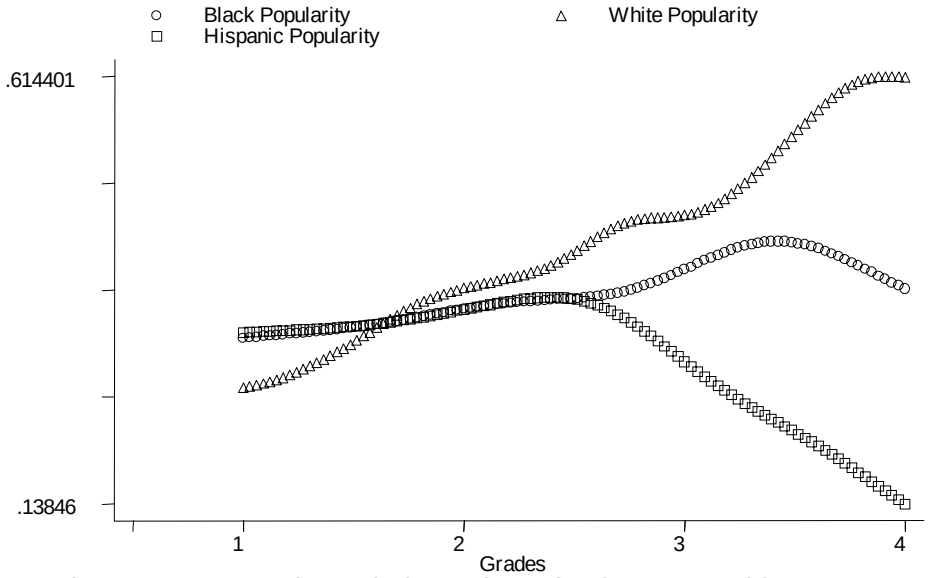


Figure 2B: Spectral Popularity and Grades by Race, Girls

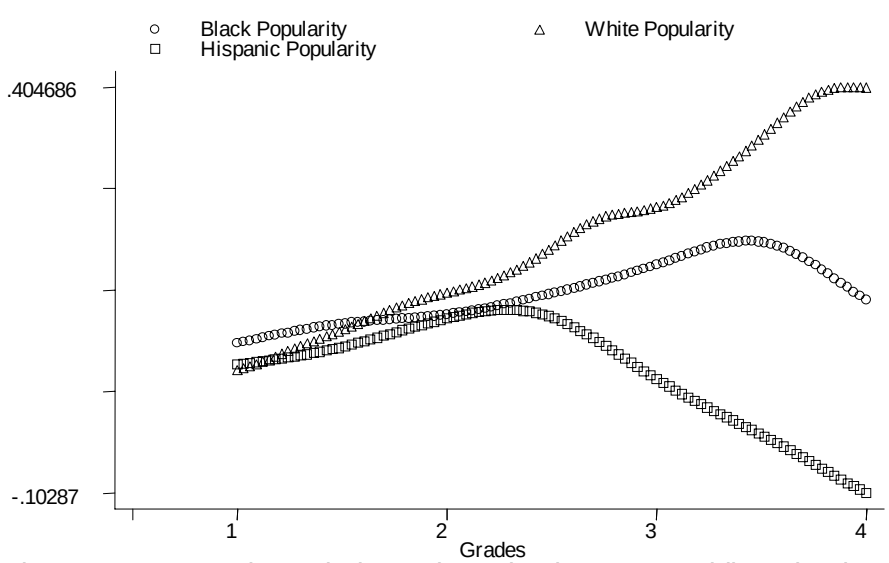


Figure 3A: Spectral Popularity and Grades by Race, Public Schools

