Timing is Everything? A Preliminary Multi-State Model of Post-Secondary Transitions for Two Cohorts of U.S. Students

Megan Andrew
Center for Demography of Health and Aging
University of Wisconsin – Madison

Cecilia Ceja
Center for Demography and Ecology
University of Wisconsin – Madison

*The authors contributed equally to this work and are listed in alphabetical order. Computation was carried out using facilities of the Center for Demography and Ecology at the University of Wisconsin-Madison, which are supported by Center Grants from the National Institute of Child Health and Human Development and from the National Institute on Aging. We thank Alberto Palloni, Lincoln Quillian, Ruth Lopez Turley, and Adam Gamoran for helpful comments. The opinions expressed herein are those of the authors. Address correspondence to Megan Andrew, Center for Demography and Ecology, University of Wisconsin-Madison, 1180 Observatory Drive, Madison, Wisconsin 53706 or e-mail mandrew@ssc.wisc.edu or cceja@ssc.wisc.edu.

Introduction

The central importance of educational attainment for later economic and social well-being is as close to fact as any other major research finding this century. Post-secondary education is particularly important with post-secondary students enjoying higher wages (Gottschalk 1997), increased occupational status (Sewell and Hauser 1975), and lower levels of emotional and psychological distress (Ross and Van Willigen 1997). Returns to post-secondary education are even higher conditional upon the completion of a degree or certification (Kane and Rouse 1995). Relative to research on stratification in primary and secondary education, though, education scholars have paid little attention to stratification in post-secondary education and in particular to the hierarchical arrangement of American higher education institutions and the distribution and movement of students within these institutions (Astin and Oseguerra 2004).

A wider array of institutional types are available to students today, and students fluidly move back and forth between any number of these institutions more than ever before, earning credits here and there in pursuit of various educational goals (Adelman 1999, Choy 2002, Adelman et al 2003). Based on this increasing complexity in post-secondary educational trajectories over time, a relatively recent focus of education scholars has been describing the contours, effects, and correlates of student pathways to the baccalaureate degree (e.g. DesJardins et al 2002a, DesJardins et al 2002b, McCormick 2003, Bozick and DeLuca 2005). Despite the building interest in post-secondary educational trajectories, this body of research suffers from a number of methodological and substantive weaknesses. Popular binary and multinomial logistic regression models of student mobility do not account for censoring, truncation, and variation in exposure to post-secondary institutions thereby potentially producing biased estimates. Moreover, these models do not account for the timing of transitions among and duration dependence within and without post-secondary institutions. Standard event history models address some of these drawbacks but preclude analysis of student movement per se and instead focus on single transitions or mutually exclusive transitions that do not model more than a single

transition for a given student. The literature has also generally ignored changes in student mobility across cohorts of students at the national level, mainly working with data for a single cohort of students or with data for students from a single institution or state system. Therefore, the extent to which these post-secondary mobility patterns and their associated correlates may differ across cohorts is unclear.

In this paper, we set out to address some of the shortcomings in the literature on post-secondary educational trajectories. Specifically, we examine post-secondary educational trajectories among 2-year and 4-year institutions for two cohorts of U.S. students from the 1980s through 2000 using a multi-state model. We estimate how these trajectories vary by key social origin characteristics and in turn, how these characteristics are mediated by later high school and post-secondary achievement and the competing demands of parenthood. We begin with a brief review of the literature and the key questions we seek to answer in this preliminary analysis. We then discuss our two sources of data, the High School and Beyond 1980 Sophomore Cohort and the National Education Longitudinal Study 1988, and the specifics of our multi-state model. We conclude with a presentation and discussion of our results and future research.

Literature Review

Over the past 40 years, the educational trajectories of post-secondary students have become increasingly complex so that contemporary post-secondary trajectories often deviate from the idealized pattern of single-institution attendance culminating in completion of a bachelor's degree (Hearn 1992, Adelman 1999, Choy 2002, and Social Science Research Council 2006). Post-secondary trajectories increasingly include periods of non-enrollment before and after entry into a post-secondary institution, transfer across and within types of post-secondary institutions, and attainment of a wide array of degrees and certifications. Choy (2002) estimates that as few as a quarter of contemporary undergraduate students follow a "traditional" pattern of college attendance and degree completion. That is, only 25 percent of current undergraduate students

enter a post-secondary institution immediately after high school, enroll full-time with no periods of non-enrollment, rely upon their parents for financial support, and work part-time at the most.

A number of post-secondary attendance patterns have been linked to inequalities in post-secondary education, particularly in regards to degree completion. For example, extant research has found that the fewer institutions a post-secondary student attends, the fewer periods of non-enrollment a student has; the fewer periods of non-enrollment, the more likely that student is to attain a bachelor's degree (Adelman 1999, McCormick 2003, Choy 2002). Part-time attendance also has been shown to negatively affect persistence to the bachelor's degree (O'Toole at al 2003, Horn 1998, Choy 2002).

Mobility among institutions also appears to be associated with baccalaureate attainment. The research on vertical transfer students or students who move from a 2-year institution to a 4-year institution suggests an estimated 10 to 16 percent of all students who enroll in a public, 2-year institution attain a bachelor's degree compared with about 58 percent of students who first enroll in a 4-year institution (Kane and Rouse 1999, Social Science Research Council 2006). Choy (2002) suggests that students who aspire to a bachelor's degree and begin at a 2-year institution are equally likely to complete a bachelor's degree though these students generally take longer to do so than students who begin at a 4-year institution.

Reverse transfer students or students who move from a 4-year institution to a 2-year institution exhibit a variety of outcomes depending upon the nature of their enrollment in a 2-year institution. Reverse transfer students who temporarily enroll at a community college represent an estimated an estimated 11 percent of postsecondary students today (Adelman 2005). Evidence suggests students using community colleges to supplement their university education are a select and high achieving population: these students enjoy a higher persistence rate than their university peers who only attend one 4-year institution (85 percent versus 76 percent). These temporary transfer students earned an average of 10 credits or fewer at community colleges, and 87 percent earned a bachelor's degree—20 percent more than other students who started in a 4-year

institution (McCormick 2003). In contrast, reverse transfer students who transfer their credits to the 2-year institution from the university typically exhibit poor academic behavior, earn fewer credits overall, exhibit a higher likelihood of discontinuous enrollment, and have more repeated courses and course withdrawals (Adelman 2005). Students who drop down or transfer from a 4-year institution to a 2-year institution are more likely to have a grade point average less than 2.50 in their first year, to be of middle socioeconomic status, to be older or part-time students, or not to have received financial aid at their first institution (McCormick and Carroll 1997).

Post-secondary educational trajectories vary considerably by social origins, particularly completion of the bachelor's degree. Though the effect of an individual's social origins is partly mediated by differences in high school and post-secondary achievement, social origins have been shown to have an effect on college persistence and completion of the bachelor's degree (Adelman 1999, Cabrera et al 2003, Ishitani 2003). In particular, family income and parents' education are both consistently found to influence college persistence over time. Students from less advantaged socioeconomic backgrounds are less likely to persist in college and eventually graduate (Sewell 1971, Manski and Wise 1983, Ishitani 2004). Furthermore, students from lower SES families generally earn lower GPAs, work more, and are less involved in extra-curricular activities than their peers from more advantaged families (Walpole 2003). Social origins also play a role in other pertinent post-secondary transitions. As we noted above, students who transfer credits down to a community college tend to be of middle socioeconomic status and to have financial need (McCormick and Carroll 1997). Research has shown that the more similar a student attending a two-year institution is to students who initially begin their post-secondary education at a 4-year institution, the more likely that student is to make the transfer from the 2-year institution to a 4-year institution. In a well-cited study, Lee and Frank (1990) found that white, male, high socioeconomic status students who began their post-secondary education immediately after high school, and exhibited early aspirations to attend college were more likely to transfer to the 4-year institution among a nationally representative sample of youth. Lee and Frank (1990)

found that the positive effects of parental socioeconomic status on the likelihood of transfer represented the strongest factor in transferring from a 2-year institution to a 4-year institution. Vigorous pursue of academics while attending a community college represented the second largest factor in transferring to a university.

Contemporary research suggests that differences in persistence and degree completion by demographic groups have narrowed over time (Gamoran 2001, Kao and Thompson 2003). For example, net of controls for socioeconomic status and academic performance, scholars have suggested that penalties for being black become a net "advantage" in terms of general enrollment and enrollment in 4-year colleges (Alexander, Holupka, and Pallas 1987a, Alexander, Holupka, and Pallas 1987b), and other research has also suggested that an individual's race is not predictive of post-secondary persistence and degree completion net of other controls (Adelman 1999). However, more recent research suggests this may not be the case and that race is a significant predictor of other important post-secondary transitions besides degree completion. For example, Andrew (2005) finds that Latino students are significantly less likely to transfer from a 2-year school to a 4-year school net of extensive controls for social background and high school and post-secondary achievement.

Over time, the advantage male students traditionally enjoyed over female students in post-secondary persistence and degree completion has fallen to the wayside. In fact, research using recent cohorts of post-secondary students often reports a female advantage in persistence and degree completion over male post-secondary students (Social Science Research Council 2006, DesJardins et al 2002).

Research Questions

Following the gaps in the literature we highlighted in the introduction to this paper, we ask a number of specific research questions:

1. How do social background and demographic characteristics affect the educational trajectories of post-secondary students?
2. How are these effects mediated by high school and post-secondary academic achievement and by entry into parenthood?
3. How might these effects vary across educational transitions of interest and across cohorts of students?

With these research questions in mind, we proceed to estimate a multi-state event history model for samples drawn from two cohorts of U.S. students. This paper presents preliminary results for this analysis. In future analyses, we hope to expand on the work we have done here.

Data and Methods

In this analysis, we use data from High School and Beyond (HSB) and the National Education Longitudinal Survey (NELS:88). HSB is a two-stage national probability sample of over 1100 high schools and more than 30,000 sophomores in 1980. The base year survey was administered in the spring of 1980, follow-ups occurred every two years until 1986, and the fourth follow-up survey was conducted in 1992 when students were about 28 years of age. Transcript information was collected in 1992 for those students who ever enrolled in post-secondary education. While data was collected for both the 1980 senior and sophomore cohorts, we focus on the sophomore cohort in order to take advantage of the transcript data. The NELS is a national probability sample of 1000 schools and 25,000 eighth-graders in 1988. Data were primarily collected in a total of four waves, following the students from the eighth grade in 1988 until eight years after high school graduation when students were 26 or 27 years of age in 2000. Data collection included surveys of students, principals, teachers, and parents and post-secondary transcript data. By the final wave of the study in 2000, the sample had attrited to 12,144 individuals. The HSB and NELS:88 data in combination provide a unique opportunity to observe

national samples of students for nearly a 20-year period during which post-secondary educational trajectories shifted from relative uniformity to increasing complexity and variation.

