Better Late Than Never?
Delayed Enrollment in the High School to College Transition

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Abstract
In this paper, we examine the antecedents and consequences of timing in the transition from high school to college. Using the National Education Longitudinal Study of 1988 (NELS:88), we find that 16 percent of high school graduates postpone enrollment by seven months or more after completing high school. Delayers tend to have some common characteristics: they come from families with few socioeconomic resources, they have performed poorly on standardized tests, they have dropped out of school, and they have exited high school with a GED. We find that even after controlling for these academic and socioeconomic characteristics, students who delay postsecondary enrollment have lower odds of bachelor degree completion. Additionally, we find that delayers are more likely than on-time enrollees to attend less than four-year institutions and to transition to other roles such as spouses or parents before entering college. Controlling for institutional context and life course contingencies, however, does not completely explain the negative relationship between delayed enrollment and degree completion.

For many young adults, the conclusion of high school begins a period in the life course characterized by higher levels of autonomy and a series of future oriented decisions (Feldman and Elliott 1990). The months following high school graduation represent a period of newly found freedom that is in stark contrast to the prior 13 years of formally structured schooling. One of the major decisions facing high school graduates is whether or not to attend college. Although a common societal expectation is that students begin postsecondary education within a couple of months of high school completion, many students delay enrollment. The National Center for Education Statistics reports that the proportion of the undergraduate population that has delayed enrollment has increased over the past decade, in part due to the growing numbers of non-traditional students (2002a). In the 1999-2000 school year, 46 percent of undergraduates did not start their postsecondary schooling the same calendar year that they completed high school (National Center for Education Statistics 2002a).[1] While much of the existing research on the transition to adulthood has focused either on how school completion fits in with other transition events such as marriage and employment (Marini 1984; Pallas 1993) or how school enrollment may influence the timing and occurrence of other life course transitions (Marini, Chan and Raymond 1987; Rindfuss, Swicegood and Rosenfeld 1987; Thorton, Axinn and Teachman 1995), few explicitly consider the nature of the timing of high school

completion and college enrollment as a critical transition in young adulthood.

The timing of the transition to college is of current interest given that the postsecondary educational landscape has changed dramatically over the last few decades, both with respect to student composition and the structure of educational opportunity. For example, the total number of students enrolled in postsecondary institutions has increased (National Center for Education Statistics 2002a); the enrollment of racial minorities and women has steadily risen with women now holding an enrollment advantage over men (U.S. Census Bureau 2001, 2002b; Nettles, Perna and Freeman 1999); non-traditional students occupy a growing share of the college going population (National Center for Education Statistics 2002a); and college tuition costs continue to escalate (National Center for Education Statistics 1999). One of the most notable structural changes has been the growth of two-year institutions which have increased from a grand total of one in the year 1900 by 1998 to 1,600 by 1998 (Phillipe and Patton 2001). In addition to two-year programs, there are many shorter-term programs which award specialized certifications in fields like paralegal services and information technologies (Deil-Amen and Rosenbaum 2003). Therefore, we see both an increase in the number of possible pathways to a four-year degree as well as the number of other possible credentials that may or may not lead to attendance at a four-year institution. With these increased options may come the perception that there are no consequences for postponing college since there are so many points of entry and the system appears permeable at any time (Turner 1960; Rosenbaum 1998, 2001).

While the expansion of higher education provides an opportunity structure that keeps in place the possibility of enrollment in higher education at any age, the question remains: Does delaying postsecondary education matter? We approach this question from a life course perspective which considers the timing of life events as key in understanding the causes and consequences of the event. In his review of research on the role of education in the life course, Pallas (1993) notes that off-time educational transitions can be detrimental as they remove individuals from their grade cohorts and place them in classrooms with younger students. Because social institutions like schools and labor markets are often organized to process individuals in cohorts, students who are off-time may not be as successful because they will be competing with younger and more adept peers. It is also possible that off-time students know in advance that they might not be enrolling directly into college, and therefore begin to invest less early on, missing out on important "capitalization" experiences (Hagan 1998). Lastly, off-time students may be more likely to have family and work commitments that may compete with their role as students. Thus, they may have lower chances of completing a degree and/or reaping the benefits from their education if they do matriculate (Jacobs and King 2002). Our analysis is guided by the belief that individual agency in life course trajectories may be promoted or constrained by both the timing of certain transitions as well as the institutional contexts within which these transitions occur.

In this paper, we identify the types of students most likely to delay college enrollment. Using a nationally representative sample of high school seniors in 1992, we examine the consequences of delayed enrollment on degree completion. We test whether the effect of delayed enrollment exists when controlling for academic performance, socioeconomic support and socio-demographic characteristics. Next, we analyze whether the relationship between delayed enrollment and degree completion is explained by delayers' initial enrollment in a sub-baccalaureate institution or whether they occupy other adult roles such as spouses or parents that may be incompatible with the role of student. We conclude by discussing the implications of our findings for understanding the role of postsecondary education in the transition to adulthood.

Previous Research

The Transition to Adulthood

A central focus of research on the transition to adulthood is the order of life course transitions or events and whether these different patterns or trajectories have long-term consequences. One of the most consistent findings in a variety of studies is that a modal sequence of life course events exists, but that the proportions following this order have decreased over the latter part of the past century (Shanahan 2000; Modell and Goodman 1990). The path most commonly followed is to first complete full-time schooling, next obtain a permanent job, and then get married (Hogan 1981). About 75 percent of the men born before 1910 conformed to this sequence. Successive cohorts, however, declined in their adherence to this order. The most common deviation is to marry before completing school – a pattern that is more salient among the better educated (Hogan and Mochizuki 1988). A variety of studies show that interruptions in schooling are a common feature of the transition to adulthood. Marini (1987), in her analysis of the Adolescent Society follow-up survey, finds that substantial proportions of young adults who came of age in the 1950s had interruptions in their schooling and had shifts between full- and part-time status. Rindfuss, Swicegood and Rosenfeld (1987) show that nearly one-third of the National Longitudinal Study of 1972 sample returned to school after taking a year of leave. In his review of the literature, Pallas (1993) notes that increasing differentiation in the patterning of the transition to adulthood is partly attributable to heterogeneity in educational careers and its overlap with other adult behaviors such as employment, family formation and parenthood.