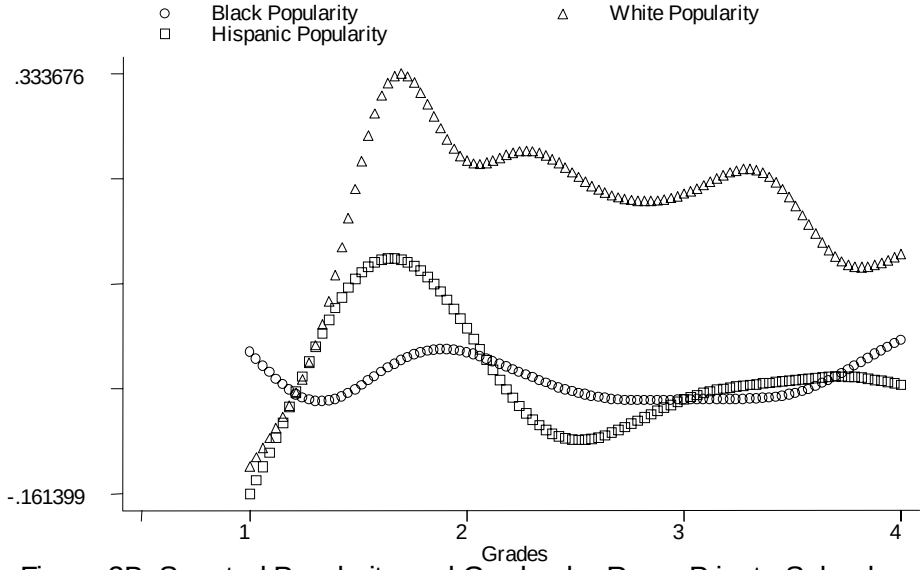


Figure 3B: Spectral Popularity and Grades by Race, Private Schools

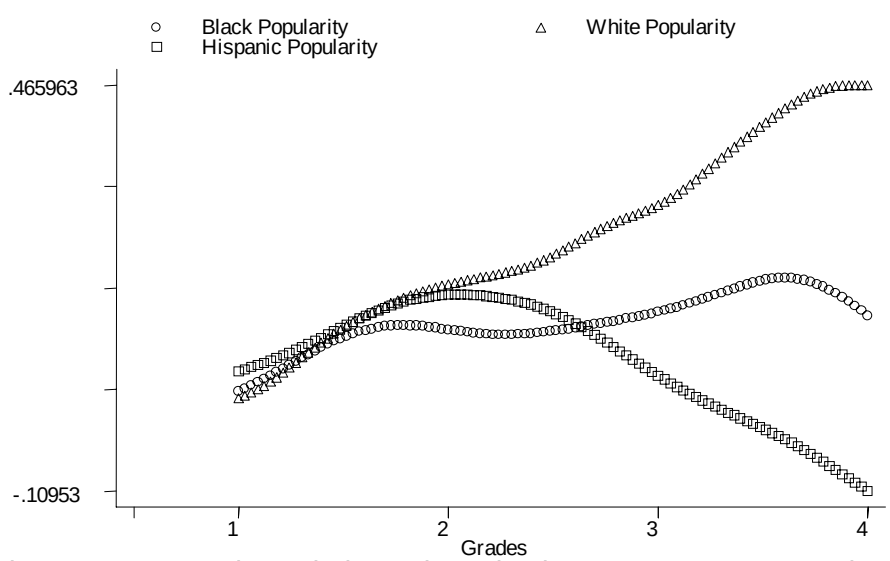


Figure 4A: Spectral Popularity and Grades by Race, Low Segregation