For our analysis, we focus on students for whom complete transcript data were available and who had ever attended a 4-year institution. The latter condition is necessary since we are ultimately interested in baccalaureate attainment and in order to demarcate a sample of students who arguably intended to attain a bachelor's degree. In both the HSB and NELS samples, we further limit the sample to those who did not simultaneously attend multiple institutions. We also exclude Native American students who were too few in number and students who graduated early or late from high school from each respective sample. We use conditional mean imputation on independent variables of interest for the remaining samples of HSB and NELS students. Based on these conditions, we are left with a sample of 4598 HSB students and a sample of 4982 NELS students.

Independent Variables

We are mainly interested in a number of social origin measures in this analysis including gender, race, parents' education, and natal family income and how post-secondary educational trajectories may vary by these measures net of basic measures of high school and post-secondary achievement and the competing responsibility of parenthood. In order to facilitate estimation of multi-state models, we measure all independent variables as dichotomous measures. Accordingly, we measure gender using a dummy measure denoting whether or not a respondent is female. Similarly, we use two dummy measures to denote whether or not a student is black or Latino with white and Asian students serving as the omitted criterion of comparison. We treat white and Asian students as a single group in this analysis because of their historical advantage over black and Latino students in important educational transitions such as baccalaureate attainment (Kao and Tienda 1995). Parent education is measured as the highest education level attained by either parent and was ascertained prior to the student beginning her or his post-

secondary education. We use three categories in our analysis to measure parents' education: 1) less than high school; 2) some college, and 3) at least a bachelor's degree. The second category includes any post-secondary education past high school but less than a bachelor's degree. The third category includes 4-year degrees as well as any graduate education. In our analysis, we omit parents who attained a high school diploma as the criterion group. We measure family income using three dummy measures denoting the income quartile for the sample. We use the bottom income quartile as the omitted comparison group. Family income information was ascertained prior to the student beginning his or her post-secondary education for both samples.

Beyond socio-demographic characteristics, we also include measures of high school and post-secondary academic achievement and parenthood as possible mediating factors of socio-demographic or social origin characteristics associated with post-secondary educational trajectories. We measure high school achievement using a senior year mathematics test score. Specifically, we use three dummy measures denoting whether the respondent scored in the second, third, or fourth quartile; the first quartile of test scores serves as the comparison group. Researchers have taken test scores to reflect both innate ability and information learned in the classroom (Kao and Thompson 2003). Since all participants were expected to take these tests, using test scores also allows for uniform comparison. We chose math test scores over reading because preliminary models suggested that reading test scores were insignificant in most models. We measure post-secondary achievement using three indicators of which quartile the respondent's cumulative college GPA is in with the bottom quartile serving as the comparison group. [1] Although there are several activities that compete for a student's time, we focus on a time-varying measure of parenthood in this analysis because parenthood invokes constraints on time, finances, and psychological well-being and because we could construct a comparable

[1] Though this measure of post-secondary achievement is endogenous, we use it primarily as a control in order to ascertain the extent to which important socio-demographic characteristics impact post-secondary educational trajectories. In future revisions to this paper, we hope to include the post-secondary GPA as a time-varying covariate instead.

measure for both the HSB and NELS samples. In future analyses, we hope to also include marital status as a time-varying covariate as well.

Event Histories

To obtain event histories, we use data from the private transcript data in the HSB and NELS concerning whether a given educational transition occurred and when that transition occurred. The HSB provides transcript data spanning 10 years while the NELS provides transcript data spanning nine years. Both studies provide yearly and monthly accounts of the enrollment status of a respondent. Based on these measures, we construct status variables by academic year to create an annual record by academic year of whether or not the student was enrolled and whether the student was enrolled in a 2 or 4-year institution. In this preliminary analysis, we prefer this person-years data set to more detailed person-months or person-terms data sets because of the large total number of records. Additionally, certain time-varying covariates are only available on a yearly basis, and estimating the particular month in which the changes in status occurred could potentially bias the results.[2] In our analysis, we focus on four basic events or states: 1) non-enrollment; 2) enrollment in a 2-year institution; 3) enrollment in a 4-year institution; and 4) completion of a bachelor's degree. More specifically, we are interested in the seven transitions that occur among these four states. Students are allowed to make a given transition multiple times, and we treat baccalaureate attainment as an absorbing or terminal state. That is, once a student receives a bachelor's degree, we no longer consider any additional educational transitions she or he may have made.

[2] In future revisions, we may attempt to move to a person-terms data set in order to provide an even more fine-grained analysis of post-secondary educational trajectories.

Model Specification

A particular problem with the growing literature on post-secondary educational trajectories and patterns of attendance is that past studies generally make use of standard statistical techniques and thus are often plagued with problems. One problem in the majority of past studies is the loss of important information through censoring. By studying whether graduation occurs by a given time, central information is lost about what happens at each point in the process. A third problem is that commonly used statistical techniques don't allow for time-varying covariates even though certain characteristics naturally change over time. Perhaps the most disconcerting problem with extant studies of post-secondary educational trajectories is that of adequately characterizing the different paths to college graduation. During a given period of time, a student is faced with various options such as not enrolling and transferring from a 2-year to a 4-year (or vice-versa). Further, a student may experience these events multiple times.

In an attempt to overcome these problems, we estimate the multi-state model shown schematically in Figure 1.

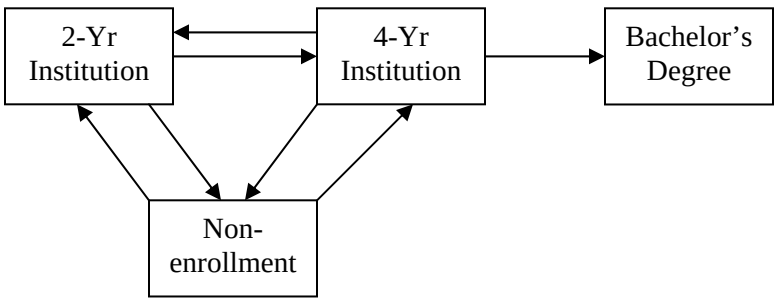

Figure 1: Schematic Model of Post-Secondary Educational Transitions

In our analysis, the transitions of interest are modeled simultaneously using CTM software and can occur multiple times for a given student. In parameterizing the underlying baseline hazard

for each transition, we used basic diagnostic tools such as smoothed estimates of the baseline hazard and the Bayesian Information Criteria or Aikake Information Criteria for each transition of interest to assess the adequacy of the specified functional form of the hazard. In both the HSB and NELS samples, the baseline hazards for the transitions of interest approximate a quadratic shape. This quadratic shape is intuitive and suggests, for example, that a student experiences an increased risk of completing a bachelor's degree to a certain point in time whereafter the risk of completing a bachelor's degree decreases. The quadratic hazard generally can be written as:

$$\mu(t|\boldsymbol{Z}) = \exp(a + \gamma_1 t + \gamma_2 t^2 + \boldsymbol{Z}\beta)$$

where a is a constant, $\boldsymbol{Z}\beta$ is a vector of explanatory variables, and $\gamma_1 t + \gamma_2 t^2$ are duration terms. Statistical models for transitions of interest vary by the included controls. In general, we begin with a social origins model including measures of the student's socio-demographic characteristics described above. We then successively add high school achievement, post-secondary achievement, and parenthood measures. We estimate the multi-state model separately for our respective HSB and NELS samples. [3] Exponentiated coefficients for these models can be interpreted as the percent change in the relative risk of a given event or transition occurring.

A drawback to estimating a multi-state model is that none of the statistical models in this analysis account for the complex stratified design of the HSB and NELS surveys. Thus, reported standard errors are somewhat smaller than would otherwise be the case and results are not representative of the national population. CTM software does not allow for the introduction of probability weights or the use of sandwich estimators. Though weighted estimates should not matter unless the model is ill specified, results should be interpreted accordingly.

[3] We chose to estimate the model separately for each sample rather than pooling the sample in this preliminary paper in order to observe all the possible differences among the samples. However, in future analyses, we will explore the statistical significance of these differences by pooling the data in one model.

Results

Descriptive Statistics

Summary statistics comparing students in our HSB and NELS samples are presented in Table 1. On the whole, the two samples are generally comparable. Both samples are slightly more than half female students, but the NELS sample has considerably fewer minorities than the HSB sample. While about 13 percent and 16 percent of the HSB sample are black and Latino, the NELS sample is only 7 percent and 8 percent black and Latino, respectively. Similar differences in magnitude are apparent comparing parents' education between the two samples; in general, parents in the NELS sample are more highly educated. About 6 percent of parents in the HSB sample attained less than a high school education, but only about 4 percent of parents in the NELS sample attained a similar level of education. Along those lines, 21 percent of the parents in the HSB sample attained a high school diploma but only about 13 percent of parents attained a diploma in the NELS sample. About 4 percent and 6 percent more parents in the NELS sample attained some college education or at least a bachelor's degree compared to the HSB sample, respectively. In general, the two samples have a fairly similar distribution of students across family income quartiles. Both samples have a slightly larger portion of students in the top income quartile.

Despite noteworthy differences in socio-demographic characteristics between the two samples, students in the HSB and the NELS are fairly similar in terms of high school and post-secondary achievement and parenthood. Students only differ by about .3 points in standardized math test scores on average between the two samples and only by .174 in post-secondary grade point average. The cumulative percentage of each sample experiencing parenthood by a given year exhibits similar differences. Prior to high school graduation and in the early years of normative post-secondary attendance, very few students enter parenthood—just about 5 percent three years out from high school graduation in both samples. At nine years out from high school graduation, about 14.5 percent of students in both samples report the birth of a biological child.