With the growing variation of life experiences in young adulthood, social scientists have examined whether or not deviations from typical or prescribed patterns have any bearing on the nature of other life course transitions or on attainment-oriented outcomes (Hogan 1980; Marini, Shin and Raymond 1989; Rindfuss, Swicegood and Rosenfeld 1987). For example, Hogan (1980) finds that white males experiencing a disorderly pattern of school completion, labor force entry and marriage receive lower earnings returns from their education than do white males who follow a normative sequence. Marini and her colleagues (1989) looked at the sequence and timing of a variety of role transitions for both males and females. They found that, by and large, out-of-order transitions had no relationship with occupational prestige and earnings later in life. However, they did find that males who interrupted schooling for work had significantly lower earnings and had jobs with lower levels of occupational prestige. This effect did not hold for women. Rindfuss and his colleagues (1987) examined patterns of school and work in the young adult years using the National Longitudinal Survey of the High School Class of 1972. They showed that continuing education past high school reduces the odds of becoming a parent, but that the "protective" effect of education is reduced when the educational trajectory of the individual is interrupted. In sum, the findings about the influence of transitions in young adulthood are not uniform – sequencing in the life course matters for some but not all outcomes.

Postsecondary Institutional Type and Degree Completion

While the order and types of transitions have become more individualized throughout the past century (Shanahan 2000), and higher education has become more prevalent in the lives of young adults (NCES 2002a), the choice of institutional type plays an increasingly important role in student trajectories toward degree completion. The growth in two-year colleges has

expanded the range of educational possibilities available to young adults. The increase in the number of sub-baccalaureate institutions has been lauded for opening up educational opportunities for those typically underrepresented in higher education. Two-year colleges enroll higher proportions of minority, working-class and academically weak students than do four-year colleges and universities (Dougherty 1994). However, when compared with four-year college students, students in two-year colleges are more likely to drop out and are less likely to complete a baccalaureate degree (Dougherty 1994). That these discrepancies persist when controlling for student background and academic achievement indicates that the institutions themselves may be contributing to the disadvantage. Other recent work has suggested that the advent of open admissions at the community college level has acted as a signal to high school students that they do not have to prepare for the college transition (Rosenbaum 1998). Institutional type is important in an analysis of the high school to college transition as those who delay their entry to college are more likely to attend two-year colleges than four-year colleges (Dougherty 1994). Taken together, these findings suggest that students who delay entry into college may not only be disadvantaged by being off-time in the life course, but will fare worse since they often enter institutions known to impede bachelor's degree completion.

Marriage, Parenthood and Degree Completion

In addition to issues pertaining to higher education, the lives of young adults are filled with a series of decisions such as leaving the parental home, finding a job, getting married and having children. In this paper, we examine how the transition to college overlaps with other transitions in young adulthood as they may directly influence the investment of individuals in their education. Glen Elder's seminal text on life course sociology, *Children of the Great Depression*, demonstrates how changes in one social institution (in his case, the family) not only alter concurrent roles and relationships in other spheres of life, but also resonate throughout the life course (1999). Indeed, decisions about postsecondary enrollment are embedded in a web of choices that young adults are faced with concerning role transitions after high school.

In this analysis, we focus specifically on the transition to the role of spouse and to the role of parent as young adults significantly alter time use as well as the management of personal resources and finances in ways that may be incompatible with the role of student. For example, marriage is often treated as a marker of financial independence from one's parents and therefore, young couples may forgo continuing their education and seek employment opportunities instead. Additionally, marriage typically involves an intense emotional, social and physical relationship that may distract young adults from their responsibilities as students. Parenthood is often accompanied with a dramatic shift in time use and an increased demand for financial resources. As roles and responsibilities are reallocated in the family unit when a new child enters, time and energy invested in education may be compromised. Previous research has lent support to the role incompatibility hypothesis. For example, Teachman and Polonko's (1988) analysis of the National Longitudinal Study of the High School Class of 1972 revealed that both marriage and parenthood had a negative effect on college enrollment. Similarly, Thornton et al.'s (1995) examination of a sample of individuals born in the Detroit area in 1961 showed that full-time school enrollment was negatively associated with the transition to marriage.

Transitions to the role of spouse and to the role of parent are especially important in an examination of delayed enrollment as students who begin college later in the life course have greater chances of being married or of being a parent. For example, Jacobs and King (2002) showed that female undergraduates over the age of 25 were significantly more likely to be married than their younger counterparts. The National Center for Education Statistics reports that 67.6 percent of all undergraduates who delayed enrollment in 1999-2000 had dependent

children compared to 26.9 percent of all students (2002a). Therefore, students who delay enrollment may transition to other roles in the interim between high school graduation and college which, in turn, may hinder their chances of completing a four-year degree.

Timing and the Transition to Postsecondary Education

Life course research tends to focus on college enrollment as a component of a series of other young adult transitions or as a predictor of a later life outcome. With a few exceptions (Featherman and Carter 1976; Hearn 1992; Jacobs and King 2002), the nature of the timing in the high school to college transition as a significant element in young adulthood has remained unexplored. Featherman and Carter (1976) analyzed a sample of 340 males from Lenawee County, Michigan who were interviewed around the age of 17 and again when they were approximately age 32. They constructed a dichotomous measure that indicated whether or not the student had a delay of six or more months between high school completion and college enrollment – 20 percent of their sample had experienced this form of educational discontinuity. Their analysis yielded two noteworthy findings: (1) standard socio-demographic measures such as father's education and occupation, mother's occupation, urbanicity and cognitive ability were unrelated to delaying postsecondary education and (2) delaying postsecondary enrollment by at least six months was negatively related to total years of overall schooling. The authors explained this negative effect as resulting from delayers being off-time with respect to their birth cohort's age-graded progression through the education system. By delaying their enrollment, the delayers would have negative experiences in social institutions, such as schools, that are explicitly designed to handle cohorts at specific ages.