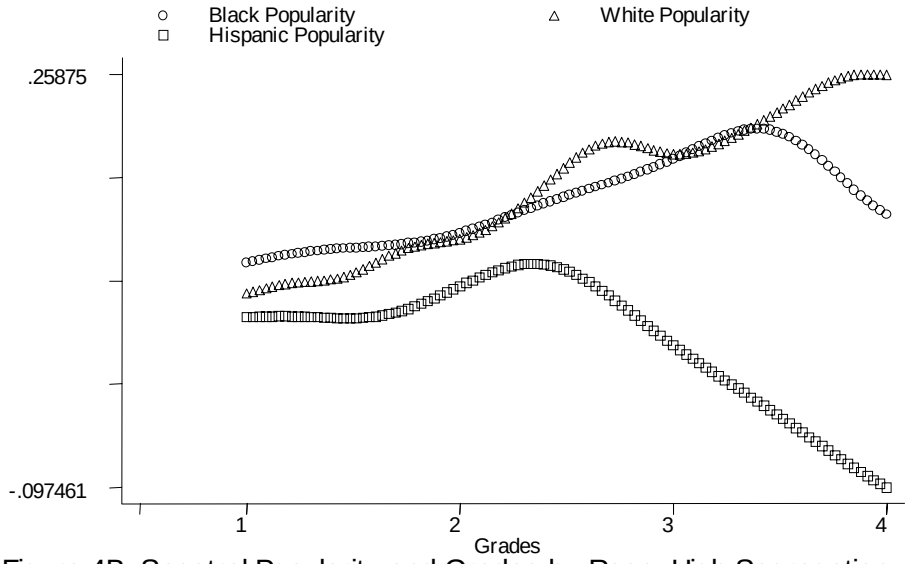


Figure 4B: Spectral Popularity and Grades by Race, High Segregation

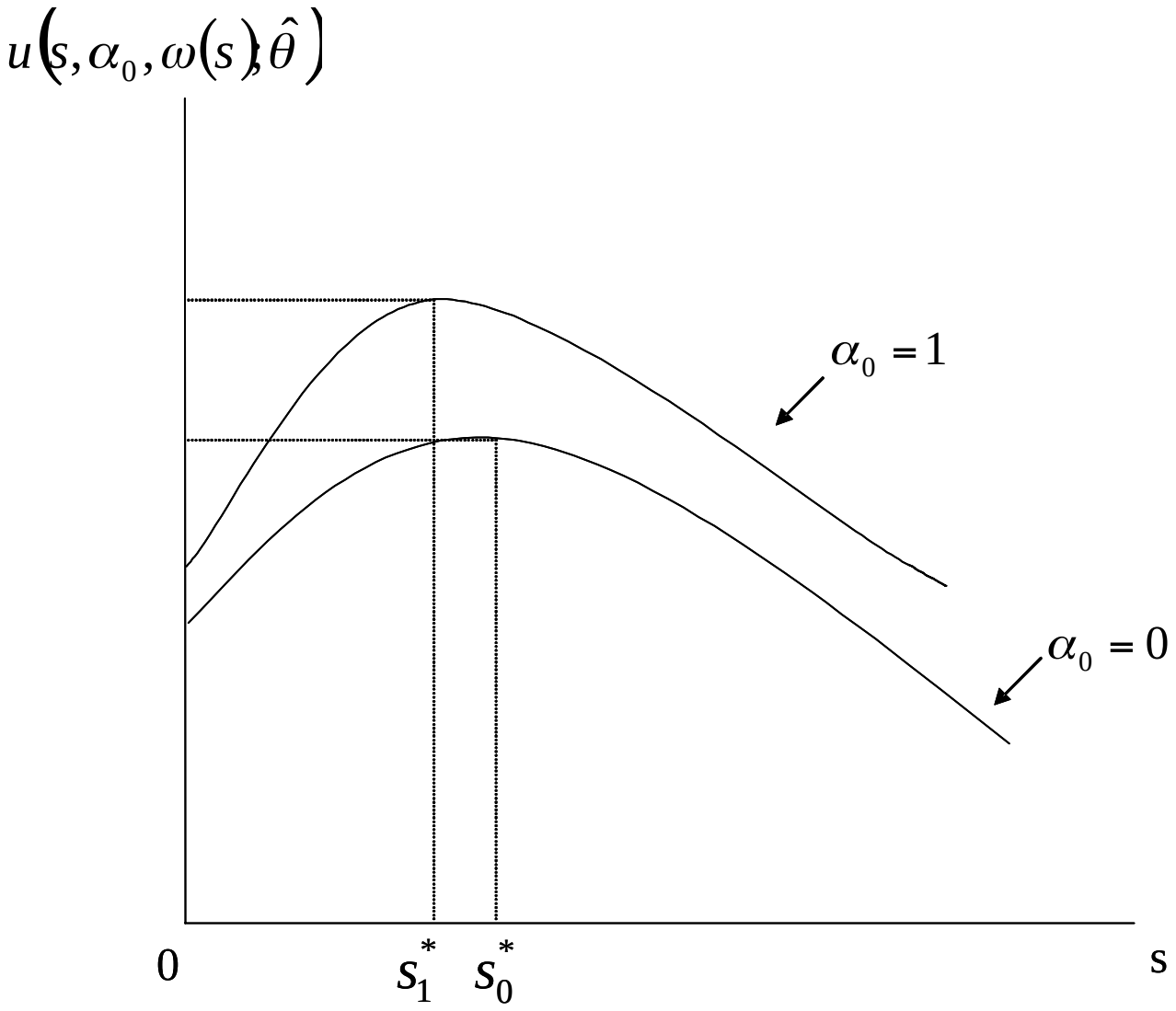
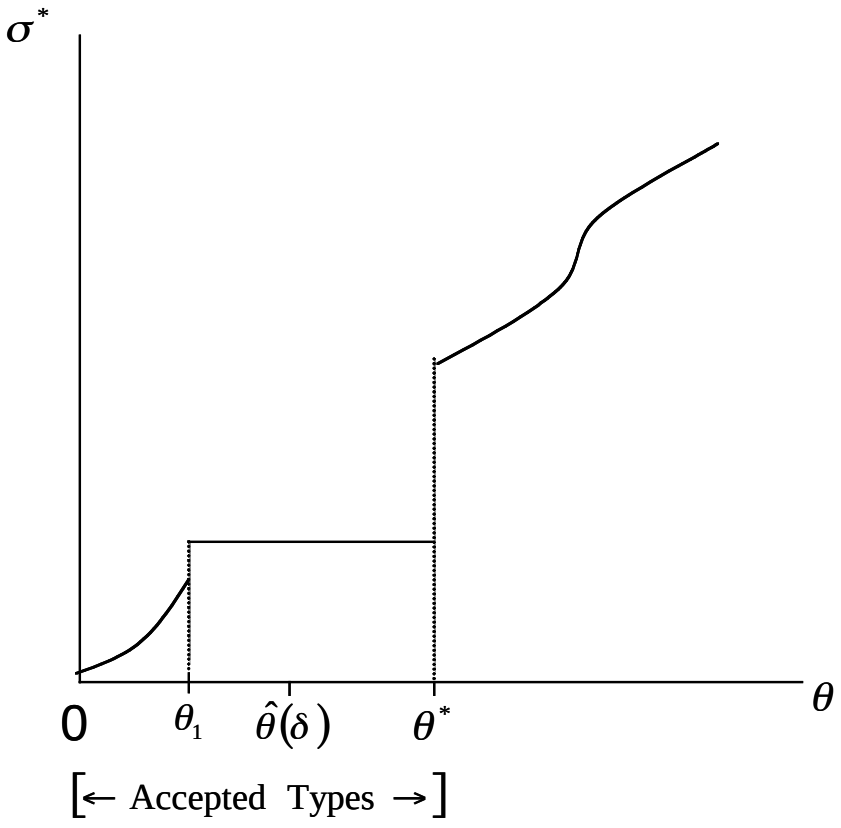


