

**The Impact of the Promise of Scholarships and Shifts in School Structure on  
College Ambitions, Preparation, and Enrollment**

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**Abstract**

The Washington State Achiever (WSA) program is a social experiment to encourage students from moderate and low income families to attend college through a program of scholarships, mentoring, and school redesign. Based on four cohorts of high school seniors (one pre-program and three post-program), we report a preliminary assessment of the program impact in one school district. We measure the impact of the WSA program on college ambitions, preparation, and enrollment. The initial years yielded weak effects, but in 2004, three years after the implementation, there was a strong WSA effect on the proportion enrolled in four-year colleges and universities.

## INTRODUCTION

Educational opportunities, and access to higher education in particular, lie at the heart of the American dream of social mobility. The economic gains from higher education are enormous, and the income gap between those with and without higher education have widened in recent years. In the late 1990s, high school dropouts earned an average of \$18,900 per year, high school graduates \$25,900, and college graduates \$45,400 (Cheeseman and Newburger 2002: 2). Those with postgraduate degrees earn even more. Among those who graduate from college, there are only modest effects of social origins and family background that directly affect subsequent socioeconomic achievement (Hout 1988).

Circumstances of origin, however, still have strong influences on who is able to enter and graduate from college (Mare 1995, Kao and Thompson 2003). Students from poorer families and with less educated parents are less likely to finish high school and enter college (Kauffman, Alt and Chapman, 2004; Rumberger, 1987; Sewell, 1971). The gap in high school completion between black and white students has narrowed in recent years, but black students are still less likely to attend and graduate from college (Snyder et al., 2004). Latino and American Indian students are disadvantaged at all levels of schooling (Freeman and Cox, 2005; Wojtkiewicz and Donato, 1995; US Department of Education, 1998). In an earlier era, young women were less likely to go onto college than young men, but this pattern reversed in the late 1970s (Baker and Velez 1996: 83; NCES 2005). At present, women are more likely to be enrolled in school and college than men in every race and ethnic community (Snyder et al, 2004).

Breaking the association between ascribed characteristics and education has been a major national priority since the early days of the Great Society and the War on Poverty. Pre-school programs, such as Head Start, are designed to equip children from poor families with the readiness skills to begin schooling. The Teacher Corps, Title I programs, and a host of other federal, state, and local efforts have been made to strengthen the quality of K-12 public education for children from disadvantaged origins. Needs based scholarships, affirmative action programs, and other initiatives have attempted to level the playing field for admission to colleges and universities. Other initiatives include structural changes (i.e. schools within schools or charter schools) designed to change the large urban school setting to improve educational achievement among disadvantage groups. In this study, we offer a preliminary evaluation of the impact of the initial stage of the "Washington State Achievers Program." This program is a bold initiative that attempts to reduce disparities in the transition from high school to college by manipulating incentives, motivation, and school structure.

## THE TRANSITION FROM HIGH SCHOOL TO COLLEGE

Over the course of the twentieth century, universal high school graduation has almost become a reality in the United States. Only about one-third of Americans born in the early years of the twentieth century graduated from high school, but upwards of 80 percent of those born in the second half of century have done so (Mare 1995: Figure 4.2.). Recent estimates from the National Center for Educational Statistics (NCES) show that over 86 percent of 18-24 year olds in 2000 had completed high school, including 92 percent of white and 84 percent of black youths (Kaufman, Alt, and Chapman 2001).

High school completion, however, does not necessarily mean on-time graduation from high school. Estimates of high school dropouts range up to 30 percent with figures even higher for race and ethnic minorities (Greene and Winters 2002). Many student dropouts,

however, subsequently return to a high school (or to high school equivalency courses in community colleges) and receive a high school diploma or certification (Alexander, Entwisle, and Kabbani 2001).

In an earlier era when graduation from high school was less common, about half of high school graduates went on to college (Duncan 1968). As the proportion and numbers of high school graduates swelled in the middle decades of the twentieth century, the likelihood of going to college, given completion of high school, actually declined to about one-third of high school graduates (Duncan 1968: 623). For recent cohorts of American youth, over 70 percent of high school graduates go on to some sort of postsecondary education, but the pathways have become much more varied and complex (NCES 2002). Not all of these students attend traditional four-year baccalaureate institutions.

The traditional image of college going, even if it was not universal, was of high school graduates leaving home to attend and study full time at a residential four-year college or university. During the 1990s, only about half of post-secondary students are enrolled in four-year public or private colleges and universities (NCES 2005: 17). Many more students attend two-year colleges and continue to live in their parental household. Students are also likely to mix college with work, sometimes delaying college entry or taking longer to finish college (Horn et al, 2005).

This complexity means that the distinction between going and not going to college should be broadened to include the type of post-secondary institution. Baker and Velez (1996) conclude that there are two tracks to postsecondary education in the United States. The high-end segment of higher education operates pretty much as it did in the 1960s with social class playing a key role in determining who goes to four-year elite colleges right after high school. The other segment, consisting of community colleges and lower ranked institutions, offers post-secondary schooling to older students, working students, and those from less affluent homes.

Regardless of the type of institution, there continue to be significant disparities in college attendance by socioeconomic origins, family structure and by race and ethnicity (Bowen, Kurzweil and Tobin 2005, Kao and Thompson 2003, McLanahan and Sandefur 1994). African American and Hispanic youth are much less likely to enter and to graduate from college than white youth (Mare 1995, Kao and Thompson 2003, NCES 2002). Not all race and ethnic minorities are educationally disadvantaged, however. Asian American students are more likely to attend college than any other group, and many new immigrants (and the children of immigrants) have above average levels of educational enrollment and achievement (Hirschman 2001, Kao and Tienda 1995).

The potential explanations for race/ethnic educational disparities, and of college attendance in particular, can be organized in terms of four broad factors: financial capital, human capital, social capital, and cultural capital (Massey et al 2002). Although this conceptualization is largely a reorganization of prior hypotheses and findings, there is value in having an overarching framework that explains unequal educational outcomes in terms of disparities in family (and group) background and resources.

Financial capital (or the socioeconomic hypothesis) explains differentials in the transition from high school to college in terms of access to money that can pay for college costs, including tuition, fees, room and board, and related expenses. Students from middle and

upper class families can generally assume that their parents will have sufficient income or savings that can be used to support higher education. Students can also supplement family resources by working during the school year and summers, and borrowing. But with the costs of college approaching \$10,000 per year at public institutions and several times that figure at private colleges, it is increasingly difficult for college students to be completely self-supporting. Needs based scholarships, government subsidies for low interest loans, work-study programs, and other forms of financial aid are means to offset the inequality of financial capital across families of aspiring college students.

Money alone does not determine who goes to college. The ability, interest, and aptitude of students are important factors, as well as other non-financial characteristics of families. One of the most important determinants of college going is the educational attainments (or human capital) of parents. College educated parents are most likely to know the value (economic and non-economic) of a college degree and can provide advice to their high school age children on realistic college choices and how to prepare and apply to college. If parental educational attainment sets the minimum expectations for their children's education, then college educated parents would be highly motivated to urge their children to do at least as well as they did. College educated parents are probably more likely to express encouragement for college, to understand the necessary prerequisites, and to make the extra effort to find the necessary resources to pay for college costs.

Social capital refers to collective resources of a group or community that are embodied in network and social relationships. Communities with a high degree of social capital have a greater sense of solidarity, trust, and collective identity. Coleman (1988) posited that all adults, not just parents, in Asian immigrant families monitor the behavior of adolescents to keep them out of trouble. Zhou and Bankston (1998) report that the Vietnamese community in New Orleans organized Vietnamese language classes and other after school programs to prevent their children from spending too much time "on the street" and to reinforce academic goals and skills. A high degree of social solidarity and social interaction among members of a community may be indicators of social capital that fosters educational ambitions and attainment.

