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# Following Their Every Move: An Investigation of Social-Class Differences in College Pathways

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As more Americans enter college than ever before, their pathways through the broadly differentiated higher education system are changing. Movement in, out, and among institutions now characterizes students' attendance patterns—half of all undergraduates who begin at a four-year institution go on to attend at least one other college, and over one-third take some time off from college after their initial enrollment. This study investigated whether there is social-class variation in these patterns, with advantaged and disadvantaged students responding to new postsecondary choices by engaging in different pathways. National longitudinal data from postsecondary transcripts were used to follow students across schools and to examine the importance of family background and high school preparation in predicting forms of college attendance. The results demonstrate that students from lower socioeconomic backgrounds are more likely than are economically advantaged students (net of prior academic preparation) to follow pathways that are characterized by interrupted movement. Such pathways appear to be less effective routes to the timely completion of degrees. Thus, differences in how students attend college represent an additional layer of stratification in higher education.

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**T**he contemporary American higher education system is composed of more disparate institutions offering a larger number of choices and opportunities to students than ever before. Today's 15 million undergraduates have over 4,000 institutions from which to choose when pursuing a college degree, ranging from two-year open-door community colleges to four-year private selective universities (U.S. Department of Education 2003). At the same time, the doors to higher education have opened, and institutions are enrolling and serving a larger and more diverse population of students. Women, minority, low-income, and first-generation students are entering four-year colleges at higher rates than previously, altering the profile of the "American undergraduate" and

diminishing the meaning of the label "non-traditional student" (Baker and Velez 1996). In 1995–96, nearly half (48.5%) of all beginning postsecondary students whose parents did not attend college started at four-year institutions. Moreover, according to the same survey, over half of all beginning students who attend four-year institutions were women, nearly 30 percent were minorities, and nearly one-fifth had family incomes of less than \$25,000 (Kojaku and Nuñez 1998).

Growth in both the number of postsecondary institutions and the number and types of college students has resulted in an expansive higher education marketplace where students act as consumers and colleges act as vendors (McDonough 1994; Newman and Couturier 2001; Newman, Couturier, and

Scurry 2004; O'Meara 2001; Winter 2003). Furthermore, increased competition among institutions and the rapid expansion of program options have changed the way students attend college, and transitions into college have expanded beyond the normative transition from high school directly into postsecondary education (Newman et al. 2004). In other words, the field of college admissions has widened; in addition to high school seniors, students who are already enrolled in college and those who entered higher education and subsequently departed ("dropouts" or "stopouts") may also be enticed to attend other institutions (Newman and Couturier 2004; Newman et al. 2004). In this new environment, it is not uncommon to see advertisements, such as one run by New School University in the *New York Times*, which read: "Start. Stop. Start. Stop. Start. Finish Your BA at the New School." Past research has indicated that when educational institutions treat students as consumers, students respond in kind by attending multiple institutions to meet their specific needs (Newman and Couturier 2001). Previously, students tended to change colleges only if they began at a two-year institution and the desire to earn a bachelor's degree necessitated their move to a four-year institution. Today, 47 percent to 50 percent of undergraduates who begin at a four-year college attend more than one institution within six years, and 15 percent to 19 percent attend more than two (McCormick 2003). National studies have also revealed that 25 percent to 30 percent of undergraduates take some time off from college and subsequently return (Berkner 2002; Carroll 1989).

These new forms of postsecondary attendance raise issues that have been set aside by most research on students' persistence. Popular higher education theories of institutional retention (e.g., Tinto 1993), while useful in identifying factors that keep students attached to a single school, do not address concerns about students' mobility patterns in the wider system of higher education. Furthermore, they focus on the choices that students make when they begin the transition to college, setting aside the options that students encounter following their entry into

college. But given that such choices are made in the context of both significant constraints and opportunities, one may expect that some students are more likely and able to make effective decisions, and thus that this new marketplace environment may present opportunities for increased stratification in educational outcomes. Prior research has uncovered social-class differences in where students begin college, whether they enroll full time, and their chances for completing a degree. Students from lower socioeconomic backgrounds are disproportionately less likely, relative to more advantaged students, to start at a four-year institution (Alexander, Holupa, and Pallas 1987; Karen 2002), engage in a full credit load (Cabrera, Burkum, and La Nasa 2003), and complete a bachelor's degree (Cabrera et al., 2003). Whether they are more likely or less likely to attend multiple institutions and to interrupt their schooling to do so is unknown. But as Newman et al. (2001:13) noted, "students who have a clear sense of their own needs, a growing interest in convenience and price, and a readiness to attend multiple institutions on the way to a degree have more choices." It is therefore plausible that specific multi-institutional pathways are more often followed by students from certain family backgrounds—in other words, they may be further evidence of tertiary-level differentiation.

The study presented here addressed that concern by examining the intersection of two dimensions of students' movement that are occurring within contemporary college pathways: multi-institutional attendance and discontinuous enrollment. These two forms of attendance were chosen as the focus because they constitute students' mobility—movement in, out, and among the higher education institutions. They are conceptualized in tandem in recognition that for some groups of students, movement among institutions may collide with movement in and out of them, and I empirically tested this hypothesis. I also examined a second hypothesis that students who follow more complex pathways may differ in socioeconomic characteristics and high school background from those who follow more traditional pathways. Thus, the following specific questions are addressed in

this article: (1) What is the relationship of a student's social-class background to the probability of engaging in specific nontraditional postsecondary pathways, rather than a more traditional pathway? and (2) Does a student's high school preparation mediate the effects of social class on the probability of following a nontraditional pathway? Are better-prepared students—regardless of their class background—more likely to stay continuously enrolled in one school, perhaps because their academic prowess allows them to do so? The emphasis in this analysis is therefore on how family background and preparation for college affect the choices that students make once they are in college. Certainly, students' experiences after they enter college (including, for example, how they perform in their courses and whether they make friends) affect their decision making as well, but I leave an empirical analysis of these relationships for future research.