Figure 5: The Non-Existence of Fully Separating Equilibrium



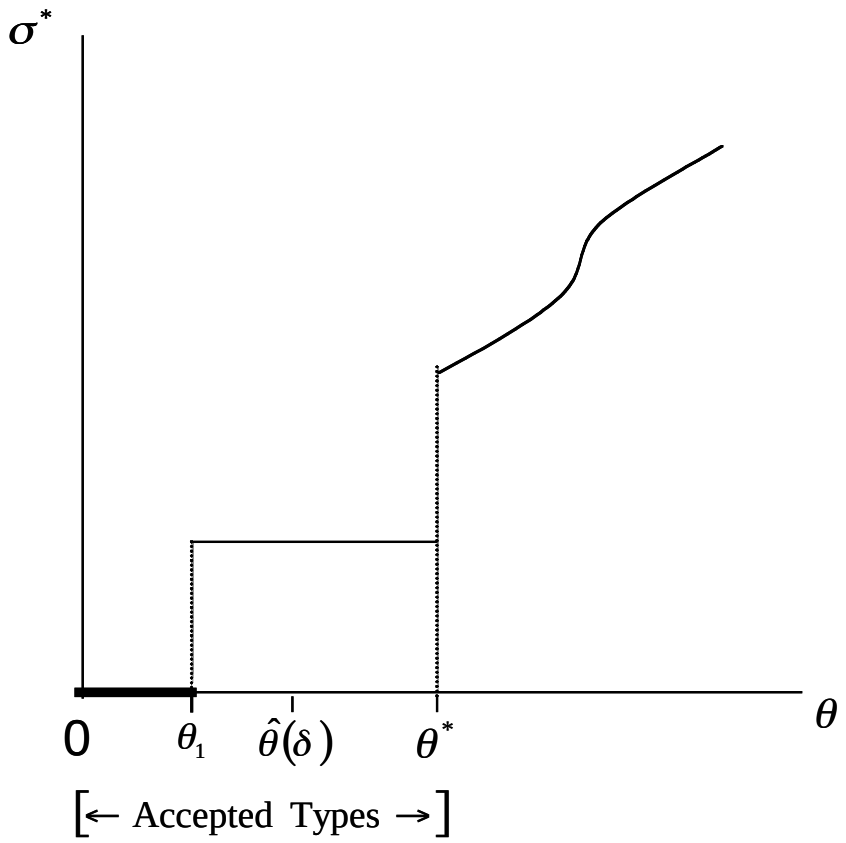


Figure 6: D1 Equilibria in the Peer Pressure Model

Table 1: Summary Statistics by Race, Addhealth

	All		Whites		Blacks		Hispanics	
Variable	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
White	0.524	0.498	1.000	0.000	0.000	0.000	0.000	0.000
Black	0.156	0.363	0.000	0.000	1.000	0.000	0.000	0.000
Hispanic	0.170	0.376	0.000	0.000	0.000	0.000	1.000	0.000
Asian	0.047	0.211	0.000	0.000	0.000	0.000	0.000	0.000
Mixed Race	0.103	0.304	0.000	0.000	0.000	0.000	0.000	0.000
Popularity	0.000	1.000	0.142	1.177	-0.024	0.698	-0.141	0.871
Same-Race Friends	2.948	3.173	3.526	3.403	2.483	2.750	1.596	2.159
Other-Race Friends	0.962	1.609	0.773	1.170	1.012	1.586	1.493	2.452
Grade Point Average	2.800	0.808	2.914	0.793	2.561	0.754	2.552	0.801
Age	14.999	1.706	15.019	1.672	14.922	1.704	15.188	1.750
Male	0.497	0.500	0.502	0.500	0.466	0.499	0.503	0.500
Effort	3.092	0.950	3.137	0.798	3.136	1.064	2.926	1.175
Sports	0.510	0.500	0.540	0.498	0.506	0.500	0.425	0.494
Student Government	0.073	0.260	0.076	0.265	0.090	0.285	0.050	0.219
Cheerleading	0.080	0.271	0.075	0.263	0.106	0.308	0.070	0.255
Mother College Educated	0.251	0.434	0.292	0.455	0.225	0.417	0.126	0.331
Father College Educated	0.241	0.428	0.304	0.460	0.140	0.347	0.118	0.323
Mother Professional	0.273	0.445	0.311	0.463	0.282	0.450	0.162	0.369
Father Professional	0.240	0.427	0.314	0.464	0.118	0.323	0.126	0.332
Urban	0.343	0.475	0.243	0.429	0.406	0.491	0.610	0.488
Suburban	0.559	0.497	0.630	0.483	0.494	0.500	0.357	0.479
Private School	0.061	0.240	0.074	0.263	0.033	0.179	0.031	0.174
Percent Black in School	12.424	19.756	5.491	9.978	35.399	28.772	14.436	17.382
Percent Hispanic in School	3.351	8.885	1.409	2.905	2.514	6.896	10.877	17.434
Frequency of Missing Values:								
Missing Age	0.002	0.048	0.001	0.026	0.005	0.068	0.004	0.063
Missing Mother's Education	0.217	0.412	0.151	0.358	0.254	0.435	0.320	0.466
Missing Father's Education	0.367	0.482	0.260	0.438	0.573	0.495	0.477	0.499