Figures 2 through 8 depict the predicted hazards for each transition by year and cohort based on a model with the full set of controls. Keep in mind that while our predicted hazards are a function of the specified functional form of the baseline hazard (in our case a quadratic), this specified functional form provided the best fit according to basic diagnostic graphs and statistics. In regards to transitions from non-enrollment to enrollment in any either post-secondary institution in Figures 2 and 3, we see that the relative risk of making such a transition peaks two to three years after entering that state. In both instances, the relative risk or the peak of the quadratic function is much higher for the NELS sample than the HSB sample. Yet, the relative risk of moving from non-enrollment to enrollment in either type of institution decreases more steeply for the NELS cohort than for the HSB cohort. By six or seven years after entering a state of non-enrollment, both cohorts of students are equally likely to remain not enrolled in either a 2-year or 4-year post-secondary institution when the hazards for the two groups converge.

In regards to transitions from enrollment in a 2-year or 4-year institution to non-enrollment, we see in Figures 4 and 5 that NELS students exhibit a much flatter predicted hazard over time compared to HSB students. This suggests that NELS students are much less likely to move from enrollment in a 2-year or 4-year institution to non-enrollment and that the risk of doing so is somewhat more similar over time compared to HSB students. The hazard of moving from enrollment to non-enrollment for the two cohorts of students converges at about 6 years after enrolling in a post-secondary institution.

Figure 6 depicts the hazard of making a vertical transfer from a 2-year institution to a 4-year institution. Once again, the hazard function is much flatter for NELS students over time compared to that of HSB students. This suggests that the hazard of making a vertical transfer is more similar over time for NELS students than for HSB students. Moreover, NELS students appear to experience a lower relative risk of making a vertical transfer in general compared to HSB students though we see convergence in the hazards for each cohort of students by year 6.

The shape of the predicted hazard of making a reverse transfer or a transfer from a 4-year to a 2-year institution is very similar across the two cohorts of post-secondary students in Figure 7. Both functions peak at about 2 years after entering a 4-year institution. However, the predicted hazard for post-secondary students in the 1980s is shifted much further down than the predicted hazard for post-secondary students in the 1990s, suggesting the relative risk of making a reverse transfer is higher for students in the NELS sample overall.

Finally, Figure 8 depicts the predicted hazard of attaining a bachelor's degree for each sample. We see that the hazards for each sample are nearly identical in shape and that both functions peak at about 3.5 years after entering a 4-year institution. Though the basic shape of the predicted hazards for the HSB and NELS samples is similar, the predicted hazard for the NELS sample is shifted considerably further down than the hazard for the HSB sample. Once again, this suggests that the hazard of obtaining a bachelor's degree is lower for the NELS sample in the 1990s than for the HSB sample in the 1980s once a full set of statistical controls are entered into the model.

Social Origins and Post-Secondary Educational Trajectories

We now turn to model estimates of the effects of social origins on the seven post-secondary transitions in question. We discuss each transition for each sample in turn, drawing attention to pertinent differences between the two samples. Tables 2-9 display model estimates for each sample for each transition. Beginning with the transitions from enrollment in a post-secondary institution to non-enrollment in Tables 2 and 3, we see that having a parent with at least a bachelor's degree provides protection from leaving a 4-year school for both cohorts of students. However, the magnitude of the effect is more robust to the introduction of controls and about twice as large for the NELS student as it is for the HSB student in the full model. A post-secondary student with a parent with a college degree in the 1990s was about 30 percent less likely to leave a 4-year institution compared to a student with a parent who had a high school

degree (1-exp(-.351)). Yet, a post-secondary student with a parent with a college degree in the 1980s was only about 15 percent less likely to not enroll in a 4-year institution (1-exp(-.173)). Over time then, the importance of having a parent with a college degree vis-à-vis non-enrollment in a 4-year institution appears to have increased.

Family income appears to provide similar protection against non-enrollment in a four-year institution for post-secondary students in the 1980s and 1990s. Yet, for our sample of post-secondary students in the 1990s, that protection is only evident for students in the top income quartile net of a full set of controls and is larger than that observed for students whose family income is in the top quartile for our sample of students in the 1980s. Students in our HSB sample and whose family income is in the third and fourth quartiles are about 20 percent less likely to move to a state of non-enrollment from enrollment in a 4- year institution compared to students in the same sample whose family income is in the bottom quartile, net of controls for high school and post-secondary achievement and the competing risk of parenthood (see Table 2). Students in our NELS sample and whose family income is in the top quartile are about 27 percent less likely to not enroll in a 4-year institution compared to students in the same sample whose family income is in the bottom quartile net of a full set of controls, a 7 percent increase over the HSB sample (see Table 3).

In regards to race, black and Latino students in the HSB sample appear to derive an advantage over white and Asian students in leaving a 4-year institution. Once high school and post-secondary achievement is controlled for, black and Latino students are about 18 to 19 percent less likely to move to a state of non-enrollment from a 4-year institution compared to white and Asian students in the same cohort. Only black students enjoy such an advantage in the NELS sample, but this advantage increases by 12 percent from the sample of students in the 1980s so that by the 1990s black students in the NELS sample are 32 percent less likely to leave a school once they have entered a 4-year institution. Female and Latino students appear to have a

respective advantage and disadvantage in terms of non-enrollment in Model 2, but these effects are completely mediated by post-secondary achievement.

In contrast to the observed effects of social origins in the transfer from a 4-year institution to non-enrollment, we see no effects of social origins on the transition from a 2-year institution to non-enrollment for the sample of post-secondary students in the 1980s in Table 2. Only college GPA and parenthood are significant predictors in that regard. Yet, some social origins measures do appear to make a difference for post-secondary students in the 1990s in Table 3. In a sample of post-secondary students in the 1990s, we see that parental education influences the transition from a 2-year institution to non-enrollment. More specifically, having a parent with at least a college degree leads to about a 25 percent decrease in the relative risk of moving from a 2-year institution to a state of non-enrollment (1-exp(-.282)). This effect is net of a full set of controls. Once high school and college achievement are controlled for, it appears that Latinos in the NELS sample are about 27 percent less likely to transition from a 2-year institution to a state of non-enrollment (1-exp(-.311)). This effect is not significant until controls for parenthood are entered into the model though.

Moving from non-enrollment to enrollment in a post-secondary institution evinces a similar story to the story that emerged when examining movement from enrollment to non-enrollment (see Tables 4 and 5). That is, social origin effects are apparent in moving from non-enrollment to enrollment in a 4-year institution but few social origin effects are apparent in moving from non-enrollment to enrollment in a 2-year institution. For our sample of students attending schools in the 1980s, having a parent with some college or at least a college degree increases the relative risk of moving from a period of non-enrollment to enrollment in a 4-year institution by about 22 and 32 percent, respectively. The effect for having a parent with some college education becomes insignificant at the .05-level though when parenthood is entered into the model in Model 4. Moreover, black students appear to be 24 percent less likely to move from

a state of non-enrollment to enrollment in a 4-year institution, but this effect is mediated by controls for college GPA.

There appear to be no robust social origin effects as we have measured them on the relative risk of moving from a state of non-enrollment to enrollment in a 4-year institution in our NELS sample (see Table 5). Family income in the 3rd quartile appears to increase the relative risk of making this transition by 31 percent, but this effect is entirely mediated by college achievement.

In the case of transitioning from a state of non-enrollment to enrollment in a 2-year institution, we observe no social origin effects for either our HSB or NELS sample. However, in both samples, college GPA and parenthood were highly significant and substantively large predictors of this transition. This suggests that transitioning from non-enrollment to enrollment in a 2-year institution is largely determined by circumstances that occur when the student is much older than by his or her social origins directly.

We now turn our attention to vertical and reverse transfers (see Tables 6 and 7). First, we begin with vertical transfers from a 2-year institution to a 4-year institution. In our national sample of post-secondary students from the 1980s, we see that having a parent with a college degree has a significant, positive effect on the relative risk of making a vertical transfer while being black or Latino has a significant negative effect. More specifically, we observe that having a parent with a college degree increases the relative risk of making a vertical transfer by 27 percent in Model 2. However, this effect is mediated entirely by controls for post-secondary achievement. Similarly, Latino students are 20 percent less likely to make the transfer from a 2-year to a 4-year institution in Model 2, but this effect is also mediated by controls for college achievement. Black students are about 40 percent less likely to transfer from a 2-year institution to a 4-year institution, and this effect is robust to controls for college achievement and parenthood in the full model.

Our national sample of post-secondary students in the 1990s tells a bit of a different story (see Table 7). In this sample, parental education no longer matters as in the HSB sample but family income does. Students whose natal family enjoys income in the top quartile of the sample are 33 percent more likely to make a vertical transfer in Model 4. Demographic characteristics also have a significant effect on the relative risk of making the transfer from a 2-year to a 4-year institution. Latino students are about 20 percent less likely to make the transfer from a 2-year to a 4-year in Model 1, but this effect becomes insignificant once controls for high school achievement are entered into the model in Model 2. Female and black students are significantly less likely to make this transfer as well, and the effect of each is robust to a full set of controls. In the full model, a female student in the 1990s is about 16 percent less likely to make a vertical transfer compared to a male student while a black student is 35 percent less likely compared to white and Asian students in the sample.

Turning to reverse transfers in Table 6, we observe no social origin effects in the HSB sample with the exception of a Latino effect in the first model. This model suggests Latino students are 50 percent more likely to make the transfer from a 4-year institution to a 2-year institution, but the effect is halved and is statistically insignificant with controls in later models. Social origins play a much stronger role in reverse transfers for our sample of post-secondary students in the 1990s (see Table 7). For instance, students whose parent has at least a college degree are 36 percent less likely to make a reverse transfer compared to students whose parent attained a high school degree in Model 4. Black students also appear to be less likely to make a reverse transfer. In a model with a full set of controls, black students have a 51 percent lower relative risk of making a reverse transfer compared to white and Asian students. Model 1 suggests Latinos are more likely to make a reverse transfer by about 46 percent, but this effect becomes insignificant and is reduced by half once controls are entered into the model, as it was in the HSB sample.

Finally, we turn our attention to the relative risk of attaining a bachelor's degree or entering state 4 in our schematic model shown in Figure 1. See Tables 8 and 9 for model estimates for each sample. In both of our samples, parent education, family income, and demographic characteristics all have significant effects on the relative risk of attaining a bachelor's degree. In regards to parent education for a national sample of post-secondary students from the 1980s, we see that students with a parent who has at least a college degree experience a boost of about 12 percent in the relative risk of completing a bachelor's degree in Model 2. This boost, however, disappears once controls for college GPA are entered into the model in Model 3. Family income effects remain significant net of a full set of controls. We see that students from families in the second and fourth income quartiles have a respective 15 percent and 19 percent increase in the relative risk of completing a bachelor's degree compared to students from families in the bottom income quartile. Similar to the extant literature, black and Latino students exhibit a lower relative risk of completing a bachelor's degree by about 16 and 23 percent, respectively. This effect is net of a full set of controls. Female students in the HSB sample have about a 17 percent higher relative risk of completing a bachelor's degree in Model 2, but this effect disappears once college achievement controls are included in the model.

