



Working Paper Series

**Beyond Access:
Explaining Socioeconomic Differences in College Transfer**

Sara Goldrick-Rab
University of Wisconsin–Madison

Fabian T. Pfeffer
University of Wisconsin–Madison

June 2008

Address Correspondence to:

Sara Goldrick-Rab
Department of Educational Policy Studies
University of Wisconsin–Madison
210 Education Building
1000 Bascom Mall
Madison, WI 53706
Phone: (608) 262-6564
Voicemail: (608) 263-4292
E-mail: srab@education.wisc.edu

About the Authors

Sara Goldrick-Rab is assistant professor of educational policy studies and sociology and WISCAPE scholar at the University of Wisconsin–Madison. Her academic areas of interest are access and persistence in higher education; complex postsecondary pathways; educational policy; and sociology of education.

Fabian T. Pfeffer is a graduate student in the Department of Sociology and an international affiliate of the Interdisciplinary Training Program in Education Science at the University of Wisconsin–Madison. He received his master's degree for a cross-national comparative study of social inequality in educational attainment. His current work focuses on the effects of parental wealth in the individual status attainment process.

Abstract

Reducing socioeconomic differences in college transfer requires a better understanding of how and why parental education, occupational class, and family income are associated with changing colleges. Building on prior studies of traditional community college transfer we explore relationships between those factors and two types of transfer among 4-year college students. Our results indicate that reverse transfer—the move from 4-year to community college—is more common among students from less-educated families partly because of lower levels of academic performance during their freshman year.

In contrast, students from advantaged backgrounds in terms of class and income are more likely than others to engage in lateral transfer—4-year to 4-year—which may reflect individual preferences for changing colleges rather than a reaction to poor academic performance. Implications for policy and practice are discussed in light of the fact that only reverse transfer is associated with lower rates of degree completion.

Introduction

Students are usually said to make three college decisions: whether to go, where to attend, and whether to finish a degree (Manski & Wise, 1983). Inequalities persist in each of those choices, such that children from socioeconomically disadvantaged families remain less likely to enter college, attend elite institutions, and earn bachelor's degrees (e.g. Cabrera et al., 2005; Hearn, 1991; Karen, 2002; Paulsen & St. John, 2002). But after accessing college and before completing a degree students confront numerous additional choices which affect their chances for finishing school, including how many classes to take, whether to work, and--the focus of this paper--whether to transfer colleges. While popular conception holds that the college experience takes place at one school, in fact nearly half of all contemporary undergraduates attend more than one college (McCormick, 2003). Moreover, while research on college transfer has traditionally focused on students who begin at community colleges and move to baccalaureate-granting institutions, changing colleges is common even among those students who start at 4-year schools (Author, 2006).

Past research has consistently identified large differentials in rates of traditional community college transfer between advantaged and disadvantaged students (e.g. Dougherty 1987; Dougherty & Kienzl, 2006; Lee & Frank, 1990; Velez & Javalgi, 1987). Indeed, the low rates of movement to 4-year colleges among low-income and minority community college students has caused many analysts to question the value of a differentiated higher education system, which may divert students from more opportunities than it provides them (e.g. Brint & Karabel, 1989; Dougherty, 1994). Yet social inequalities in transfer among *four-year* college students have been identified and examined in only one known study, which found that even within that relatively elite group of students those from lower socioeconomic status families

transfer schools less successfully (Author, 2006). While that finding confirms other work on transfer and might therefore be considered unsurprising, it does suggest socioeconomic variations in the reasons why students change colleges. Since their transfers are not motivated by the need to attend a school which grants bachelor's degrees, the question arises whether four-year college students of lower socioeconomic status move to other colleges because they lack information, financial resources, or academic preparation? On the other hand, is college transfer among more advantaged students based more on personal preference or educational expectations than financial or academic necessity? Any effort to reducing social inequality in college transfer relies on answers to these questions. In particular, both policy interventions and sociological theories of stratification in higher education require a better understanding of precisely which aspects of family background are linked to which kinds of mobility and why. Generating knowledge to facilitate that understanding is the task of this paper.

Review of the Literature

We begin by describing variation in how students attend college in the United States and what is currently known about the relationship between family background and the college experience.