Missing Mother's Occupation	0.246	0.431	0.176	0.381	0.337	0.473	0.332	0.471
Missing Father's Occupation	0.391	0.488	0.287	0.452	0.616	0.486	0.481	0.500
Missing Effort	0.005	0.072	0.004	0.060	0.004	0.067	0.008	0.091
Missing Gender	0.046	0.209	0.020	0.141	0.072	0.258	0.095	0.293

Table 2: Deriving the Popularity Index from Data on Friendships, An Example

Hypothetical Data on Friendships

Larry	Andrei	Franziska	Claudia	Phillip	Jeremy	Jens	Ronald	Gerhard	Katherine	Rachel	Drew	Jerry	Matt	Loser
Gerhard	Larry	Gerhard	Larry	Larry	Andrei	Larry	Gerhard	Larry	Gerhard	Gerhard	Jerry	Drew	Jerry	Gerhard
Claudia	Jeremy	Claudia	Andrei	Jens	Gerhard	Gerhard	Jens	Andrei		Claudia	Matt	Matt	Drew	Larry
Andrei	Franziska	Larry	Franziska	Ronald		Phillip	Phillip	Franziska						Andrei
Jens	Gerhard	Andrei	Rachel	Gerhard		Ronald		Claudia						Claudia
	Katherine		Gerhard					Ronald						Franziska

Matrix of Social Interactions

	Larry	Andrei	Franziska	Claudia	Phillip	Jeremy	Jens	Ronald	Gerhard	Katherine	Rachel	Drew	Jerry	Matt	Loser
Larry	0	1	1	1	1	0	1	0	1	0	0	0	0	0	1
Andrei	1	0	1	1	0	1	0	0	1	0	0	0	0	0	1
Franziska	0	1	0	1	0	0	0	0	1	0	0	0	0	0	1
Claudia	1	0	1	0	0	0	0	0	1	0	1	0	0	0	1
Phillip	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0
Jeremy	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Jens	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0
Ronald	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0
Gerhard	1	1	1	1	1	1	1	1	0	1	1	0	0	0	1
Katherine	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Rachel	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Drew	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Jerry	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
Matt	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
Loser	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Popularity Measures

Larry	Andrei	Franziska	Claudia	Phillip	Jeremy	Jens	Ronald	Gerhard	Katherine	Rachel	Drew	Jerry	Matt	Loser
7.37	7.41	5.61	5.88	1.6	1.81	3.04	3.49	9.6	1.81	1.44	2	2	2	0