Cultural capital is the values and attitudes that reinforce high ambitions, hard work, perseverance, and deferred gratification. Behaviors reflecting these values are generally encouraged and rewarded by teachers and schools. The cultural hypothesis posits that ambitious families who impart high motivations and persistence have a distinct advantage in fostering their children's educational attainment. Values are thought to be transmitted intergenerationally through socialization.

These four factors are not entirely independent. Middle class parents are better able to afford the costs of college, generally have college backgrounds themselves, and tend to live in suburban areas that create positive peer and community networks. Moreover, college educated parents are more likely to socialize and encourage their children to plan to attend college.

However, there are a variety of ways in which these factors may diverge, especially for race and ethnic groups and for new immigrant groups. Some minority groups may not expect higher education to "pay off" and are thought to be less willing to invest time and effort in obtaining the necessary credentials to go to college. This interpretation is sometimes referred to as the "Ogbu hypothesis" which posits that orientations for upward mobility are ridiculed by peers as "acting white" (see Ogbu 1978, and Gibson and Ogbu

1991), but this interpretation has found little empirical support (Ainsworth-Darnell, and Downey 1998). On the other hand, some groups, especially immigrants, are thought to value education as the pathway to reach the American dream (sometimes labeled as immigrant optimism, see Kao and Tienda 1995).

Inequality can also be generated through other mechanisms, including the social context of neighborhoods and schools that influence educational aspirations. These factors can interact in unexpected ways. For example, Portes and MacLeod (1996) find that the national origins of immigrants can have positive or negative effects on education (test scores) that are independent of the standard socioeconomic variables. The negative effects associated with disadvantaged ethnicity are most evident when second generation students face the stiff competition of middle class schools (also see Portes and Hao 2004).

#### PROGRAMS TO INCREASE EDUCATIONAL OPPORTUNITIES

Current programs to increase educational opportunities come in two forms. Some directly deal with the financial cost through various forms of assistance and scholarships; such programs offer both incentive and direct means (i.e. scholarship, low cost loans) to achieve higher levels of educational achievement. Other programs deal less directly with cost and more with incentive and ability. The latter are represented by shifts in school attachment/aspirations and achievement and often come in the form of structural changes in the form of schooling (e.g. charter schools, small schools) where the change in structure provides greater access to resources, mentoring, and generally higher quality education (especially for some targeted groups). While it is unclear whether structural changes of all forms (see Goldhaber 1999) necessarily lead to the desired outcomes evidence suggests some structural shifts have desired outcomes and affect the educational attainment and orientation of students (see Lee and Smith 1995).

Among programs to increase access to higher education, the most widespread have been policies to subsidize the costs of higher education for youth from less affluent families. Need-based scholarships, work-study programs, and subsidized loans are primary examples. The launch of the Sputnik satellite by the Soviet Union in the late 1950s and the perception that the United States was falling behind in science and mathematics led the federal government to pass the National Education Defense Act of 1958, which among other components, included funds for low interest loans to college students. In recent years, some states have initiated scholarship programs, such as the “21<sup>st</sup> Century Scholars Program” in Indiana and “Hope Scholarships” in Georgia to widen the scope of educational opportunity.

In recent years, there has also been a variety of “outreach” programs in middle and high schools to stimulate an awareness and encouragement for college with a focus on students who do not have a family tradition of attending college. For example, MESA (Mathematics, Engineering, Science Achievement) or “Gear-Up” target groups with under-represented enrollments in college or in special programs such as engineering. These programs often bring middle school and high school students to college campuses for short educational programs during the summer. The objective is to increase the motivation of students to take more challenging high school courses to prepare to attend college.

In some states, innovative programs have been created to allow high school students (juniors and seniors) to attend community college while still enrolled as high school

students. These programs are geared to high achieving students who wish to begin college early or who do not fit into the typical high school setting/curriculum. In Washington State, about 9 percent of eligible students are enrolled in “Running Start,” which allows them to take part, or all, of their courses in a nearby community college while still enrolled in high school (OSPI 2005).

In addition to government, private philanthropy and foundations have also been major actors in creating programs to broaden access to higher education. One of the most widely recounted stories is of Eugene Lang, a wealthy businessman who in 1981 was about to give the commencement speech to students at P.S. 121 in Harlem, his former elementary school, when the principal told him that almost none of the elementary school graduates would make it through high school. Rather than give his planned speech, Lang decided to challenge the students to stay in school, saying "Stay in school, and I'll pay your way through college" (Wood, 1985). Although there is some controversy about the exact numbers, a much larger number of students from P.S. 121 than expected made it through high school and went to college (Kelly, 1990).

Lang's subsequent efforts created the “I Have a Dream Foundation,” which has spawned many other similar programs around the country, and led to his receiving the 1996 Presidential Medal of Freedom from President Clinton (Gaines-Carter, 1990; Honan, 1997). Is it possible to replicate such dramatic interventions as Lang's challenge to a larger purposeful program that will reduce the association between impoverished social origins and opportunities for higher education? Critics assume that organizational and institutional programs of social reform inevitably become bureaucratic, cost-inefficient, and lose their focus.

Yet, the long-standing and deeply rooted problem of unequal access to higher education requires strategies that move beyond one time rescue missions and one person programs. The challenge for educational researchers is to measure the impact of the many alternative programs that promise to enhance educational opportunities for talented youth from low income families.

Among the most promising educational interventions in recent years is the Washington State Achiever Program (WSA). Similar to Lang's holistic vision, the WSA program combines the promise of scholarships, efforts to expand college awareness, and mentoring. In this preliminary study, we examine the early years of the WSA program, which includes the beginning of efforts of school reform as well as scholarships.

#### THE WASHINGTON STATE ACHIEVERS PROGRAM

In 2001, Washington Education Foundation, with financial support from the Bill and Melinda Gates Foundation launched the Washington State Achievers Program (WSA) in sixteen high schools in Washington State with a disproportionate number of students from low to modest income households. High school juniors below an income cap in these schools are eligible to apply to be WSA scholars. From the applicant pool, 500 students are selected each year to receive a four year college scholarship. Because of the large numbers of students receiving scholarships—10 to 20 percent of high school seniors are selected to be WSA scholars, the program is very visible and has the potential of changing the culture of each school as well as the lives of the selected WSA scholars.

The stated goals of the Washington State Achievers Program are (<http://www.waedfoundation.org/achievers/index.htm>):

- to encourage school redesign that facilitates high academic achievement and increased college enrollment among all students at the selected high schools; to identify and reduce financial barriers to college for talented, low-income students who have overcome difficult circumstances and who are motivated to attend college; to provide mentoring to ensure academic support is available to students once they are enrolled in college; and to develop a diverse cadre of college-educated citizens and leaders in Washington state.

In 2004, the parental income ceiling for eligibility for WSA applicants was set at the 35<sup>th</sup> percentile of the Washington State family income distribution, which was \$49,900 for a family of four. Given the high visibility of the WSA program and the moderate income levels of students' families, about 30 percent of juniors at the 16 high schools apply to be a WSA scholar. Students must submit a written application that includes a personal statement and request letters of evaluation from teachers and counselors.