It is important to recognize that this study focused on the mobility patterns of students who begin at four-year institutions. As I noted earlier, one of the most significant (and most often studied) forms of stratification in higher education is the disproportionate entry of less-advantaged students into two-year institutions, which do not grant bachelor's degrees. Students who begin at a two-year school must, by necessity, move to a four-year institution to obtain a bachelor's degree. Thus, the implications of their movement for later educational attainment are much more likely to be positive. Yet a significant proportion of students who start at a four-year institution eventually move on to another school, and not all earn a bachelor's degree. There is a great deal of heterogeneity that merits attention in both the composition and outcomes of students who begin at four-year institutions. Moreover, there are many salient differences among four-year institutions that can affect students' pathways, related to a school's selectivity and control. Thus, this study's sample was limited to students who began at a four-year institution to examine whether there are significantly different pathways among students who manage to gain initial entrance to bachelor's degree-granting institutions.<sup>1</sup> These students are perhaps the

most "marketable" in the system and represent the consumers that institutions are most trying to attract.

## THE COMPLEX EDUCATIONAL PIPELINE

Students who follow the traditional route to a bachelor's degree are now in the minority of college students, by one estimate constituting only one-fourth of the undergraduate population (Choy 2002).<sup>2</sup> From the 1970s to the 1990s, there was a significant shift in the number of schools that undergraduates attended, from one to three or more schools, rather than from one to two (Adelman 1999; Adelman et al. 2003). It is interesting that while the most recognized form of multi-institutional attendance is an upward transfer from a two-year to a four-year school, today's multi-institutional attendance patterns do not always involve a permanent transfer; of the 1982 high school graduates who attended two schools, 60 percent eventually returned to their first institution (McCormick 2003). Adelman (2003) and McCormick (2003) identified nearly a dozen different educational pathways involving multi-institutional attendance. These pathways range from "excursions," in which attendance at the second or third institution is temporary and includes only a small number of credits, to "migration," which involves a permanent transition from one school to another across the two-year and four-year sectors. In some cases, students alternate attendance among multiple institutions (known as "fragmentation," "discovery," or "rebounding"), while in others, they attend schools in sequence (called "serial transfer"). Some observers of higher education have called these new forms of movement the "transfer swirl," but that term has never been operationalized (Bach et al. 2000; de los Santos and Wright 1990; Townsend and Dever 1999). As Townsend and Dever described the phenomenon, students may "swirl upward from a two-year to a four-year school, float laterally from one two-year school to another two-year school, or spin downward from a four-year to a two-year school" (p. 5).

A small body of research has examined the characteristics of students who have followed nontraditional postsecondary pathways. Carroll's (1989) descriptive analysis of data from *High School and Beyond* (HS&B) indicated that students from lower socioeconomic backgrounds are more likely than are advantaged students to depart from the "persistence track" by moving from a four-year school to a two-year school, interrupting their schooling, or dropping out. In contrast, Kearney, Townsend and Kearney's (1995) study, focused on a single institution, examined students who changed schools multiple times and found that these students were from high socioeconomic backgrounds and had high degree ambitions and good academic preparation. But there was substantial selection bias in that study, since the sample was drawn from one school—in other words, all the students eventually transferred to a large, urban public university. Furthermore, in a recent analysis of data from the national Beginning Postsecondary Students Longitudinal Study, researchers again did not find statistically significant differences in income among students who attended multiple schools and those who did not (Peter and Forrest Cataldi 2005). However, that study did not examine other aspects of family background, and the measure of multi-institutional attendance was based on self-reports, rather than transcripts, and was therefore flawed.

In research that examined multiple components of college attendance simultaneously, Hearn (1992) used data from HS&B to assess the characteristics of students who delayed enrollment between high school and college; attended part time, rather than full time; and enrolled in non-degree-granting programs. Hearn found that rather than engage in clustered forms of nontraditional attendance, students with different types of nontraditional characteristics made different enrollment decisions. But students of low socioeconomic status (SES) were consistently nontraditional in their attendance choices; they were more likely to start college later, enroll part time, and enroll in noncredit programs. However, Hearn did not follow students across schools or examine socioeco-

nomics variation in students' mobility patterns.

Thus, although there is growing evidence that educational trajectories, much like contemporary life-course trajectories (Rindfuss, Swicegood, and Rosenfeld 1987; Shanahan 2000), are increasingly nonlinear and disrupted, there is limited knowledge about who engages in which patterns and why. Previous research has been imperfect partly because of the failure to track students across schools, to assess the relative importance of ascriptive characteristics versus high school preparation in predicting college behavior, and to examine the full range of students' movement.

## **"CHOICE" IN POSTSECONDARY PATHWAYS**

There is reason to believe that the way in which one engages in higher education matters. As students' movement in, out, and among institutions increases, it is likely that where one attends college, when, and for how long will be increasingly significant for educational outcomes (Eckland 1964; Hearn 1992). As an article in the *New York Times* (Leonhardt 2005) observed, there are enormous social-class differences in college completion. Among 1992 high school seniors who began college at four-year institutions, 84 percent of those in the top fifth of the socioeconomic distribution finished their bachelor's degrees by age 26, compared to barely 39 percent of the students from families in the bottom fifth (author's calculations using data from the National Education Longitudinal Study, NELS). Variation in facets of postsecondary pathways may contribute to some of these differences. Research has demonstrated that engaging in nontraditional pathways has a negative effect on students' chances for completing bachelor's degrees. Cabrera et al. (2003) found that students who engaged in continuous enrollment while in college were 23 percent more likely to complete their bachelor's degrees than were those who took time off from school. Continuity of enrollment was a particularly strong predictor of the completion of degrees

among lower-SES students—students in the second-lowest SES quartile increased their chances for completion by 38 percent, and students in the lowest quartile increased their chances by 27 percent, by maintaining continuous enrollment. Adelman's (1999) "tool-box" study of the completion of bachelor's degrees also found a positive impact of continuous enrollment. Thus, research has indicated that pathways involving discontinuities are less likely to lead to bachelor's degrees.