Improving upon the early findings of Featherman and Carter, Hearn (1992) analyzed the High School and Beyond data set, a nationally representative sample of U.S. high school seniors in 1982, to identify some of the precursors to non-standard enrollment patterns. He found that students who delay college enrollment by more than a year after high school graduation are often male, come from a low socioeconomic background, and perform poorly on schoolwork and on standardized tests. He explained this finding as the result of "socioeconomic constraint" and "academic marginality." Students from low socioeconomic backgrounds have fewer resources to make successful high school to college transitions, and low achieving students are more ambivalent about committing to postsecondary education.[2] Jacobs and King (2002) also look at the concept of delayed enrollment, but they do so over a broader range of time. They use a sample of 5,142 women, aged 15-44, from the National Survey of Family Growth to examine the consequences of delaying enrollment past the age of 25. Like Featherman and Carter, they found that a delay in enrollment after high school completion reduces the odds of college completion. In examining the effects of age, they showed that women who enrolled later in life were less likely to obtain a college degree than those who had enrolled in their early twenties. The driving factor behind this difference is that older women were more likely to be enrolled part-time rather than full-time. Jacobs and King hypothesize that this is due to the greater degree of role strain (e.g., spouse, parent, employee) that is more prevalent for older women than for younger women. The greater demand of multiple roles precludes older women from fully investing in their education, and thus, resulting in lower chances of completing a postsecondary degree. Like the aforementioned studies, Jacob and King's findings indicate the persistent disadvantage that results from discontinuities in one's educational career.

While these analyses suggest that timing is important in educational transitions, they have limitations with respect to understanding the role of education in early adulthood. The sample which Featherman and Carter base their analysis is small and is not nationally representative.

Because youths respond differently to social environments that have varying degrees of social, economic and educational opportunities, a sample taken from only one community may obscure or inflate the effect of delayed enrollment. Further, Featherman and Carter's emphasis on males, while historically appropriate, does little to advance our understanding of educational trajectories in a time when women enroll in higher education at higher rates than men (U.S. Census Bureau 2001). Hearn overcomes this shortcoming by using a nationally representative sample of males and females and finds that socioeconomic status and academic achievement are important predictors of delayed enrollment. His analysis, however, leaves open the question of whether delayed enrollment matters in the long run. Jacobs and King provide a comprehensive examination of educational careers over the life course, but in doing so, they treat the effects of enrollment timing for those under the age of 25 as homogenous. Indeed, the life conditions and opportunities available to women at mid-life are much different than those for women in their early twenties. Nonetheless, their analysis blurs the effects of enrollment timing and its consequences in early adulthood. Further, their statistical models lack a control for academic achievement which is an important predictor of college attendance (Alexander, Pallas and Holupka 1987; Perna 2000). If achievement is correlated with enrollment timing, this omission may be inflating the effect of delayed enrollment. We overcome the shortcomings of these previous analyses by using a large, nationally representative sample of men and women from a more recent high school cohort. We are able to focus specifically on the timing of enrollment in young adulthood while applying rigorous statistical controls. Additionally, we examine the role of institution type in previous research.

Research Questions

In our analysis, we seek to answer four questions:

1) What young adults are most likely to delay postsecondary enrollment?
2) What effect does delaying postsecondary enrollment have for degree completion?
3) Does institutional type of first enrollment account for the effect of delayed enrollment?
4) Do transitions to the role of spouse and parent account for the effect of delayed enrollment?

Based on the literature discussed in the previous section, we hypothesize that both socioeconomic constraint and academic marginality explain why a student might choose to delay the transition to college. Students from low socioeconomic backgrounds might be more likely to delay because their parents lack information about the college application process, they may have fewer financial resources to support college attendance, and they might be discouraged to consider college attendance on the basis of estimated payoffs for people with similar backgrounds. We expect that students who have a history of poor academic performance are also likely to delay, given that test scores and grades may act as signals that they are not prepared for the challenges of college, they may not have been accepted into the school of their first choice, and/or they may lack the support of their parents, teachers and peers. In addition to looking at the relationship between socioeconomic status, academic disadvantage and enrollment timing, we also test whether or not delaying the transition to college influences degree completion. We hypothesize that delayed enrollment leads to alternative institutional pathways and competing family commitments which may preclude full investment into higher education and thus, reduce the odds of degree completion.

Data and Measures

Data

In order to answer our research questions, we use the National Education Longitudinal Study of 1988 (NELS:88) collected by the National Center for Education Statistics (NCES). This nationally representative survey of 24,599 eighth graders in 1988 focuses on the relationships between family, school and educational performance. NCES has followed up the students in their sophomore year of high school (1990), their senior year of high school (1992), two years post on-time graduation (1994) and eight years post on-time graduation (2000). NELS:88 uses a two-stage sampling procedure. In the first stage, 815 public schools and 237 private schools were selected with probabilities proportional to their eighth grade enrollment. In the second stage, 26 students were randomly sampled from each school on the condition that they did not have serious physical or emotional problems, a mental handicap or an inability to speak the English language. This data set lends itself well to our research questions for two key reasons: (1) it contains information on the timing of both high school completion and postsecondary enrollment; and (2) the longitudinal design allows for an assessment of postsecondary educational trajectories in early adulthood. We restricted the sample to all respondents who had completed the 12th grade interview (1992) and for whom we had adequate high school completion and postsecondary enrollment information. We excluded respondents if they had not completed a high school diploma or GED and if we were unable to determine whether or not they had attended college. For our analysis, socio-demographic controls come from the 12th grade interview (1992). High school completion, college enrollment, marriage and childbearing data are taken from the eight-year post-high school graduation interview (2000). In all of our multivariate analyses, we use survey estimation procedures in STATA to adjust the standard errors to account for the clustered and stratified sampling design of NELS.[3]

Operationalization of Terms

Delayed Enrollment

In the 2000 follow-up interview, respondents provided the month and year of their high school graduation as well as the month and year of enrollment in their first postsecondary institution. Using these two variables, we were able to create two measures of enrollment timing. The first is a three category measure of enrollment: (1) No Postsecondary Education, (2) On-time Enrollment, and (3) Delayed Enrollment. We classify students enrolling within seven months of completing high school as on-time enrollment and students who enrolled after seven months of completing high school as delayed enrollment. We chose the seven-month criterion since delaying enrollment by at least seven months would place the student one semester/quarter behind on-time enrollees. In our sample, approximately 17 percent did not enroll in postsecondary education, 67 percent enrolled on time, and 16 percent delayed their enrollment.

The second measure of enrollment timing is a continuous measure of the number of months between completion of high school and enrollment in college. For example, a student who graduated from high school in June of 1992 and started college in August of 1992 would be coded '2' on this measure – indicating that two months had lapsed between high school

completion and first postsecondary enrollment. This measure was created only for students that both completed high school and enrolled in college at least once.[4] The average number of months between high school completion and college enrollment for our sample is eight months.