Contemporary College Trajectories

The manner in which today's students encounter college is complex. Nationally, 27 percent of students take some time off after entering school, 39 percent attend part-time, and 31 percent change their major at least once (Ingels et al., 2002). Delaying enrollment and enrolling part-time in college are behaviors more common among less-well-off students (Adelman, 1999;

Bozick & DeLuca, 2005). In addition, students are moving in, out, and among colleges and universities at higher rates than ever before. Between the 1970s and 1990s, the number of schools the average undergraduate attended increased from one to three, and the percentage of students attending more than one college rose from 51 to 57 (Adelman, 1999; Adelman et al., 2003).¹

The two primary forms of mobility among students at 4-year colleges are “lateral transfer” and “reverse transfer.” Lateral transfer is movement to another institution of the same type (in this study, to another 4-year institution), and reverse transfer is movement to a community college. The data used for this study indicate that 19.5% of students starting at a 4-year college engage in at least one lateral transfer during their college career and as many as 15.5% make a reverse transfer (see Table 1). Despite this, studies of transfer overwhelmingly focus on entering community college students (e.g. Dougherty, 1987; Lee & Frank, 1990; Velez & Javalgi, 1987). There is only a sparse literature on reverse transfer, and the data in those studies tends to come from a single or small set of institutions (e.g. Bach et al., 1999, 2000; Winter & Harris, 1999), making it nearly impossible to draw conclusions about either the background characteristics of such students or their motivations for changing colleges (Townsend & Dever, 1999).

Student Mobility and Degree Completion

What, if any, consequences does changing colleges hold for degree completion? Following the dominant theoretical models of student persistence in college which emphasize attendance at a single institution, most empirical research on degree completion neglects to

¹ By the mid-1990s, nearly one-fifth of undergraduates attended more than two schools (Adelman et al., 2003).

account for student mobility. The handful of studies which at minimum control for the number of colleges attended, or at best take into account the direction of mobility (e.g. Adelman, 1999, 2006; McCormick & Carroll, 1997) have produced mixed findings. Some find no effect of mobility, while others find relatively small negative effects. The variation in findings can be attributed to the quality of the measure of mobility (whether it is based on transcript data or students' self-reports, and whether the direction of mobility is accounted for), and restrictions placed on the sample examined (for example whether all students, or only those at 4-year schools are included). Furthermore, the ability to draw conclusions about causal effects from prior research is limited by an overall lack of consideration of the selection effects-- in other words, students who change colleges may have important but unmeasured characteristics that also impact their chances for degree completion.

In an analysis described elsewhere we use econometric methods to estimate the causal effects of student mobility by comparing degree completion among reverse transfer and lateral transfer students starting at 4-year colleges as well as students beginning at 2-year colleges (Author, 2007). We find that lateral transfer does not appear to reduce chances for degree completion, and that while reverse transfer to a community college is disadvantageous relative to staying enrolled at a 4-year college or laterally transferring to another, it results in higher rates of degree completion when compared to the alternative of starting *initially* at a community college. Based on those findings we believe that inequalities in rates of reverse transfer are likely more important to stratification in college outcomes than inequalities in lateral transfer.

Social Background and the Decision to Change Colleges

Effects of social background operate to make children from the same type of families appear more alike than children from different families (Jencks, 1972). Persistent relationships between social background and higher education outcomes, particularly access and completion, have been extensively documented (e.g. Ellwood & Kane, 2000; Haveman & Wilson, 2007; Hearn 1984, 1991; Karen, 2002). Students engage in the tertiary sector at different rates, enroll in disparate parts of the system, and reach substantially stratified outcomes, depending in part on their family of origin. In one nationally representative study, 56 percent of eighth-graders whose parents did not attend college went on to pursue a postsecondary education, compared to 95 percent of students who had at least one college-educated parent (Ingels et al., 2002). Recent estimates identify a 50 percentage point gap in college-going for students from the bottom and top quarters of the income distribution, a gap that is only slightly smaller (about 40 points) when conditioned on high school graduation (Haveman & Wilson, 2007).² When they do attend college, poor students are less likely to apply to and be accepted at 4-year institutions and elite private colleges and universities (Alon, 2001; Hearn, 1991; McDonough, 1997; McPherson & Shapiro, 1991). Partly as a result, there is substantial variation in college completion: conditional on going to college, just over one-quarter (25.9%) of students in the bottom 25 percent of the income distribution earn a degree, compared to nearly three-fifths (59.1%) of those in the top 25 percent (Haveman & Wilson, 2007). Completion rates differ even among those relatively advantaged students who begin at 4-year institutions – one national survey finds a 28 percentage point difference in earned bachelor's degrees between those from the bottom quintile of the income distribution and those at the top, and a 41 percentage point gap between students

² 71.2% of those in the top quartile attend college, compared to 21.6% of those in the bottom. Conditional on high school graduation, those rates are 74.1% and 33.8% (Haveman & Wilson, 2007).

with and without parents holding bachelor's degrees (authors' calculations based on the National Educational Longitudinal Study).