Compared to the HSB sample, we see a similar pattern of social origin effects in the NELS sample of students for the relative risk of attaining a bachelor's degree (see Table 9). However, the magnitude of the effect is often much more substantial than that observed for the HSB sample. In the case of having a parent with at least a college degree, the relative risk of attaining a bachelor's degree is about 2 percent larger in the NELS sample in Model 1 compared to the HSB sample for the same model. The main difference is that the effect of having a parent with at least a college education is completely mediated by controls for high school achievement in the NELS sample while the effect remains significant for HSB students until controls for college achievement are entered into the model. The effect of natal family income is somewhat different between the two samples. In the NELS sample, the increase in the relative risk of

attaining a bachelor's degree for coming from a family in the top income quartile is generally about 23 percent or 4 percent larger in the full model than that observed for the HSB sample. Similarly, the decrease in the relative risk of attaining a bachelor's degree for Latino students is much larger in the NELS sample compared to the HSB sample net of a full set of controls. Latino students in the NELS sample are about 31 percent less likely to complete a bachelor's degree compared to white and Asian students in the sample, a 4 percent larger decrease than that observed for Latino students in the HSB sample. Black students in both samples experience similar decreases in the relative risk of attaining a bachelor's degree—16 percent, and this effect is robust to a full set of controls. Finally, we observe a slight decrease in the advantage of female students over male students from the HSB sample to the NELS sample, but the female coefficient in the NELS sample remains robust with a full set of controls at about a 17 percent increase in the relative risk of obtaining a bachelor's degree compared to male students.

Discussion and Conclusion

In this paper, we have assessed the effects of a student's social origins on the relative risk of making a number of post-secondary transitions and some of the possible mechanisms by which these effects operate. We employ a multi-state model that simultaneously estimates these transitions and better describes the complex pathways two cohorts of students take in their post-secondary careers. Looking at the predicted hazard functions in Figures 2-8, we generally find that our sample of post-secondary students in the 1990s are better off in regards to enrollment than students in our sample for the 1980s. That is, on average, students in our sample for the 1990s exhibit a lower maximum relative risk of moving from enrollment in an institution to non-enrollment and a higher maximum relative risk of moving from a state of non-enrollment to enrollment in a post-secondary institution. However, compared to students in our 1980s sample, students in our 1990s sample face a much starker decline in the relative risk of either transition.

Thus, students in our 1990s sample are more susceptible to non-enrollment than students in our 1980s sample as time passes by.

For our sample of post-secondary students from the 1990s, the predicted hazard function for making a vertical transfer is flatter and generally lower than the hazard function for the sample of students from the 1980s. This suggests that post-secondary students attending a 2-year school in our sample from the 1990s have a lower relative risk of making the transition to a baccalaureate-granting institution. Moreover, the hazard for making a reverse transfer for this sample of students is much higher than the hazard function we observe for our sample of HSB students from the 1980s. We observe the higher relative risk of making a reverse transfer for the NELS sample holding social origins, academic achievement and parenthood constant so that it seems likely that the higher relative risk is not necessarily high achieving students simply supplementing their university education. If this is the case, the higher relative risk of a reverse transfer among our sample of post-secondary students in the 1990s compared to a sample of students in the 1980s is worrisome and merits further investigation. In summary, students in our most recent sample may have an advantage over a sample of students from the previous decade in regards to being in a state of non-enrollment, but they do not appear to have a similar advantage in moving between types of institutions. It may be the case that pathways between 2-year and 4-year institutions have become more rigid over time.

Finally, predicted hazards suggest that our sample of NELS students have a lower relative risk overall of attaining a bachelor's degree than our sample of HSB students net of controls. This is a troubling shift if this is the case and also merits further investigation.

In our multi-state model, social origin effects were apparent in some post-secondary transitions but not in others. In particular, it appears that social origins have an important effect on not enrolling in a post-secondary institution, transferring between a 2-year and a 4-year institution, and attaining a bachelor's degree. First, having a parent with at least a college degree provides a particular advantage in regards to leaving a post-secondary institution, and that

advantage doubles between our sample of students in the 1980s and our sample of students in the 1990s. Family income provides an advantage by lowering the relative risk of not enrolling in a 4-year institution in particular, but this advantage only persists and even increases by 7 percent for students from families in the top income quartile across the earlier and later samples of students. Over time, then, it appears that high levels of parent education and family income have become even more important in lowering a student's relative risk of dis-enrolling in a 4-year institution.

Interestingly, selection mechanisms appear to be operating to provide black students an important advantage in leaving a 4-year institution. That is, we observe that black students who are enrolled in a 4-year institution exhibit a lower relative risk of not enrolling the next academic year than white and Asian students in our sample of students in the 1980s. These students even experience an increase in their advantage in our sample of students in the 1990s with a 12 percent drop in the relative risk of not enrolling in a 4-year institution between the earlier and later samples.

Vertical and reverse transfers are other post-secondary transition for which social origin effects are apparent. However, many of these social origin effects were mediated by academic achievement or not consistent across the two samples. For vertical transfers, having a parent with at least a college degree is important for students in the full model for our HSB sample but not for students in our NELS sample. Instead, high family income makes a difference for students transferring from a 2-year to a 4-year institution in the full model for our NELS sample. This follows the advantage high family income provides for students vis-à-vis leaving a 4-year institution for our sample of students in the 1990s and underscores the seemingly general importance of financial resources for students in this later cohort. Female, black, and Latino students appear to suffer a marked disadvantage compared to their counterparts in making a vertical transfer in the latter sample. This disadvantage is smaller in the NELS sample for black students than in the HSB sample, but the disadvantage is still substantial (~35 percent lower relative risk). Latino also exhibited a stable lower relative risk in making a vertical transfer

across the two samples, but this effect was mediated by controls for academic achievement. Based on our results, it also appears that while female students were not at a disadvantage in the 1980s they were 16 percent less likely to make a transfer by the 1990s. Given these general results, it appears that 2-year and 4-year institutions still have a great responsibility to ensure certain demographic groups of students are able to make the jump from a 2-year institution to a 4-year institution.

We observe no robust social origin effects in regards to the risk of making a reverse transfer in our HSB sample but do observe robust social origin effects in our NELS sample. In particular, having a parent with at least a college degree is important for keeping students in a 4-year institution. It may be the case that these parents provide important social know-how or expectations that prevent their students from making a reverse transfer given that family income was not similarly significant. Also, a selection mechanism appears to be operating once again for black students enrolled in a 4-year institution so that they have a lower relative risk of transferring from a 4-year to a 2-year institution net of academic and parenthood controls.

The relative risk of completing a bachelor's degree was predicted by a number of social origin measures in our models. In particular, the top quartile of family income provides a large boost in the relative risk of completing the bachelor's degree and that boost was larger for our sample of post-secondary students in the 1990s by 4 percent. Latino students exhibited a lower relative risk of completing a bachelor's degree in our HSB sample and this risk decreased further by 4 percent in the 1990s. Thus, over time, it appears that high family income has become even more important to finishing the bachelor's degree while being a Latino student has become more of a disadvantage. Finally, female students maintain a 17 percent advantage over male students in completing a bachelor's degree in the NELS sample, reversing a long-standing male advantage in bachelor degree completion.

In conclusion, we note three important and particularly noteworthy findings. First, family income appears to be especially important for students to make key transitions on their

way to a bachelor's degree for our sample from the 1990s, moreso than for our sample from the 1980s. Second, many disadvantages and advantages by social origins appear to have increased between the earlier and later samples such as family income or parent education advantages. Third, though students in our sample for the 1990s appear to have a higher relative risk of being enrolled in a post-secondary institution, this risk drops off more sharply and they exhibit multiple disadvantages in making key transitions into and out of a 4-year institution compared to our sample of students from the 1980s. These results provide food for thought and require further investigation. In future research, we will continue to refine our models, introducing additional controls for academic achievement and competing responsibilities like marriage and using multiple imputation rather than conditional mean imputation. We will also attempt to include additional measures of social origins such as parent occupation and to model unmeasured heterogeneity. However, given the complexity of our current model and software constraints, these latter tasks may not be possible.

References

Adelman, C. (1999). *Answers in the Tool Box: Academic Intensity, Attendance Patterns, and Bachelor's Degree Attainment*. U.S. Department of Education: Washington, D.C.

Adelman, C., Daniel, B., Berkovits, I., and Owings, J. (2003). *Postsecondary Attainment, Attendance, Curriculum, and Performance: Selected Results from the NELS:88/2000 Postsecondary Education Transcript Study (PETS), 2000*. Washington, D.C.: U.S. Department of Education, Institute of Education Sciences.

Adelman, C. (2005). *Moving Into Town and Moving On: The Community College in the Lives of Traditional Age Students*. U.S. Department of Education: Washington, D.C.

Alexander, K. L., Pallas, A. M., and Holupka, S. (1987a). "Consistency and Change in Educational Stratification: Recent Trends Regarding Social Background and College Access." In *Research in Social Stratification and Mobility*, eds. R. V. Robinson. Greenwich, CT: JAI Press Inc.

Alexander, K. L., Pallas, A.M., and Holupka, S. (1987b). "Social Background and Academic Determinants of Two-Year versus Four-Year College Attendance: Evidence from Two Cohorts a Decade Apart." *American Journal of Education* 96: 56-81.

Andrew, M. (2005). "From Community to University: An Event History Model of the Community College Transfer Process." Unpublished Manuscript, University of Wisconsin-Madison.

Astin, A. W. and Oseguera, L. (2004). "The Declining 'Equity' of American Higher Education." *The Review of Higher Education* 27(3): 321-341.

Bozick, R. and DeLuca, S. (2005). "Better Late Than Never? Delayed Enrollment in the High School to College Transition." *Social Forces* 84(1):531-542.

Cabrera, A. F. and La Nasa, S.N. (2001). "On the Path to College: Three Critical Tasks Facing America's Disadvantaged." *Research in Higher Education* 42: 119-149.

Ceja, C. (2005). "Nontraditional College Attendance: Social Origin Effects Across College Transitions." Unpublished Master's Thesis, University of Wisconsin-Madison.