From the more than 1,100 applicants, the pool is narrowed to 750 WSA candidates who are invited to a one day workshop where the students complete a questionnaire and participate in small group discussions while being observed by raters. In the initial screening of the written applications, students are evaluated in terms of the rigor of their chosen curriculum, intellectual curiosity, community service, and leadership potential, among other criteria. At the second stage of the selection process at the workshop, the focus is on non-cognitive skills, such as initiative, problem solving ability, leadership, and the ability to work with others. This final evaluation narrows the pool to approximately 500 WSA scholars.

In addition to the scholarships, WSA scholars also have mentors during their senior year in high school (a teacher, school staff member, or a community leader). In 2004, the targeted high schools also began a program of restructuring their schools into smaller learning environments (for additional information, see <http://www.waedfoundation.org/achievers/index.htm>)

#### THE UNIVERSITY OF WASHINGTON BEYOND HIGH SCHOOL PROJECT

The analysis reported here is based on survey data from a study of the transition from high school to college—the University of Washington Beyond High School Project (UW-BHS). The UW-BHS universe includes four cohorts of high school seniors in several West Coast metropolitan school districts in 2000, 2002, 2003, and 2004. One public school district with five large high schools was surveyed in all four years, and seven additional high schools (four public and three private) were added in 2003 and 2004. This sample of schools and their students does not necessarily represent a well defined population, but the patterns of educational ambitions and socioeconomic, ethnic, and racial inequality are very similar to those found in other studies, including those from national samples (Snyder et al. 2004). In this analysis, we limit our focus to the original school district with five high schools: three of which were selected to be WSA high schools (leaving two high schools to be the “control sample”). Thus our evaluation of the WSA program is limited to 3 of the 16 WSA high schools. The analysis is based on a merged data set from the four cohorts of high school seniors, one from the year before the WSA program began (in 2000) and for years 2, 3 and 4 of the program (2002, 2003 and 2004). In addition to the baseline surveys of high school seniors, there was a one-year



follow-up survey to measure who actually went to college in the year after anticipated high school graduation.

For each cohort of high school seniors, we administered an in-school “paper and pencil” questionnaire in the spring (April or May). In some schools, seniors completed the survey in regular classrooms, while in other schools the students were assembled in an auditorium to take the survey. Overall, student cooperation was very good and less than 2 percent of enrolled seniors (or their parents) refused to participate. In addition to in-school data collection, a series of mailings were sent to “enrolled seniors” who were not present in the school on the day of the survey following the Dillman (2000) procedures to increase survey response. These additional mailings increased the number of completed senior surveys from 10 to 15 percent.

Evaluation of the completeness of coverage of the senior survey is clouded by the definition of who is a high school senior, and the logistics of locating students who are nominally registered as high school students, but are not attending school on a regular basis. In theory, high school seniors are students who have completed the 11<sup>th</sup> grade, are currently enrolled in the 12<sup>th</sup> grade, and are likely to graduate from high school at the end of the year. In practice, however, there are considerable variations from this standard definition. Some students consider themselves to be seniors (and are taking senior classes and are listed as seniors in the school yearbook), but are classified in school records as juniors because they have not earned sufficient credits. In addition to “fourth-year juniors,” there are a number of “fifth-year seniors,” who were supposed to have graduated the year before. Many of the fifth year seniors are enrolled for part of the year or are taking only one or two courses in order to obtain the necessary credits to graduate. Both fourth-year juniors and fifth-year seniors are at high risk of dropping out of high school.

In addition to the problems of identifying the potential universe of seniors, errors of coverage arise because about 10 percent of students who are nominally enrolled in public schools are not enrolled in the five comprehensive high schools in the district. In addition to a small number of home-schooled students, there are a wide range of alternative programs for students with academic, behavioral, or disciplinary problems. Because many of these seniors have only a nominal affiliation with the public schools—the largest group was enrolled in high school equivalency courses at community colleges—they are less likely to respond to our request to complete a survey of high school seniors. Even among students enrolled in the five comprehensive high schools, there were “non-mainstream” students who completed the survey at lower rates than others, including the 6 percent of seniors who were taking community college classes for college credit and another 7 percent of students who were in special education classes for part or all of the school day.

The problems of defining senior status and locating them (to take the survey) reduced the coverage of our senior survey. For regular students – graduating seniors enrolled at one of the five major high schools—the response rate is about 80 percent. If we consider a broader universe of students, including students with marginal affiliation to high school and other hard to contact students, our effective rate of coverage of all potential seniors is probably less than 70 percent. Although our rate of survey coverage of all high school seniors is less than desirable, the problems we encountered are endemic in survey research of high school students. Most national surveys of students are limited to students who are present on the day the survey is conducted and probably have even lower levels

of coverage than the UW-BHS senior survey. During data processing, we excluded a small number of exchange students, developmentally disabled students, and a few students who appeared to have answered the questionnaire with random responses or who could not be matched with school records. This leaves an effective sample of 4,497 seniors and 4,039 students who completed both the senior survey and the one year follow-up survey (90% of the interviewed high school seniors were interviewed one year later).

#### GENERAL ANALYTIC STRATEGY

To address the effect of the Washington State Achievers (WSA) program's restructuring of schools and direct scholarship program on educational outcomes, our analytical approach is framed as a modified experimental design. We have one cohort of seniors from Year 2000, which represents the period prior to the initiation of the WSA program and three cohorts (in Years 2002, 2003, and 2004) which represent the period after implementation of the WSA program. In addition, we have three high schools that implemented the program and two that did not. Our strategy is to measure changes—expected to be increases or positive changes—in educational outcomes, including aspirations and expectations to attend college, taking the SAT/ACT, and actual college attendance one-year post-graduation relative to the pre-implementation levels.

The major difference between a classical experimental design and our data is that the WSA program (scholarships and school reform) was not assigned randomly to students and schools. Indeed the program was designed for low income schools and for students below an income threshold in each school. For this reason, we estimate the program effect after adjusting for socioeconomic status, family structure, race and ethnicity, and other measures of family background that may have affected inclusion in a WSA school and selection as a WSA scholar. We consider these factors (discussed below) to be exogenous to the WSA program. We have not included current behavioral and social psychological orientations measured in the spring of the senior year) as control variables, because these might well be endogenous to selection of students as WSA scholars.

Our approach is to pool the data across time and schools and estimate the relationship between the presence (or absence) of the WSA program and educational outcomes. First, we estimate a baseline model of school and temporal effects. This is a simple additive model that estimates the observed differences between WSA and non-WSA schools, and for each year.

$$(1) Y = B_0 + B_1 (WSA) + B_2 (Yr2002) + B_3 (Yr2003) + B_4 (Yr2004)$$

Here the intercept  $B_0$  represents the mean outcome for non-program schools in Year 2000;  $B_1$  is the constant difference between non-program and WSA schools; and  $B_2$ ,  $B_3$ , and  $B_4$  represent the differences over time. This equation merely states there is a difference between the WSA and non-WSA schools and does not capture any change due to the implementation of the WSA program after 2000.

The second model simply adds a number of individual background variables to the baseline equation.

$$(2) Y = B_0 + B_1 (WSA) + B_2 (Yr2002) + B_3 (Yr2003) + B_4 (Yr2004) + B_n (X_n)$$

In Model 2,  $X_n$  represents a broad range of background variables that are highly correlated with educational outcomes and also differ between schools. These include measures of race and ethnicity, socioeconomic origins, and family structure. Without the inclusion of these variables, estimates of program effects may be dampened because of negative socioeconomic selection into program schools and scholarships. Only students

from low and modest income families are eligible to apply for a WSA scholarship, and family income is negatively related to educational outcomes. To provide a better estimate of the “pure” program effect, we “control for these background variables.

