Explaining Racial/Ethnic Inequality in Educational Attainment: What if Asian Americans Replace Whites as the Reference Group?

Anita H. Yuan

University of California, Los Angeles
Department of Sociology

Abstract

Racial/ethnic inequality in educational attainment is greatest at the level of higher education. Prior research on racial differences in academic achievement examines how minority groups are disadvantaged relative to whites. This study takes a different approach by using the race/ethnic group with the highest achievements, Asian Americans, as the reference category to investigate to what extent race/ethnic differences in educational attainment can be explained by student's ascriptive characteristics, parenting behaviors, and academic self-concept. Using data from the National Educational Longitudinal Study, the results show that differences in college attainment between Asian and White students and between Asian and Black students are largely attributed to high school preparation, whereas the differences between Hispanics and Asians are explained by ascribed and achieved factors. Parents' influence on children's academic self-concept and academic achievement are discussed.

Persistent racial/ethnic inequality in educational attainment has attracted much public and academic attention. Data from the 2008 Current Population survey show that 27 percent of adults aged 18 and older have at least a college degree (CPS 2008)[1]. Broken down by broad racial categories, 49 percent of Asians, 30 percent of whites, 17 percent of Blacks and 12 percent of Hispanics have a bachelor's degree. The large proportion of Asians who are college students or college graduates may be misleading because it reflects both immigrant selectivity and its effect on the educational attainment of immigrant children (Hirschman and Morrison 1986; Portes 2001).

Studies of educational inequality tend to use White students as the reference group. In these studies, race/ethnic differences in educational attainment are attributed to minority students' disadvantaged status stemming from structural constraints (i.e., parents' socioeconomic status, quality of high school) and lack of academic preparation (i.e., high school coursework, standardized testing) (Goldrick-Rab and Mazzeo 2005; Jencks and Phillips 1998; Robinson and Biran 2006). Yet if one is interested in understanding what factors are positively associated with educational attainment, it would be more appropriate to study the group with the highest levels of attainment. Despite similar levels of high school completion for Asian, White and Black young adults, 53 percent of Asians with any postsecondary schooling complete college compared to only 30 percent of Whites and 15 percent of Blacks (Xie and Goyette 2004). Hence, I take a different approach to studying educational inequality by using Asian students as the reference group.

Educational attainment is associated with both ascribed and achieved factors. Ascribed factors are those children are born with, including race and gender, and born into, such as social

[1] Statistics are based on author's calculations from data on educational attainment reported by U.S. Census Bureau: http://www.census.gov/population/www/socdemo/education/cps2008.html

class or parent's socioeconomic status (Blau and Duncan 1967), while achieved factors, such as cognitive ability, academic performance, educational expectations and social support, are changeable over children's lifetime (Hauser, Tsai and Sewell 1983; Sewell, Haller and Portes 1969).

In the early 1980s, Asian Americans' academic performance and accomplishments gained national attention. The popular media highlighted Asian children's diligence, perseverance, and determination, which was believed to help them overcome deficits in family background and social disadvantage (Osajima 1988). The success of Asian Americans was touted as proof that minorities could thrive and excel without special accommodations and was used to dismiss the grievances laid out by blacks citing unfair and unequal treatment stemming from racism and discrimination (Lee 1994). This portrayal of Asian Americans as a model minority highlighted the achieved factors positively associated with educational attainment, such as cognitive ability and motivation; however, there was very little to no mention of the differences in ascribed factors, namely parents' educational attainment and socioeconomic status, in the social discourse.

In this paper, I present a more complete picture of how both ascribed and achieved characteristics contribute to higher educational attainment for Asian Americans. Using data from the National Education Longitudinal Study (NELS), I examine educational inequality using Asians as the reference group and consider whether the success of Asian Americans can be replicated in other ethnic groups. I find that high school preparation largely explains the differences between Asian and White students and between Asian and Black students, whereas ascribed and achieved factors play a greater role in accounting for differences between Hispanics and Asians.

Educational Attainment: Ascribed and Achieved Factors

In the following section, I present three explanations for Asian American's high educational attainment proceeding from the most influential factors to the least. I start with a discussion of the educational impact of ascribed factors, namely parent's socioeconomic status (SES), educational attainment and immigrant status. Next, I review why Asian parents differ in their parenting practices from non-Asians and how parenting practices influence educational outcomes. Lastly, I consider how Asian American students may have higher academic self-concept and elaborate the relationship between academic self-concept and educational attainment.