Choy, Susan P. (2002). *Access & Persistence: Findings From 10 Years of Longitudinal Research on Students.* Washington, DC: American Council on Education.

DesJardins, S. L., Ahlburg, D.A., and McCall, B.P. (2002a). "A Temporal Investigation of Factors Related to Timely Degree Completion." *The Journal of Higher Education* 73: 555-581.

DesJardins, S. L, McCall, B.P., Ahlburg, D.A., and Moye, M.J. (2002b). "Adding a Timing Light to the 'Tool Box.'" *Research in Higher Education* 2002: 83-114.

Gamoran, A. (2001). "American Schooling and Educational Inequality: A Forecast for The 21st Century." *Sociology of Education* Supplement: 135-153.

Gottschalk, P. (1997). "Inequality, Income Growth and Mobility: The Basic Facts." *Journal of Economic Perspectives* 11(2):21-40.

Hearn, J. C. (1992). "Emerging Variations in Postsecondary Attendance Patterns: An Investigation of Part-Time, Delayed, and Nondegree Enrollment." *Research in Higher Education* 33: 657-687.

Horn, L. J. (1998). *Stopouts or Stayouts? Undergraduates Who Leave College in Their First Year*. Washington, D.C.: U.S. Department of Education, Office of Educational Research and Improvement.

Ishitani, T. T. (2004). "Application of Event History Modeling for Examining College Student Departure Behavior." In *Advancing Educational Productivity: Policy Implications from National Databases*, ed. Susan Paik. Greenwich, CT: Information Age Publishing.

Kane, T.J. and Rouse, C.E. (1995). "Labor Market Returns to Two- and Four-Year College." *American Economic Review* 85:600-614.

Kao, G. and Thompson, J.S. (2003). "Racial and Ethnic Stratification in Educational Achievement and Attainment." *Annual Review of Sociology* 29: 417-442.

Kao, G. and Tienda, M. (1995). "Optimism and Achievement: The Immigrant Educational Performance of Immigrant Youth." *Social Science Quarterly* 76: 1-19.

Lee, V.E. and Frank, K.A. (1990). "Students' Characteristics that Facilitate the Transfer from Two-Year to Four-Year Colleges." *Sociology of Education* 63(3): 178-193.

Manski, C. F. and Wise, D.A. (1983). *College Choice in America*. Cambridge, MA: Harvard University Press.

McCormick, A. C. (1997). *Transfer Behavior among Beginning Postsecondary Students: 1989-1994*. Washington, D.C.: U.S. Department of Education, National Center for Education Statistics.

McCormick, A.C. (2003). "Swirling and Double-Dipping: New Patterns of Student Attendance and Their Implications for Higher Education." *New Directions for Higher Education* 121:13-24.

O'Toole, D. M., Stratton, L.S., and Wetzel, J.N. (2003). "A Longitudinal Analysis of the Frequency of Part-time Enrollment and the Persistence of Students Who Enroll Part Time." *Research in Higher Education* 44: 519-537.

Ross, C.E. and Van Willigen, M. (1997). "Education and the Subjective Quality of Life." *Journal of Health and Social Behavior* 38:275-297.

Sewell, W. H. (1971). "Inequality of Opportunity for Higher Education." *American*

Sociological Review 36: 793-809.

Sewell, W.H. and Hauser, R.M. (1975). *Education, Occupation, and Earnings: Achievement in the Early Career*. Academic Press: New York.

Social Science Research Council (2006). Questions that Matter: Setting the Research Agenda on Access and Success in Postsecondary Education. Report of the Social Science Research Council Project *Transitions to College: From Theory to Practice*. Washington, D.C.

Walpole, M. (2003). "Socioeconomic Status and College: How SES Affects College Experiences and Outcomes." *The Review of Higher Education* 27: 45-73.

Table 1. Descriptive Summary

Variable		HSB Sample		NELS Sample
Female		0.526751		.5341228
		(.4993382)		(.4988843)
Black		0.128099		.0734645
		(.3342366)		(.2609236)
Latino		.1565898		.0830992
		(.3634531)		(.2760597)
Parents' Education				
Less than HS		.0626359		.0387395
		(.2423333)		(.1929927)
HS Graduate		.2055241		.1246487
		(.4041281)		(.3303533)
Some College		.315572		.3598956
		(.4647938)		(.4800177)
College Graduate or Higher		.4162679		.4767162
		(.4929927)		(.4995077)
Family Income				
First Quartile		.1359287		.2151746
		(.3427501)		(.4109847)
Second Quartile		.2451066		.1818547
		(.4301972)		(.3857634)
Third Quartile		.184428		.2408671
		(.387875)		(.4276527)
Fourth Quartile		.4345368		.3621036
		(.49575)		(.4806568)
HS Math Test Score		56.77068		57.02067
		(8.454153)		(7.73459)
College Grade Point Average		2.666373		2.834567
		(.6577719)		(.6551865)
Competing Responsibilities				
Parenthood (Percentage)				
	By 1982	1.37	By 1992	.5
	1983	2.05	1993	1.25
	1984	2.94	1994	3.04
	1985	4.34	1995	4.71
	1986	6.22	1996	6.56
	1987	8.46	1997	8.77
	1988	11.04	1998	11.78
	1989	14.55	1999	14.45
	1990	19.00		
	1991	22.78		
		N=4598		N=4982

Table 2. Parameter Estimates for High School and Beyond Sample (N=4598)

	Enrolled in 4-year to Not Enrolled				Enrolled in 2-year to Not Enrolled			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
Intercept	**-2.065** (.083)	**-1.356** (.098)	**-0.95** (.098)	**-0.986** (.100)	**-1.679** (.164)	**-1.66** (.218)	**-1.369** (.225)	**-1.351** (.226)
Linear term	**0.521** (.073)	**0.559** (.071)	**0.633** (.068)	**0.636** (.068)	**1.971** (.259)	**1.968** (.263)	**1.988** (.253)	**1.990** (.256)
Quadratic term	**-0.091** (.025)	**-0.102** (.024)	**-0.134** (.023)	**-0.136** (.024)	**-0.590** (.130)	**-0.588** (.133)	**-0.598** (.125)	**-0.599** (.126)
Parents' Ed								
< H.S.	-0.007 (.096)	0.016 (.094)	0.068 (.092)	0.06 (.094)	0.037 (.209)	0.034 (.204)	0.132 (.217)	0.109 (.217)
H.S.	ref	ref	ref	ref	ref	ref	ref	ref
Some college	-0.106 (.064)	-0.052 (.064)	-0.053 (.063)	-0.065 (.064)	0.011 (.122)	0.007 (.120)	0.05 (.117)	0.044 (.121)
College+	**-0.333** (.068)	**-0.233** (.068)	**-0.175** (.068)	**-0.173** (.069)	-0.094 (.133)	-0.101 (.129)	-0.051 (.127)	-0.066 (.128)
Family Income								
1st Quartile	ref	ref	ref	ref	ref	ref	ref	ref
2nd Quartile	**-0.149** (.073)	-0.112 (.071)	-0.093 (.070)	-0.1 (.071)	-0.224 (.157)	-0.218 (.151)	-0.22 (.155)	-0.213 (.155)
3rd Quartile	**-0.241** (.081)	**-0.216** (.080)	**-0.213** (.079)	**-0.227** (.080)	0.076 (.165)	0.072 (.161)	0.022 (.161)	0.036 (.162)
Top Quartile	**-0.293** (.074)	**-0.220** (.074)	**-0.258** (.072)	**-0.266** (.073)	-0.231 (.159)	-0.228 (.153)	-0.284 (.155)	-0.275 (.154)
Demographic								
Black	**0.347** (.064)	0.074 (.066)	**-0.187** (.067)	**-0.199** (.068)	0.157 (.139)	0.139 (.149)	-0.038 (.147)	-0.064 (.147)
Latino	0.121 (.064)	-0.028 (.065)	**-0.2** (.065)	**-0.206** (.065)	-0.155 (.127)	-0.171 (.122)	-0.201 (.122)	-0.199 (.123)
Female	0.018 (.047)	**-0.098** (.047)	0.063 (.048)	0.052 (.048)	0.099 (.098)	0.089 (.097)	0.129 (.098)	0.129 (.099)
H.S. Math								
1st Quartile		ref	ref	ref		ref	ref	ref
2nd Quartile		**-0.340** (.075)	**-0.16** (.074)	-0.14 (.075)		0.046 (.168)	0.145 (.162)	0.128 (.165)
3rd Quartile		**-0.643** (.074)	**-0.347** (.074)	**-0.322** (.074)		0.005 (.162)	0.146 (.158)	0.129 (.159)
Top Quartile		**-1.124** (.078)	**-0.648** (.079)	**-0.617** (.080)		-0.074 (.175)	0.046 (.174)	0.021 (.177)
College GPA								
1st Quartile			ref	ref			ref	ref
2nd Quartile			**-0.808** (.059)	**-0.802** (.059)			**-0.646** (.132)	**-0.65** (.133)
3rd Quartile			**-1.096** (.070)	**-1.086** (.070)			**-0.464** (.128)	**-0.46** (.130)
Top Quartile			**-1.374** (.087)	**-1.382** (.086)			**-0.537** (.134)	**-0.538** (.134)
Competing Resp.								
Parent?				**0.584** (.095)				0.185 (.206)

Note: Bolded coefficients are significant at least at P < .05. Standard Errors are given in parentheses.