The next equation specifically captures the WSA program effect by adding interactions between WSA designated schools and the presence of WSA in the years 2002, 2003, and 2004.

$$(3) \quad Y = B_0 + B_1 (WSA) + B_2 (Yr2002) + B_3 (Yr2003) + B_4 (Yr2004) + B_5(Yr2002 * WSA) + B_6 (Yr2003 * WSA) + B_7(Yr2004 * WSA) + B_n (X_n)$$

In this equation  $B_5$ ,  $B_6$ , and  $B_7$  represent the expected program effects between WSA and non-WSA program schools for years 2002, 2003, and 2004, respectively, relative to the baseline year of 2000. We expect  $B_5$ ,  $B_6$ , and  $B_7$  to have positive signs suggesting positive outcomes for the presence of the program, perhaps increasing over time as the program matures and becomes more effective. Although there were scholarships and mentoring in all their years, the WSA program of school reform began only in the 2003-04 year, when the members of the Class of 2004 were seniors.

Note that we do not include a measure of whether a student received a WSA scholarship as a measure of program effect (St. John and Hu 2004). Receiving a WSA scholarship is an outcome of the WSA program and is certain to be correlated with a number of other endogenous factors, including the motivation to apply for the scholarship and the non-cognitive skills that were used to select recipients among the applicants. Since these unmeasured factors are likely to be predictive of motivations for college, many of the WSA scholars may have found some other means to attend college even if the program had not existed. The counterfactual of the WSA program is not students who did not receive a scholarship, but the absence of the program (measured by the Year 2000 data).

#### MEASUREMENT AND DESCRIPTION

We begin with an overview of the measurement of the dependent variables, representing the transition from high school and other variables that describe the sample of high school seniors. Table 1 shows the mean values of the educational outcome dependent variables and the percentage distributions of the independent variables for the total sample of seniors in the pre-program year of 2000 and the three post-program years of 2002, 2003, and 2004.

#### TABLE 1 ABOUT HERE

The dependent variables include two subjective measures of educational ambitions and three behavioral measures of college preparation and enrollment. The two subjective variables tap student attitudes and plans for college. The first is general “aspirations,” which are measured with the survey question “How far would you like to go in school?” and lists seven categories ranging from less than high school graduation to Ph.D., M.D. or other professional degree.<sup>1</sup> The second question, labeled “expectations” asks “Realistically speaking, how far do you think you will get in school?” and uses the same seven response categories. For the purposes of this study we recode these responses into a dichotomy of achieving a 4-year or greater degree or not. Expectations measure

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<sup>1</sup> The categories are: 1) less than high school graduation; 2) high school graduation only; 3) less than 2 years of college, vocational or business school; 4) two or more years of college including a 2-year degree; 5) finish college (4-5 year degree); 6) Master’s degree or equivalent; and 7) PhD, MD, or other professional degree.

constrained aspirations, with an awareness of limited resources and other conditions that may make it unrealistic to attend college, even with a desire to do so.

About three-quarters of seniors in our sample aspire to graduate from college and about two thirds of them “realistically” expect to do so. These values are very similar to those from national surveys, which indicate much higher levels of educational ambitions than will be realized (Hanson, 1994). The mean values are very similar from year to year, perhaps inching up a little bit, especially in 2004.

Second, we explore active preparations for college as measured by a student’s having taken college-board examinations; either the SAT (Scholastic Assessment Test) or the ACT (American College Test). This is examined as a dichotomous outcome: individuals self-report having taken (or plan to take) either one of these tests by the spring of their senior year. Although the SAT/ACT is required for application to most four-year colleges, there is not a requirement for admission to community colleges, which enroll more post-secondary students than four year colleges and universities.

A little more than half of students have taken (or plan to take) the SAT or ACT—almost 55 percent in 2000. This figure rose by a point or so in 2002 and 2003, but then jumped to 62 percent in 2004. Small variations from year to year may be due to random variation or because of slight variations in the completeness of coverage (and perhaps some differences in selectivity of response) of the annual surveys, but the similarity of the trends suggests that there has been a modest increase in college ambitions and in college preparations for 2004 relative to prior years.

College enrollment was measured in a survey conducted one-year following high school graduation. Over 90 percent of the original sample was re-interviewed, using multiple methods of contact, including telephone interviews, email and web forms of the survey, and a mail out/mail back format. The majority of students were interviewed by phone with a short five-minute questionnaire that asked if the student was enrolled in college. If the answer was yes, the student was asked the name and location of the college or university. If the original respondent could not be reached after many tries, we accepted proxy responses (less than 10 percent) from parents or other household members who knew the whereabouts of the respondent. These results were coded to indicate enrollment in a 4-year degree granting institution, 2 year degree programs, and other post-secondary educational programs.

For our analysis here, we consider two measures of college enrollment: attendance at either a two-year or four-year college, and attendance only at a four-year college. The figures reported here are for the sub-sample of respondents interviewed in the follow-up survey (see Ns at the bottom of each column). The results show that the proportion of seniors going on to college (of any type) rose from about 65 to 70 percent over the period and from 32 to 36 percent in four year colleges and universities.

In contrast to the trend of rising (albeit modest) educational outcomes reported in Table 1, the variables measuring the demographic and socioeconomic composition of students show a very stable portrait of students in a West Coast metropolitan school district. There are fluctuations from year to year, but with one or two exceptions, there is little evidence of trends. This lack of change in the distributions of background variables means that the observed “improvements” in educational outcomes are not likely to be a result of differential composition of students (or in response rates) over time.

A little more than half of the sample of seniors is female (males are somewhat more likely to be high school dropouts). In the first two years, about half of seniors were white (a bit more in latter years) and the balance was composed of a rainbow coalition of every race and ethnic category—about 15-17 percent black, 7-10 percent Hispanic, with small fractions of East Asians (Chinese, Japanese, Koreans), Vietnamese, Cambodians, Filipinos, American Indians, and Pacific Islanders.

Family background is measured by parental education, home ownership, and family structure. Parental education is summarized with the highest education of either parent (absent parents were included only to the extent that the student could report on their educational attainment). Homeownership (rent versus own) is a measure of socioeconomic status or net wealth. Family structure is represented with three categories: 1) Co-residence with birth/adoptive parents, 2) Disrupted family (by divorce or death), but the student reports having both a father and mother figure in their lives<sup>2</sup>, and 3) Student reports not living with both parents and not having a father figure or mother figure. Generational status measures nativity—foreign born students, the second generation (children of immigrants), and everyone else (third and higher generations).

The modal “highest educated parent” is a mother or father (or mother-figure or father-figure) with some college—about 37 to 41 percent of students were in this category. A little more than one quarter of students have parents whose highest educational experience was high school graduation or less, while almost one-third of students report that at least one parent was a college graduate. The other measure of socioeconomic status—homeownership—shows about one-third of students live in rental housing. In general, families that live in rental housing are poorer (both in wealth and income) than families that own their homes.

Somewhat more than half of the seniors in our sample, about 55 percent, are living with both of their birth (or adoptive) parents. At the other end of the spectrum, about 10 percent of the students report that they do not have either a mother or father figure in their lives. In between, constituting about one-third of the sample of students, are students who have experienced some fissure of their natal family, but have parenting relationships with step-parents, non-resident parents, or other relatives. A little more than one in ten (12 to 14 percent) students were born outside the United States and another 14 to 17 percent are the children of immigrants. The balance are 3<sup>rd</sup> and higher generation American residents (or students for whom nativity status is unknown).