Furthermore, attending multiple institutions has a negative association with the completion of bachelor's degrees (Adelman 1999; Peter and Forrest Cataldi 2005). Adelman (1999) identified a negative impact of the number of institutions attended on a student's chances for completion if the student did not return to the first school that she or he attended. The odds of receiving a bachelor's degree were reduced by nearly half if a student attended multiple institutions (leaving the first school that she or he attended and not returning).<sup>3</sup> This effect was notably more evident among students with the same levels of college performance. Furthermore, a study of beginning postsecondary students who began at four-year institutions found a negative relationship between multi-institutional attendance and the completion of a bachelor's degree within six years if that form of attendance was not entirely comprised of coenrollment (Peter and Forrest Cataldi 2005).<sup>4</sup> Therefore, postsecondary pathways that are characterized by interruptions and movement appear to have negative effects on educational attainment, largely by reducing students' chances for the timely completion of their degrees.<sup>5</sup> Given strong evidence that the early completion of postsecondary degrees yields higher economic returns to those degrees (Elman and O'Rand, 2004), individuals who follow college pathways leading to the later completion of degrees are less likely to reap the benefits of college attendance.

Family background may shape how a student attends college by introducing both opportunities and constraints into the attendance process. A large body of research has demonstrated that family background is associated with the social, cultural, and economic

resources (or capital) that are needed to further educational attainment (Bourdieu and Passeron 1977; Coleman 1974, 1988; DiMaggio 1982). In the case of higher education, students from families with higher incomes and those whose parents attended college are more likely to have access to critical information and financial resources that enable them to follow more "traditional" college pathways. The quantity and quality of information that students have at their disposal when entering and proceeding through college is essential to their decision-making processes. To make effective decisions in an environment with a plethora of choices, actors need both more and better information (Rosenbaum 2001). Although the ideal model of a free market assumes that individuals have all the information they need to make rational choices and complete access to that information, many students only have partial information. For example, if students of college-educated parents with financial resources fail a course or decide that they dislike their major, they are likely to be able to negotiate the complex advising and registration system to make a change within that institution or at another institution. Students from lower-class backgrounds who lack such support may obtain initial access to college, aided by policies, such as financial aid and affirmative action, but have difficulty remaining in college. These students, when faced with academic failure or increasing tuition, may be forced to change schools or leave college for a time.

What is important is that the lack of adequate information about what college requires, what options it offers, and what it costs does not deter low-income students from aspiring to earn a bachelor's degree. Indeed, nearly all high school students (90 percent) indicate that they expect to attend college and earn a degree, even if their career choice does not require it (Schneider and Stevenson 1999). A mismatch between information and expectations may result in what Schneider and Stevenson called an "ambition paradox." Although Schneider and Stevenson used the term to describe the behavior of students with high ambitions for a bachelor's degree who choose to begin college at a two-

year school (where they are unlikely to complete a bachelor's degree), it can also be applied to students who enter a four-year college with the goal of earning a bachelor's degree but subsequently follow a pathway that is unlikely to result in the timely completion of the degree.

Overall, then, one should expect to find different shapes and trajectories in students' attendance patterns. Some students may indeed "shop" their way through college and thus engage in concerted and intentional moves among institutions, while others may be shuttled or pushed throughout the system by various constraints. If such variation occurs along the dividing lines of social class, it certainly merits attention.

## DATA AND MEASURES

An accurate understanding of complex postsecondary attendance patterns and the students who follow them requires that students be followed across all the schools they attend, not simply the ones where they begin college. This study accomplished that task by using national longitudinal data from postsecondary transcripts. The data were drawn from the last three waves of the NELS, which was conducted by the National Center for Education Statistics (NCES) of the U.S. Department of Education. NELS is a longitudinal educational study of a national probability sample of 25,000 eighth graders who were first surveyed in 1988 and reinterviewed during four additional follow-ups. The fifth and final wave occurred in 2000, when the students were 26 or 27 years old; at that time, 12,144 individuals were interviewed, and requests for the postsecondary transcripts of the 9,602 students who had attended college by 2000 were submitted to the relevant institutions. As a result, 15,562 transcripts were received for 8,889 students. Thus, these students were followed for eight years after high school graduation, which provides a substantial window within which to observe their postsecondary pathways.

The sample of students came from the 2000 wave of NELS and included only those who participated in the second (1992), third

(1994), and fourth (2000) follow-ups,<sup>6</sup> attended at least one postsecondary institution, and had a complete transcript record ( $N = 8,285$ ).<sup>7</sup> Students whose only college attendance occurred during the summer were also excluded, since attendance during the traditional academic year is generally required to progress toward a bachelor's degree. In addition, owing to the small sample sizes, American Indian students were excluded. Finally, only students who began at a four-year institution were included, making the sample size 4,628.<sup>8</sup> After weighting, the sample was representative of the approximately 1.5 million high school seniors who enroll in four-year colleges and universities each year following graduation from high school.

## Measuring Attendance Patterns

The dependent variable in the analysis was a measure of a student's attendance pattern. As I noted earlier, I hypothesized that multi-institutional attendance and discontinuous enrollment intersect in meaningful ways, and thus the two were combined into four categories (described later). This dependent variable was constructed from data from postsecondary transcripts in NELS. Self-reported data on attendance patterns are somewhat unreliable, and it is therefore preferable to use postsecondary transcripts, rather than student-provided information in constructing these measures.<sup>9</sup> In an analysis of HS&B transcript and self-report data, Adelman (1999) found discrepancies between student's reports of degrees claimed versus data on degrees earned in transcripts, as well as discrepancies in students' reports of grades and course work. Especially relevant to this study, he also found that during computer-assisted telephone interviews, the students tended to underreport the number of postsecondary institutions they attended; for example, in the NELS survey, 9.6 percent of the postsecondary attendees did not report at least one institution that they attended (Adelman 2003). In gathering transcript data for the NELS, survey officials first requested transcripts for all the institutions a student reported attending. They then requested transcripts for schools that appeared on a student's tran-

scripts but were not reported by the student (i.e., attendance at an additional school was evidenced by transfer credits). In this way, the officials ensured a more complete postsecondary history of students than if they had relied on students' reports.