Sociological theory indicates that parental education, parental occupation, and family income may exert independent and very different impacts on how students attend college. Parental education has consistently been identified as an important indicator of college attainment. Students with college-educated parents are more likely to attend and complete school, and that advantage persists even among children from lower-income families (Ishitani, 2006; Pascarella & Terenzini, 2005). The relationship between parental education and postsecondary schooling is usually attributed to the greater levels of specific and accurate information college-educated parents provide their children, information which can be essential to a student's ability to successfully navigate college. Parents with more education also tend to hold higher expectations for their children's educational attainment, which may affect their participation in the college-planning and preparation process.

Social class categories signal "a complex of life conditions that are bound together in a package" and that may extend beyond economic or educational forces alone (Grusky & Weeden, 2006, p. 90). A classical, though not uncontroversial, approach to denoting class status is through the use of occupational positions (see Wright, 2005 for an overview of the most important contributions). The occupation of one's parents can be interpreted to denote the social role the parents play outside of the home, and connote information about their technical and social skills as well as current and future economic prospects (Hauser & Warren, 1997; Wright, 2005). Thus, distinguishing among students based on their parents' occupation allows for an analysis of children raised in advantaged and disadvantaged settings and their corresponding life chances.

The persistent and intensifying relationship between family income and college attainment is well documented (Belley & Lochner, 2007; Ellwood & Kane, 2000; Guldi, Page, & Stevens, 2007; Haveman & Wilson, 2007; Lochner & Monge-Naranjo, 2008). Despite decades of federal and state financial aid investments, children from low-income families remain less likely than their better off peers to enter college or finish a degree. Does that mean that financial aid is ineffective? Or, probably, that lower levels of educational attainment among poor children has nothing to do with money after all? These questions have been repeatedly raised since federal aid programs were initiated (e.g., Hansen, 1983; Leslie & Brinkman, 1988). One theory is that low-income students attend and complete college at lower rates—despite the large, long-term, and increasing financial payoff—because they are unable to borrow the funds necessary to cover their costs. Researchers have largely rejected this theory, however (Dynarski & Scott-Clayton, 2006). There is clear evidence of a strong and growing relationship between family income and graduation, even in the absence of any direct costs for college attendance. Using data from a study based at Berea College—which is among the wealthiest colleges in the country and therefore able to open its doors to admit only poor students while charging no tuition—Stinebrickner and Stinebrickner (2003, 2007) identified a persistent relationship between family income and completion. Since students attending this college are all from poor backgrounds and pay very little (less than \$1,000 per year) to attend college, these researchers concluded that the total effect of credit constraints on college outcomes must be quite small.

There are some counter-arguments to this line of reasoning. For example, the relationship between family income, college costs, and graduation rates has changed in recent years at Berea

in a way that is suggestive of credit constraints.³ Moreover even when attending a school where *no* tuition is charged, students still report that the students most likely to drop out are those with a lack of spending money and an absence of borrowing options (Stinebrickner & Stinebrickner, 2007). Nevertheless, we accept the argument that credit constraints do not represent the main factor creating income-related gaps in college success.

If not credit constraints, then what? The most obvious answer is that family income is closely related to other factors of students' upbringing that also have an impact on the likelihood of college graduation. Low-income students attend elementary and secondary schools are taught by teachers who are less experienced and less effective (Clotfelter, Ladd & Vigdor, 2005). Also, low-income households are more likely to be led by parents who themselves lack a college education and are less able to provide academic and other forms of support for their children while they are in high school or afterwards. Some low-income families are led by single parents who, even if they could help, have less time to spend with their children as they juggle the demands of work and family life (Lareau & Weininger, 2008).