In our multivariate research, we “control” for the effects of these background variables in order to measure the direct effects of the WSA program (equation 3). Before doing so, we compare the differences in educational outcomes between WSA and non-WSA schools in Table 2.

#### TABLE 2 ABOUT HERE

Table 2 shows the temporal shift in educational outcomes for four cohorts of seniors in WSA and non-WSA schools from 2000 to 2004; the last three years being post-implementation of the WSA program. The first observation of significance is that students in the non-WSA schools have higher educational ambitions and college

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<sup>2</sup> Father or mother figures could be a step parent, an absentee parent, or another person, such as a grandparent, who plays the role of a mother or father

attendance than those in the WSA schools. This is not too surprising since the Gates Foundation selected low income schools for inclusion in the WSA program.

The differences in 2000 are fairly modest, with students in non-WSA schools having college aspirations and expectations about 7 to 8 percentage points higher than students in WSA schools. Plans to take the SAT or ACT exams were about 16 points higher in non-WSA schools (63 percent to 47 percent) and college enrollment rates one year after high school graduation were about 9 points higher (37 percent of seniors in non-WSA schools went to four-year colleges compared to about 28 percent of WSA seniors).

In 2002 and 2003, the various percentages bounced around within a small margin with no clear direction, with one major exception. The one exception was that students taking (or planning to take) the SAT or ACT rose from 47 to 53 percent in WSA schools from 2000 to 2003. There are many factors that could account for small variations in these numbers from year to year, including differential completeness of the senior survey across cohorts, the costs of education, and random fluctuations in the composition of students. Although these factors may affect the values across years, there is no reason why they would affect comparisons between WSA and non-WSA schools. The third panel of Table 2 shows the absolute differences between WSA and non-WSA schools for each of the five educational outcomes. For three of the five outcomes, there were clear declines in the magnitude of the gaps between WSA and non-WSA schools between 2000 and 2003. The most dramatic change was the gap in college preparation, indexed by the proportion of students taking (or planning to take) the SAT or ACT. The gap was reduced from 16 points in 2000 to 6 points in 2003.

In 2004, the advantages of the non WSA schools literally disappeared. Differences in college aspirations and expectations as well as those taking the SAT or ACT were less than one percentage point. While students in non-WSA schools were slightly more likely (by 2 percentage points) to attend any college (2-year or 4-year), students in WSA schools were more likely to attend a four-year college than students in non-WSA schools (compare 40 to 33 percent). The reversal is consistent with the overall trend, and is unlikely to be an artifact of data or measurement.

The final column of Table 3, shows the “difference within difference,” which is a summary measure of the program effect expressed as percentage point shift. Differences that may be the result of the program (non-WSA minus WSA schools) are subtracted for the post-program period (average from 2002 to 2004) from the pre-program period (2000). There is a consistent pattern of a trend toward favoring the program (WSA) schools relative to the control population (the non-WSA schools) during the implementation phase relative to the pre-program period. The differences range from 2 to 11 percentage points across the 5 educational outcomes.

These descriptive results offer prima facie evidence that the WSA program has had the intended effect of improving the ambitions and performance of students in the program schools. These figures are, however, preliminary because these patterns are confounded with the characteristics of students. In general, the WSA schools have more disadvantaged students, in terms of family background and other risk factors, than non-WSA schools. Only with a more inclusive analysis that adjusts for student differences is it possible to estimate the direct impact of the WSA program. We turn next to a multivariate analysis to accomplish this.

## MULTIVARIATE ANALYSIS

Tables 3, 4, and 5 show the results of two models of the effects of social background and program on educational outcomes. The dependent variables in Table 3 are educational aspirations and expectations. Table 4 shows comparable results for college preparation, indexed by taking (or planning to take) the SAT or ACT. Table 5 presents the results of similar models for actual college attendance (in any 2- or 4-year college and in a 4-year college). Tables 3 and 4 are based on the complete sample of high school seniors interviewed in each year. Table 5, the analysis of actual college attendance, is based on the sub-sample of high school seniors who were respondents in the one-year follow up survey. Although the follow up survey successfully re-interviewed about 90 percent of senior respondents, an independent check suggests that re-interviews were considerably higher for those who enrolled in college than for students who did not go to college.<sup>3</sup> Although the actual estimates of college enrollment may be biased upward, the correlates of enrollment are less likely to be biased.

### TABLES 3, 4 and 5 ABOUT HERE

In Model 1 (equation 2 presented in the General Analytic Strategy) each of the multivariate analysis tables includes school (WSA compared to non-WSA) and year (2002, 2003, and 2004 relative to 2000) as independent variables along with all the individual covariates presented in Table 1. Model 2 includes all the Model 1 independent variables plus 3 interaction terms of year and school as proxies for program effect in 2002, 2003, and 2004 (equation 3). We have also run additional models which include interaction terms of program effects for each individual characteristic (results not shown here) and discuss these results as well.

Given the nature of the dependent variables we use logistic regression to estimate the models and focus on the parameter estimates in the equations discussed above. Missing data are generally not at high levels across these measures, typically less than five percent of responses. To maximize the sample size and maintain a stable N over the analyses, we employ a regression single imputation method and estimate cluster correlated standard errors. Because observations of individuals within schools may not be independent of each other (students within a school are exposed to common organizational and cultural features) cluster correlated standard errors are estimated to account for any between school variation and possible heteroskedastic disturbances. Cluster correlated standard errors account for between-school variation by allowing for a unique estimation of the variance for each school in the variance-covariance matrix. We have compared the results here to those from other methods of imputation and error estimation and there are virtually no differences.

Aspirations and Expectations. Neither the year nor the type of school has statistically significant effects on educational aspirations or expectations in Table 3 (2004 does have a slightly negative effect on aspirations in Model 2). Nor are there significant program effects (the interaction of years and WSA schools in Model 2). The coefficients are in the expected direction, but are not significant.

The aspirations and expectations of students are, however, strongly affected by their demographic, social, and economic characteristics. The strongest effects are those of parental education. Students with a college educated parent, especially a parent who

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<sup>3</sup> The difference in re-interview rates is based on independent estimates of college attendance in the year after high school with data from the National Student Clearing House.

graduated from college, are most likely to desire to attend college. Gender, family structure, and immigrant generation also affect ambitions. Females are more likely to aspire and to expect to attend college than are males, while children of disrupted families have lower college ambitions than those from intact families. The children of immigrants are more likely to aspire to attend college than are immigrants or long-resident Americans. There is a similar pattern for expectations, but the coefficients are not significant.

In terms of race/ethnicity differences, only East Asian and African American students have significantly higher college aspirations and expectations than do white (and other) students. Other ethnic differences that are not quite significant for aspirations rise to the level of statistical significance for expectations: positive for Vietnamese and negative for those of American Indian and Hawaiian and Pacific Islander heritage. In general, most everyone has high educational aspirations in the abstract, but the qualifier of “realistically” forces some students to consider constraints that might affect their plans. This change in wording (from aspirations to expectations) does not dampen the plans of African Americans and East Asians, but it does for American Indian and Hawaiian and Pacific Islander youth. These ethnic effects are statistically “purged” of the effects of family and socioeconomic background and only represent the fraction of students who survived (did not dropout) to the senior year of high school.

College Preparation. The most striking finding in Table 4 is the strong effect of the WSA program (indexed by the interaction terms in Model 2) on college preparation—taking the SAT or ACT. The program had significant effect, which increased in magnitude in each year of the program. Recall (from Table 2) that the proportion of students in WSA schools taking the SAT/ACT increased monotonically from 47 percent in 2000 to over 62 percent in 2004. The observed gap in SAT/ACT between WSA and non WSA schools was reduced from 16 points in 2000 to about zero in 2004. The results in Table 4 show that the observed differences in college preparation between WSA and non-WSA schools is not due to chance variation and cannot be explained by any of the individually measured covariates in our data.