Multi-institutional attendance (attending more than one school)<sup>10</sup> was based on the number of undergraduate institutions attended, as evidenced by a student's postsecondary transcripts, subtracting the institutions that the student attended only during the summer.<sup>11</sup> Discontinuous enrollment was also defined using the transcript data. The public-use data available in NELS, based on students' self-reports, simply indicates whether a student reported ever taking more than six months off from college. In contrast, the threshold of discontinuous enrollment (or stopout) in the restricted-use transcript file is one academic year within the boundaries of a student's enrolled terms (not including summer terms), as determined by two judges who did a hand-and-eye reading of the students' complete records. A student who registered but later dropped all courses for that term was not considered to be enrolled. It is important to note that forms of enrollment, such as distance learning, which do not fit neatly into a continuity framework, are classified as enrollment in this data set. In other words, if the distance learning course resulted in credits posted to a student's transcript for

that semester, then a student was considered enrolled during that term. If a student used distance learning for all his or her attendance at a given institution, that institution was still included in the number of schools attended. NELS students attended a variety of institutions, including those on semester, trimester, and quarter calendars, and thus it is difficult to introduce a measure of discontinuity that is based on a semester out of school. In addition, a student may miss part or all of a semester because of illness or a family emergency, which may not accurately reflect a true interruption; thus, defining discontinuous enrollment (sometimes called "stopout") as missing an entire academic year is a more conservative estimate. It is also worth noting that since data collection ceased in 2000, students who were out of school at that time (following a period of enrollment) were counted as stopouts; hence, all potential dropouts from college are stopouts according to this classification.

The four categories of attendance patterns are depicted in Figure 1. Category A is the "traditional" pattern, consisting of students who attended one school and did not take any time off. In this sample, 52 percent (2,400 students) engaged in the traditional pattern. Students who took time off from college but attended only one school were included in Category B, "interruption," which had 93 students (2% of the sample).<sup>12</sup>

		Number of Schools Attended	
		ONE	MORE THAN ONE
Continuity of Enrollment	CONTINUOUS	<b>A</b> "Traditional" (N = 2,400)	<b>C</b> "Fluid Movement" (N = 1,726)
	DISCONTINUOUS	<b>B</b> "Interruption" (N = 93)	<b>D</b> "Interrupted Movement" (N = 409)

Figure 1. Postsecondary Pathways: Two Dimensions of the Students' Movement

Category C, termed “fluid movement,” includes students who attended more than one institution without interruption. In this sample, 37 percent of the students ( $N = 1,726$ ) engaged in that pattern. Finally, Category D includes students who attended multiple institutions discontinuously, a pattern that is termed “interrupted movement.” This category included 9 percent of the sample ( $N = 409$ ). These categories were intentionally given descriptive, rather than analytical, labels, to leave open questions about composition and impact and to avoid any value judgments or negative connotations, such as those contained in terms like “swirling.”

### **Students’ Characteristics**

The selection of the independent variables was driven by the work of contemporary educational researchers, including Adelman (1999, 2003) and Hearn (1992). The main components of interest were students’ demographic characteristics and high school preparation. Students’ ascriptive characteristics were measured in terms of gender (female = 1), race (black or Hispanic = 1, white or Asian = 0)<sup>13</sup> and SES—a composite measure that was derived from parental education, occupation, and income in 1992; coded into quintiles; and then collapsed into three categories: low (the lowest quintile), middle (the middle three quintiles), and high (the highest quintile).<sup>14</sup> In this sample, all low-SES students’ parents lacked bachelor’s degrees, only 51 percent had high school diplomas, and 80 percent earned less than \$25,000 each year. Students in the middle-SES category came from families in which nearly every parent (99%) had a high school diploma, 19 percent had at least a bachelor’s degree, and 71 percent earned more than \$35,000 each year. High-SES students came from families in which 94 percent of the parents had at least a bachelor’s degree and 79 percent earned more than \$50,000 a year.

High school preparation was indicated by tested ability, using a standardized test administered to NELS seniors (percentiles were collapsed into quintiles and then into three groups);<sup>15</sup> grade point average (GPA)

(on a four-point scale, collapsed into quintiles and then into three groups);<sup>16</sup> curricular intensity of the courses taken (collapsed into quintiles and then into three groups);<sup>17</sup> and educational expectations as of 1992 (coded 1 = expected to earn a BA or higher, 0 = less than a BA). Tested ability was included as a measure of aptitude. GPA was used to assess both the student’s achievement and the student’s commitment to school. The curricular intensity measure was included as a way to assess the meaning of the student’s high school GPA in terms of college preparation; in other words, including this measure indicates whether a student’s high school GPA or the content of the courses the student took mattered more in shaping whether the student remained in college. Educational expectations were included in models to test the hypothesis that high-SES students attend college differently because they have higher aspirations and therefore work harder. For individual cases for which data on the independent variables were missing (there were no missing data for the dependent variable), conditional mean imputation was used (Allison 2002).<sup>18</sup>

### **Method of Analysis**

As was described earlier, this study modeled college outcomes by using a systemwide, rather than an institutional, definition of persistence and by examining the role of ascriptive characteristics relative to ability and achievement measures. Students’ ascriptive characteristics and measures of high school preparation were added in blocked fashion to examine whether the effects of the former persisted after the latter were controlled for.

Multinomial logistic regression was used to predict the overall type of attendance pattern that a student followed (a categorical variable). This type of modeling more accurately reflects the rubric of students’ decision making; rather than simply choosing between staying enrolled or leaving a school (which could be modeled using logistic regression), this method considers the likelihood that a student will maintain continuous enrollment at one school versus other options, such as discontinuous enrollment at one school or at multiple schools. All analyses were weighted



to adjust for oversampling, nonresponse, and survey attrition, and the multivariate analyses were adjusted to account for the complex survey design of the data set, namely, stratification and clustering.<sup>19</sup> Survey estimators that calculate correct standard errors for all coefficients using a Taylor series approximation are reported in all the analyses, as is consistent with the recommendations of statisticians at the U.S. Department of Education and the survey's creators (Broene and Rust 2000). The statistical software package STATA was used because of the advantages provided by its survey (svy) commands, which easily adjust for stratification, clustering, and individual weighting (Broene and Rust 2000).