Table 3. Parameter Estimates for National Education Longitudinal Study Sample (N=4982)

	Enrolled in 4-year to Not Enrolled				Enrolled in 2-year to Not Enrolled			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
Intercept	**-2.479** (.084)	**-2.084** (.089)	**-1.663** (.09)	**-1.696** (.091)	**-1.677** (.127)	**-1.725** (.135)	**-1.358** (.143)	**-1.38** (.142)
Linear term	**0.483** (.059)	**0.496** (.06)	**0.547** (.061)	**0.545** (.061)	**1.215** (.173)	**1.221** (.175)	**1.229** (.174)	**1.230** (.173)
Quadratic term	**-0.054** (.016)	**-0.060** (.016)	**-0.087** (.017)	**-0.088** (.017)	**-0.362** (.075)	**-0.361** (.076)	**-0.364** (.075)	**-0.369** (.074)
Parents' Ed								
< H.S.	-0.018 (.117)	-0.068 (.117)	-0.131 (.112)	-0.146 (.114)	-0.181 (.209)	-0.167 (.208)	-0.183 (.217)	-0.216 (.214)
H.S.	ref	ref	ref	ref	ref	ref	ref	ref
Some college	-0.058 (.073)	-0.052 (.074)	-0.087 (.072)	-0.093 (.073)	**-0.255** (.122)	**-0.257** (.114)	-0.243 (.115)	-0.229 (.114)
College+	**-0.510** (.083)	**-0.413** (.084)	**-0.355** (.084)	**-0.351** (.084)	-0.257 (.133)	-0.274 (.142)	**-0.287** (.143)	**-0.282** (.142)
Family Income								
1st Quartile	ref	ref	ref	ref	ref	ref	ref	ref
2nd Quartile	-0.035 (.073)	-0.035 (.073)	-0.012 (.073)	-0.021 (.073)	-0.090 (.157)	-0.084 (.124)	-0.111 (.125)	-0.136 (.126)
3rd Quartile	**-0.172** (.074)	**-0.146** (.074)	-0.113 (.073)	-0.112 (.073)	-0.184 (.165)	-0.178 (.125)	-0.161 (.126)	-0.178 (.124)
Top Quartile	**-0.382** (.078)	**-0.318** (.078)	**-0.31** (.079)	**-0.312** (.08)	-0.117 (.159)	-0.109 (.145)	-0.144 (.148)	-0.144 (.150)
Demographic								
Black	0.085 (.081)	-0.135 (.082)	**-0.349** (.084)	**-0.382** (.085)	**0.473** (.152)	**0.504** (.154)	0.216 (.156)	0.132 (.157)
Latino	**0.300** (.072)	**0.176** (.071)	0.09 (.071)	0.063 (.071)	**-0.296** (.146)	-0.271 (.147)	-0.285 (.150)	**-0.311** (.152)
Female	**-0.146** (.049)	**-0.194** (.05)	0.033 (.051)	0.036 (.051)	-0.081 (.09)	-0.053 (.091)	0.033 (.093)	0.01 (.093)
H.S. Math								
1st Quartile		ref	ref	ref		ref	ref	ref
2nd Quartile		**-0.380** (.062)	**-0.212** (.063)	**-0.208** (.063)		-0.056 (.108)	-0.009 (.109)	-0.012 (.109)
3rd Quartile		**-0.602** (.07)	**-0.317** (.071)	**-0.288** (.072)		0.063 (.126)	0.133 (.126)	0.132 (.126)
Top Quartile		**-0.849** (.081)	**-0.408** (.087)	**-0.376** (.088)		**0.354** (.157)	**0.394** (.175)	**0.367** (.173)
College GPA								
1st Quartile			ref	ref			ref	ref
2nd Quartile			**-0.973** (.064)	**-0.973** (.065)			**-0.771** (.117)	**-0.747** (.118)
3rd Quartile			**-1.281** (.084)	**-1.282** (.084)			**-0.741** (.124)	**-0.722** (.125)
Top Quartile			**-1.349** (.095)	**-1.361** (.096)			**-0.637** (.159)	**-0.648** (.155)
Competing Resp.								
Parent?				**0.678** (.091)				**0.616** (.143)

Note: Bolded coefficients are significant at least at P < .05. Standard Errors are given in parentheses.

Table 4. Parameter Estimates for High School and Beyond Sample (N=4598)

	Not Enrolled to Enrolled in 4-year				Not Enrolled to Enrolled in 2-year			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
Intercept	**-2.410** (.133)	**-2.553** (.162)	**-2.894** (.173)	**-2.838** (.172)	**-3.562** (.238)	**-3.685** 0.286	**-3.976** 0.311	**-3.933** 0.316
Linear term	**0.231** (.065)	**0.233** (.065)	**0.258** (.065)	**0.288** (.066)	**0.503** (.138)	**0.504** 0.139	**0.53** 0.14	**0.556** 0.141
Quadratic term	**-0.119** (.018)	**-0.119** (.018)	**-0.121** (.018)	**-0.119** (.018)	**-0.192** (.039)	**-0.192** 0.039	**-0.193** 0.039	**-0.192** 0.04
Parents' Ed								
< H.S.	0.185 (.163)	0.194 (.159)	0.109 (.163)	0.117 (.161)	-0.307 (.280)	-0.307 0.281	-0.389 0.286	-0.381 0.285
H.S.	ref	ref	ref	ref	ref	ref	ref	ref
Some college	**0.215** (.103)	**0.214** (.102)	**0.2** (.102)	0.189 (.101)	-0.267 (.166)	-0.272 0.167	-0.27 0.169	-0.281 0.171
College+	**0.323** (.108)	**0.312** (.107)	**0.281** (.107)	**0.279** (.107)	-0.191 (.165)	-0.199 0.167	-0.224 0.168	-0.23 0.169
Family Income								
1st Quartile	ref		ref	ref	ref	ref	ref	ref
2nd Quartile	0.198 (.117)	0.193 (.116)	0.211 (.116)	0.214 (.116)	0.124 (.217)	0.126 0.22	0.14 0.221	0.147 0.22
3rd Quartile	0.162 (.129)	0.161 (.128)	0.169 (.129)	0.183 (.129)	0.282 (.235)	0.28 0.237	0.268 0.239	0.279 0.239
Top Quartile	0.123 (.119)	0.115 (.118)	0.146 (.119)	0.144 (.119)	0.376 (.213)	0.377 0.214	0.403 0.214	0.406 0.213
Demographic								
Black	**-0.328** (.109)	**-0.277** (.110)	-0.06 (.113)	-0.032 (.112)	-0.276 (.201)	-0.231 0.211	-0.021 0.215	1E-03 0.214
Latino	-0.175 (.098)	-0.149 (.098)	-0.041 (.099)	-0.04 (.098)	0.004 (.170)	0.023 0.17	0.138 0.175	0.14 0.176
Female	-0.019 (.073)	0.008 (.073)	-0.093 (.075)	-0.049 (.075)	-0.023 (.130)	-0.012 0.131	-0.128 0.132	-0.093 0.133
H.S. Math								
1st Quartile			ref	ref		ref	ref	ref
2nd Quartile		0.088 (.126)	-0.013 (.127)	-0.038 (.127)		0.002 0.223	-0.091 0.225	-0.11 0.229
3rd Quartile		0.093 (.123)	-0.077 (.124)	-0.1 (.125)		0.249 0.212	0.073 0.215	0.057 0.217
Top Quartile		**0.245** (.123)	0.021 (.126)	-0.021 (.126)		0.094 0.227	-0.149 0.233	-0.182 0.237
College GPA								
1st Quartile			ref	ref			ref	ref
2nd Quartile			**0.549** (.098)	**0.564** (.098)			**0.402** 0.181	**0.419** 0.18
3rd Quartile			**0.756** (.103)	**0.755** (.102)			**0.699** 0.181	**0.708** 0.182
Top Quartile			**0.916** (.117)	**0.929** (.116)			**0.982** 0.197	**0.993** 0.197
Competing Resp.								
Parent?				**-0.805** (.133)				**-0.646** 0.23

Note: Bolded coefficients are significant at least at P < .05. Standard Errors are given in parentheses.

Table 5. Parameter Estimates for National Education Longitudinal Study Sample (N=4982)

	Not Enrolled to Enrolled in 4-year				Not Enrolled to Enrolled in 2-year			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
Intercept	**-2.348** (.137)	**-2.385** (.149)	**-2.777** (.157)	**-2.745** (.158)	**-2.721** (.158)	**-2.662** (.174)	**-2.938** (.178)	**-2.909** (.176)
Linear term	**0.663** (.116)	**0.6645** (.116)	**0.7186** (.115)	**0.7463** (.115)	**1.103** (.188)	**1.1034** (.189)	**1.1153** (.191)	**1.1769** (.191)
Quadratic term	**-0.305** (.037)	**-0.306** (.037)	**-0.315** (.037)	**-0.315** (.038)	**-0.495** (.068)	**-0.495** (.069)	**-0.506** (.070)	**-0.506** (.070)
Parents' Ed								
< H.S.	0.077 (.2)	0.0795 (.201)	0.0854 (.203)	0.0914 (.204)	-0.159 (.272)	-0.157 (.274)	-0.18 (.265)	-0.171 (.264)
H.S.	ref	ref	ref	ref	ref	ref	ref	ref
Some college	-0.106 (.123)	-0.117 (.124)	-0.041 (.125)	-0.039 (.125)	-0.245 (.149)	-0.231 (.150)	-0.172 (.152)	-0.164 (.151)
College+	0.204 (.142)	0.1828 (.143)	0.2448 (.144)	0.2457 (.145)	-0.249 (.183)	-0.216 (.183)	-0.17 (.187)	-0.169 (.186)
Family Income								
1st Quartile	ref		ref	ref	ref	ref	ref	ref
2nd Quartile	0.014 (.126)	0.0119 (.126)	-0.013 (.126)	-0.01 (.127)	0.0894 (.16)	0.0902 (.161)	0.0645 (.164)	0.0645 (.162)
3rd Quartile	**0.277** (.125)	**0.2715** (.125)	0.2255 (.125)	0.216 (.126)	0.128 (.17)	0.1414 (.171)	0.0979 (.170)	0.0872 (.168)
Top Quartile	0.150 (.142)	0.1376 (.143)	0.1179 (.143)	0.1071 (.144)	0.1346 (.19)	0.1468 (.192)	0.1321 (.192)	0.1263 (.190)
Demographic								
Black	-0.055 (.149)	-0.031 (.153)	0.177 (.160)	0.2172 (.158)	-0.144 (.211)	-0.181 (.214)	-0.044 (.214)	-0.013 (.213)
Latino	0.174 (.134)	0.1819 (.136)	0.2122 (.134)	0.2403 (.134)	0.1038 (.182)	0.0773 (.183)	0.0959 (.180)	0.1189 (.179)
Female	0.082 (.084)	0.0904 (.085)	0.0063 (.086)	0.0845 (.086)	0.1237 (.117)	0.098 (.118)	0.0314 (.122)	0.0978 (.121)
H.S. Math								
1st Quartile		ref	ref	ref		ref	ref	ref
2nd Quartile		0.0612 (.107)	0 (.108)	-0.002 (.107)		0.0217 (.140)	-0.034 (.138)	-0.033 (.137)
3rd Quartile		0.0138 (.122)	0.1176 (.123)	-0.094 (.124)		-0.221 (.170)	-0.331 (.174)	-0.314 (.173)
Top Quartile		0.2038 (.142)	0.0386 (.145)	0.0552 (.145)		-0.247 (.216)	-0.399 (.223)	-0.388 (.222)
College GPA								
1st Quartile			ref	ref			ref	ref
2nd Quartile			**0.704** (.11)	**0.6967** (.110)			**0.4668** (.155)	**0.4581** (.155)
3rd Quartile			**0.924** (.119)	**0.9079** (.120)			**0.7997** (.161)	**0.7854** (.159)
Top Quartile			**0.913** (.132)	**0.9004** (.132)			**0.7342** (.193)	**0.717** (.189)
Competing Resp.								
Parent?				**-0.675** (.133)				**-0.559** (.174)

Note: Bolded coefficients are significant at least at P < .05. Standard Errors are given in parentheses.