Parent's SES, Educational Attainment and Immigrant Status

Asian children's ascriptive characteristics are closely tied to their parents' immigrant status. Studies consistently find that immigrants have greater ambition and motivation, more desirable occupational skills, higher educational attainment and more economic resources compared to non-migrants (Hirschman and Morrison 1986; Massey 1995; Portes and Rumbaut 2006). These differences hold true despite wide variation in the economic conditions of and the contexts of exit from the sending country (Feliciano 2005). This positive selection of immigrants has most notably affected the Asian population in America.

The 1965 Immigration and Nationality Act dramatically altered the ethnic composition of the United States. The national origin quotas, which restricted immigration by country to the race/ethnic proportions recorded in the 1920 Census, were abolished under this legislation. The new immigration policy favored family reunification, but also gave occupational preference to individuals who could fill occupations where there were labor shortages, specifically in science, engineering and technical professions. China, Korea and India were among the first to invest in

math and science education (Kuo 1979) and Asian nationals were able to fill these occupational niches in America. The result was that between 1965 and 1975, Asian immigrants were almost exclusively highly trained professionals with advanced degrees in science and technology. This was a significant departure from earlier Asian immigrants who had little educational attainment and were primarily employed in low-wage agricultural or manual labor.

The high SES of these occupationally selected Asian immigrants situated their children for educational success in America. In 1970, among adults aged 24 to 34 years old, 16 percent of all Whites and 6 percent of all Blacks were college graduates (Xie and Goyette 2004). By comparison, 46 percent of Asian immigrant and 26 percent of native-born Asian adults had college degrees. The children of these adults in 1970 were of college-age in the 1990s. This population of first-generation children of Asian immigrants was sampled by NELS and is the focus of my study.

Without taking into account the previous high achievements of their parents, it would appear that Asian Americans are an advantaged minority group over Blacks and Hispanics with exceptional educational accomplishments. However, explanations for the current educational success of Asian American students are found in the social status of the previous generation. Hence, I control for children's ascriptive characteristics (parents' SES, educational attainment and nativity) in my analysis.

The role of parents' social status on children's social status is well established in the status attainment literature (Blau and Duncan 1967; Haller and Portes 1973). Parents transmit their advantage (or disadvantage) through education. College graduates have more human, financial and social capital, which provides the next generation an advantage in preparing for and finishing college (Coleman 1988; Farkas, Grobe and Sheehan 1989). I expect race/ethnic

differences in educational attainment to be strongly associated with ascribed factors. More specifically, I expect a large proportion of the differences in college completion for Asians compared to Whites, Blacks and Hispanics to be associated with parent's SES, educational attainment and immigrant status. I also expect there to be separate effects of parent's educational attainment from parent's SES.

Parent's Educational Expectations and Reinforcement of Children's Academic Performance

Differences in parenting practices are associated with young Asian Americans' high expectations for academic performance. There are two reasons that Asian American parents emphasize the value of education as distinct from other ethnic minorities. The first is a culture of educational achievement based in religious beliefs such as Confucianism. The second is the positive experiences of highly educated Asian immigrants who came to America for occupational opportunities, which reinforced the belief that higher education leads to economic mobility.

Educational attainment is intimately tied to filial piety for Asian American youth. According to Confucian teachings, education begins in the home (Nee and Wong 1985). High achievement brings prestige, respect and financial security for the individual and family. Parents invest time and money into children's education and children's accomplishments bring distinction and honor to parents (Chau 1994). Children are taught that effort and diligence lead to success and that perseverance overcomes lack of ability (Chen and Stevenson 1995; Lee 1994). As a consequence, Asian American youth report fear of disappointing parents or bringing shame on the family as primary motivators of academic achievement (Schneider and Lee 1990).

This pressure on high educational attainment is intensified by Asian Americans' historical experiences with discrimination. Asian immigrants had limited social mobility outside

of science and technical professions. Wilson (2009) finds that minority groups adopt certain behaviors in response to racial exclusion, which then becomes part of their cultural beliefs. Sue and Okazaki (1990) argue that Asian Americans' high educational attainment is an adaptive strategy to counter social and occupational exclusion. After all, professional training and advanced degrees were a passport for Asians to enter the United States. This facilitated the belief that education is the only means of upward mobility, leading to a disproportionate concentration of resources and investment in children's education (Zhou and Bankston 1992). Thus, Asian parents are successful in teaching children to value schooling and instilling a rigorous work ethic in academic endeavors.

The educational background that provided entre to Asian immigrant parents was seen as the key to the continued economic success of their offspring, which they ensured by their parenting practices. Asian parents are more likely to have an authoritarian parenting style, where they are the primary decision maker, and to exert control over children's free time (Dornbusch et al. 1990; Steinberg et al. 1991). Chau (1994) argues that Chinese parenting is more appropriately termed "training" rather than authoritarian since the parenting style is aimed at preparing children to be academically successful and involves training children to work hard and be disciplined.