Degree Completion

A major concern in estimating the effects of delayed enrollment on degree completion using NELS is the issue of right censoring. Students recorded as non-completers may complete a bachelor's degree after the 2000 interview. To overcome this limitation, we employ hazard modeling techniques which incorporate the survival distribution of those who do not complete a degree into the estimation of the parameters. For our analysis, the dependent variable is the rate at which individuals complete a bachelor's degree. Exposure to the risk of bachelor's degree completion begins the month and year the student enrolls in any form of postsecondary education. The dependent variable is coded 0 for all months in which the student is enrolled and 1 during the month in which he or she completed a bachelor's degree. As is typical in hazard modeling procedures, the individual is removed from the risk set once they complete their degree (i.e., the hazard event) and no longer contributes person-months to the analysis. Individuals who have not completed a bachelor's degree by the 2000 follow-up interview are censored. Approximately 36 percent of the sample had completed a bachelor's degree before the 2000 interview.

Institutional Type

We created a dichotomous variable that indicates the type of postsecondary institution in which the student first enrolled. This variable, "Four-year school," is coded '1' if the student began enrollment in a public or private four-year college or university and '0' if they first attended any other type of school (including private for profit; private, non-profit; less-than-four-year; public, less-than-two-year; and public, two-year). A little more than half (54.5 percent) of all those who enrolled in a postsecondary program started out at a four-year college or university.

Life Course Transitions

We used information from the 2000 follow-up file, which contained the month and year of the respondents' first marriage and the birth of their first child along with the enrollment timing measure, to determine whether or not these transitions overlapped with one another. Our models include two dichotomous variables that represent the relationship between marriage timing and enrollment. The first indicates that the respondent married for the first time before enrolling in their first postsecondary institution, and the second indicates that the respondent married for the first time while enrolled. The reference category consists of those whose marital histories did not overlap with their postsecondary enrollment. Of those who had transitioned from high school to college, five percent married before starting postsecondary enrollment and 15 percent married during postsecondary enrollment. We created a similar set of dichotomous measures that represent the relationship of childbearing and enrollment. The first indicates that the respondent had a child before enrolling in their first postsecondary institution and the second indicates that the respondent

had a child while enrolled. The reference category includes those whose childbearing histories did not overlap with their postsecondary enrollment. Four percent of college-going students in the sample reported having a child before enrollment, and eight percent reported having a child while enrolled.

Covariates

Our statistical models include a series of covariates measuring socioeconomic constraint, academic marginality and socio-demographic characteristics. Socioeconomic constraint is represented by a composite variable for the socioeconomic status of the student's family. Academic marginality is represented by students' scores on math and reading standardized tests. Because off-time/failed transitions earlier in one's educational career may impede successful transitions later in one's educational career (Featherman and Carter 1976), we include three measures that control for cumulative educational disadvantage before the transition to postsecondary education: age of the student, dropout status and high school mode of exit. Additionally, geographic and institutional contexts expose young adults to different opportunity structures that may influence how they transition to adulthood. Therefore, we include controls for region, high school sector and urbanicity. Lastly, we control for the sex and race/ethnicity of the student. The appendix provides details on the construction of these measures.

Results

What young adults are most likely to delay postsecondary enrollment?

To understand the distribution of enrollment patterns with respect to socio-demographic characteristics, we first tabulated the means or proportions of all control variables by the categorical enrollment measure for students who had attended some form of postsecondary enrollment. These appear in the first four columns of Table 1. The fifth column shows the average delay in months between high school completion and college enrollment for a given characteristic if the student attended a postsecondary institution. The table reveals that Whites and Asians are more likely to enroll on time, whereas Blacks and Hispanics are more likely to delay their enrollment or not enroll at all. On average, Whites began postsecondary enrollment eight months after completing high school, compared to the 10-month delay of Hispanics and 11-month delay of Blacks. Greater proportions of females enroll in college on time while greater proportions of males delay their enrollment or do not enroll at all. Those who enroll on time come from families with higher socioeconomic backgrounds, have higher standardized test scores, and are unlikely to have dropped out of school. Both those who have never enrolled in college and those who delay their enrollment are older than those who enrolled in college on time. Students who received a GED tend to either delay enrollment or forego postsecondary education altogether. Students who obtain a GED and eventually enroll have a delayed transition of about 18 months while those who leave high school with a regular diploma enroll within eight months of graduation. Additionally, delayers are more concentrated in the South and in suburban areas. While differences among the three groups are evident, by and large, delayers are more similar to non-enrollees than to on-time enrollees.

Table 1: Descriptive Statistics

	Total	No PSE	On-Time PSE	Delayed PSE	Average Delay in Months
Race/Ethnicity					
White	.695	.702	.705	.649	8.02
Black	.093	.108	.083	.119	11.09
Hispanic	.126	.142	.113	.164	9.67
Asian	.073	.025	.091	.049	5.30
Native American	.012	.023	.008	.018	12.60
Sex					
Male	.475	.537	.452	.508	9.03
Female	.525	.463	.548	.492	7.70
SES Quartiles					
SES1 (low)	.222	.440	.145	.295	12.97
SES2	.239	.321	.205	.291	10.21
SES3	.255	.167	.276	.262	8.18
SES4 (high)	.284	.073	.370	.152	4.64
Test Score Quartiles					
Test1 (low)	.166	.347	.110	.208	12.55
Test2	.224	.289	.189	.300	11.04
Test3	.209	.129	.232	.198	7.32
Test4 (high)	.401	.235	.469	.294	6.26
Drop-Out by 12th Grade					
Ever Drop Out	.086	.218	.041	.134	17.02
Never Drop Out	.914	.782	.959	.866	7.77
Age in Months, June 1992	219.48	221.87	218.68	220.27	7.81
(sd)	(5.76)	(6.70)	(5.23)	(6.00)	
High School Mode of Exit					
GED	.071	.190	.031	.112	17.90
High School Diploma	.929	.810	.969	.888	7.85
Region of the Country					
Northeast	.188	.144	.205	.164	7.16
Midwest	.265	.291	.264	.239	8.08
South	.323	.351	.315	.329	8.36
West	.194	.156	.198	.220	8.72
N	11,366	1,938	7,602	1,826	

Table 1: Descriptive Statistics (continued)