Table 6. Parameter Estimates for High School and Beyond Sample (N=4598)

	Vertical Transfer				Reverse Transfer			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
Intercept	**-1.661** (.179)	**-1.607** (.237)	**-1.844** (.245)	**-1.762** (.254)	**-4.059** (.270)	**-4.011** (.335)	**-3.657** (.346)	**-3.589** (.349)
Linear term	**2.628** (.245)	**2.631** (.246)	**2.657** (.246)	**2.648** (.244)	**1.519** (.283)	**1.546** (.272)	**1.616** (.272)	**1.622** (.273)
Quadratic term	**-0.850** (.125)	**-0.851** (.126)	**-0.86** (.125)	**-0.852** (.123)	**-0.883** (.117)	**-0.891** (.112)	**-0.917** (.112)	**-0.920** (.112)
Parents' Ed								
< H.S.	0.003 (.210)	0.008 (.205)	-0.007 (.208)	0.013 (.210)	-0.713 (.409)	-0.674 (.378)	-0.643 (.381)	-0.648 (.381)
H.S.	ref		ref	ref	ref	ref	ref	ref
Some college	0.191 (.118)	0.197 (.117)	0.183 (.120)	0.155 (.122)	-0.101 (.181)	-0.087 (.175)	-0.079 (.176)	-0.076 (.178)
College+	**0.234** (.117)	**0.242** (.117)	0.214 (.120)	0.194 (.122)	-0.337 (.186)	-0.283 (.178)	-0.224 (.179)	-0.225 (.180)
Family Income								
1st Quartile	ref		ref	ref	ref	ref	ref	ref
2nd Quartile	-0.104 (.157)	-0.116 (.154)	-0.096 (.156)	-0.119 (.160)	0.331 (.26)	0.35 (.243)	0.37 (.243)	0.384 (.243)
3rd Quartile	-0.144 (.173)	-0.16 (.169)	-0.148 (.170)	-0.156 (.174)	0.270 (.282)	0.268 (.268)	0.266 (.267)	0.287 (.268)
Top Quartile	-0.133 (.158)	-0.152 (.155)	-0.118 (.157)	-0.145 (.160)	0.357 (.262)	0.38 (.249)	0.364 (.249)	0.369 (.250)
Demographic								
Black	**-0.633** (.173)	**-0.645** (.177)	**-0.534** (.181)	**-0.504** (.184)	0.322 (.206)	0.197 (.206)	-0.041 (.214)	-0.030 (.215)
Latino	**-0.224** (.110)	**-0.226** (.115)	-0.184 (.116)	-0.192 (.116)	**0.404** (.188)	0.324 (.177)	0.22 (.176)	0.231 (.177)
Female	-0.118 (.087)	-0.117 (.087)	-0.152 (.089)	-0.147 (.088)	0.061 (.138)	-0.014 (.135)	0.12 (.139)	0.129 (.140)
H.S. Math								
1st Quartile			ref	ref		ref	ref	ref
2nd Quartile		-0.003 (.174)	-0.048 (.172)	-0.064 (.172)		0.338 (.278)	0.505 (.277)	0.472 (.280)
3rd Quartile		-0.122 (.169)	-0.207 (.166)	-0.217 (.166)		0.106 (.262)	0.362 (.261)	0.320 (.264)
Top Quartile		-0.01 (.174)	-0.097 (.176)	-0.1 (.175)		-0.316 (.276)	0.083 (.275)	0.036 (.276)
College GPA								
1st Quartile			ref	ref			ref	ref
2nd Quartile			0.225 (.139)	0.222 (.140)			**-0.865** (.179)	**-0.872** (.179)
3rd Quartile			**0.473** (.134)	**0.443** (.136)			**-0.822** (.174)	**-0.831** (.174)
Top Quartile			**0.396** (.147)	**0.381** (.148)			**-1.157** (.204)	**-1.158** (.204)
Competing Resp.								
Parent?				-0.449 (.241)				-1.429 (.738)

Note: Bolded coefficients are significant at least at P < .05. Standard Errors are given in parentheses.

Table 7. Parameter Estimates for National Education Longitudinal Study Sample (N=4982)

	Vertical Transfer				Reverse Transfer			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
Intercept	**-1.823** (.124)	**-1.938** (.135)	**-2.167** (.144)	**-2.163** (.145)	**-3.210** (.160)	**-2.85** (.170)	**-2.48** (.173)	**-2.478** (.173)
Linear term	**1.461** (.167)	**1.472** (.169)	**1.482** (.166)	**1.489** (.164)	**0.319** (.150)	**0.361** (.150)	**0.451** (.150)	**0.451** (.150)
Quadratic term	**-0.362** (.075)	**-0.363** (.076)	**-0.366** (.074)	**-0.367** (.073)	**-0.179** (.050)	**-0.197** (.050)	**-0.24** (.050)	**-0.240** (.050)
Parents' Ed								
< H.S.	-0.095 (.177)	-0.06 (.180)	-0.061 (.177)	-0.049 (.175)	0.031 (.231)	-0.011 (.232)	-0.051 (.230)	-0.050 (.231)
H.S.	ref		ref	ref	ref	ref	ref	ref
Some college	0.122 (.100)	0.124 (.100)	0.129 (.102)	0.123 (.101)	-0.159 (.141)	-0.14 (.141)	-0.182 (.140)	-0.182 (.140)
College+	0.136 (.106)	0.111 (.107)	0.128 (.110)	0.128 (.110)	**-0.649** (.158)	**-0.511** (.159)	**-0.454** (.159)	**-0.454** (.160)
Family Income								
1st Quartile	ref		ref	ref	ref	ref	ref	ref
2nd Quartile	0.080 (.103)	0.076 (.103)	0.089 (.104)	0.114 (.103)	0.110 (.146)	0.097 (.147)	0.121 (.146)	0.121 (.146)
3rd Quartile	0.132 (.097)	0.125 (.099)	0.127 (.010)	0.143 (.099)	-0.003 (.150)	0.022 (.148)	0.054 (.149)	0.054 (.149)
Top Quartile	**0.280** (.103)	**0.267** (.104)	**0.282** (.105)	**0.286** (.105)	**-0.406** (.166)	-0.333 (.178)	-0.326 (.169)	-0.326 (.169)
Demographic								
Black	**-0.668** (.178)	**-0.619** (.178)	**-0.484** (.181)	**-0.429** (.182)	-0.023 (.203)	**-0.442** (.205)	**-0.683** (.209)	**-0.681** (.210)
Latino	**-0.225** (.100)	-0.193 (.102)	-0.196 (.101)	-0.18 (.102)	**0.377** (.153)	0.245 (.155)	0.147 (.153)	0.149 (.154)
Female	**-0.178** (.066)	**-0.14** (.066)	**-0.182** (.068)	**-0.172** (.068)	0.096 (.010)	-0.164 (.101)	0.076 (.102)	0.076 (.102)
H.S. Math								
1st Quartile			ref	ref		ref	ref	ref
2nd Quartile		0.062 (.807)	0.043 (.083)	0.037 (.081)		-0.229 (.126)	-0.068 (.126)	-0.068 (.127)
3rd Quartile		**0.2** (.089)	0.162 (.091)	0.156 (.091)		**-0.536** (.134)	-0.22 (.135)	-0.222 (.135)
Top Quartile		**0.423** (.129)	**0.388** (.141)	**0.387** (.140)		**-1.088** (.168)	**-0.571** (.173)	**-0.572** (.173)
College GPA								
1st Quartile			ref	ref			ref	ref
2nd Quartile			**0.325** (.087)	**0.32** (.086)			**-0.755** (.122)	**-0.756** (.122)
3rd Quartile			**0.323** (.094)	**0.315** (.094)			**-1.225** (.153)	**-1.225** (.153)
Top Quartile			**0.443** (.106)	**0.452** (.105)			**-1.581** (.190)	**-1.581** (.190)
Competing Resp.								
Parent?				**-0.437** (.201)				-0.083 (.270)

Note: Bolded coefficients are significant at least at P < .05. Standard Errors are given in parentheses.

Table 8. Parameter Estimates for High School and Beyond Sample (N=4598)

	BA/BS Completion			
	Model 1	Model 2	Model 3	Model 4
Intercept	**-3.699** (.096)	**-4.081** (.127)	**-4.662** (.140)	**-4.634** (.141)
Linear term	**2.432** (.077)	**2.428** (.075)	**2.408** (.071)	**2.405** (.070)
Quadratic term	**-0.503** (.025)	**-0.501** (.024)	**-0.483** (.022)	**-0.48** (.022)
Parents' Ed				
< H.S.	0.076 (.10)	0.077 (.100)	0.059 (.103)	0.068 (.105)
H.S.	ref	ref	ref	ref
Some college	0.026 (.055)	0.011 (.055)	0.016 (.056)	0.025 (.056)
College+	**0.130** (.054)	**0.109** (.054)	0.052 (.055)	0.047 (.055)
Family Income				
1st Quartile	ref	ref	ref	ref
2nd Quartile	**0.201** (.070)	**0.192** (.071)	**0.145** (.072)	**0.143** (.071)
3rd Quartile	0.124 (.075)	0.113 (.074)	0.084 (.075)	0.089 (.075)
Top Quartile	**0.177** (.069)	**0.156** (.068)	**0.169** (.070)	**0.176** (.070)
Demographic				
Black	**-0.453** (.066)	**-0.374** (.068)	**-0.194** (.067)	**-0.175** (.070)
Latino	**-0.397** (.055)	**-0.357** (.055)	**-0.271** (.052)	**-0.267** (.052)
Female	**0.154** (.036)	**0.182** (.037)	0.051 (.037)	0.054 (.038)
H.S. Math				
1st Quartile		ref	ref	ref
2nd Quartile		**0.272** (.102)	0.148 (.100)	0.116 (.105)
3rd Quartile		**0.376** (.097)	0.117 (.095)	0.078 (.100)
Top Quartile		**0.453** (.096)	0.054 (.094)	0.014 (.100)
College GPA				
1st Quartile			ref	ref
2nd Quartile			**0.707** (.083)	**0.706** (.083)
3rd Quartile			**1.053** (.082)	**1.058** (.082)
Top Quartile			**1.283** (.083)	**1.302** (.084)
Competing Resp.				
Parent?				**-0.577** (.109)

Note: Bolded coefficients are significant at least at P < .05. Standard Errors are given in parentheses.

