

**More Girls Go to College: Academic and Social Factors
Behind the Female Postsecondary Advantage**

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This study focuses on the female postsecondary advantage in both two-year and four-year college attendance among white, Hispanic and African American youth. Using data from the Texas Higher Education Opportunity Project (THEOP), the role of academic preparation, academic orientation, and social capital during high school are examined.

More Girls Go to College: Academic and Social Factors Behind the Female Postsecondary Advantage

Both academic debate and public discourse have long focused on gender differences in educational achievement and attainment among young people. Marking a departure from the focus of the last several decades on the gender gap in math and science achievement tests favoring males, research has recently turned to focus on instances where differences in educational outcomes favor females. One of the most notable areas where females exhibit a relative advantage to males, and arguably the most consequential in terms of future life opportunities, is college matriculation. Beginning in the 1980's, women's rates of college attendance began slightly eclipsing men's, but this trend continued to grow in subsequent years (Freeman, 2004). By 2004 women comprised approximately 57% of students at postsecondary institutions nationwide (Knapp, Kelly-Reid, & Whitmore, 2006).

While the gendered patterns of college matriculation are well-documented and publicized, there have been few academic studies focusing on the processes through which these patterns occur.¹ In order to understand why women outnumber men on today's college campuses, and perhaps to shed light on ways in which males' postsecondary attendance can be increased, we must consider both the academic and the social experiences of young people in the years leading up to matriculation. Specifically, I consider three key factors that may help to explain the female postsecondary advantage: academic preparation, academic orientation, and social capital in the form of relationships with others. In doing so I consider not only gender differences in the

academic credentials for college that students accrue while in high school, but also how the behaviors and roles that young people learn via gender socialization have implications for their academic attainment.

Additionally, it is likely to be the case that the factors underlying the female postsecondary advantage may not be the same for students from different racial/ethnic groups. While minority girls attend college at higher rates than their male peers, the college gap between minority and white students remains substantial; even among high school completers, African American and Hispanic students' attendance rates are ten percent or more behind those of whites (NCES, 2005). Thus it is important to recognize that African American and Hispanic females occupy a different position within the educational landscape than white females, and consequently that factors such as academic preparation and social capital may have a different form and function for minority females.

In sum, this paper addresses a key research question: To what degree do factors such as academic preparation, academic orientation, and social capital explain the female postsecondary advantage for students of different racial/ethnic groups? Importantly, in addressing this question I distinguish between attendance at a two-year college and attendance at a four-year college, as these college types are distinct in terms of the characteristics of students who attend them and the general prerequisites for matriculation (Kurlaender, 2006; Strauss & Volkwein, 2004). I utilize data from the Texas Higher Education Opportunity Project (THEOP), which includes a state-wide representative sample of young adults who were high school seniors in the spring of 2002 (<http://www.theop.princeton.edu>). This data is ideally-suited to an investigation of the

gendered patterns and processes behind current college matriculation rates, as it includes a more recent sample of high school students than available national education surveys.² Additionally, Texas has overall and gender-specific college matriculation rates that are highly comparable to the national average, but differs importantly from many other states due to its large representation of minority students, particularly those of Hispanic origin (Knapp, Kelly-Reid, & Whitmore 2006). Therefore, the THEOP data provides a relatively unique opportunity to examine the gendered paths to higher education among Hispanic, African American, and white students.

ACADEMIC PREPARATION IN HIGH SCHOOL

Not surprisingly, research indicates a very strong link between students' academic achievement in high school and their likelihood of postsecondary matriculation (Buchmann & DiPrete, 2006; Perna, 2000). Students' grade point average and advanced course-taking in high school, particularly in the subjects of math and science, are among the strongest predictors of college attendance in general, as well as attendance at the most selective colleges and universities (Adelman, 1999; Schneider, Swanson, & Riegle-Crumb 1998). In short, students who have demonstrated academic proficiency or ability in high school are considered the most qualified to meet the increased academic demands of college.

As mentioned earlier, academic research and public attention has recently been focused on the fact that girls have outpaced boys on a number of academic indicators in primary and secondary school (Downey & Yuan, 2005; Mead 2006; Persell, Catsambis, & Cookson, 1992; Riegle-Crumb, Farkas & Muller, 2006). For example, girls are less

likely to be placed in remedial courses, less likely to drop out of school, earn higher grades across subjects, and take comparable or even larger numbers of college-preparatory courses (Bae et .al, 2000; NCES, 2001). While the idea that girls often outperform boys in school is not new, it appears that their scope of advantage in high school is increasing. For example, there is newly emerging equity in the traditionally male field of math, where girls now take Calculus at comparable rates to boys, and test score gaps have shrunk (Correll, 2001; Downey & Yuan, 2005; Riegle-Crumb, Farkas, & Muller, 2006). Although girls slightly trail behind boys on college preparation exams such as the SAT, such criteria are increasingly less important for college admission than in years past, due in part to policies such as the Top 10% Plan in Texas, where students in the top decile of their graduating class are guaranteed admission to any public university (Tienda & Niu, 2006). In essence, the female postsecondary advantage could be partially the result of differences in human capital, with girls' high school transcripts indicating that they have acquired more of the skills and knowledge that are considered necessary for success in college.