The pattern of individual determinants of SAT/ACT taking in Table 4 is very similar to the patterns predicting college aspirations and expectations. Children of college graduates, females, East Asian students and children of immigrants are much more likely to take the SAT/ACT, while American Indian students and children from disrupted families are less likely. Some new factors, such as home ownership (positive) and Hispanics (negative) are evident in Table 4. Recall that African American students have higher college aspirations and expectations, but they are no more likely to take the SAT/ACT. Prior research has suggested that the high educational aspirations of many African American students are not always associated with behavioral patterns that would lead to their realization.

One plausible reason for the stronger effect of the WSA program on SAT/ACT test taking is that the initiative may rest as much with teachers and the school as it does with individual students. Organizing students to take college entrance exams may be influenced, and even managed, by school administrators and teachers. With the expectations of change created by the WSA program, there may have been encouragement or pressure on students take the SAT or ACT.



College Attendance. The final multivariate analysis (Table 5) shows comparable results for attending any (2- or 4-year) college and for attending a 4-year college in the year after high school graduation. These outcomes were measured in a one-year follow up survey for each cohort.

There were no effects of the WSA program on going to any college. About two-thirds of high school seniors attend some college in the year after high school. Even students with limited financial resources can probably enroll in a community college. There is, however, strong evidence of a WSA program effect on likelihood of students attending a 4-year college in 2004. There were positive coefficients of the program on college enrollment in prior years (2002 and 2003), but the effects were not statistically significant.

In general, the individual level factors had similar effects on attending college as they did on college aspirations and college preparation, but there were some differences, especially for the race/ethnicity coefficients.

Females, students with college educated parents, students who live in owner-occupied housing and in intact families, and the children of immigrants are more likely to attend any college. Attending college, and especially attending a 4-year college, is more difficult to achieve for many race/ethnic minorities than simply aspiring or preparing for college. Net of all background variables, Hispanics, Filipinos, Other Asians, American Indians, and Hawaiians/Pacific Islanders are less likely to enroll in four year colleges than are white students. Vietnamese are much more likely to attend any college (presumably community college), but not 4-year colleges. All other variables held constant, East Asian students are more likely to go to college than whites.

The emergence of a significant program effect in 2004 (for the Class of 2004) might be explained in several ways. One possibility is simply the maturation of the WSA program. All intervention programs take some time to “settle down” and begin to change behavior. Habits and customs, which are governed by inertia as much as objective forces, are slow to change. Another reason might be that that second part of the WSA program, school reform, began only during the 2003-04 academic year. School reform meant the creation of smaller schools within existing schools, so that students formed closer bonds with teachers, administrators, and students. Among other factors, smaller schools are intended to create a more personal environment where student problems are identified and treated.

Additional Analyses. Sometimes intervention projects are more successful with a subset of the population, perhaps because the nature of the program directly addresses the needs or handicaps of some people. For example, the WSA program provides college scholarships to motivated students from low income households. We might expect that the program would be particularly effective for students from poor families. The UW-BHS data do not contain direct measures of family income, but other measures of family socioeconomic background, such as parental education and home ownership are probably highly correlated with family income.

To examine this possibility and other differential effects of the WSA program, we estimated additional logistic regression equations predicting college ambitions, preparation, and enrollment with “interactions” of the program (WSA x 2002/2003/2004) by each of the individual level covariates. Because of the volume of coefficients (27

additional interactions were added to each Model 2 equation), we simply summarize the results.

Overall, there were few interaction terms that were statistically significant. For example, the WSA program does not “interact” with parental education or home ownership. This means that the WSA program does help students from lower socioeconomic families get to college, but there is still an advantage for students with a college educated parent or more advantaged families (as indexed by home ownership). The one significant interaction of the WSA program was for students from disrupted families. Seniors from intact (birth or adopted) families have a marked advantage for all educational outcomes relative to other students. This difference was substantially reduced in WSA schools, where the program appeared to have been very effective in assisting students from disrupted families, (especially the 10 percent of students who report not having a mother or father figure in their lives) to make it to a four year college. It is unclear if this effect is due to financial reasons (the scholarship) or that the program was particularly effective in targeting students with less stable families.

## CONCLUSIONS

Human societies, and the individuals who live in them, are much more complex and unpredictable than is generally assumed by policy makers and others who wish to change social patterns and behavior. The widespread assumption is that human societies are akin to machines, if one has the right tool or part, then some direct action or intervention can change individual behaviors and attitudes as well as societal problems. Planned social change is, however, much more tenuous than this imagery suggests because of the limitations of knowledge of social causation, as well as the possibility that social policies and programs often have unanticipated consequences.

Perhaps the most likely social policies to be effective are ones that enable persons to achieve desired goals with the provision of expanded opportunities. It seems that the provision of 500 additional college scholarships to low income students in low income schools plus additional resources such as mentoring and school reform would have led to an immediate increase in college enrollment for those directly affected, as well as some “spillover effects” to other students whose interest in college (and awareness of the benefits of college) was awakened by the presence of the WSA program.

In 2000 before the WSA program began, there were real, but not enormous, differences in the college going patterns between the 3 high schools in the UW-BHS sample that were designated as “low income” by the WSA program (hereafter WSA schools) and the two high schools in the school district that were considered more middle class (hereafter non-WSA schools). There was a 16 percentage point differential in the proportion of seniors who took SAT/ACT exams (62 percent to 46 percent) and a 10 percentage point difference in proportion who went straight to a 4-year college after high school graduation (27 percent to 17 percent). After 3 years of the WSA program (by 2004), the between school difference in SAT/ACT test-taking had disappeared, and there was actually a higher percentage of students in the WSA (low income) schools than in the non-WSA (middle income) schools.

These results were not immediately evident. Though there was a steady narrowing of the gap in SAT/ACT test taking from 2002 to 2004, the change in college enrollment only became clear in 2004—the third year of the program. It is possible that transfers between schools (ambitious students attracted by the WSA program) could explain these results.

This seems unlikely, however, because the findings hold up in a multivariate analysis after controlling for a host of other variables, including several measures of socioeconomic background.

With one exception, the handicaps of social origins persist even in the presence of the WSA program. In other words, the differences in college enrollment (and in college ambitions and SAT/ACT test taking) between children who have college educated parents and those who do not remain. The one exception was that the program had a particular boost for students from non-intact families. Such students may find it particularly difficult to attend college for financial reasons as well as the lack of strong familial encouragement. The WSA program, both in the form of direct aid and in the form of mentoring and structure, was particularly effective in canceling out their disadvantage.

The preliminary evidence from this study suggests that the WSA program had a marked impact on increasing the fraction of students from low-income high schools who attended four year colleges. There are many more features of the WSA program that remain to be studied, including the long term effects on college persistence, graduation, and careers.