## RESULTS

This article asks the questions, After transitioning into four-year colleges and universities, which students are most likely to follow nontraditional pathways? Are students who are engaged in patterns of "interrupted movement" different from students who follow "traditional" routes, and if so, in any significant ways? These questions are important because they provide a window into processes of within-system, or "horizontal," stratification (Gerber and Schaefer 2004). If students are following different pathways in college, based, in part, on their families' socioeconomic background, then one may conclude that separate, potentially inequitable, tracks exist within the higher education system, beyond the two-year/four-year track division.

Table 1 presents the average characteristics of the sample, which was comprised of 1992 12th graders who attended college before 2000, beginning at four-year institutions. There were more women (54%) than men (46%) and more whites and Asians (84%) than blacks and Hispanics (16%) in this group, reflecting national trends in college attendance. The socioeconomic composition of this sample is especially notable. The measure of social class was created for the 12th-grade NELS student cohort and coded into quintiles, meaning that 20 percent of the students fell into each category (thus, in the collapsed three-category structure, there

should be one-fifth in the lowest category, three-fifths in the middle category, and one-fifth at the top). However, in this sample of students who started at four-year colleges, only 5 percent were from the lowest fifth of the SES distribution, whereas 41 percent were from the top fifth. This is a clear reflection of the socioeconomic disparities in access to college that have been noted by previous studies (Bowen, Kurzweil, and Tobin 2005; Karen 2002).

In addition, students with low test scores, students with low GPAs in high school, and those who engaged in less rigorous high school curricula are underrepresented in this group. Most (90%) students indicated as high school seniors that they aspired to attain a bachelor's degree, and nearly all (93%) began college within a year of high school graduation.<sup>20</sup>

Table 1 also describes the students according to the type of attendance pattern that they followed. With respect to gender differences, women were especially likely to engage in "fluid movement," while men were overrepresented among students experiencing an "interruption." Black and Hispanic students were more likely than were white and Asian students to have had an interrupted pathway. The tendencies among students from different socioeconomic backgrounds varied. Students from low and middle socioeconomic backgrounds were overrepresented in pathways involving interruption, while high-SES students were slightly overrepresented among students who were engaged in fluid movement among schools. With regard to high school background, students with low test scores, those with low GPAs in high school, and those who had weaker high school preparation were more likely to have experienced an interrupted pathway, particularly one involving interrupted movement. It is not surprising that students who had anticipated as high school seniors that they would earn a college degree were more likely to remain continuously enrolled in one or more institutions.

All the mean differences between the four categories of attendance patterns in Table 1 are significant, with one exception. In this sample, the composition of Category D

**Table 1. Descriptive Means of the Sample, by Attendance Pattern<sup>a</sup>**

Independent Variables <sup>b</sup>	Attendance Pattern <sup>c</sup>				
	All	A Traditional	B Interruption	C Fluid Movement	D Interrupted Movement
<i>Gender</i>					
Men	46	47	53	43	51
Women	54	53	47	57	49
<i>Race</i>					
Black or Hispanic	16	16	18	15	20
White or Asian	84	84	82	85	80
<i>Socioeconomic Status</i>					
1st–20th percentile (low)	5	4	11	4	13
21st–80th percentile (middle)	54	55	60	52	55
81st–100th percentile (high)	41	41	29	44	32
<i>High School Background</i>					
NELS Senior Test Score Percentile					
0–25th percentile	5	4	10	4	7
26th–50th percentile	15	13	18	15	18
51st–75th percentile	34	32	46	35	37
76th–100th percentile	46	51	26	46	38
GPA Quintile					
Quintile 1 (low)	6	6	14	6	11
Quintiles 2–4 (middle)	66	63	65	69	78
Quintile 5 (high)	28	31	21	25	11
Curriculum Intensity Quintile					
Quintile 1 (low)	3	3	7	3	4
Quintiles 2–4 (middle)	62	58	70	63	77
Quintile 5 (high)	35	39	23	31	19
Expected to Earn BA, as of 1992	90	90	82	92	84
Number of Schools Attended	1.69	1	1	2.44	2.51
Total %	100	52	2	37	9
N (Unweighted Sample Size)	4,628	2,400	93	1,726	409

<sup>a</sup> The sample is limited to 1992 12th graders who attended college, beginning at a four-year institution.

<sup>b</sup> Means are weighted.

<sup>c</sup> Two-way analyses of variance were conducted to assess differences between all the measures; the compositions of all groups are significantly different from each other with one exception: In this sample, the composition of attendance pattern B does not differ significantly from the composition of attendance pattern D.

(interrupted movement) does not appear to differ significantly from that of Category B (interruption). However, these two categories are significantly different from the other two categories (A: traditional and C: fluid movement), even when they are combined into one. Thus, although the students in this sample who moved across schools differed in

their background characteristics from students who moved in and out of schools, it is uncertain whether students who moved across schools with interruption actually differed from students who simply interrupted their enrollment at one school. The small number of students in this sample who interrupted their enrollment at one school

**Table 2. Multinomial Logistic Regression of Engaging in a Traditional Attendance Pattern (one school, no stopout) (Odds Ratios Shown)**