Yet beyond the issue of the academic skills or credentials that students achieve during high school, there are other factors that may help to explain the female postsecondary advantage. In the following section I suggest that the female postsecondary advantage may also be the result of the predominant behaviors and attitudes that young people learn to acquire as socially appropriate for their gender, such that compared to their male peers, girls develop a greater orientation to academics and engage in more academically supportive relationships.

ACADEMIC ORIENTATION AND SOCIAL CAPITAL

In our contemporary culture, girls and boys continue to be raised differently, with girls socialized to be more concerned about the opinions and approval of others, to respect those in positions of authority, and to follow rules and guidelines presented to them (Eccles, 1994; Gilligan, 1982). One of the negative consequences of such gender socialization is that adolescent girls tend to have lower self-esteem, as the result of internalizing the negative judgements of others (Correll, 2001). However, there are aspects of this learned gender role that actually promote academic achievement both in high school and beyond. Specifically, via the process of gender socialization, girls are likely to develop a strong academic orientation, prioritizing and investing effort in academic pursuits from an early age, as well as utilizing relationships with friends, parents, and teachers as a source of information and encouragement.

First, gender norms that entail girls' greater adherence to rules and authority may translate into a greater academic orientation than is held by their male peers. Girls work hard to receive high grades and the approval of their teachers and parents. They tend to be more academically engaged than boys, prioritizing academic work and thus fulfilling the role of a 'good student' that is expected by school personnel (Downey & Yuan, 2005; Johnson, Crosnoe, & Elder, 2001 ; Mickelson, 1989). In addition to leading to higher grades or performance in high school, girls' greater academic orientation can have an independent effect on their college matriculation, as it may extend to greater time and effort spent on college applications and decision-making, and lead them to prioritize continuing in an academic world where they have previously been successful.

Another aspect of academic orientation centers on the development of educational plans years before college. A large component of the process of gender socialization entails learning what specific roles and activities are likely to be available to each gender and considered desirable or appropriate (Correll, 2001; Eccles, 1994). In recent decades, with the changing social climate in which most women delay marriage and child-rearing until well into their 20's, college may be viewed as one of the few socially acceptable roles for young women to fulfill after high school graduation (Gray, Stockard, & Stone, 2006). Additionally, a college education can be seen as an insurance policy against dependence on a man in an era of high divorce rates (Casper & Bianchi, 2002). While getting a job is an alternative, the landscape of potential and desirable jobs for high school graduates is likely larger for young men than for women (Jacob, 2002). Consequently, from an early age girls are likely to think of college attendance as a typical and appropriate gender role, and invest their time and efforts accordingly. In contrast, boys likely perceive that there are several socially acceptable alternatives to college, for example, joining the military or getting a job in an applied field such as construction or manufacturing. This may shape their academic performance during high school, and additionally influence their choices after high school completion even if they have the necessary credentials to attend college, therefore contributing to the relatively lower percentage of males than females matriculating to college.

In addition to girls' greater relative academic orientation via educational effort, values, and plans, they may have greater access to social capital that promotes their matriculation to college. Previous research has shown that enrollment in college is related to the resources that young people can access through their relationships with others.

Parents are perhaps the most obvious source, as the familial relationship typically offers a strength and continuity of ties through which information, encouragement, and expectations about college is passed along (Kim & Schneider, 2005; Perna & Titus, 2005). Beyond the family, relationships with teachers can be crucial, as these institutional agents can offer academic assistance and specific guidance in the college application process (Stanton-Salazar & Dornbusch, 1995). Finally, friends can be an important source of social capital by establishing norms concerning academic pursuits, offering emotional support, and sharing relevant information, all from the more parallel perspective of a peer (Carbonaro, 1998).

With regard to gender differences, girls tend to have greater levels of social capital in terms of such relationships that facilitate their academic achievement. For example, compared to boys, adolescent girls typically have personal relationships with friends that involve more intimate discussion, entail a greater level of involvement, and center on school and related academic areas (Felmlee, 1999; Giordano, 2003; Leslie, McClure, & Oaxaca, 1998). In contrast, boys' friendships are often focused on competition and activities, and less on academic support (Beutel & Marini, 1995; Riegle-Crumb, Farkas, & Muller, 2006). Girls' other-directedness extends beyond close relationships with friends to those with parents and teachers as well, providing them access to the social capital inherent in such ties. Girls' greater willingness to seek out personal contact with others may therefore be a key to their academic success. In other words, teachers and parents are likely as willing to encourage boys as girls to go to college, but to the extent that their ties with others are weaker, male students may be at a disadvantage. In sum, girls' greater levels of social capital via friends, family and

teachers is likely a key factor in their educational advantage that is not limited to high school, but rather promotes their comparatively higher rates of college matriculation through the sharing of ideas, information, and encouragement.

RACIAL/ETHNIC VARIATION IN FACTORS LEADING TO COLLEGE

As mentioned earlier, there are few existing studies on the factors that underlie the female postsecondary advantage, but we know even less about whether such factors vary in importance across racial/ethnic groups. In general, minority girls, like their majority counterparts, exhibit higher levels of academic preparation, academic orientation, and social capital compared to their male peers (Mead, 2006). Yet minority girls also share in common with their male peers many obstacles to college matriculation, such as lower levels of financial resources, as well as academic and social resources, compared to white students (Browne & Misra, 2003). This unique position of minority girls, one that mixes the female postsecondary advantage with the minority postsecondary disadvantage, introduces the possibility of a more complex picture of the reasons behind females' higher relative college matriculation rates.