	Total	No PSE	On-Time PSE	Delayed PSE	Average Delay in Months
Type of School; 12th Grade					
Public	.845	.921	.816	.884	8.75
Catholic	.062	.011	.082	.035	5.20
Private	.063	.008	.085	.032	3.85
Urbanicity					
Urban	.272	.195	.293	.266	7.67
Suburban	.392	.326	.412	.382	7.75
Rural	.304	.420	.275	.302	9.10
Institutional Type					
Four-Year School	.545	--	.618	.236	4.63
Less than Four-Year School	.455	--	.382	.764	12.55
Marriage and Enrollment Timing					
No Overlap	.801	--	.814	.661	6.89
Marriage before Enrollment	.049	--	.013	.220	38.29
Marriage during Enrollment	.150	--	.173	.119	5.29
Childbearing and Enrollment Timing					
No Overlap	.888	--	.911	.732	6.39
Children before Enrollment	.038	--	.010	.179	40.98
Children during Enrollment	.075	--	.078	.089	6.68
Began College Before					
October 1994	.754	--	.993	.559	4.05
Degree Completion					
Bachelor's Degree	.359	--	.514	.100	3.10
No Bachelor's Degree	.641	--	.486	.900	12.37
N	11,366	1,938	7,602	1,826	

Table 3: Odds Ratios from a Discrete-Time Hazard Model of Bachelor's Degree Completion

Independent Variable	(1)		(2)	
	Odds Ratio	(S.E.)	Odds Ratio	(S.E.)
Enrollment delay (in months)	.935	(.008)**	.947	(.008)**
Enroll Before October 1994	.615	(.171)†	1.389	(.466)
Race/Ethnicity				
White			1.000	--
Black			1.143	(.147)
Hispanic			.798	(.075)*
Asian			1.213	(.107)*
Native American			.589	(.158)
Male			.836	(.037)**
SES Quartiles				
SES1 (low)			1.000	--
SES2			1.249	(.132)*
SES3			1.855	(.188)**
SES4 (high)			2.597	(.251)**
Test Score Quartiles				
Test1 (low)			1.000	--
Test2			1.506	(.237)**
Test3			2.193	(.333)**
Test4 (high)			3.082	(.467)**
Ever Drop Out			.508	(.277)
Age in Months			.992	(.005)
GED			.208	(.079)**
Region of the Country				
Northeast			1.000	--
Midwest			.797	(.047)**
South			.787	(.048)**
West			.700	(.051)**
Type of School; 12th Grade				
Public			1.000	--
Catholic			1.355	(.118)**
Private			1.464	(.132)**
Urbanicity				
Urban			1.000	--
Suburban			.976	(.070)
Rural			1.019	(.072)
N			9,334	
Person-months at risk			667,685	
Log Likelihood			-21,376.05	

†p < .10 *p < .05 **p < .01
Note: Numbers in parentheses are standard errors

Table 2: Relative Risk Ratios from a Multinomial Logistic Regression Model of Post-Secondary Enrollment

Independent Variable	(1) No PSE vs. On-Time Enrollment		(2) Delayed vs. On-Time Enrollment	
	Relative Risk	(S.E.)	Relative Risk	(S.E.)
Race/Ethnicity				
White	1.000	--	1.000	--
Black	.317	(.075)**	.809	(.169)
Hispanic	.364	(.075)**	.656	(.112)*
Asian	.279	(.076)**	.468	(.096)**
Native American	1.175	(.652)	.983	(.297)
Male	1.702	(.184)**	1.388	(.133)**
SES Quartiles				
SES1 (low)	1.000	--	1.000	--
SES2	.519	(.071)**	.690	(.090)**
SES3	.227	(.033)**	.621	(.089)**
SES4 (high)	.105	(.020)**	.293	(.049)**
Test Score Quartiles				
Test1 (low)	1.000	--	1.000	--
Test2	.563	(.083)**	1.046	(.163)
Test3	.326	(.057)**	.885	(.154)
Test4 (high)	.218	(.038)**	.481	(.081)**
Ever Drop Out	2.155	(.654)*	1.889	(.532)*
Age in Months	1.045	(.010)**	1.030	(.009)**
GED	2.651	(.771)**	2.103	(.534)**
Region of the Country				
Northeast	1.000	--	1.000	--
Midwest	1.123	(.184)	1.089	(.168)
South	1.045	(.171)	1.199	(.193)
West	.801	(.184)	1.235	(* .207)
West	.801	(.184)	1.235	(.207)
Type of School; 12th Grade				
Public	1.000	--	1.000	--
Catholic	.171	(.049)**	.419	(.102)**
Private	.179	(.086)**	.799	(.231)*
Urbanicity				
Urban	1.000	--	1.000	--
Suburban	1.003	(.170)	.901	(.132)
Rural	1.290	(.193)†	.770	(.107)†
N	11,366			
Log Likelihood	-8,489.28			

†p < .10 * p < .05 ** p < .01
Note: Numbers in parentheses are standard errors

To see whether or not these bivariate relationships hold up in a multivariate setting, we estimated the following multinomial logistic regression model:

$$\gamma_{ji} = \alpha_j + \sum_{n=1}^{N} \beta_{nj} X_{in}$$

In this model, the outcome γ is the logit transformation of the expected probability that person i will make a choice j about postsecondary enrollment (1 = no enrollment; 2 = enroll on time; 3 = delay enrollment). On the right hand side of the equation, b_{nj} are the main effects of the covariates X_{in} ($n = 1, ..., N$). The dependent variable j has three categories, and thus, the model produces $j - 1$ logits: no enrollment vs. on-time enrollment and delayed enrollment vs. on-time enrollment. The estimates are presented in Table 2. We converted the coefficients to relative risk ratios for ease of interpretation. Estimates for missing data indicators are omitted for clarity of presentation. We used the appropriate weight provided by NCES so that our results can be generalized to the population of all high school seniors in 1992.

An inspection of the relative risk ratios reveals that in contrast to the bivariate findings, when controlling for academic achievement and socioeconomic status, Hispanics and Blacks are *more* likely than Whites to be enrolled on time than to either be not enrolled or to delay enrollment when controlling for other socio-demographic characteristics. Males are 70 percent more likely than females not to enroll than to enroll on time, and males are also 39 percent more likely than females to delay their enrollment than to be enrolled on time. As evidenced in the descriptive statistics, those from higher socioeconomic backgrounds and those with higher test scores have higher odds of being enrolled on time than either not enrolling or delaying enrollment when compared to their more disadvantaged and lower performing counterparts. Those who have dropped out at some point in their educational careers as well as older students have higher odds of either not enrolling or delaying enrollment. GED recipients are more than twice as likely as diploma recipients not to be enrolled or to delay their enrollment. Finally, graduates of Catholic and private high schools are more likely than public school graduates to enroll on time. In sum, these findings indicate that the students who delay their transition to college are already operating with socioeconomic and academic disadvantages that are traditionally related to lower educational attainment. This result is in accord with Hearn's contention that college transitions are more tenuous for low SES students and for those with low cognitive ability (1992).