In this study, I test the effect of parents' educational expectations and parents' positive and negative reinforcement of grades on race/ethnic differences in college attainment. Parents' educational expectations have a positive effect on children's educational outcomes (Kao and Tienda 1995) and Asian parents have higher educational expectations for their children than White parents (Goyette and Xie 1999). Grodsky and Riegle-Crumb (2010) find that young people who grow up expecting to complete a college degree from very young ages engage in

more positive schooling behaviors than students who more recently developed college aspirations. Asian parents' longstanding high educational expectations and continual explicit reminders of children's duty to obey parents (Schneider and Lee 1990) may mean that parent's educational expectations have a stronger effect on Asian American students' educational attainment. I test for this by including an interaction between parent's educational expectations and race/ethnicity in the multivariate models.

Positive reinforcement such as rewarding or praising children for high performance provides children encouragement and support, while negative reinforcement such as limiting children's extracurricular activities may send the message to children that they are not exerting enough effort and need to try harder. Restricting children's privileges as a consequence of low grades may lead to improved performance if the low performance is within the student's control. However, if poor grades are due to factors not within the student's control, such as low ability, poor quality schools, or lack of resources, then restricting privileges punishes children for their performance and may discourage future educational pursuits. I expect parents' positive reinforcement of grades to have positive effects on college completion while negative reinforcement of grades to have negative effects on educational attainment.

Academic Self-Concept

Stereotypes about Asians' extraordinary accomplishments lead to positive academic self-concept for Asian Americans. Academic self-concept is formed in the context of social relationships. One's identity as a student is shaped by how others (i.e., teachers, peers and parents) see and treat the individual (Forster 2000). Ethnic youth define their identities relative to stereotypical images of their ethnic group. Groups with negative stereotypes work to disconfirm the expectations, whereas those with positive stereotypes work to confirm them. Black youth

focus on avoiding failure, Hispanic students work to avoid manual labor and Asian youth aspire to high academic performance (Kao 2000). Positive stereotypes of Asians are associated with Asian Americans pushing themselves harder, evaluating themselves more harshly in academics compared to non-Asians and even performing better on math-related tests (Lew 2004; Schneider and Lee 1990).

Asian Americans' higher academic self-concept may contribute to their high educational attainment. Academic self-concept and academic achievement have a reciprocal causal relationship. There are feedback effects between academic self-concept and academic achievement such that academic self-concept positively affects subsequent academic achievement and earlier academic achievement positively affects academic self-concept (Marsh 1990a; Marsh 1990b). Marsh, Hau and Kong (2002) argue that academic self-concept and achievements are "mutually reinforcing constructs" and both are needed for sustained accomplishments. Given the same prior academic performance, students with more academic self-concept will have higher academic achievement as they continue in school.

Distinct from academic performance, academic self-concept reflects one's perception of their own ability, which is shown to affect how much they like school and the amount of effort they exert (Marsh and O'Neill 1984). Students with higher academic self-concept are more likely to be engaged with school, persist in coursework and have higher expectations than those with low self-concept (Hay, Ashman and Van Kraayenoord 1998). While prior studies examine the relationship between academic self-concept and academic performance, I investigate its relationship with educational attainment.

Academic self-concept reflects perceived competence (Bong and Skaalvik 2003) and I expect it to be positively associated with college attainment net of academic performance. If

Asian American students have higher academic self-concept than White, Black and Hispanic students, then the stereotype of high Asian American academic achievement may act as a self-fulfilling prophecy. Other's evaluation of one's ability have significant effects on educational attainment separate from one's own academic self-concept (Sanchez and Roda 2003). Peer assessments affect how students evaluate themselves and motivate students to conform to social expectations (Kao 2000; Schneider and Lee 1990). Teacher's encouragement and support affect both student engagement and academic performance (Croninger and Lee 2001; Hallinan 2008); (Rosenfeld, Richman and Bowen 2000). I test the effect of significant others' evaluation of the student's ability by including a variable for peer assessment and another variable that indicates teacher support. Finally, due to the reciprocal relationship between academic self-concept and academic achievement, I control for graded academic performance measured two years prior to the measurement of academic

DATA AND METHODS

I use the National Education Longitudinal Study (NELS). NELS first interviewed a nationally representative sample of 8th graders in 1988 and then conducted four follow-up surveys in 1990, 1992, 1994 and 2000. The data are representative of students who were enrolled in 8th grade in 1988, continued onto high school immediately afterwards and then enrolled in some type of postsecondary schooling by 1994. In addition to detailed demographics, the survey collected information on expectations, attitudes and standardized achievement test scores as well as high school and college transcripts. NELS originally sampled 12,144 students in 1988. I first restrict the sample to all students who were followed through the fourth follow-up survey in 2000 and who reported their highest educational attainment, which reduces the number of

respondents to 9,496. I further restrict the analysis to only the cases where there is complete information on all the variables in the analysis, resulting in a final analytic sample size of 5,400.