For example, several studies suggest that as minority students generally have fewer resources for college (lower income, lower levels of parental education, etc), support and encouragement from teachers and friends and the effort and values minority students place on education is even more crucial to their success than to that of majority students (Barajas & Pierce, 2001; Perna, 2000; Zarate & Gallimore, 2005). To the extent that African American and Hispanic girls are more academically oriented than their male peers and more invested in personal relationships with others, then such factors may be

more important in explaining the gender gap in college attendance among minority youth than majority youth. On the other hand, the benefits to minority girls from having relationships with teachers and parents, however academically encouraging, could be weakened due to the quality of information that these other individuals have about college (Niu, Sullivan, & Tienda, 2006). Further, academic preparation in high school may prove to be less important a factor in explaining the female postsecondary advantage for minority versus majority youth if their academic credentials are viewed with skepticism by college admission counselors who are concerned about whether the achievement of students in a high-minority school is really comparable to students from other schools (Zarate & Gallimore, 2005).

In short, there is reason to believe that the reasons behind females' higher college attendance rates may not be identical across racial/ethnic groups. This paper will therefore focus on the extent to which academic preparation, academic orientation, and social capital similarly contribute to explaining the female postsecondary advantage for white, Hispanic, and African American women. In doing so, it rejects the notion that there is a singular path to college, and instead recognizes the diversity of paths that may exist according to both students' gender and their race/ethnicity.

DATA

This paper uses data from the Texas Higher Education Opportunity Project (THEOP) to examine whether factors such as academic preparation, academic orientation, and social capital explain the female postsecondary advantage for students of different racial/ethnic groups. As Texas is characterized by ever-increasing racial/ethnic

diversity, most notably through the growth of the Hispanic population, THEOP data provides an excellent opportunity to examine in detail the educational paths of minority and majority students. The THEOP data has the additional advantage of sampling a more recent cohort of students than is currently available from national education surveys. It is also worth noting that college matriculation rates in Texas mirror those of the nation, both overall and with regard to gender-specific rates (NCES, 2005).

The THEOP data is based on a stratified random sample of 108 Texas public schools, further stratified on the basis of metropolitan area status and school racial/ethnic composition. Ninety-three percent of eligible schools that were selected subsequently participated in the study, resulting in a sample of 96 high schools with 13,803 seniors who were administered a paper and pencil survey in the spring of 2002. Additionally, school administrators from each of the high schools also completed a survey. In the spring and summer of 2003, the first follow-up survey of the senior cohort was conducted. The total sample size for the longitudinal senior cohort is 5836, which includes all baseline African American and Asian baseline respondents and a random sample of Hispanic and non-Hispanic white baseline respondents. (For more information on the THEOP data, see THEOP, 2004 or go to <http://www.theop.princeton.edu>)

For the purposes of the analyses here, I restrict the sample to white, African American and Hispanic students in the longitudinal sample. Asian students, those from other racial/ethnic groups, or those with missing data on race/ethnic identification are excluded due to their small representation in the data.

Dependent Variable

To assess the gender gap in postsecondary attendance among white, African American, and Hispanic students and the factors related to it, I use a variable that classifies the school students report attending in the first follow-up survey. The variable includes the following three categories: 0 ‘no college’; 1 ‘two-year college’; 2 ‘four-year college’.³ This serves as the dependent variable for all analyses presented here in a series of multinomial logistic regressions, where the omitted category is always 0 ‘no college’.⁴

The decision to consider two-year and four-year colleges as separate categories is due to the fact that these two college types clearly represent distinct academic paths with different obstacles and opportunities. Interestingly, the few current studies exploring the female postsecondary advantage do not focus on this distinction (Buchmann & DiPrete, 2006; Jacob, 2002). Yet if we are interested in exploring the gendered patterns and predictors of attendance by race/ethnicity, it is important to differentiate according to college type, as for example, Hispanic students are over-represented among two-year college matriculates (Kurlaender, 2006). This study therefore contributes to the literature a more detailed analysis of the gender gap in college attendance.

Independent Variables

I consider the role of three major factors in accounting for the female advantage in postsecondary attendance: academic preparation, academic orientation, and social capital. All of these factors are measured by students’ responses to survey questions in the baseline survey, when they were high school seniors.

Academic preparation for college is measured by two variables. The first captures whether students have completed two key courses viewed as pre-requisites for college

matriculation (Adelman, 1999). This is a dichotomous indicator with a value of '1' if the student reports having taken both Algebra II and Chemistry, and a value of '0' otherwise.⁵ A second variable is the average of students' grades in four subjects: math, science, English and history. Together these two variables tap how well students are academically prepared for college.