What effect does delaying postsecondary enrollment have for degree completion?

As evidenced in earlier research (Featherman and Carter 1976; Jacobs and King 2002), delaying enrollment has been shown to reduce the odds of degree completion. To see whether or not this finding is supported in the NELS, we estimated a series of discrete-time hazard models that predict the rate of bachelor's degree completion. Although time to degree completion is continuous, we use a discrete time hazard model because our data are grouped into discrete intervals (e.g., months). The hazard of the event from time t to time $t + 1$ is assumed to be constant while the hazard may vary across intervals. For a given covariate, the change in the baseline hazard is given by exp (b). The exponentiated parameters, exp (b), or odds ratios greater than 1 represent a positive effect on the odds of degree completion while odds ratios less than 1 signify reduced odds of degree completion. Estimates for missing data indicators are omitted for clarity of presentation. The models are estimated only for those students who have received either a high school diploma or a GED.

Table 4: Odds Ratios from a Discrete-Time Hazard Model of Bachelor's Degree Completion

Independent Variable	(1) Odds Ratio (S.E.)		(2) Odds Ratio (S.E.)	
Enrollment Delay (in months)	.962 (.008)	**	.945 (.016)	**
Enroll Before October 1994	1.094 (.384)		1.150 (.400)	
Institutional Type Four-Year School	3.239 (.227)	**	2.912 (.253)	**
Less than Four-Year School	1.000	--	1.000	--
Interaction Term Enrollment Lag * Four-Year School			1.029 (.015)	†
N	9,293		9,293	
Person-months at risk	664,746		664,746	
Log Likelihood	-20,970.31		-20,964.99	

† p < .10   * p < .05   ** p < .01

Note: Numbers in parentheses are standard errors. All models control for sex, race, SES, standardized test scores, drop out status, age, high school mode of exit, region, high school sector, and urbanicity.

In Model 1, degree attainment is estimated as a function of the number of months between high school completion and college enrollment and a dummy variable indicating whether or not the respondent had enrolled in college before October of 1994 (approximately two years and three months after on-time high school graduation). We included this dummy variable because the 2000 follow up survey may have truncated the time necessary to complete a degree – particularly for those who delayed enrollment. Those who enrolled in college before October of 1994 would have approximately five years to complete a college degree before the time of the final NELS interview. The continuous delay term is less than 1 and significant, indicating that delaying enrollment is associated with a reduction in the odds of degree completion. Specifically, for each additional month between high school graduation and postsecondary enrollment, the odds of degree completion are decreased by 6.5 percent. Those who postpone enrolling in college a year after finishing high school are 78 percent less likely to complete a bachelor's degree than those who enroll immediately after high school.[5] To test whether or not this relationship holds when controlling for socio-demographic characteristics, we estimated a full model that includes all the covariates used to predict enrollment patterns in the previous section. In accord with studies of educational attainment, females have an advantage in higher education: Males are 16 percent less likely than females to complete a degree. Students from high SES backgrounds, and who perform well on standardized tests, are more likely to finish college than their low SES, low test score counterparts. Additionally, students who leave high school with a GED rather than a diploma have lower odds of degree completion. The term measuring enrollment timing barely changes and remains highly significant – indicating that even net of socioeconomic support, academic achievement and socio-demographic characteristics, the longer a student waits before enrolling in college, the lower his/her chances of actually completing a bachelor's degree. Like Featherman and Carter (1976) and Jacobs and King (2002), our analysis shows that delaying enrollment compromises educational attainment. All other factors being equal, students who postpone enrolling in college a year after finishing high school are about 64 percent less likely to complete a bachelor's degree than those who enroll immediately after high school.[6]

Does institutional type of first enrollment account for the effect of delayed enrollment?

In the NELS:88 sample, only 24 percent of students who delayed enrollment attended a four-year college or university compared with 62 percent of students who enrolled on time. Those who attended a less than four-year school began enrollment on average a little more than one full year after high school completion while those who attended a four-year college or university began enrollment about five months after high school completion. These bivariate findings suggest that students who delay enrollment may have lower odds of degree completion because they are channeled into institutions that do a poor job of retaining enrollees. To see if this is the case, we estimated the full degree completion model from Table 3 and added the term that indicated the type of first postsecondary institution attended. Odds ratios for the enrollment delay and institutional type are presented in the first model in Table 4. For clarity of presentation, we omit the estimates for the control variables.[7]

After including type of first institution in the model, the enrollment delay term retains its magnitude and remains significant – indicating that the negative effect of delayed enrollment on degree completion is not due to greater proportions of delayers enrolling in less than four-year institutions. The odds ratio for four-year school attendees is significant and greater than 1. Students whose first postsecondary enrollment was at a four-year college or university are over three times more likely than their counterparts, whose first postsecondary enrollment was at a less than four-year school, to complete a bachelor's degree. We then tested to see

Table 5: Odds Ratios from a Discrete-Time Hazard Model of Bachelor's Degree Completion

Independent Variable	(1) Odds Ratio	(S.E.)	(2) Odds Ratio	(S.E.)
Enrollment Delay (in months)	.962	(.008)**	.963	(.008)**
Enroll Before October 1994	1.218	(.412)	1.226	(.432)
Marriage and Enrollment Timing				
No Overlap	1.000	--	--	--
Marriage before Enrollment	.482	(.145)*	--	--
Marriage during Enrollment	.871	(.055)*	--	--
Childbearing and Enrollment Timing				
No Overlap	--	--	1.000	--
Children before Enrollment	--	--	.473	(.184)†
Children during Enrollment	--	--	.553	(.075)**
N	9,167		8,750	
Person-months at risk	654,619		623,514	
Log Likelihood				

†p < .10   *p < .05   **p < .01

Note: Numbers in parentheses are standard errors; All models control for sex, race, SES, standardized test scores, drop out status, age, high school mode of exit, region, high school sector, urbanicity, and institutional type.

whether the effect of institutional type was contingent upon the length of delay. We re-estimated the model with an interaction term for delay*institutional type, shown in Model 2 of Table 4. The interaction term is marginally significant (p = .058) and indicates that the effect of the delay may be more detrimental for students who begin their postsecondary careers at less than four-year schools. In sum, less than four-year enrollment and delayed enrollment both have costs for degree completion. The relationship between delayed enrollment and degree completion, however, is not mediated by the type of first postsecondary institution.