Analytic Approach

The dependent variable of interest is whether a respondent graduated with a bachelor's degree. College attainment is defined as earning a bachelor's degree by up to eight years after graduating high school. Students who were enrolled in school continuously from the 8th grade and who took four years to complete college would have earned a bachelor's degree in 1996. This measure provides information about the rate at which a nationally representative sample of 8th graders graduated with a college degree. Respondents who reported earning a bachelor's degree or higher were coded as college graduates, while those still in school or who had completed some years of post-secondary education but did not complete a bachelor's degree are coded as non-college graduates. Individuals with no post-secondary education of any kind are coded as non-college graduates.

The conceptual framework for this analysis stems from the preceding literature review. Appendix A contains a detailed list of survey questions, including when the variable was measured and how it is coded in the analysis. Using the sample of all students followed up at each of the five time points of the survey, I test the effect of ascribed and achieved factors on the probability of graduating college using logistic regression.

$$\Pr(\text{graduating college}) = \alpha + \beta_1\mathbf{X_1} + \beta_2\mathbf{X_2} + \beta_3\mathbf{X_3} + \beta_4\mathbf{X_4} + \beta_5\mathbf{X_5} + \beta_5\mathbf{X_6}$$

Where:

$\mathbf{X_1}$ is a vector of young people's ascriptive characteristics. First, I use a composite index of SES that equally weights family income, parents' education and parents' occupational status. This variable was created by NCES using data from the base year parent questionnaire, base year

student questionnaire and supplemental data from the first and second follow-up surveys. The index is standardized to have a mean of 0 and a standard deviation of 1. Next, I consider whether parents' education has separate effects from SES. Parents' education measures the highest degree earned by either the mother or the father. It is coded as a dummy variable for whether at least one parent completed a college degree. Finally, I include a variable for parent's immigrant status. If either the mother or father was born outside of the United States, this variable is coded as 1 and 0 only if both parents were native born.

$\mathbf{X_2}$ is a vector of variables for parents' educational expectations and parenting practices. The baseline parent questionnaire asked parents "How far in school do you expect your eighth grader to go?" Parents' educational expectations are coded as a dummy variable. Responses of a bachelor's degree or higher are coded as 1, while completing high school, having some college schooling or vocational training, or earning a 2 year degree are coded as 0. I include an interaction between race and parents' educational expectations to test whether Asian American students are more sensitive to parents' expectations. Respondents were asked how often parents rewarded as well as limited privileges because of academic performance. This information is drawn from the first follow-up data, when respondents were in the 10^{th} grade. Positive reinforcement consists of giving children special privileges for good grades, while negative reinforcement consists of limiting privileges because of bad grades. Possible responses were often, sometimes, rarely and never.

$\mathbf{X_3}$ is a vector for academic self-concept and significant other's support. Questions from the Self-Description Questionnaire II (Marsh 1990b) were included in the first follow-up interview. I followed Marsh's (1994) construction of two self-concept scales: one for mathematics and another for verbal or English (see Appendix A). Self-concept scales from the

NELS data have been shown to have construct validity (Marsh 1994). First, I summed the four items that consisted of each scale and then I standardized the scales to range from 0 to 1. The math self-concept scale had an alpha value of 0.8864 and the verbal self-concept scale had an alpha value of 0.8470.

Peer assessment is a measure of whether the respondent thinks other students see them as a good student. Possible responses are very true (1), somewhat true (2) and not at all true (3). Teacher support is based on the extent to which respondent's agreed with the following statement: "My teachers care about me and expect me to succeed." Responses of strongly agree are coded 1, agree coded 2, and disagree or strongly disagree coded 3. Due to the reciprocal effects of academic self-concept and achievement, I control for the respondent's graded academic performance measured in the 8th grade. NCES constructed a new variable that recoded base year grades into quartiles based on the weighted marginal distribution. Quartile 1 is the lowest quartile while quartile 4 is the highest.

$\mathbf{X_4}$ is a vector that controls for contextual characteristics that may also affect educational attainment. This includes high school track and urbanicity of the school. Students in a college preparatory academic track are more likely to take the right courses and be better prepared for standardized tests (Adelman 1999; McDonough 1997; Noguera 2003) . High school track is measured at the second follow-up when respondents were in the 12th grade. Respondents were enrolled in one of the following: academic program, general high school program, vocational or technical program, or alternative/special education/other. Urbanicity of high school is coded as urban, suburban or rural and is measured at the second follow-up as well.