Academic orientation is measured by three variables. The first is a three-category ordinal variable indicating whether students feel that grades are very important, where 1 = 'disagree', 2= 'agree', and 3= 'strong agree'. The second variable is students' reports of the amount of time spent on homework outside of school each day, ranging from values of 1 '0 hours' to 4 '3 or more hours'. The last variable is students' reports of when they first thought about going to college. The original categories of the variable were: 1 'always wanted to go to college'; 2 'in elementary school'; 3 'in middle school'; and 4 'in high school'. Categories 1 and 2 were collapsed to capture 'early college plans', while categories 3 and 4 were collapsed for the contrast category of 'late college plans'. These three variables capture the value and efforts students assign to education.

Social capital is measured by a series of four indicators of the personal relationships that student have which can facilitate their successful matriculation to college. The first two indicators focus on students' friendships. Both are ordinal variables with four categories; one is the number of their friends that students' report work hard in school, and the other is the number of friends who plan to go to college. Values range from 1 'none' to 4 'more than three'. A third indicator of social capital is a dichotomous indicator of whether or not teachers have encouraged them to go to college. A final indicator measures whether parents have likewise encouraged them.

In addition to gender, all models include a set of background variables to capture students' family and school characteristics. Mother's level of education, and an indicator of whether or not the student lives in a two-parent biological family are included to capture the family's economic and social resources.⁶ The percent of the school student body comprised of minority students and the school's ranking on state academic accountability tests are measures included from the school survey to capture differences in the school context which may have implications for students' postsecondary opportunities.

Design and Analyses

The subsequent analyses include bivariate descriptive analyses as well as multinomial logistic regression analyses. I also report the results of decomposition analyses to highlight the relative contribution of individual variables in explaining the female postsecondary advantage (Shauman, 2006; Xie & Shauman, 1998).

Because of the clustered nature of the sample, such that many students attended the same high school, all analyses utilize STATA, which allows for the specification of clusters and the calculation of robust standard errors. Together with the incorporation of sampling weights, these procedures adjust for the non-random design of the sample and calculate standard errors that take into account the correlation between error terms for students within the same school.

Several variables in the analyses had non-negligible amounts of missing data. To remedy this, multiple imputation was performed using the 'ice' command in STATA. Ten imputed datasets were produced, and using the 'micombine' command, descriptive

statistics were calculated and multinomial logistic regressions performed that produced point estimates reflecting the average of ten individual point estimates (one for each imputed value) and standard errors that account for the variance across the ten point estimates. (For more information on this procedure, see www.multiple-imputation.com)

Results

Descriptive Results

Table 1 displays the proportion of female and male students of each racial/ethnic group who attended four-year college, two-year college, or no college. Among white students, 54% of women go to college, compared to 43% of men. A similar proportion of both genders attend two year colleges (31%). Only 15% of white females do not attend college, compared to 25% of white men. Among Hispanic students, the female advantage in four-year college going is small (30% to 28%), while the disparity for two-year college attendance is almost ten percent (39% females vs. 30% males). A much higher proportion of all Hispanic students do not attend any college in comparison to white students, but Hispanic females nevertheless have lower rates of non-attendance than their male peers (31% of Hispanic women vs. 42% of Hispanic men that attend no college). Finally, while comparable percentages of African American male and female students attend four-year colleges (42%), more females attend two year-colleges (34%) compared to males (27%). African American men also have a higher rate of non-attendance (31%) compared to women (24%). These descriptive statistics provide evidence of the gender gap in postsecondary attendance, yet also reveal differences among racial/ethnic groups. The

female advantage for white students stems primarily from four-year college attendance while the female advantage for minority students is most evident in two-year colleges.

INSERT TABLE 1 ABOUT HERE

Table 1 also displays means for the key independent variables. Beginning with academic preparation, girls of all groups have higher grades than their male counterparts, and significantly more Hispanic females have completed both Algebra 2 and Chemistry compared to Hispanic males. Table 1 reveals that girls from all three racial/ethnic groups have a stronger academic orientation than their male peers. Girls place a higher importance on grades and spend more time on homework. Additionally, white, Hispanic, and African American girls all report earlier plans for college compared to their male peers. With regard to social capital, girls of all three racial/ethnic groups report friendships that are significantly more academic in their emphasis than those of their male peers, although the gender differences are significant only for white students. Additionally, girls in all three groups report receiving significantly more encouragement from teachers concerning going to college compared to their male peers. African American females report receiving significantly more parental encouragement for college than African American males.

In sum, the descriptive statistics for the independent variables displayed in Table 1 reveal gender differences in three key areas that may help to explain the female postsecondary advantage: differences in academic preparation, academic orientation, and

social capital. Next, I turn to multivariate multinomial logistic regression analyses to determine the degree to which the indicators presented in Table 1 help to explain this gap.

Examining the Female Postsecondary Advantage

Tables 2-4 present multinomial logistic regression models separately for white, Hispanic, and African American students where the dependent variable is college attendance as described above. In exploratory analyses, I first performed a pooled model with students from all groups and introduced interaction terms with race/ethnicity and gender, as well as interactions between race/ethnicity and the other variables in the model. As anticipated, many of the racial/ethnic interactions were significant, and therefore in the interest of simplicity and clarity, separate models were subsequently performed and are presented for each group. This allows us to explore whether there are racial/ethnic differences in the contribution of academic preparation, academic orientation, and social capital to the female postsecondary advantage. For each group, I begin with a baseline model which includes only coefficients for gender and the background control variables. Subsequently, academic preparation variables are added in Model 2, and academic orientation and social capital variables in Model 3, with an eye towards seeing how the gender effect is affected at each step.