Do transitions to the role of spouse and parent account for the effect of delayed enrollment?

An inspection of the average number of months between high school completion and postsecondary enrollment in Table 1 reveals that the most extensive delays are for those who transitioned to the role of spouse or parent before entering college. On average, students who married before starting postsecondary education waited 38 months before enrolling, and those who had a child before starting postsecondary education waited 41 months before enrolling. These bivariate statistics suggest that the negative effect of delayed enrollment might partially be explained by the onset of other life course transitions that might be incompatible with the role of student. In order to see whether these transitions had any bearing on the effect of delay, we estimated the full degree completion model from Table 4 and added separately the terms measuring marriage, child bearing and enrollment timing. Odds ratios from these models are presented in Table 5.

Model 1 in Table 5 adds the marriage and enrollment timing terms to the full model. Similar to the effect of institutional type, the transition to marriage in early adulthood does not explain the relationship between delayed enrollment and degree completion. The odds ratio for the measure of enrollment timing remains significant. Those who transition to the role of marriage either before entering college or once enrolled in college have lower odds of degree completion than those who had no overlap between marriage and postsecondary enrollment. The negative effect of the transition to marriage is greater for those who marry before enrollment than it is for those who marry once enrolled. The second model in Table 5 adds the child bearing and enrollment timing terms to the full model. The negative effect of delayed enrollment is unaltered once controlling for childbearing in young adulthood. Students who have children before or during postsecondary enrollment have lower odds of degree completion than those whose childbearing histories did not overlap with postsecondary education. In sum, other transitions in young adulthood may lead students to postpone college, but these transitions themselves do not explain the negative effect of delayed enrollment.[8]

Discussion

Students receive many structural signals suggesting that they may defer their college enrollment with limited consequences including increasing numbers of two-year institutions with open admissions polices and flexible degree programs. However, our findings highlight a troubling educational phenomenon: When students delay the transition to college, they substantially decrease their chances of degree attainment. The consequences of delayed enrollment are not trivial. Taking a year off after high school reduces the odds of degree completion by about 64 percent, all other factors being equal. Additionally, alternative pathways into postsecondary education such as attendance at a less than four-year institution or the co-occurrence of other life course transitions may further complicate persistence to

degree completion. As discussed earlier, the end of high school is a pivotal moment in young adulthood as educational decisions become increasingly affected by life course transitions such as moving out of the parental home, entering the labor force, cohabiting with a significant partner and family formation. Past research that has dealt with the larger issue of the transition to adulthood has typically treated college attendance as secondary to other transitions in that it is "preparatory" for other adult roles (i.e., the role of worker), and that it tends to be shorter in duration (Marini 1984). While we do not disagree with this assessment, we feel that a more textured understanding of young adulthood needs to explicitly address the transitional processes associated with higher education.

Students enter the young adult years with a history of cumulative advantage or disadvantage, with different orientations to adult roles, and with differential access to resources. The transition to college and persistence to degree completion is embedded in this complicated web of factors. Delaying enrollment opens up a window of opportunity for involvement in other domains, most notably the family, which may further prevent the acquisition of a college degree. While assessing the extent to which college enrollment decisions are dependent upon individual's marriage and family planning preferences is beyond the scope of this project, we do have evidence that delayed enrollment is often accompanied by early marriage and childbearing. That the effects of timing remain independent of these factors suggests that young adulthood is not merely guided by the order of transitions or the co-occurrence of roles, but by when these role transitions occur. Indeed, the role of student is transitory, but its relevance to life outcomes and its interrelatedness with the patterning of the life course cannot be overlooked in research which attempts to understand how youths structure the transition to adulthood.

Our findings are especially noteworthy given that the students most likely to delay are already disadvantaged on several indicators of socioeconomic status. For low SES students, the first year of college may be an "experiment" in which they test whether or not they can handle both the academic rigor and the financial burden of higher education. While high SES students with poor academic preparation might also treat college as an experiment, it is likely these students will be less disadvantaged if they drop out and enter the labor force than their low SES counterparts. The role of timing, in addition to different economic and social resources, may alter the opportunities available once students are done testing the waters of higher education. As success in college is uncertain, particularly for those with the fewest economic and social resources, it is important to recognize the role such enrollment decisions are likely to play in maintaining the social stratification that comes with differential educational pathways across socio-demographic groups.

Given that the delayed enrollment effect exists net of academic achievement, socioeconomic support, institutional type and the co-occurrence of adult roles, we are left grappling with the question of why the timing of educational transitions matters as much as it does. Earlier research (c.f. Pallas 1993) had suggested an off-cohort effect leading to a competitive disadvantage for the students who delay, relative to their on-time counterparts. Perhaps discontinuity of this kind causes students to lose important social connections with teachers and counselors as time passes. These relationships are known to facilitate educational transitions since these school personnel help with applications, financial aid, in-roads into good schools and emotional support (McDonough 1997; Persell and Cookson 1985). If teachers, counselors, college faculty and administrators are equipped with knowledge of students' ages and course placements, they may view those who are off-time as less capable of higher education and may consequently invest less in their development.

Perhaps the relative disadvantage is a combination of cognitive and behavioral skills that have gone by the wayside as the length of time out of school increases. Whereas grade transitions in the primary and secondary years are structured so that there is a relatively high

degree of continuity in both the curricula and the social environment, the high school to college transition is less accommodating. There are often sharp differences in the learning and social environments of high school and college. Coursework in college is typically more demanding than high school, and degree requirements are often confusing to first-year students. Additionally, college professors and instructors are less inclined to monitor the development of individual students and to provide individual assistance if a student is not performing well. In cases where delayed enrollment is extensive, students may forget important academic information over time or may have difficulty managing their time and study habits – especially if they are married or have children.