Table 3: The Prevalence of 'Acting White,' by GPA

	Full Sample	**< 2.0**	**2.0 - 3.0**	**3.0 - 3.5**	**> 3.5**
		(1)	**(2)**	**(3)**	**(4)**
Black	0.148	0.013	0.134	0.488	0.986
	0.031**	0.097	0.117	0.487	0.432*
Hispanic	0.164	-0.09	0.173	0.761	0.269
	0.031**	0.094	0.122	0.409*	0.372
Grades	0.135	0.118	0.157	0.223	0.097
	0.007**	0.042**	0.034**	0.089**	0.056*
Black*Grades	-0.103	-0.035	-0.097	-0.198	-0.329
	0.012**	0.066	0.049*	0.157	0.116**
Hispanic*Grades	-0.171	-0.048	-0.171	-0.347	-0.2
	0.011**	0.065	0.051**	0.131**	0.099*
Effort	-0.035	-0.009	-0.013	-0.028	-0.005
	0.006**	0.006	0.004**	0.006**	0.007
Male	0.021	0.015	0.019	0.045	0.013
	0.008**	0.015	0.011*	0.016**	0.018
Age	-0.014	0.003	-0.038	-0.06	-0.039
	0.003**	0.009	0.009**	0.012**	0.014**
Cheerleading	0.205	0.109	0.187	0.218	0.284
	0.016**	0.015**	0.011**	0.016**	0.017**
Athlete	0.21	-0.001	0.195	0.229	0.189
	0.007**	0.05	0.033**	0.036**	0.028**
Student Government	0.195	0.143	0.159	0.221	0.261
	0.017**	0.042**	0.025**	0.032**	0.033**
Father Househusband	0.039	0.014	0.035	0.046	0.009
	0.013**	0.025	0.017*	0.023*	0.025
Mother Housewife	0.057	0.015	0.033	0.029	0.044
	0.012**	0.027	0.019*	0.024	0.027
Father Education	0.032	0.003	0.035	0.013	0.072
	0.012**	0.022	0.016*	0.023	0.024**
Father Professional	0.039	0.059	0.045	0.071	0.056
	0.011**	0.027*	0.018**	0.025**	0.025*
Mother Education	-0.151	-0.019	0.01	-0.029	-0.043
	0.041**	0.023	0.019	0.023	0.024*
Mother Professional	-0.023	-0.038	-0.119	-0.128	-0.249
	0.011*	0.058	0.082	0.074*	0.087**
School Fixed Effects?	Y	Y	Y	Y	Y
Observations		9464	24055	15984	18698
R-squared		0.11	0.09	0.1	0.13

All data are drawn from the National Longitudinal Study of Adolescent Health. The dependent variable is Spectral Popularity. Robust standard errors used. Standard errors under coefficients. Dummies for missing values for all variables except race and grades. Weights used in all regressions. Note: * denotes significant at 5% level, ** denotes significant at 1% level.

Table 4: Sensitivity Analysis and Extensions of the Basic Model, Full Sample

	Grades	Black*Grades	Hispanic*Grades	Grades	Black*Grades	Hispanic*Grades	Grades	Black*Grades	Hispanic*Grades	Grades	Black*Grades	Hispanic*Grades
BASELINE		**Weighted**			**Unweighted**							
	0.132	-0.103	-0.171	0.138	-0.094	-0.178						
	.007**	0.012**	0.011**	.007**	0.011**	0.011**						
ALTERNATIVE MEASURES OF POPULARITY												
		Non-Normalized Spectral Popularity			**Same-Race Friends**			**All-Race Popularity**			**Other-Race Popularity**	
	1.961	-1.534	-2.544	0.574	-0.442	-0.731	0.515	-.269	-.447	-0.010	0.044	0.082
	.108**	0.175**	0.164**	.036**	0.066**	0.059**	.038**	.068**	.065**	0.015	0.015**	0.022**
ALTERNATIVE MEASURES OF ACHIEVEMENT												
		Math and Science Grades			**Academic Clubs**			**Peabody Vocabulary Test**				
	0.087	-0.065	-0.114	0.051	-0.079	-0.133	0.009	-.002	-.40			
	.006**	.010**	.010**	.014**	.022**	.021**	0.015	.023	.021			
GRADE LEVEL		**Seventh Grade**			**Ninth Grade**			**Twelth Grade**				
	0.084	-0.109	-0.086	0.202	-0.144	-0.251	0.104	-0.069	-0.156			
	0.014**	0.028**	0.025**	0.017**	0.027**	0.024**	0.016**	0.034*	0.028**			
SCHOOL TYPE		**Private**			**Public**							
	0.016	0.053	-0.039	0.138	-0.111	-0.180						
	0.034	0.050	0.054	.007**	0.012**	0.011**						
GENDER		**Male**			**Female**							
	0.131	-0.101	-0.181	0.137	-0.116	-0.170						
	.010**	0.017**	0.016**	.010*	0.016**	0.015**						
URBANICITY		**Suburban**			**Urban/Rural**							
	0.141	-0.106	-0.169	0.114	-0.095	-0.157						
	.010**	0.016**	0.015**	.011**	0.017**	0.016**						
PARENTAL EDUCATION		**Both College-educated**			**Other**							
	0.052	-0.030	-0.117	0.134	-0.104	-0.174						
	.026*	0.040**	0.040**	.008**	0.012**	0.012**						
EXTRACURRICULAR ACTIVITIES		**Athletes**			**Cheerleading**			**Music/Band**				
	0.167	-0.131	-0.192	0.233	-0.238	-0.245	0.164	-0.085	-0.189			
	.012**	0.017**	0.017**	.035**	0.045**	0.043**	.017**	0.025**	0.024**			
CO-CURRICULAR ACTIVITIES		**Student Government**			**Clubs**			**National Honor Society**				
	0.119	-0.07	-0.183	0.120	-0.094	-0.148	0.079	-0.024	-0.048			
	.036**	0.05	0.048**	.016**	0.024**	0.022**	0.043	0.069	0.058			
LEVEL OF INTERRACIAL CONTACT		**High Segregation**			**Low Segregation**			**<20% Black**			**>80% Black**	
	0.085	-0.055	-0.115	0.143	-0.136	-0.208	0.133	-0.137	-0.187	-0.007	0.106	---
	.008**	0.013**	0.013**	.010**	0.023**	0.017**	.008**	0.013**	0.013**	0.061	0.083	---
--- By Gender		**High Segregation -- Males**			**High Segregation -- Females**			**Low Segregation -- Males**			**Low Segregation -- Females**	
	0.071	-0.034	-0.100	0.101	-0.076	-0.127	0.153	-0.150	-0.223	0.136	-0.126	-0.177
	.012**	0.019	.018**	.011**	.017**	.017**	.014**	.032**	.024**	.015**	.031**	.022**