INSERT TABLE 2 ABOUT HERE

The Gender Gap among White Students: Table 2 displays the results of multinomial logistic regression models predicting college matriculation for white

students. Model 1 is the baseline model, which in addition to gender, includes family and school characteristics.⁷ By converting the logistic regression coefficients presented in the tables to relative risk ratios, it is apparent that white females are 2.4 times as likely to attend four-year college compared to no college as their male peers. The regression analyses also reveal that females are approximately 1.9 times as likely to attend two-year college (vs. no college) than their male peers, which is due to the fact that men are more likely to be in the contrast category (no college) than women, as observed in the descriptive statistics in Table 1. Model 2 introduces indicators of academic preparation. While grade point average is a significant predictor of both types of college attendance for students of both genders, as is college preparatory coursework for four-year college attendance, the inclusion of these variables does little to diminish the positive and significant female advantage.

Subsequently, Model 3 adds measures of academic orientation and social capital. Three of these measures are significant predictors of matriculation for students of both genders: early plans for college (four-year college only), friends work hard in school (four and two-year) and parents encourage college (four and two-year). With regard to explaining the female postsecondary advantage, the introduction of the collective set of variables in Model 3 clearly diminish the gender effect, and the coefficients in both models are reduced to non-significance. However, the size of the coefficient is less attenuated for two-year college than it is for four-year college. Overall, in this final model, 67% of the baseline female advantage in four-year college attendance (as seen in model 1) is explained through the collective power of academic preparation, orientation,

and social capital. In contrast, only 43% of the female advantage in two-year attendance is accounted for by the same combination of factors.

To gain a better understanding of the relative contribution of each variable towards explaining the female postsecondary advantage, I conducted decomposition analyses, as introduced by Xie and Shauman (1998).⁸ This calculates the upper and lower bounds of the potential explanatory power of variables included in the model. The lower bound or more conservative estimate of the explanatory power of a variable is simply the difference between the gender coefficient in the full model (Model 3) and the gender coefficient after that variable, such as hours spent on homework, is taken out of the full model. The upper bound or more liberal estimate is the difference in the gender coefficient between the base model (Model 1) and the gender coefficient in a model where only that particular variable of interest is added to the base model.

Decomposition analyses confirm that academic preparation is not a strong explanatory factor in the female college advantage for either college type, explaining at most only 5% of the four-year college gender gap. Among white students, the factor that has the single greatest influence on the gender gap favoring females is early plans for college. This measure of academic orientation accounts for between 17% and 24% of the four-year college advantage, and between 13% and 16% of the two-year advantage.

INSERT TABLE 3 ABOUT HERE

The Gender Gap among Hispanic Students: Table 3 displays the results of multinomial logistic regression analyses predicting college attendance for Hispanic

students. Beginning with Model 1, there is a significant female advantage in postsecondary attendance for both types of colleges, such that females are 1.55 times as likely to attend a four-year college (vs. no college) compared to males, and 1.8 times as likely to attend a two-year college. However, with the inclusion of academic preparation variables in model 2, which are strong predictors of college matriculation of both types for students of both genders, Hispanic females' advantage in four-year matriculation virtually disappears. The coefficient is reduced from .441 to .136, or from a relative risk ratio of 1.6 to 1.1, and is no longer statistically significant. In contrast, the female advantage for two-year college attendance is reduced only slightly and remains significant after considering academic preparation.

In Model 3, variables measuring students' academic orientation and social capital are collectively introduced. For matriculation to a four-year college, all of the academic orientation variables are significant, as well as one of the social capital measures ('friends plan on college').⁹ The gender effect (already non-significant and small in size with the introduction of the academic preparation variables) is reduced slightly further, so that the gender effect can be considered null. Specifically, 87% of the female advantage in four-year matriculation as observed in Model 1 has been explained with the variables in the full model (3). This is not the case for two-year college matriculation. In Model 3, the female advantage in two-year college vs. no college attendance remains significant with a relative risk ratio of approximately 1.5. Thus, considering academic preparation, academic orientation, and social capital does little to explain the pattern whereby more Hispanic females than males attend two-year colleges. Only 35% of the female advantage observed in Model 1 has been explained.

With regard to the contribution of specific variables, decomposition of gender effects confirms that academic preparation is an important factor in explaining the four-year college gap. Specifically, gender differences in grade point average among Hispanic students explain up to 19% of the female advantage in four-year college attendance, and at most only 8% of the two-year advantage. Additionally, while none of the social capital indicators explained a substantial proportion of the gender gap in either two-year or four-year college attendance, the indicator of early plans for college had substantial explanatory power, accounting for up to 21% of the four-year college advantage and up to 16% of the two-year advantage.

INSERT TABLE 4 ABOUT HERE

The Gender Gap Among African American Students: Finally, Table 4 presents the results of a multinomial logistic regression analysis predicting college attendance among African American students. The results in Model 1 indicate that females are not significantly more likely to attend four-year colleges (vs. no college) than their male peers. However, African American females are 1.7 times significantly more likely to attend two-year colleges compared to their male peers. With the introduction of the indicators of academic preparation in Model 2, both of which significantly predict matriculation for students of both genders, the female advantage in two-year attendance loses statistical significance but is not greatly reduced in size.