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**Table 1. Percent Distribution of Social and Economic Characteristics and Educational Outcomes of High School Seniors in 2000 (Pre-Program Implementation, 2002, 2003, and 2004 (Post-Program Implementation))**

	Pre- Program	Post- Program		
Social and Economic Characteristics	2000	2002	2003	2004
<b>GENDER</b>				
Male	46.1	45.3	45.5	44.7
Female	53.9	54.7	54.5	55.3
<b>RACE/ETHNICITY<sup>a</sup></b>				
Hispanic	7.6	9.7	10.4	7.4
African American	17.8	17.2	16.7	15.0
East Asian	5.0	6.8	4.6	5.7
Cambodian	4.7	3.6	2.5	3.3
Vietnamese	4.7	4.5	3.9	4.0
Filipino	2.5	2.0	2.5	1.8
Other Asian	2.2	1.4	1.3	1.1
American Indian	3.1	2.8	2.1	3.8
Hawaiian/Pacific Islander	1.8	1.6	1.8	1.8
White and others NEC	50.6	50.5	54.3	56.1
<b>PARENTAL EDUCATION</b>				
Neither with college	30.3	28.3	27.4	27.3
One or both with some college	37.4	40.0	39.8	41.4
One or both college graduate	32.4	31.8	32.9	31.4
<b>HOME OWNERSHIP</b>				
Rents	33.8	33.2	30.2	30.7
Owns home	66.2	66.8	69.8	69.3
<b>FAMILY STRUCTURE<sup>b</sup></b>				
Lives with both birth/adoptive parents	55.5	56.2	56.1	55.5
Disrupted family, has both parental figures	30.9	33.9	34.7	36.0
Missing a father figure or mother figure	13.6	9.9	9.3	8.5
<b>GENERATIONAL STATUS</b>				
First (foreign born)	12.6	14.0	14.4	12.2
Second (child of immigrants)	17.1	16.2	14.3	13.6
Third or higher (or unknown)	70.3	69.9	71.2	74.2
<b>Educational Outcomes</b>				
Aspire to a 4-Year Degree	71.4	72.4	72.3	73.9
Expect to Achieve a 4-Year Degree	63.4	62.8	64.0	66.8
Taken SAT/ACT by spring of senior year	54.7	56.1	56.6	62.1
Attended a 4-Year Degree College	32.2	32.8	32.1	36.5
Attended a 4 or 2-Year Degree College	65.0	67.9	65.2	68.9
N of high school seniors	1,140	1,161	1,220	976
N of follow up respondents	1,005	1,046	1,092	896

**Notes:** a) Race/Ethnicity is constructed from two variables (Q158 and Q159). About 10 percent of students reported 2 or more races and about 5 percent did not report any race or ethnicity. No responses were coded according to the race/ethnicity listed in school records, and multiple race respondents were coded in the hierarchy of the groups listed here. Whites included a few respondents who could not be classified.

b) Family structure is based on Q186, which asks if the respondent lives with both your mother and your father (biological or adoptive). The second category includes respondents who answered "no" to Q186 (not living with both mother and father), but did report a mother and father figure (Q123 and Q131). The third category includes respondents not living with both mother and father (Q186) and report not having a father figure or mother figure (Q123 and Q131).

<b>Table 2. Distribution of College Outcomes in WSA &amp; Non WSA Schools: 2000, 2002, 2003, and 2004.</b>													
	<b>WSA Schools</b>				<b>Non-WSA Schools</b>				<b>WSA/Non-WSA Percent Point Difference</b>				<b>Difference within a Difference<sup>a</sup></b>
	<b>2000</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2000</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2000</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	
<b>Aspirations/Expectations</b>													
Aspire to 4-Year	68.2%	70.4%	71.1%	73.6%	74.7%	74.6%	73.4%	74.1%	-6.5%	-4.2%	-2.3%	-0.5%	-4.0%
Expect 4-Year	59.3%	58.6%	60.3%	66.7%	67.7%	67.3%	67.5%	67.0%	-8.4%	-8.7%	-7.2%	-0.3%	-2.4%
<b>College Preparation:</b>													
Taken SAT or ACT	46.8%	52.0%	53.3%	62.3%	62.9%	60.5%	59.7%	61.9%	-16.1%	-8.5%	-6.4%	0.4%	-10.8%
<b>Post-HS College Attendance</b>													
Attend 4-Year	27.5%	30.4%	29.8%	40.0%	37.0%	35.4%	34.1%	33.5%	-9.5%	-5.0%	-4.3%	6.5%	-7.9%
Attend 4 or 2-Year	60.4%	63.9%	60.2%	67.9%	69.6%	72.2%	69.8%	69.8%	-9.2%	-8.3%	-9.6%	-1.9%	-2.3%
N of high school seniors	584	605	589	452	556	556	631	524					
for aspirations	579	588	515	405	550	543	553	475					
for expectations	575	589	514	405	551	542	553	475					
for SAT/ACT	575	564	557	427	553	532	596	498					
N of follow up respondents	505	543	523	395	500	503	569	474					

Note: a) The difference between WSA and non-WSA schools between pre-(2000) and post-(average of 2002, 2003 and 2004) program implementation.

**Table 3: Logistic Regression of WSA Program and Socioeconomic Background Variables on High School Seniors Aspirations and Expectations of Completing College with cluster correlated standard errors.**

Variables	Effect On Educational Aspirations				Effect On Educational Expectations			
	Model 1		Model 2		Model 1		Model 2	
	coefficient	p-value	coefficient	p-value	coefficient	p-value	coefficient	p-value
WSA Schools	-.04	.76	-.18	.04	-.09	.57	-.15	.45
2002	.03	.75	-.03	.65	-.06	.50	-.04	.59
2003	.03	.72	<b>-.09</b>	.05	-.01	.92	-.04	.69
2004	.14	.28	.01	.85	.15	.23	.01	.43
Program 2002 (WSA x 2002)			.11	.54			-.05	.81
Program 2003 (WSA x 2003)			.23	.12			.05	.78
Program 2004 (WSA x 2004)			.24	.26			.29	.12
GENDER								
Male	--		--		--		--	
Female	<b>.25</b>	.01	<b>.25</b>	.01	<b>.28</b>	.00	<b>.28</b>	.00
RACE/ETHNICITY								
Hispanic	-.01	.93	-.01	.93	-.12	.31	-.13	.31
African American	<b>.39</b>	.00	<b>.39</b>	.00	.28	.01	<b>.28</b>	.00
East Asian	<b>.92</b>	.00	<b>.92</b>	.00	<b>.75</b>	.00	<b>.76</b>	.00
Cambodian	.19	.37	.19	.36	-.14	.67	-.14	.65
Vietnamese	.87	.08	.88	.08	<b>.87</b>	.05	<b>.87</b>	.04
Filipino	.03	.89	.04	.87	.04	.85	.04	.85
Other Asian	-.31	.10	-.29	.15	-.18	.51	-.17	.56
American Indian	-.16	.56	-.16	.57	<b>-.56</b>	.03	<b>-.56</b>	.03
Hawaiian/Pacific Islander	-.12	.67	-.12	.70	<b>-.49</b>	.00	<b>-.49</b>	.00
White and others NEC	--		--		--		--	
PARENTAL EDUCATION								
Neither with college	--		--		--		--	
One or both with some college	<b>.44</b>	.00	<b>.43</b>	.00	<b>.54</b>	.00	<b>.54</b>	.00
One or both college graduate	<b>1.19</b>	.00	<b>1.19</b>	.00	<b>1.22</b>	.00	<b>1.22</b>	.00
HOME OWNERSHIP								
Rents	--		--		--		--	
Owns home	.22	.16	.21	.16	<b>.24</b>	.03	<b>.25</b>	.03
FAMILY STRUCTURE								
Lives with both birth/adoptive parents	--		--		--		--	
Disrupted family, has both parenta; figures	<b>-.16</b>	.01	<b>-.15</b>	.01	<b>-.23</b>	.00	<b>-.23</b>	.00
Missing a father figure or mother figure	-.08	.34	-.09	.34	<b>-.27</b>	.01	<b>-.27</b>	.01
GENERATIONAL STATUS								
First (foreign born)	-.04	.75	-.04	.75	-.02	.94	-.01	.95
Second (child of immigrants)	<b>.34</b>	.00	<b>.34</b>	.00	.27	.11	.27	.12
Third or higher (or unknown)	--		--		--		--	
Constant	.04	.83	.12	.40	-.28	.08	<b>-.25</b>	.02
Pseudo R-Squared	0.05		0.05		0.06		0.07	
BIC	-30,235		-30,212		-29,756		-29,734	
(N)	4,208		4,208		4,302		4,302	

**Notes:** Model 1 includes the basic additive variables of type of school, period, and social background. Model 2 includes the basic additive variables in Model 1 and program by year interaction (WSA x 2002, WSA x 2003, WSA x 2004).