Independent Variable	Interruption versus Traditional		Fluid Movement versus Traditional		Interrupted Movement versus Traditional	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
<i>Ascriptive Characteristics<sup>a</sup></i>						
Female	0.64*	0.66	1.18*	1.20*	0.81	0.91
	(.16)	(.17)	(.12)	(.12)	(.13)	(.15)
Black/Hispanic	0.89	0.71	0.94	0.88	0.97	0.88
	(.26)	(.23)	(.15)	(.15)	(.23)	(.21)
<i>Socioeconomic Status Quintile</i> (Reference: 81st–100th percentile; high)						
1st–20th percentile (low)	4.18***	2.99***	0.92	0.85	4.11***	3.36***
	(1.69)	(1.22)	(.18)	(.17)	(1.46)	(1.08)
21st–80th percentile (middle)	1.59*	1.25	0.87	0.82*	1.32	1.16
	(.43)	(.33)	(.09)	(.09)	(.25)	(.22)
<i>High School Background</i>						
NELS Senior Test Score Percentile (Reference: 76th–100th percentile)						
0–25th percentile	—	2.90**	—	1.09	—	0.85
		(1.56)		(.26)		(.29)
26th–50th percentile	—	1.99	—	1.31*	—	0.86
		(.95)		(.20)		(.20)
51st–75th percentile	—	2.58***	—	1.13	—	0.94
		(.83)		(.13)		(.18)
<i>GPA Quintile</i> (Reference: Quintile 5, highest)						
Quintile 1 (lowest)	—	1.51	—	1.12	—	4.18***
		(.69)		(.25)		(1.39)
Quintiles 2–4 (middle)	—	0.89	—	1.28*	—	2.82***
		(.28)		(.16)		(.67)
<i>Curriculum Intensity Quintile</i> (Reference: Quintile 5, highest)						
Quintile 1 (lowest)	—	1.64	—	1.00	—	1.40
		(.87)		(.24)		(.55)
Quintiles 2–4 (middle)	—	1.35	—	1.13	—	1.93***
		(.45)		(.13)		(.33)
Expected to Earn BA or Higher (as of 1992)	—	0.75	—	1.36*	—	0.78
		(.28)		(.23)		(.18)
F Statistic	3.32	3.37	3.32	3.37	3.32	3.37
Prob > F	0.00	0.00	0.00	0.00	0.00	0.00

Notes: Numbers in parentheses are standard errors. The reference category for all models is one school, no stopout.

Regressions are weighted, and standard errors are adjusted for sampling design effects.  
N = 4,628.

<sup>a</sup> Gender, race, and SES interactions were tested and were not significant in these models.

\*  $p < .10$ , \*\*  $p < .05$ , \*\*\* $p < .01$ .

(Category B) is likely a contributing factor here and is an important limitation of this study.

To examine the impact of family background and high school preparation on attendance patterns comprehensively, I used multinomial logistic regression techniques to predict the probability of engaging in one of three nontraditional attendance patterns (interruption, fluid movement, or interrupted movement), rather than a traditional pattern of continuous enrollment at a single school. Nested regressions are presented in Table 2, so that the effects of ascriptive characteristics can be assessed, along with the mediating impact of high school preparation.

It is immediately apparent upon examining Table 2 that among students' ascriptive characteristics, social-class background plays the strongest role in predicting whether a student engages in nontraditional postsecondary attendance patterns. In the first model, which takes into account only a student's gender, race, and SES, students from families with fewer resources have over four times (4.18) the odds of experiencing an interrupted pathway and over four times (4.11) the odds of engaging in interrupted movement than do students from upper socioeconomic backgrounds. In addition, there is an association of gender with both interrupted enrollment and with fluid movement—women experience higher odds than do men of moving among schools continuously (compared to engaging in a traditional pattern), whereas men have greater odds of interrupting their enrollment at a single institution.

Model 2 in Table 2 reveals that the relationship between family background and college attendance patterns is partly attributable to differences in high school preparation and degree expectations. After these factors are taken into account, the association of gender with the "interruption" attendance patterns weakens and becomes nonsignificant in this sample. It appears that the greater propensity of men to take time off from college is attributable to their lower levels of tested ability. On the other hand, even after differences in high school preparation are controlled for, women are significantly more likely than are men to attend multiple colleges continuously.

It is notable that within this sample of stu-

dents who were beginning their college education at a four-year college or university, there do not appear to be racial differences in how students attend college. Neither Model 1 nor Model 2 provide any evidence to support the idea that white and Asian undergraduates engage in different attendance patterns than black and Hispanic undergraduates, after socioeconomic background is taken into account.

Disparities in tested ability, high school GPA, and the rigor of high school course work account for some, but not all, of the relationship between social class and nontraditional attendance. Even after these factors were controlled for, students in the bottom 20 percent of the SES distribution had nearly three times the odds (2.99) of stopping out from one school, and over three times the odds (3.36) of moving among schools with interruption, relative to students in the top fifth of the SES distribution. It is important to note, however, that high school GPA is a stronger predictor of interrupted movement (but not interruption) than is social class. Specifically, the odds that students with the lowest high school GPAs will engage in interrupted movement are four times higher than for students with the highest GPAs, and even students with average GPAs have nearly three times the odds of engaging in this nontraditional pattern, compared to students with the highest GPAs. The association of high school GPA with fluid movement (in comparison to traditional enrollment) is much weaker than it is with interrupted movement.

Last, it appears that students from higher socioeconomic backgrounds, relative to students from middle-class backgrounds, are *more likely* to attend multiple schools without stopping out. In other words, this analysis reveals that lower-class students have a higher propensity for *interrupted* movement, while upper-class students have a higher propensity for *fluid* movement among schools.

## DISCUSSION

This analysis investigated whether postsecondary pathways within the higher education system are differentiated by family back-

ground. The results support the contention that socioeconomically disadvantaged students attend college differently from advantaged students. While movement across schools is relatively common among today's undergraduates, the ability to change schools while maintaining enrollment appears to depend partly on whether one's parents went to college and have high incomes. Given that interruptions in enrollment are more likely than is movement across schools to delay (or prevent) the completion of a bachelor's degree (Adelman 1999; Cabrera et al. 2003), which, in turn, is associated with smaller returns to the degree (Elman and O'Rand 2004), these differences in *how students attend college* represent an additional layer of stratification in higher education. Thus, while extant research has revealed significant class disparities in who attends college and where they start, this study has provided evidence that there are substantial differences in the attendance patterns that students follow *after* they enter college.