$\mathbf{X_5}$ is a vector of individual – level characteristics that include sex and high school tested proficiency. Sex is coded 0 for males and 1 for females. In 1992, NCES administered

standardized tests designed by Education Testing Services designed to measure mathematical knowledge and reading comprehension. Scores are standardized on a scale of 0 to 100, with a mean of 50 and standard deviation of 10.

$\mathbf{X_6}$ is a vector for respondent's race. NCES created a composite race variable based on responses at the second follow-up and used information from earlier surveys when there were missing responses. Respondents were identified as White, Asian, Black or Hispanic.

RESULTS

Table 1 presents descriptive statistics for the variables used in multivariate analyses stratified by race. Chi-square tests of independence and t-tests for comparison of means were statistically significant for all relationships reported. Approximately half of all students in the sample graduated college. Asian students' high educational attainment (64.3 percent): the level of college completion is higher than that of white students and is in stark contrast to that of Black (39.1 percent) and Hispanic students (29.5 percent). Table 1 also shows that Asian students are much more likely than White, Black and Hispanic students to attend an academic high school program rather than other programs.

Asian students differ most dramatically from non-Asians with respect to their parents' background. Asian children report significantly high family SES and over 60 percent of the Asian sample has at least one college-educated parent. The high SES and educational attainment of Asian parents are consistent with the demographic trend of selective immigration. In sharp contrast, only 34 percent of Black and 26 percent of Hispanic students have parents with a college degree. Eighty-four percent of Asian students had at least one foreign-born parent compared to 54 percent of Hispanic and less than 8 percent of either White or Black students. This advantage in parents' human capital clearly sets Asians apart from other ethnic minorities.

Although most parents expect their children to graduate from college, such an expectation is highest among Asian parents. However, Asian parents are not the most likely to alter children's privileges because of academic performance. In contrast, Black parents are most likely to reward children with special privileges for good grades and restrict their privileges because of bad grades. It is possible that these parenting behaviors are in response to children's earlier demonstrated performance.

Asian students have the highest academic achievement, measured by composite grades in the 8th grade and standardized testing in the 12th grade. Asian students are also the most likely to have high academic self-concept and report that their peers think they are a good student. Interestingly, more Black and Hispanic students responded "very true" that their peers think they are a good student to White students. Because race/ethnicity, parents' background, and academic achievement are all strongly correlated, I next present results from the multivariate regression analysis showing which achievement characteristics are significant after controlling for ascribed factors.

Table 2 reports the odds ratios for the logistic regression of college completion. The first model looks at race/ethnic differences in graduating college with no control or explanatory variables. Race/ethnic comparisons are made with Asians as the reference category. Non-Asian students are significantly less likely to graduate college compared to Asian students, with the greatest disparities between Hispanics and Asians. Model 2 includes controls for individual-level and contextual characteristics. Being female and having higher 12th grade tested ability are positively associated with the probability of graduating college. Students in college preparatory academic programs are over twice as likely to graduate compared to students in any other high school program (i.e., general high school program track or occupation-specific/alternative track).

Once controls are entered into the model, the racial differences between Whites and Asians and between Blacks and Asians are no longer significant. The odds ratio for the probability of graduating college for Hispanics relative to Asians increases from 0.232 in model 1 to 0.443 in model 2 and remains significant.

Model 3 tests to what extent race/ethnic differences are attributable to parents' SES, educational attainment and immigrant background. Parents' SES has significant and strong effects on the probability of graduating college. Additionally, parents' educational attainment has positive effects on children's educational attainment, even net of family SES. Children with immigrant parents are 1.44 times more likely than children with native-born parents to earn a degree. Interestingly, the odds ratios for White and Blacks students change to greater than one and that for Blacks is now significant. Higher college attainment among Asian Americans compared to White and Black students is largely explained by differences in background characteristics and ascribed factors.

The next models add explanatory factors that are changeable over one's lifetime and affect academic achievement. Parents' educational expectations positively influence educational attainment, with an effect size comparable toe parents' SES. Parents' reinforcement of children's high school academic performance has long term effects on college completion. Students who were rewarded for good grades are more likely to graduate college, while those who were punished are less likely to graduate. The race/ethnic coefficients do not change much from the previous model.

Model 5 includes variable for academic self-concept and significant other's support. Verbal academic self-concept has significant and strong effects on college completion, while the coefficient for math self-concept is not significant. Eighth grade academic performance is also

highly significant for predicting college completion. This finding is consistent with that of Marsh, Hau and Liu (2002), corroborating the positive effects of academic self-concept on subsequent educational achievement even after controlling for prior academic achievement. That peer assessment has significant effects on educational attainment lends support to the argument that high educational attainment for Asian students is facilitated by positive stereotypes of academic excellence. The final model includes an interaction between parents' educational expectations and race/ethnicity, and shows no support for the hypothesis that Asian students are more responsive to parents' educational expectations than non-Asians. Qualitative studies suggest that Asian American children feel more pressure to realize their parent's expectations than non-Asians (Liu 1998), but such an effect may not have been detected in this analysis due to the wide variation in parents' socioeconomic characteristics, which accounted for a large proportion of the race/ethnic differences in college attainment for the sample.