Model 3 introduces the measures of academic orientation and social capital. For four-year college attendance, only one measure is a significant predictor—early plans for college. Interestingly, the gender coefficient, while still insignificant, turns negative in

direction. For two-year college attendance, teacher encouragement is the only significant general predictor of matriculation for all African American students. Yet with the addition of all the measures of social capital and academic orientation in Model 3, the gender coefficient is reduced from .451 to .129, indicating that 75% of the gap in two-year college as observed in Model 1 has been explained. Thus there is evidence that social capital and academic orientation may play a role in explaining the female advantage in both four-year and two-year college matriculation for African American students.

Decomposition analyses confirms that gender differences in academic preparation in high school do account for some of the gender gap in two-year college attendance, with grade point average accounting for 7% at most. Parental encouragement for college accounted for up to 12% of the two-year advantage, while early plans for college appears to be the most important, accounting for up to 30% of the two-year gap. Therefore, African American girls' two-year college advantage can be largely accounted for by their higher levels of academic orientation, and to a lesser extent, their social capital and academic preparation. Additionally, while African American girls do not possess a clear four-year college advantage, the results suggest that without their higher levels of preparation, orientation, and social capital, they would in fact be less likely to attend such colleges than their male peers. Such factors appear to keep girls from falling behind boys in four-year college attendance, yet serve to push them ahead of boys in two-year college attendance.

Discussion and Conclusion

This paper examined the female postsecondary advantage among white, Hispanic, and African American youth. While the higher rates of female college matriculation relative to males nationwide are well-known, few studies have considered the academic and social factors that may help to explain such patterns or considered racial/ethnic variation in the importance of such factors. Using newly available longitudinal data from a representative sample of high school seniors in the state of Texas, this paper has attempted to shed light on how academic background, academic orientation, and social capital, can explain the gendered college gaps for each group.

The analyses presented here found racial/ethnic differences in the patterns of the female advantage as well as the factors that explained it. Specifically, the female advantage in college attendance was more pronounced in two-year college attendance for minority students than it was for white students. Thus, when discussing high school girls' greater access to college, it is important to understand that the pattern may not be uniform across different groups.

With regard to the importance of factors that help to explain why girls are more likely to go to college, differences among racial/ethnic groups were also observed. First, multinomial logistic regression analyses indicated that while gender differences in academic preparation do play a role in explaining why girls of all racial/ethnic groups are more likely to attend college, this was most pronounced among Hispanic students. Specifically, girls' higher grades during high school are a key link to their higher representation in four-year colleges compared to their male peers. These results suggest that in order to close the college gap between male and female Hispanic students, greater

attention must be paid to the academic performance of males so that more of them exit high school having acquired the skills and prerequisites necessary for college.

The indicators of academic preparation in this study were limited to self-reported grades and course-taking. Additional research should consider whether using more objective measures of achievement, such as grade point average and measures of course-taking taken from student transcripts, as well as achievement test scores, reveals even greater gender differences in academic preparation in high school and/or a greater role of preparation in explaining the gender gap in college attendance among minority students. National studies could also reveal whether the results observed here for a statewide sample of high school seniors from Texas are similar to patterns nationwide or in other states with high minority populations.

It is also worth noting that among two-year colleges, the college sector where Hispanic students are over-represented (Kurlaender, 2006), the factors considered here did little to explain females' higher rates of attendance. In fact, the inclusion of all variables explained only 35% of the female advantage in attending such schools. In contrast, 87% of Hispanic females' four-year advantage was explained, and 75% of the female two-year college advantage among African Americans was explained. Thus, in addition to highlighting how academic and social factors may work differently to promote girls' college advantage for different groups, the analyses confirm the importance of considering attendance at two-year colleges and at four-year colleges as distinct paths. Collapsing postsecondary attendance into a single category, or neglecting to consider students' attendance at junior or community colleges, does not capture the complexity and diversity of the gendered patterns and predictors of college attendance.

Clearly more work is needed to explore the additional and potentially unique factors that may influence the paths to two-year colleges among Hispanic students, in Texas and nationwide.

Finally, this paper also revealed a pattern common to all racial/ethnic groups considered. Taken collectively, the groups of variables measuring social capital and academic orientation substantially diminished the female advantage in college attendance among white, African American, and to a lesser extent, Hispanic students. Yet early formation of college plans, an element of academic orientation, was the single largest contributor in explaining the female postsecondary advantage in both two-year and four-year college attendance. Thus, the fact that girls reportedly begin thinking and planning to attend college earlier than boys is a key factor related to females' higher representation in college years later.

This result prompts further consideration of why girls and boys differ concerning the timing and perhaps exclusivity of their thoughts about college. A possible explanation is that gender socialization processes which encourage girls to be good students and work hard in school have been operating for a long time, but what has changed more recently are the conditions or obstacles that made girls curtail their academic efforts around the end of high school. In the current social context, characterized by later ages at marriage, higher rates of divorce, and changing norms about gender roles via the growth of feminism, the incentives for girls to go to college are greater (Casper & Bianchi, 2002). If girls are cognizant of this reality from an early age, then their thoughts and plans for college begin to develop accordingly. Indeed it may be that girls' closer relationships with parents, teachers, and friends serve as the conduit by which girls are made aware of

the importance of college for their future life chances, and their greater academic effort makes it likely they will succeed.