All data are drawn from the National Longitudinal Study of Adolescent Health. Separate regressions are estimated for each indicated subsample. The dependent variable is Spectral Popularity, except for the second panel. Regressions run on blacks, whites, and hispanics as in previous tables. Fixed-effects specification from previous table is used. Robust standard errors used. Standard errors under coefficients. All regressions weighted except for "unweighted" line. Note: * denotes significant at 5% level, ** denotes significant at 1% level.

Table 5: Sensitivity Analysis and Extensions of the Basic Model, High Achievers (3.5 GPA or better)

	Grades	Black*Grades	Hispanic*Grades	Grades	Black*Grades	Hispanic*Grades	Grades	Black*Grades	Hispanic*Grades	Grades	Black*Grades	Hispanic*Grades
BASELINE		**Weighted**			**Unweighted**							
	0.097	-0.329	-0.2	0.058	-0.345	-0.245						
	0.056	0.116**	0.099	0.057	.110**	.098*						
ALTERNATIVE MEASURES OF POPULARITY												
		Non-Normalized Spectral Popularity			**Same-Race Friends**			**All-Race Popularity**			**Other-Race Popularity**	
	1.343	-4.548	-2.861	0.269	-1.918	-1.586	0.299	-1.686	-2.567	0.025	-.0344399	-.2347519
	0.834	1.747**	1.522	0.211	.594**	.535**	0.227**	.605**	.553**	0.030	.087	.173
ALTERNATIVE MEASURES OF ACHIEVEMENT												
		Math and Science Grades			**Academic Clubs**			**Peabody Vocabulary Test**				
	-0.023	-0.118	0.051	-0.027	-0.065	-0.105	-0.056	.136	-.061			
	0.035	0.069	0.050	0.025	0.047	0.041	0.033	.050	.041			
GRADE LEVEL		**Seventh Grade**			**Ninth Grade**			**Twelth Grade**				
	-0.048	0.200	0.113	0.306	-0.393	-0.222	0.059	-0.099	-0.582			
	0.076	0.224	0.152	.132*	0.263	0.225	0.113	.259	.199**			
SCHOOL TYPE		**Private**			**Public**							
	0.091	0.446	-0.244	0.089	-0.352	-0.167						
	0.188	0.339	0.411	0.059	.123**	0.107						
GENDER		**Male**			**Female**							
	0.139	-0.500	-0.247	0.069	-0.153	-0.180						
	0.086	.180**	0.147	0.074	0.153	0.139						
URBANICITY		**Suburban**			**Urban/Rural**							
	0.124	-0.375	-0.278	0.031	-0.192	-0.075						
	0.077	.173*	0.167	0.077	0.150	0.131						
PARENTAL EDUCATION		**Both College-educated**			**Other**							
	0.106	-0.566	-0.118	0.074	-0.247	-0.143						
	0.114	.262*	0.256	0.064	0.13	0.108						
EXTRACURRICULAR ACTIVITIES		**Athletes**			**Cheerleading**			**Music/Band**				
	0.109	-0.511	-0.373	0.016	0.254	-0.109	0.190	-0.354	-0.374			
	0.079	.166**	.141**	0.215	0.365	0.37	0.103	0.232	0.192			
CO-CURRICULAR ACTIVITIES		**Student Government**			**Clubs**			**National Honor Society**				
	-0.180	0.006	0.241	0.026	-0.223	-0.273	-0.112	0.045	-0.139			
	0.154	0.377	0.3	0.094	0.18	0.164	0.115	0.291	0.256			
LEVEL OF INTERRACIAL CONTACT		**High Segregation**			**Low Segregation**			**<20% Black**			**>80% Black**	
	-0.021	-0.102	-0.077	0.147	-0.485	-0.229	0.105	0.028	-0.295	---	1.238	-2.228
	0.062	0.13	0.118	0.075	.191*	0.123	0.059	0.129	.122*	---	0.641	1.778
--- By Gender												
		High Segregation -- Males			**High Segregation -- Females**			**Low Segregation -- Males**			**Low Segregation -- Females**	
	0.001	-0.202	-0.088	-0.038	-0.005	-0.102	0.209	-0.774	-0.260	0.128	-0.308	-0.282
	0.092	0.207	0.186	0.087	0.171	0.151	0.117	.263**	0.185	0.098	0.255	0.161