CONCLUSION

The primary goal of this study was to explore the reasons why Asian Americans have higher educational attainment than Whites, Blacks and Hispanics. To do this, I examined the effect of both ascribed factors and achievement characteristics on college attainment. The explanatory power of variables in the models varies across race/ethnic comparisons. Prior ability and high school context account for all of the significant differences between Whites and Asians. Black students are actually more likely to graduate college than Asian students once controlling for parents' background, but this contrast is no longer significant after including educational expectations and parenting behaviors in the model. Finally, both ascribed factors and achievement characteristics are important in explaining differences between Hispanics and

Asians; however, differences between Hispanics and Asians are not fully explained by variables in the models.

My results highlight the importance of parents' SES and immigrant status on children's educational attainment. Contrary to popular portrayal of Asian immigrants in the 1980s, the success of young Asian Americans is as much due to favor and fortune as it is due to diligence and hard work. The accomplishments of Asian Americans become more ordinary after taking into account the extraordinary characteristics of the prior generation. Parents of the Asian students sampled in NELS have highly desirable educational and occupational characteristics, which most likely benefitted their children in the form of earlier and better preparation for college. To the extent that first generation Asian youth are as high achieving as their parents, race/ethnic differences in educational attainment will continue to persist. However, a dramatic shift in the composition of Asian immigrants after 1985 suggests that future education trends for Asian Americans will be more complex.

Political unrest in Southeast Asia triggered a new wave of Asian immigration, largely comprised of refuges from farming backgrounds with few economic resources. Less than 10 percent of Cambodian, Hmong and Laotian immigrants aged 25 years and older are college graduates and approximately 50 percent have less than a high school degree (Reeves and Bennett 2004). Asians may look homogenous in appearance, but intra-group heterogeneity results in vastly different educational outcomes by ethnicity or national origin. Gross generalizations of Asian achievement may actually exacerbate within race social inequality when disadvantaged Asian American and Pacific Islander students are excluded from valuable programs and services that target underrepresented college students.

My findings suggest that factors associated with achievement offer promise for reducing educational inequality. Students take social cues from parents, peers and teachers about their suitability for schooling and academic achievement. I found that higher educational attainment among Asian Americans is positively associated with educational expectations, social support and academic self-concept. The effect size of each of these variables on college attainment was larger than that of parents' educational attainment. This suggests that the message parents send to children about education and achievement may be just as important as parents' demonstrated achievements. My results add to the large body of literature on the role of social capital on education (Coleman 1988) and more specifically, how parenting behaviors (Schaub 2010; Yamamoto and Brinton 2010) and peer relationships (Lagenkamp 2010) affect educational outcomes through cognitive and noncognitive skills (Covay and Carbonaro 2010).

Table 1. Descriptive Statistics of Analysis Variables by Race (N = 5400)

	Total	White	Asian	Black	Hispanic
Graduated College	49.9	51.9	64.3	39.1	29.5
Female	54.2	53.4	52.7	63.0	55.3
High school program type					
Academic program	57.6	57.7	69.9	57.5	46.5
General high school program	29.6	30.1	21.6	24.9	35.6
Occupation specific	7.6	7.6	3.6	9.2	9.6
Alternative/Other	5.2	4.6	4.9	8.4	8.3
Urbanicity of high school					
Urban	26.3	22.1	37.6	37.8	43.3
Suburban	41.5	42.3	51.2	31.5	34.8
Rural	32.2	35.6	11.2	30.7	22.0
Parent is a college graduate	44.0	45.3	61.7	33.9	26.2
Parent was born outside of US	17.1	6.8	84.0	8.1	54.1
Parents expect R to graduate college	74.2	73.8	88.1	76.6	63.8
Parents reward special privileges for good grades					
Often	20.4	18.7	19.9	33.9	24.8
Sometimes	40.5	40.8	40.3	36.5	41.7
Rarely	22.9	24.2	20.6	15.8	18.9
Never	16.2	16.4	19.2	13.9	14.6
Parents limit privileges because of bad grades					
Often	16.2	14.6	15.8	26.8	21.8
Sometimes	28.9	28.7	31.1	28.6	28.7
Rarely	24.9	25.4	23.8	22.8	23.2
Never	30.0	31.3	29.4	21.8	26.4
Peers think R is a good student					
Very True	36.5	34.8	48.8	42.8	36.4
Somewhat True	57.4	58.6	46.8	53.0	59.4
Not at all true	6.1	6.7	4.4	4.2	4.3
Teacher cares and expects R to succeed					
Strongly agree	16.3	15.1	17.7	26.8	16.5
Agree	61.1	61.6	59.0	59.1	60.6
Disagree/Strongly Disagree	22.6	23.3	23.3	14.2	23.0
8^{th} grade composite grades					
Quartile 1 (lowest)	11.9	11.3	9.7	14.4	16.7
Quartile 2	18.0	18.1	11.7	22.6	18.5
Quartile 3	27.5	28.0	20.4	29.7	27.6
Quartile 4 (highest)	42.7	42.6	58.3	33.3	37.2