A related but different explanation centers on the job prospects and opportunities that may lure more boys away from college. There is some evidence, for example, that gender gaps in college attendance are greater in areas where there is a large blue-collar sector (Jacob, 2002). To the extent that such occupations are considered more appropriate for men than for women, then boys are raised to look towards such options as viable future prospects, and thoughts of college may be more remote. The study here is limited in its ability to explicitly test the mechanisms through which girls and boys tend to develop a different emphasis on college at an early point in their lives. Yet the results clearly underscore the cumulative nature of the path to college, where priorities and decisions made throughout the years of primary and secondary school have a large impact on who matriculates.

In conclusion, as we continue to explore the patterns and predictors of the female postsecondary advantage there are two sober facts that should be kept in mind. First, although women's greater college attendance rates certainly represent progress in the goal of advancement for women, nevertheless women remain more likely than men to enter occupations with lower pay and prestige (Marini & Fan, 1997). At this point then, the female postsecondary advantage does not extend to a female occupational advantage, or even to equity in income. Secondly, it is important to remember that the disparities in college matriculation between white students and minority students are larger in scale than gender differences within a particular racial/ethnic group, and subsequently that it is minority males who suffer the most pronounced disadvantage in college matriculation

(NCES, 2005). Thus there is clearly the need for more research that considers the complex process through which individuals are given opportunities and presented with obstacles in their path to college and beyond, and how both gender and race/ethnicity simultaneously shape this path along the way.

Table 1: Descriptive Statistics: Means on Dependent and Independent Variables

	<i>White</i>		<i>Hispanic</i>		<i>African American</i>	
	Female	Male	Female	Male	Female	Male
Dependent Variable:						
<i>College Matriculation</i>						
Four-year college	.54	.43*	.30	.28*	.42	.42
Two-year college	.31	.31	.39	.30*	.34	.27*
No college	.15	.25*	.31	.42*	.24	.31*
Independent Variables						
<i>Academic preparation</i>						
Algebra 2/Chemistry	.85	.83	.84	.79*	.73	.73
Overall GPA	3.41	3.27*	3.14	2.96*	3.06	2.90*
<i>Academic orientation</i>						
Importance of grades	2.23	1.91*	2.27	2.03*	2.35	2.19*
Daily time on homework	2.38	2.15*	2.53	2.28*	2.56	2.37*
Early plans for college	.83	.67*	.59	.51*	.66	.62
<i>Social Capital</i>						
Friends work hard at school	.60	.47*	.46	.42	.58	.54
Friends plan on college	.87	.83*	.71	.67	.83	.78
Teachers encourage college	.92	.81*	.90	.85*	.90	.85*
Parents encourage college	.96	.95	.92	.91	.97	.91*
N	1028	993	888	797	571	407

*'s indicate that the mean value for male students is significantly different (at the .05 level or less) than the female mean for the same racial/ethnic group (as seen in the preceding column)

Table 2: Predicting Four Year and Two Year College Attendance (vs No College for White Students: Coefficients from Multinomial Logistic Regression

	Model 1		Model 2		Model 3	
	4yr	2yr	4yr	2yr	4yr	2 yr
Female	.884***	.621***	.788***	.612**	.292	.357
<i>Background</i>						
Mother's education level	.571***	.281*	.547***	.276*	.523***	.307*
Biological two-parent family	1.01***	.629***	1.07***	.662**	.938***	.627***
School percent minority	.519	.277	1.09	.514	1.11	.294
School test performance	.154	-.008	.244*	.009	.199	-.047
<i>Academic Preparation</i>						
Overall GPA			2.19***	.412**	1.05***	.318
Alg2/Chem			1.16***	.394	1.87***	.229
<i>Academic Orientation</i>						
Importance of grades					.152	.179
Daily time on homework					.046	-.250
Early plans for college					.829***	.114
<i>Social capital</i>						
Friends work hard in school					.947***	.689**
Friends plan on college					.275	-.374
Teachers encourage college					.821	.769
Parents encourage college					1.38**	1.02*
Constant	-3.84***	-1.68*	-9.80***	-3.36**	-12.21***	-4.12**
-2 log likelihood	-1939.94		-1761.29		-1456.46	

* p<.05; ** p<.01; *** p<.0001
N=2047 ; contrast=no college

Table 3: Predicting Four Year and Two Year College Attendance (vs No College) for Hispanic Students: Coefficients from Multinomial Logistic Regression