Social-class differences in college enrollment patterns may be attributable to several opportunities and constraints that are introduced both prior to and during college enrollment. As I noted earlier, whereas higher education was once dominated by white men who attended college shortly after they completed high school, focused solely on schooling while in college, and subsequently transitioned from university to work, today's college students lead more complex lives. The transition to college is no longer marked by a significant transition to adulthood, nor is the college experience itself fully differentiated from work or familial experiences. College students have many choices to make after they enter college. But the numerous enrollment options that are presented by contemporary colleges and universities appear to be embraced by students differently, depending on their social background, and interruptions in contemporary postsecondary schooling are likely to be both involuntary and voluntary. This study has revealed that interruptions seem to be more common among students with fewer financial resources and those with lower grades. Thus, students from disadvantaged family backgrounds and those with

poorer high school preparation are following pathways in college that are unlikely to lead to the successful completion of degrees. Students from advantaged backgrounds are able to move among schools while maintaining their enrollment, while disadvantaged students who change schools also take some time off. It is only the advantaged students who are successfully "comparison shopping," that is, moving among schools with smooth transitions.

These findings imply that students with greater access to financial resources are better able to take advantage of the new higher education marketplace. Given the significant link between social class and interrupted schooling, it seems reasonable to conjecture that low-SES students who change schools interrupt their schooling not because they are shopping, partying, or choosing to take time off to "find themselves," but because they have suffered academically or financially in school.<sup>21</sup> Thus, while some analysts have suggested that competition among institutions will benefit disadvantaged students, who theoretically should enjoy greater opportunities to assess and compare their multiple options (Levine 2001; Newman and Couturier 2001), these results indicate otherwise.

The findings of this study also suggest that financial resources may matter more than access to information in shaping postsecondary pathways. Interinstitutional movement appears to be relatively common among both poor and rich students. As I noted earlier, the difference is in the students' ability to remain enrolled while changing schools. One potential explanation for these differences is that financial aid and students' work is affecting students' decision making—students with greater unmet needs tend to work longer hours, which interferes with the time they spend on schoolwork (King 2002; Walpole 2003). If a decline in academic performance results, the students may leave school for a period to save money and later return to a more affordable institution. Students who are unaware of the ways in which working affects their financial aid package tend to be surprised when the package decreases (either because of new income earned or a shift to part-time enrollment as

the result of longer working hours), and their new income does not always compensate for their need. Prior research has supported these hypotheses; students who receive adequate levels of financial aid have been found to be less likely to stop out from school (Desjardins, Ahlburg, and McCall 2002). Clearly, disadvantaged students, who are less likely to receive informed financial aid counseling while in high school, are more susceptible to these changes while in college (Paulsen and St. John 1997; St. John, Kirshstein, and Noell 1991; St. John et al. 1994). However, these hypotheses were not tested in this study because the NELS data set lacks measures of the quality of financial aid offers and packages. Future research ought to investigate these possibilities, and new data sets should be created to facilitate such analyses.

Furthermore, a preliminary examination of the institutions that these students move into and out of suggests that the places that they move to differ on the basis of the students' social class (Goldrick-Rab 2004). Students from low-SES backgrounds are disproportionately likely to leave their first four-year institution for a community college, whereas more advantaged students move from one four-year institution to another four-year institution. Given that most community colleges do not grant bachelor's degrees, there are clear implications for the educational attainment of low-income students who move to these schools. Thus, students' mobility among specific types of institutions is highly associated with social class, even after students' ability and test scores are controlled for.

These findings also support Hearn's (1992) contention that low-SES students are consistently nontraditional in their enrollment patterns. Moreover, these students are more likely not only to delay enrollment in college and enroll part time and in noncredit programs (Hearn 1992), but to take time off from college once they have enrolled and to change schools with interruption. It is important to note, however, that more of the variation in students' enrollment patterns is attributable to differences in high school preparation and tested ability than to socioeconomic background. Clearly, well-prepared academically able students are more likely to get good

grades in college and to move smoothly toward attaining a degree. But it is also clear that differences in preparation do not entirely account for class differences in postsecondary pathways. Moreover, this study did not find significant differences in college attendance patterns by racial background, suggesting that racial differences in college completion rates stem from factors other than how students attend college. At the same time, men appear more likely than women to interrupt their schooling, and this is likely a factor in the lower degree-completion rates of today's male undergraduates.

Students who engaged in attendance patterns involving movement and/or interruption accounted for 48 percent of NELS postsecondary attendees who began at four-year institutions, representing 700,00 students who enter four-year colleges each year nationwide. This number may well grow as private institutions consider joining together to offer students admission to multiple institutions for one price (O'Meara 2001). The important role of family background in predicting students' movement in, out, and among schools merits the attention of both sociologists who are interested in gaining a better understanding of new forms of educational stratification and policy makers and educational administrators who are concerned with educating, and graduating the students who enter their institutions. Certain forms of nontraditional attendance, particularly the "interrupted movement" pattern identified here, appear to represent disadvantageous tracks that are most often followed by poor students. This does not imply, however, that mobility and discontinuity in enrollment must always have negative consequences for these students. It only means that in our current system, they do.

U.S. postsecondary institutions and policies are designed with traditional students, engaged in traditional attendance patterns, in mind. The structures and incentives that are present in the American higher education system must be redesigned, with a new understanding that students follow complex, rather than linear, pathways through college. Such efforts ought to challenge outdated views of college retention that may work further to

disadvantage already-disadvantaged high school students who manage to make it to college. Given the stagnant social-class gap in college completion, it is clear that policy makers, educators, and researchers need to work harder to facilitate the success, not only the access, of students from lower-class backgrounds in higher education.

## NOTES

1. Some of these students attend two-year colleges, subsequent to their attendance at a four-year institution. In other words, many types of multi-institutional attendance are still included in the attendance patterns of these students, such as reverse transfer (4 to 2), upward transfer (2 to 4), and lateral transfer (2 to 2, 4 to 4). Thus, students in the sample may have had the following patterns for the first three schools they attended: 4-2-4, 4-4-4, 4-2-2, and 4-4-2.

2. Choy (2002) defined the traditional route as enrolling in a four-year college immediately following high school, attending that institution continuously and full time, and completing a degree in four years.

3. It should be noted that Adelman did not find a significant effect of the number of institutions attended on completion when the measure was simply "more than one school" versus one. When he distinguished between two patterns of movement—upward transfer from a two- to a four-year institution and movement with no return—he found a positive effect of the former and a negative effect of the latter. Since my study focused on students who started at four-year institutions, the second finding is more relevant here.