Continuous Variables					
Family SES					
Mean	0.287	0.367	0.606	-0.16	-0.305
Standard Deviation	0.927	0.866	0.987	1.002	0.964
12th Grade Math Test Score					
Mean	54.567	55.273	58.358	48.222	50.406
Standard Deviation	9.009	8.59	9.083	8.93	8.865
12th Grade Reading Test Score					
Mean	54.027	54.687	55.946	48.972	50.82
Standard Deviation	8.796	8.478	8.807	9.104	9.084
Math Self – Concept					
Mean	0.645	0.648	0.679	0.624	0.609
Standard Deviation	0.276	0.278	0.27	0.262	0.274
Verbal Self – Concept					
Mean	0.745	0.744	0.776	0.741	0.737
Standard Deviation	0.183	0.185	0.161	0.179	0.178

Table 2. Logistic Regression of College Completion on Independent Variables (N = 5400)

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Race (Asian excluded)						
White	0.598***	0.897	1.186	1.187	1.269	0.985
Black	0.356***	0.924	1.499*	1.406	1.328	0.848
Hispanic	0.232***	0.443***	0.700*	0.700*	0.676*	0.628
Female		1.460***	1.616***	1.539***	1.347***	1.347***
12th Grade Math Score		1.104***	1.089***	1.081***	1.070***	1.070***
12th Grade Reading Score		1.012*	1.006	1.004	0.995	0.995
High school program type (Academic program excluded)						
General high school program		0.476***	0.481***	0.500***	0.562***	0.563***
Occupation specific		0.194***	0.239***	0.269***	0.312***	0.312***
Alternative/Other		0.431***	0.486***	0.525***	0.612**	0.614**
Urbanicity of high school (Urban excluded)						
Suburban		0.715***	0.757**	0.767**	0.751**	0.753**
Rural		0.585***	0.807*	0.814*	0.757**	0.759**
Family SES			1.888***	1.774***	1.803***	1.805***
Parent is a college graduate			1.384***	1.338**	1.309**	1.308**
Parent was born outside of US			1.442**	1.423*	1.435**	1.439**
Parents expect R to graduate college				1.866***	1.685***	1.285
Parents reward special privileges for good grades (Never excluded)						
Often				1.312*	1.049	1.051
Sometimes				1.498***	1.309*	1.311*
Rarely				1.293*	1.216	1.219
Parents limit privileges because of bad grades (Never excluded)						
Often				0.589***	0.736**	0.737**
Sometimes				0.605***	0.703***	0.705***
Rarely				0.788*	0.897	0.901
Math Self - Concept					0.755	0.762
Verbal Self - Concept					1.979**	1.978**
Peers think R is a good student (Not at all true excluded)						
Very true					2.071***	2.080***
Somewhat true					1.446*	1.450*
Teacher cares and expects R to succeed (Disagree/Strongly disagree excluded)						
Strongly agree					1.233	1.232
Agree					1.182	1.179
8th grade composite grades (Quartile 1 - lowest excluded)						
Quartile 2					1.706***	1.708***
Quartile 3					1.779***	1.778***

Quartile 4 (highest)					2.470***	2.471***
Parents' expect R to graduate college * Race						
White * Educational expectations						1.344
Black * Educational expectations						1.692
Hispanic * Educational expectations						1.057
Pseudo R^2	0.0192	0.2133	0.2612	0.2744	0.2917	0.2919