All data are drawn from the National Longitudinal Study of Adolescent Health. Separate regressions are estimated for each indicated subsample. The dependent variable is Spectral Popularity, except for the second panel. Regressions run on blacks, whites, and hispanics as in previous tables. Fixed-effects specification from previous table is used. Robust standard errors used. Standard errors under coefficients. All regressions weighted except for "unweighted" line. Note: * denotes significant at 5% level, ** denotes significant at 1% level.

Table 6: The Relationship Between Social Status and Achievement, NELS

	8th grade				10th grade			
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
Black	0.261	0.214	0.212	0.210	0.161	0.160	0.171	0.214
	0.040**	0.040**	0.041**	0.042**	0.057**	0.063*	0.065**	0.052**
Hispanic	0.086	0.075	0.087	0.094	0.054	0.067	0.081	0.028
	0.035*	0.035*	0.035*	0.037*	0.054	0.054	0.055	0.043
Grades	0.034	0.037	0.037	0.037	0.013	0.030	0.030	0.038
	0.004**	0.006**	0.006**	0.006**	0.006*	0.008**	0.008**	0.008**
Black*Grades	-0.054	-0.047	-0.047	-0.042	-0.044	-0.052	-0.053	-0.061
	0.014**	0.014**	0.014**	0.015**	0.021*	0.023*	0.023*	0.019**
Hispanic*Grades	-0.023	-0.022	-0.021	-0.018	-0.020	-0.026	-0.021	-0.006
	0.012	0.012	0.012	0.013	0.018	0.018	0.017	0.015
Current Test Score		-0.039	-0.041	-0.038		-0.038	-0.039	-0.040
		0.004**	0.004**	0.004**		0.006**	0.006**	0.005**
Ability Group		0.061	0.063	0.061		0.034	0.036	0.041
		0.008**	0.008**	0.008**		0.010**	0.010**	0.010**
Effort Measure		-0.024	-0.025	-0.027		-0.027	-0.028	-0.027
		0.004**	0.004**	0.004**		0.005**	0.005**	0.005**
SES < 25th Percentile		-0.030	-0.027	-0.038		-0.025	-0.025	-0.031
		0.007**	0.007**	0.008**		0.013*	0.013	0.009**
SES > 75th Percentile		0.023	0.019	0.028		0.011	0.011	0.018
		0.007**	0.008*	0.008**		0.011	0.011	0.010
Male		0.027	0.027	0.027		0.005	0.005	0.017
		0.006**	0.006**	0.006**		0.009	0.009	0.007*
Athlete		0.080	0.078	0.081		0.058	0.056	0.071
		0.006**	0.006**	0.006**		0.009**	0.009**	0.008**
Student Government		0.139	0.140	0.145		0.156	0.153	0.163
		0.012**	0.012**	0.012**		0.019**	0.019**	0.018**
Cheerleading		0.084	0.082	0.086		0.078	0.078	0.086
		0.012**	0.012**	0.012**		0.024**	0.023**	0.018**
Urban School			0.002				-0.013	
			0.009				0.015	
Suburban School			-0.008				-0.018	
			0.007				0.009	
% Black in School (0-100)			-0.000				-0.000	
			0.000				0.000	
% Asian in School (0-100)			0.001				-0.001	
			0.001				0.001	
% Hispanic in School (0-100)			-0.000				-0.001	
			0.000*				0.000*	
Private School			0.035				0.038	
			0.009**				0.021	
School Fixed Effects?	N	N	N	Y	N	N	N	Y
n	20766	20766	20766	20766	13598	13598	13598	13575
R-squared	0.01	0.06	0.07	0.13	0.00	0.05	0.05	0.27

All data are drawn from the National Educational Longitudinal Study. The dependent variable is dichotomous version of self-reported popularity (see Appendix B for details). Robust standard errors used. Standard errors under coefficients. Dummies for missing values for all variables except race and grades. Regression only on Blacks, Whites, and Hispanics. Weights used in all regressions. Note: * denotes significant at 5% level, ** denotes significant at 1% level.