4. Co-enrollment alone appeared to have a positive impact on the completion of a degree and was positively correlated with students' income (Peter and Forrest Cataldi 2005).

5. Of course, it is worth noting that the completion of bachelor's degrees has never been a truly "timely" process taking place within the intended four-year time frame. As early as 1964, Eckland noted that barely 40 percent of students completed a bachelor's degree within four years of starting at a "four-

year" institution. Today, that percentage is 37, with another 26 percent taking either five or six years (Carey 2004).

6. The sample was not further limited to students who participated in the first survey, since information from the eighth-grade year is not central to this study's questions. I will study the elementary and middle school experiences of students following complicated college pathways in future research.

7. Restricting the sample in this way was deemed appropriate, given that attempting to impute for the dependent variable in this analysis (postsecondary pathways) would be unadvisable. Limiting the sample to students with complete records meant excluding 14 percent of the cases. Students who enrolled in only general equivalency diploma programs or basic skills programs and those who took only a single course or fewer than five credits were excluded. The number of institutions attended, a component of the dependent variable, is highly correlated with having a complete transcript record; thus, all means and regressions that are presented in this article are weighted. Patterning by SES was not found among the excluded cases.

8. The transcript data identify the "true" first institution attended, excluding any institution that a student attended only during the summer between high school and college; there were no cases of students starting at a two- and four-year institution at the same time.

9. Several previous studies of multi-institutional attendance, such as the one by Peter and Forrest Cataldi (2005), used data from the Beginning Postsecondary Students Longitudinal Study, which contains only self-reported data on attendance patterns.

10. It should be noted that credit thresholds were not used to assess the number of institutions attended. Research has demonstrated that there is socioeconomic variation in credit enrollment (McCormick 1999). Whereas some researchers (most notably Adelman 1999) used such thresholds in analyses predicting the completion of degrees or transfers, in my study, in which the primary interest was in the enrollment patterns of different socioeconomic groups, such restrictions were deemed inappropriate, since

they would likely exclude part of the attendance pattern of low-SES students.

11. Although students take courses during the summer for a variety of reasons, attendance during the academic year remains central to postsecondary schooling, and thus differences in how students attend college during the academic year are the focus of this analysis. It would be worthwhile to investigate the role of summer schooling during college in future research.

12. The number of students in this category and the number in Category D are particularly small, and thus multivariate findings regarding comparisons made to these categories should be considered fragile. The small number of students from this sample in these categories should not be interpreted to mean that the interruption patterns are especially rare. The reader should keep in mind that the NELS survey was constructed to sample eighth-grade students, not beginning postsecondary students, and thus estimates of nontraditionality are likely to be underestimated in this sample. Unfortunately, national studies of beginning postsecondary students that have been conducted so far have not included data from college transcripts, which is central to this analysis.

13. Racial categories were combined in this manner because of the relatively small samples of black and Hispanic college goers. Whites and Asians have higher college participation rates than do blacks and Hispanics owing to a variety of factors, including lower levels of socioeconomic disadvantage and higher levels of high school academic preparation. In addition, Hispanics are disproportionately likely to begin college at a two-year institution (Baker and Velez 1996) and thus represent an especially small proportion of this sample, and those who were included were more advantaged than the average Hispanic student. Thus, this measure of race assesses the average differences between overrepresented (and therefore advantaged) groups and underrepresented groups. The racial categories, other than Hispanic, exclude Hispanic origin.

14. The purpose of coding many of the independent variables in quintiles was to assess any nonlinear effects, particularly SES,

on attendance patterns. Indeed, many such nonlinear effects were found, as the results demonstrate. Differently coded independent variables did not suggest significantly different findings.

15. This standardized test was a special test of general learned abilities that was administered to the participants in the 12th grade.

16. GPA was derived by the NCES staff from college transcripts (Adelman et al. 2003). The dividing lines for the GPA quintiles are low (less than 2.0), middle (2.0–3.32), and high (greater than 3.32).

17. On the basis of a student's high school transcript, this variable assesses the rigor of the curriculum that the student engaged in across several components (math, Advanced Placement courses, English, foreign language, science, social sciences, and computer sciences) by assessing both the quality of the courses taken and the number of "hard" courses taken. For example, students with the highest scores on this measure took at least 3.75 Carnegie units of math, with the highest level at trigonometry or higher, along with at least 3.75 units of English, 2 units of a foreign language, 2 units of laboratory science, 2 units of history, and one Advanced Placement course. For more on the construction of this variable, see Adelman (1999).

18. Although there were data on 4,628 students, the initial regression analysis was performed on only 3,284 students; thus 29 percent of the observations were unused because of missing data. Three variables accounted for the majority of the missing values—high school GPA (29 percent missing), test scores (7 percent missing), and curricular intensity (11 percent missing). There was no patterning by a student's SES in any of the missing data. To make full use of all the student observations, I imputed independent variables with missing data on the basis of the means of the other independent variables in the analysis. Although there is no perfect method for imputation and all methods involve some inherent "guessing" as to true values, a comparison of the regression results before and after imputation indicated no significant underestimation of standard errors or overestimation of test statistics and therefore no suspected bias.



19. On the basis of the sample restrictions discussed earlier, the F4F2P3WT weight (the participation weight for members of the 12th-grade freshened panel with complete postsecondary transcript records) was used. This weight works to preserve the representativeness of the sample on the basis of the level of certainty of postsecondary participation and the completeness of the transcript record; incomplete and single-case records, which would distort or bias analyses, were excluded.

20. Thus, 7 percent of the students technically experienced an interruption between high school graduation and college entry. However, since this represents a precollege interruption (prior to enrollment), it is not classified as an "interruption" for the purposes of categorization in Table 1.

21. Therefore, the findings of this study dispute Vedder's (2004) assertion that the time to the completion of a degree can be reduced by requiring students who do not finish quickly to repay their financial aid. The finding that low-SES students are disproportionately likely to follow pathways that inhibit the completion of their degrees suggests that rather than wasting time by partying, these students are working because of economic necessity.

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