*** p<0.001, ** p<0.010, * p<0.05

Appendix A. Detailed list of variables used in the multivariate analysis

Variable	Categories
Respondent's Educational Attainment (F4HHDG): Measured in 2000. NCES constructed this variable from a set of questions that asked respondents about the types of postsecondary degrees or certificates they had attained at the fourth follow-up survey.	Recoded to 0 = less than a college degree; 1 = college degree or more.
Race (F2RACE1): Measured in 1992. Composite variable measuring respondent's race. If race was missing, then data from earlier surveys was used.	Recoded to 1 = White; 2 = Asian; 3 = Black; 4 = Hispanic.
Sex (F2SEX): Measured in1992. Composite variable based on first follow-up survey and augmented with information from the second follow-up survey if appropriate. Missing responses were imputed based on student first names.	Recoded to 0 = male; 1 = female.
Tested Proficiency: Measured in 1992. Twelfth grade reading test scores (F22XRSTD) and math test scores (F22XMSTD).	NCES standardized reading and math scores so that the mean for the 1992 sample was 50 and the standard deviation was 10.
High School Program (F2HSPROG): Measured in 1992. Type of high school program the student was enrolled in at the time of the second follow-up.	Recoded to 1 = general high school program; 2 = academic program; 3 = vocational/technical program; 4 = alternative, special education, other.
Urbanicity of High School (G12URBN3): Measured in 1992. Composite variable created by NCES that trichotomizes the urbanicity of the area in which the student's second follow-up school is located.	Recoded to 1 = urban; 2 = suburban; 3 = rural/outside MSA.
Parents' Socioeconomic Status (F2SES1): Measured in 1988 and 1992. Composite variable created by NCES that equally weights parents' education, parents' occupation and total household income. This variable was created using data from the base year parent questionnaire, base year student questionnaire, first follow-up or second follow-up supplement survey.	The scale was normalized so that the mean was equal to 0 and the standard deviation equal to 1.
Parents' Educational Attainment (BYS34A and BYS34B): Measured in 1988. "How far in school did your parents go?"	Recoded to 0 = less than a college degree if neither parent graduated college; 1 = college degree or more if

(BYS34A) Father (or male guardian) (BYS24B) Mother (or female guardian)	at least one parent graduated college.
Parents' Immigrant Status (BYP11 and BYP14): Measured in 1988. (BYP11) "Was your eighth grader's mother born in the United States (that is, any of the fifty states or the District of Columbia), in Puerto Rico, or in another country or area?" (BYP14) "Was your eighth grader's father born in the United States (that is, any of the fifty states or the District of Columbia), in Puerto Rico, or in another country or area?"	Recoded to 0 = both parents were born in the United States; 1 = mother, father or both parents were born outside of the United States.
Parents' Educational Expectations (BYP76): Measured in 1988. "How far in school do you expect your eighth grader to go?"	Recoded to 0 = less than a college degree; 1 = college degree or more.
Positive Reinforcement of Good Grades (F1S100C): Measured in 1990. "How often do your parents do the following… …give you special privileges because of good grades?"	Recoded to 1 = often; 2 = sometimes; 3 = rarely; 4= never.
Negative Reinforcement of Poor Grades (F1S100D): Measured in 1990. "How often do your parents do the following… …limit privileges because of poor grades?"	Recoded to 1 = often; 2 = sometimes; 3 = rarely; 4 = never.
Math Self-Concept Scale: Measured in 1990. "Choose the answer that is best for you." (F1S63D) Mathematics is one of my best subjects. (F1S63J) I have always done well in mathematics. (F1S63Q) I get good marks in mathematics. (F1S63S) I do badly in tests of mathematics.	Possible responses to each item: 1 = false; 2 = mostly false; 3 = more false than true; 4 = more true than false; 5 = mostly true; 6 = true. F1S63S was reverse coded by subtracting the item response from 7.
Verbal Self-Concept Scale: Measured in 1990. Choose the answer that is best for you. (F1S63B) I learn things quickly in English classes. (F1S63E) English is one of my best subjects. (F1S63G) I get good marks in English. (F1S63N) I'm hopeless in English classes.	Possible responses to each item: 1 = false; 2 = mostly false; 3 = more false than true; 4 = more true than false; 5 = mostly true; 6 = true. F1S63N was reverse coded by subtracting the item response from 7.

Teacher's Assessment (F1S66G): Measured in 1990. "Do you agree with the following statements about why you go to school? My teachers care about me and expect me to succeed in school."	Recoded to 1 = strongly agree; 2 = agree; 3 = disagree or strongly disagree.
Peer Assessment (F1S67D): Measured in 1990. "Most people think about how other people see them. How do you think other students see you? As a good student"	Recoded to 1 = very true; 2 = somewhat true; 3 = not at all true.
Base Year Graded Academic Performance (BYGRADSQ): Measured in 1988. Quartile coding of base year composite grades. Base year composite grades (BYGRADS) is an average of the self-reported grades for English, mathematics, science and social studies. Each subject area is equally weighted.	NCES constructed a new variable that recoded base year grades into quartiles based on the weighted marginal distribution. Recoded to 1 = quartile 1 (low); 2 = quartile 2; 3 = quartile 3; 4 = quartile 4 (high).

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