**Table 4: Logistic Regression of WSA Program and Socioeconomic Background Variables on High School Seniors College Preparation (as measured by taking the SAT/ACT) with cluster correlated standard errors.**

Variables	Effect On College Preparation (SAT/ACT)			
	Model 1		Model 2	
	coefficient	p-value	coefficient	p-value
WSA Schools	-.12	.50	<b>-.47</b>	.01
2002	.04	.70	<b>-.13</b>	.01
2003	.06	.63	-.15	.08
2004	.31	.17	-.02	.90
Program 2002 (WSA x 2002)			<b>.34</b>	.01
Program 2003 (WSA x 2003)			<b>.42</b>	.00
Program 2004 (WSA x 2004)			<b>.68</b>	.01
<b>GENDER</b>				
Male	--		--	
Female	<b>.26</b>	.00	<b>.26</b>	.00
<b>RACE/ETHNICITY</b>				
Hispanic	<b>-.28</b>	.03	<b>-.28</b>	.03
African American	.15	.24	.15	.22
East Asian	<b>.31</b>	.01	<b>.32</b>	.01
Cambodian	.10	.80	.10	.79
Vietnamese	.47	.34	.47	.33
Filipino	-.23	.51	-.23	.52
Other Asian	<b>-.39</b>	.04	-.36	.07
American Indian	<b>-.59</b>	.02	<b>-.58</b>	.02
Hawaiian/Pacific Islander	.14	.52	.16	.43
White and others NEC	--		--	
<b>PARENTAL EDUCATION</b>				
Neither with college	--		--	
One or both with some college	<b>.42</b>	.00	<b>.42</b>	.00
One or both college graduate	<b>1.04</b>	.00	<b>1.04</b>	.00
<b>HOME OWNERSHIP</b>				
Rents	--		--	
Owns home	<b>.55</b>	.00	<b>.55</b>	.00
<b>FAMILY STRUCTURE</b>				
Lives with both birth/adoptive parents	--		--	
Disrupted family, has both parental figures	<b>-.39</b>	.00	<b>-.39</b>	.00
Missing a father figure or mother figure	-.22	.18	-.23	.18
<b>GENERATIONAL STATUS</b>				
First (foreign born)	-.01	.92	-.01	.95
Second (child of immigrants)	<b>.35</b>	.00	<b>.35</b>	.00
Third or higher (or unknown)	--		--	
Constant	<b>-.65</b>	.00	<b>-.47</b>	.00
Pseudo R-Squared	0.07		0.07	
BIC	-30,326		-30,315	
(N)	4,302		4,302	

**Notes:** Model 1 includes the basic additive variables of type of school, period, and social background. Model 2 includes the basic additive variables in Model 1 and program by year interaction (WSA x 2002, WSA x 2003, WSA x 2004).

**Table 5: Logistic Regression of WSA Program and Socioeconomic Variables on College Attendance One Year Post-High School Graduation with cluster correlated standard errors.**

Variables	<u>Attended a 2 or 4 year college</u>				<u>Attended a 4 year college</u>			
	Model 1		Model 2		Model 1		Model 2	
	coefficient	p-value	coefficient	p-value	coefficient	p-value	coefficient	p-value
WSA Schools	-.16	.37	-.23	.33	.08	.77	-.21	.29
2002	.14	.27	.13	.54	.02	.87	-.09	.55
2003	.01	.91	.01	.92	-.02	.85	<b>-.14</b>	.00
2004	.20	.36	.07	.80	.20	.39	-.13	.48
Program 2002 (WSA x 2002)			.02	.93			.23	.28
Program 2003 (WSA x 2003)			.01	.96			.25	.20
Program 2004 (WSA x 2004)			.25	.53			<b>.70</b>	.01
<b>GENDER</b>								
Male	--		--		--		--	
Female	<b>.35</b>	.00	<b>.34</b>	.00	<b>.32</b>	.00	<b>.32</b>	.00
<b>RACE/ETHNICITY</b>								
Hispanic	<b>-.14</b>	.02	<b>-.14</b>	.01	<b>-.27</b>	.03	<b>-.27</b>	.03
African American	.12	.50	.12	.50	.12	.60	.12	.60
East Asian	.46	.11	.46	.11	<b>.59</b>	.00	<b>.60</b>	.00
Cambodian	.24	.33	.24	.33	-.19	.53	-.19	.54
Vietnamese	<b>1.82</b>	.00	<b>1.81</b>	.00	.43	.19	.43	.19
Filipino	-.05	.67	-.05	.69	<b>-.65</b>	.02	<b>-.64</b>	.02
Other Asian	-.01	.96	.00	1.00	<b>-.69</b>	.00	<b>-.67</b>	.00
American Indian	<b>-.65</b>	.00	<b>-.65</b>	.00	<b>-.48</b>	.03	<b>-.47</b>	.03
Hawaiian/Pacific Islander	<b>-.68</b>	.01	<b>-.67</b>	.01	<b>-.32</b>	.02	<b>-.29</b>	.03
White and others NEC	--		--		--		--	
<b>PARENTAL EDUCATION</b>								
Neither with college	--		--		--		--	
One or both with some college	<b>.40</b>	.00	<b>.40</b>	.00	<b>.41</b>	.00	<b>.40</b>	.00
One or both college graduate	<b>1.04</b>	.00	<b>1.04</b>	.00	<b>1.11</b>	.00	<b>1.11</b>	.00
<b>HOME OWNERSHIP</b>								
Rents	--		--		--		--	
Owns home	<b>.35</b>	.00	<b>.35</b>	.00	<b>.50</b>	.00	<b>.50</b>	.00
<b>FAMILY STRUCTURE</b>								
Lives with both birth/adoptive parents	--		--		--		--	
Disrupted family, has both parental figures	<b>-.40</b>	.00	<b>-.40</b>	.00	<b>-.37</b>	.00	<b>-.36</b>	.00
Missing a father figure or mother figure	-.20	.18	-.20	.19	-.17	.52	-.17	.52
<b>GENERATIONAL STATUS</b>								
First (foreign born)	-.04	.76	-.04	.77	-.07	.07	-.07	.07
Second (child of immigrants)	<b>.31</b>	.01	<b>.31</b>	.01	<b>.35</b>	.01	<b>.35</b>	.01
Third or higher (or unknown)	--		--		--		--	
Constant	-.16	.44	-.12	.52	<b>-1.80</b>	.00	<b>-1.67</b>	.00
Pseudo R-Squared	0.07		0.07		0.07		0.07	
BIC	-28,348		-28,325		-28,350		-28,337	
(N)	4,012		4,012		4,012		4,012	

**Notes:** Model 1 includes the basic additive variables of type of school, period, and social background. Model 2 includes the basic additive variables in Model 1 and program by year interaction (WSA x 2002, WSA x 2003, WSA x 2004).