	Model 1		Model 2		Model 3	
	4 yr	2 yr	4 yr	2 yr	4 yr	2 yr
Female	.441*	.611**	.136	.482*	.056	.395*
<i>Background</i>						
Mother's education level	.251**	.127	.185*	.097	.145	.055
Biological two-parent family	.322	.029	.129	-.065	.153	.047
School percent minority	.740	.326	.386	.173	.258	-.084
School test performance	.304	-.018	.465*	.024	.340	-.160
<i>Academic Preparation</i>						
Overall GPA			1.43***	.510**	1.23***	.398**
Alg2/Chem			1.86***	.560*	1.69***	.354
<i>Academic Orientation</i>						
Importance of grades					-.520**	-.359
Daily time on homework					.281**	.095
Early plans for college					.930***	.574**
<i>Social capital</i>						
Friends work hard in school					.161	.178
Friends plan on college					.713*	.558**
Teachers encourage college					.086	-.083
Parents encourage college					.143	.528
Constant	-3.02***	-1.07*	-8.65***	-2.74***	-7.94***	-1.90*
-2 log likelihood	-1785.26		-1638.55		-1374.96	

* p<.05; ** p<.01; *** p<.0001
N=1717 ; contrast=no college

Table 4: Predicting Four Year and Two Year College Attendance (vs No College) for Black Students: Coefficients from Multinomial Logistic Regression

	Model 1		Model 2		Model 3	
	4 yr	2 yr	4 yr	2 yr	4 yr	2 yr
Female	.253	.526*	.098	.451	-.344	.129
<i>Background</i>						
Mother's education level	.358***	.185**	.313***	.162**	.314***	.123
Biological two-parent family	.394	-.160	.305	-.185	.313	-.275
School percent minority	.420	-.740	-.271	-1.07*	-.299	-1.23**
School test performance	.372*	.387**	.323**	.399**	.418**	.413**
<i>Academic Preparation</i>						
Overall GPA			.952***	.406**	.990***	.365
Alg2/Chem			1.46***	.432*	1.20**	.128
<i>Academic Orientation</i>						
Importance of grades					.003	.145
Daily time on homework					.242	-.110
Early plans for college					.454*	.201
<i>Social capital</i>						
Friends work hard in school					.356	.191
Friends plan on college					.212	.216
Teachers encourage college					.095	1.14**
Parents encourage college					.751	1.35
Constant	-2.86***	-1.51**	-5.85***	-2.58***	-7.58***	-4.24**
-2 log likelihood	-994.23		-919.30		-746.54	

* p<.05; ** p<.01; *** p<.0001
N=978 ; contrast=no college

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¹ For example, a recent study by Buchmann and DiPrete (2006) focused on the female postsecondary advantage in college completion. The authors find that completion rates are driven mostly by grades received during college, and therefore that young women's higher grades lead to higher completion rates.

² For example, the National Education Longitudinal Study (NELS) includes students who were high school seniors in 1992. Other national datasets include Baccalaureate and Beyond (B&B) and the Beginning Postsecondary Students Longitudinal Study (BPS), but both of these are limited to students who enrolled in college. The Education Longitudinal Study of 2002 (ELS) includes a national sample of twelfth graders in 2004, but has not at this time released the next wave of data which will include data on college enrollment.

³ Art, beauty, and vocational and trade schools were included with the category of two-year colleges. However, in analyses not shown here, students who attended these schools were re-assigned to the contrast category for 'no college'. This did not substantially change any of the key effects reported here.

⁴ The steps to college attendance include the decision to apply, being accepted, and choosing to attend. Analysis of the THEOP data revealed a small number of students reported being accepted to college and not subsequently attending, indicating that most students who applied did enroll in some college. Preliminary analyses where application to college was the dependent variable yielded similar results to those shown here. It is also important to note that many students who subsequently attended a two-year college do not report applying to college as a senior, either because they had not yet done so or because the process of attending a two-year college is not considered an actual application process, due to open enrollment policies.

⁵ It is worth noting that the percentages of students reporting having taken both courses are larger than the national averages as calculated from students' high school transcript. This discrepancy is likely due to the fact that student reports of academic achievement tend to be higher than reported on official records.

⁶ In preliminary analyses, a dichotomous measure for immigrant status (1 'first/second generation'; 0 'third-plus generation') was included in all of the models for Hispanic students only. This did not change any of the key results here and for the sake of consistency across models, I report the results for models without this variable.

⁷ Analyses for all three racial/ethnic groups which included only gender as the independent variable predicting college matriculation revealed that the gender effects were not substantially different than in models where background variables were taken into account. Thus in contrast to some who have suggested that family background may be more important for the college attendance of male students (Buchmann and DiPrete 2006), I do not find this to be the case, and therefore for the sake of simplicity do not include results from the gender-only baseline model in Tables 2-4.

⁸ The method of decomposition analyses used here tests the extent to which gender differences in the levels of independent variables contributes to gender differences in the postsecondary matriculation. Variants of the decomposition method can simultaneously determine the extent of variation in the dependent variable that is attributable to group differences in levels of the independent variables and that due to differences in the effects of such variables. In exploratory analyses I introduced interaction terms between gender and all other independent variables to determine, for example, whether there were gender differences in the *effects* of academic orientation on postsecondary matriculation. The results did not reveal significant gender interactions for any racial/ethnic groups, indicating that the decomposition method used here is appropriate for this study.

⁹ As seen in Table 3, the measure for the importance students place on grades is negative net of all other variables included in the model. However, when this measure is introduced into a model without the other academic orientation and social capital measures, it has a positive and significant effect on four-year college matriculation.