Table 9. Parameter Estimates for National Education Longitudinal Study Sample (N=4982)

	BA/BS Completion			
	Model 1	Model 2	Model 3	Model 4
Intercept	**-4.501** (.096)	**-4.826** (.102)	**-5.607** (.112)	**-5.615** (.112)
Linear term	**2.893** (.071)	**2.907** (.071)	**2.895** (.072)	**2.881** (.071)
Quadratic term	**-0.607** (.019)	**-0.606** (.019)	**-0.583** (.020)	**-0.575** (.019)
Parents' Ed				
< H.S.	-0.107 (.121)	-0.067 (.123)	0.024 (.120)	0.037 (.121)
H.S.	ref	ref	ref	ref
Some college	**-0.311** (.062)	-0.029 (.061)	0.009 (.059)	0.004 (.060)
College+	**0.151** (.063)	0.101 (.062)	0.081 (.060)	0.07 (.055)
Family Income				
1st Quartile	ref	ref	ref	ref
2nd Quartile	0.094 (.059)	0.107 (.059)	0.103 (.058)	0.119 (.061)
3rd Quartile	0.108 (.057)	0.104 (.056)	0.105 (.055)	0.113 (.058)
Top Quartile	**0.203** (.057)	**0.174** (.056)	**0.196** (.055)	**0.205** (.054)
Demographic				
Black	**-0.528** (.078)	**-0.387** (.082)	**-0.173** (.078)	**-0.152** (.078)
Latino	**-0.475** (.076)	**-0.396** (.077)	**-0.316** (.073)	**-0.313** (.072)
Female	**0.302** (.033)	**0.349** (.034)	**0.141** (.034)	**0.153** (.034)
H.S. Math				
1st Quartile		ref	ref	ref
2nd Quartile		**0.188** (.054)	0.02 (.052)	0.014 (.055)
3rd Quartile		**0.299** (.053)	0.037 (.052)	0.025 (.051)
Top Quartile		**0.558** (.053)	**0.141** (.055)	**0.13** (.054)
College GPA				
1st Quartile			ref	ref
2nd Quartile			**0.886** (.065)	**0.897** (.064)
3rd Quartile			**1.214** (.064)	**1.223** (.063)
Top Quartile			**1.497** (.065)	**1.522** (.646)
Competing Resp.				
Parent?				**-0.605** (.089)

Note: Bolded coefficients are significant at least at P < .05. Standard Errors are given in parentheses.

Figure 2. Not Enrolled to Enrolled in 4-year

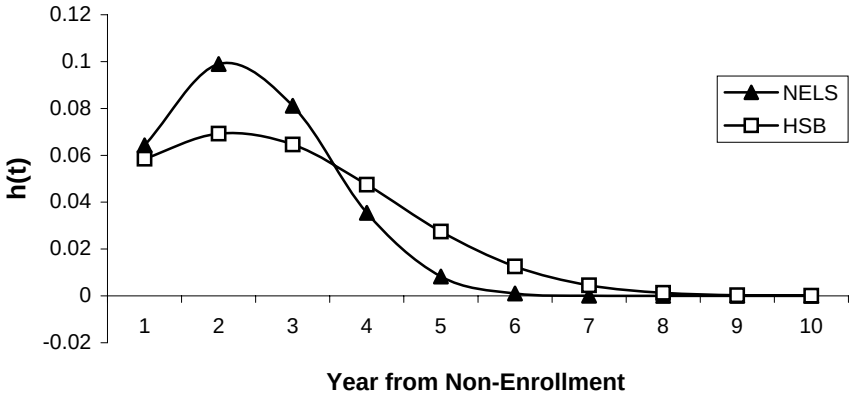

Figure 3. Not Enrolled to Enrolled in 2-year

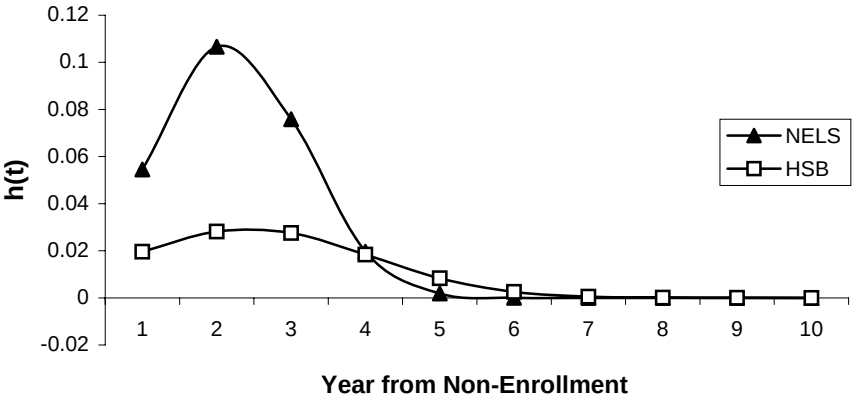

Figure 4. Enrolled in 4-year to Not Enrolled

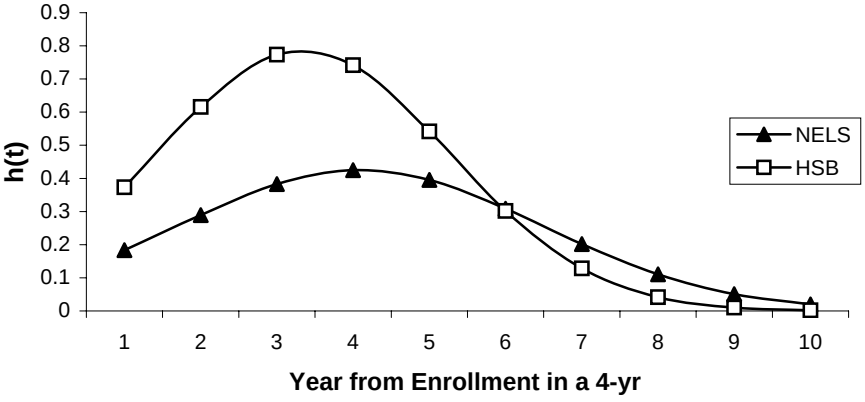

Figure 5. Enrolled in 2-year to Not Enrolled

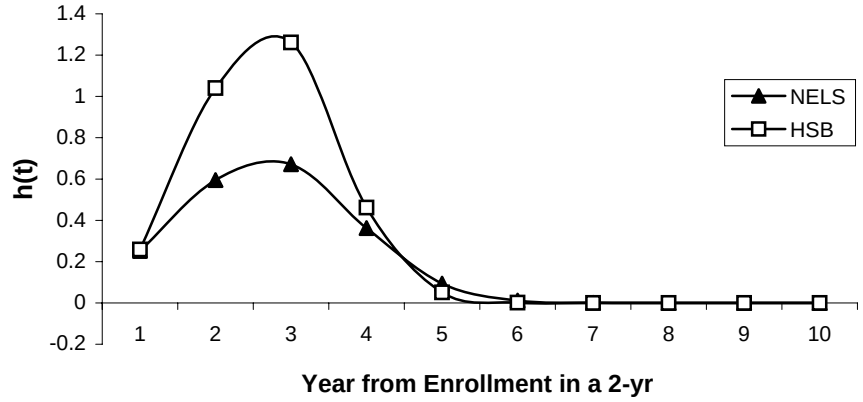

Figure 6. Vertical Transfer

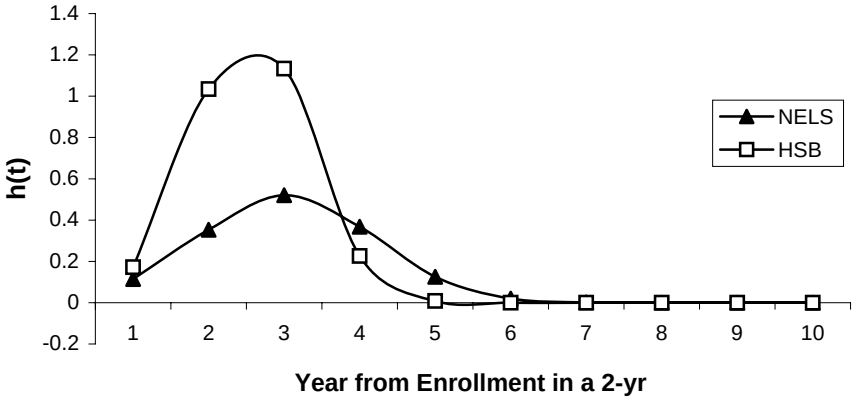

Figure 7. Reverse Transfer

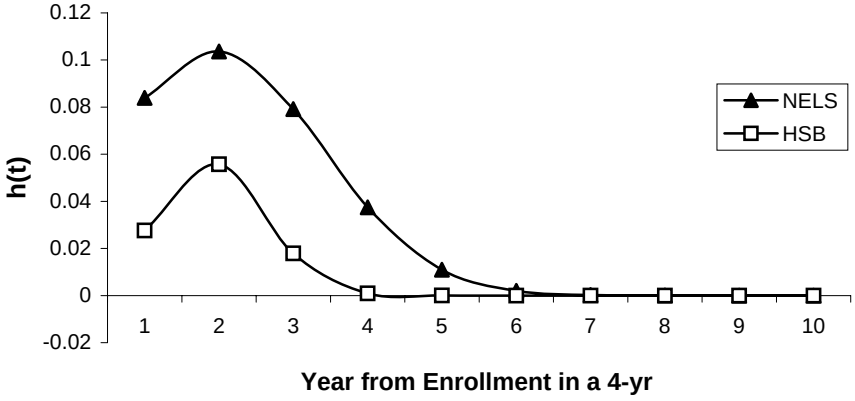

Figure 8. Bachelor's Degree