Compounding the situation, the off-time status of delayers may complicate the establishment of social relations both with other students and faculty. Students who start late may not take advantage of or benefit from college orientation programs that directly address the concerns and needs of new students, particularly since most of these programs are aimed at 18-year-old, on-time students. Indeed, past research has shown that low levels of social integration among college students, both in student-student relationships and student-faculty relationships, is positively related to persistence (Tinto 1993). It is also possible that students who delay differ from other students in ways that we cannot observe with the current data.[9] For example, students who delay enrollment may possess a weaker orientation toward learning, or they might have a more limited temporal view of the life course that prevents them from seeing the pay-off for educational investments. In this case, the delay might represent individualistic orientations that might influence their involvement in different institutional domains. Either way, future research on the role of education in young adulthood will be needed to understand how the timing of educational transitions and the life course contingencies that accompany these transitions serve to maintain educational inequality.

Notes

1. Sixteen percent of our sample delays enrollment to postsecondary education. The NCES estimate is much higher than ours because they include all students aged 18-56, while our estimate is based on only one grade cohort (i.e., those who completed a GED or a high school diploma and were members of the 12th grade class of 1992).

2. It is interesting to note that Hearn's findings are incompatible with the Featherman and Carter study. The former finds SES effects, while the latter does not. We assume that this is due to the fact that Hearn used a nationally representative sample and more recent data. It is likely that the changing composition of more recent college-going students (e.g., more first generation and working class students) would appear to give the upper class students a relative advantage. Also, we know that as democratic processes operate to make schooling more equitable, other class based structures and practices develop to take their place (e.g., parents' influence over track placement, the acquisition of private college counselors, etc.).

3. Survey commands (svy) in STATA use Taylor-series linearization methods to produce correct standard errors for samples that were drawn using a stratified cluster design (StataCorp 2001).

4. A small number of students (1.34 percent of delayers) had enrolled in a postsecondary institution before completing high school. The majority of these students were enrolled in

less than four-year institutions. We suspect these students either incorrectly reported their graduation/enrollment dates, NCES incorrectly coded their graduation/enrollment dates, or they began taking college course work or enrolled in certification programs before completing high school. We coded their delay as zero months and include a control for this select group of students in all statistical models.

5. The reduction in the odds of degree completion for each month of delayed enrollment is obtained by calculating 1 - eb = 1 - .935 = .065. Without control variables, there is a 6.5 percent reduction in the odds of degree completion for each month of delayed enrollment. Therefore, an entire year of delayed enrollment (e.g., 12 months) amounts to a 78 percent reduction in the odds of degree completion: 6.5 * 12 months = 78.

6. In analyses not shown, we interacted the continuous delay measure with race/ethnicity, sex, SES quartiles and test score quartiles and then added them individually to our full model of degree completion. The effect of delay was less detrimental for those in the top three SES quartiles than for those in the lowest SES quartile. Students with low test scores who delayed enrollment had a lower probability of degree completion than students with higher test scores who also delayed enrollment. Interactions with race/ethnicity and sex were not significant. Results from these interactive models are available from the authors upon request.

7. Odds ratios for the control variables barely changed when institutional type was included in the model and are omitted for clarity of presentation. Estimates for all covariates are available from the authors upon request.

8. We assume that marriage and parenthood have both independent and interactive effects on college enrollment. However, we do not show results for a model including both marriage and parenthood, since the two variables are highly correlated with each other and the sample sizes for each category are quite small, compromising the reliability of our estimates. In a full model (not shown) containing all control variables, institutional type, delay*institutional type, marital and parenting histories, the parameter estimate for delayed enrollment remained significant (p < .01).

9. It is possible that unobserved characteristics of individuals could cause them to both delay enrollment and to not complete a bachelor's degree. If unobserved characteristics were driving the observed relationship between delayed enrollment and degree completion, our estimate of delayed enrollment would be overstated. To test whether or not unobserved characteristics were affecting our findings, we performed a Durbin-Wu-Hausman test for endogeneity. In this procedure, we first estimated an ordinary least squares regression model:

$$Y = \alpha + \beta X + \epsilon$$

where Y is the number of months between high school completion and college enrollment, X is a vector of all covariates used in our multinomial logit model predicting enrollment timing, α is a constant, and ϵ is the unobserved characteristics that predict enrollment timing. We then constructed $\epsilon = Y - \beta X$ and added ϵ to our full model predicting bachelor's degree completion. The parameter estimate of ϵ was not significant and the relationship between delayed enrollment and degree completion was unaltered. We take this as evidence that unobserved heterogeneity is not a severe threat to our findings.

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APPENDIX: Covariate Construction and Classification

Race/ethnicity is measured by a series of dummy variables: Black, Asian, Hispanic, Native American/Other. Whites serve as the reference category in all multivariate analyses.

Male is a dummy variable coded '1' if the student was male and '0' if the student was female.

SES Quartiles are represented by a series of dummy variables: SES1, SES2, SES3 and SES4. These correspond to quartiles of a continuous scale created by NCES from the non-missing average of father's and mother's occupation, father's and mother's education, and total family income. The lowest socioeconomic group (SES1) serves as the reference category in all multivariate analyses. In cases where there were missing data, respondents were assigned to a category contingent on the modal SES quartile for their race/ethnicity. A missing data indicator was included in all multivariate analyses.

Test Score Quartiles are represented by a series of dummy variables: TEST1, TEST2, TEST3 and TEST4. These correspond to quartiles of a scaled, continuous measure of reading and math standardized test scores administered to the student in the senior year interview. The lowest quartile (Test1) serves as the reference category in all multivariate analyses. In cases where there were missing data, respondents were assigned a test score contingent on the modal test score quartile for their sex and race/ethnicity. A missing data indicator was included in all multivariate analyses.

Ever Drop Out is a dummy variable coded '1' if the student has ever dropped out of school and '0' if he/she has never dropped out of school.

Age in Months is a continuous measure of how many months old the student was in June of 1992. In cases where the student's age was missing, we imputed the grand mean of the sample. A missing data indicator was included in all multivariate analyses.

GED is a dummy variable coded '1' if the student had completed a GED and '0' if they acquired a high school diploma.

Region of the Country is represented by a series of dummy variables that indicate the U.S. Census classified region of the student's high school: South, West, Midwest, Northeast and missing.

Type of School; 12th Grade is represented by a series of dummy variables: public, Catholic, private and missing. Public schools serve as the reference category in all multivariate analyses.

Urbanicity is represented by a series of dummy variables that indicate the location of the student's high school: urban, suburban, rural, and missing. Urban areas serve as the reference category in all multivariate analyses.