The persistence of income gaps in college graduation and the role of those gaps in inhibiting social mobility are troubling. But, fundamentally, the issue is not whether there is a relationship between income and college success—there clearly is—but how public policy can best address the problem. In the current study, we are unable to examine the relationship between financial aid and college transfer, due to a lack of measure of aid in the dataset

³ At the time students in the Stinebrickner and Stinebrickner study attended Berea, the college's graduation rate was around 47% and this grew to nearly 60% in 2007 (Berea College, 2007). Both figures are considerably higher than the national average of 27% for low-income students. One problem with this comparison is that low-income students at Berea have stronger academic backgrounds than the average low-income college students, making it difficult to isolate the effect of aid. However, one tuition-charging college serving academically-prepared low-income students, Vaughn College, also has a 27% graduation rate, suggesting that the low tuition at Berea plays an important role in its higher rate (www.collegeresults.org).

employed.⁴ However, we are able to draw on a range of pre-college measures that may serve as valid proxies to empirically assess this point (see following section).

We argue that each of the discussed aspects of social background – parental education, social class, and family income – potentially affects the way in which students attend college. Based on the review above we expect independent effects of each social background characteristic, but past research has not assessed whether and why those effects occur for all kinds of mobility. By addressing those concerns we significantly expand on two prior studies that have yielded some first evidence for a complex picture of social inequality in student careers. The first of these is a study using nationally representative data that found that while the overall incidence of college change among four-year college students does not vary by a student's socioeconomic status, there are differences in the manner in which students change colleges (Author, 2006). Specifically, students from the bottom socioeconomic quintile have a higher probability of changing colleges while experiencing an interruption in enrollment. On the other hand, more advantaged students have a greater tendency to move among schools fluidly, without taking time off. Unfortunately, that study used a composite measure of socioeconomic status, encompassing education, occupation, and family income, rather than identifying precisely which aspects of social background were important to the transfer decision.⁵

The other study combined quantitative and qualitative analysis of the postsecondary pathways of Chicago public school students to examine the distinguishing characteristics of students who changed colleges in comparison to those who did not. The researchers found that

⁴ We believe the relationship between aid and college transfer would best be examined using an experimental approach where aid is distributed randomly; the lead author is in the midst of such a study and will report on those findings in future research.

⁵ As others have pointed out (e.g. Grusky & Weeden, 2006; Hauser & Warren, 2007), such an approach can be misleading and make poor use of information provided by the underlying dimensions of social background.

poor urban students who change colleges are less likely to possess a strong commitment to their educational goals, and importantly they lack an advocate invested in their plans to complete a bachelor's degree, and who can help with postsecondary "strategizing" (Author, 2008).

However, as noted, that study emphasized differences *among* poor students, and was unable to make comparisons across socioeconomic groups, as the variation in socioeconomic standing of the sample is quite low.

In addition to documenting the relationship between different components of socioeconomic status with different types of student mobility, this study also explores a set of factors which are hypothesized to explain these associations. In the existing literature, explanations for the lower levels of college achievement among disadvantaged students include financial constraints (Bettinger, 2004; DesJardins et al., 2006; Paulsen & St. John, 2002), poor K-12 college preparation and academic tracking (Adelman, 1999, 2006; Bowen et al., 2004; Cabrera et al., 2005; Venezia & Kirst, 2006), inaccurate perceptions of economic returns and other informational deficits (Avery and Kane, 2004; Beattie, 2002; Grodsky & Jones, 2006; McDonough & Calderone, 2006; Rouse, 2004), lower educational aspirations (Alexander et al., 2007; Reynolds et al., 2006), familial and peer contexts (Kim & Schneider, 2005; Steelman & Powell, 1989; Turley, 2006), unsupportive college practices (Rosenbaum et al., 2006; Tinto, 1993) and inadequate government policies (Dynarski, 2002; Kane, 1994). There is little consensus about the relative importance of each of these mechanisms. Like many other analysts we will therefore rely on more than one mechanism to explain the relationship between social background and transfer.

More specifically, we examine *high school achievement*, to test whether social differentials in transfer behavior arise from earlier demonstrated ability and academic

preparedness. On other hand, educational experiences after high school – i.e. *early college achievement and initial college attributes* – can also be expected to play an independent role in explaining social inequalities in student careers. One of the mechanisms more closely tied to a specific component of social background are *educational expectations* which have not only been shown to take a central role in mediating the general process of intergenerational transmission of advantage (Sewell et al., 1969), but also been argued to be a central factor in explaining educational differentials pertaining to social class (Breen & Goldthorpe, 1997). Parental education can be hypothesized to take its effects partly via the level of *strategic planning* that the student may be able to realize based on parental advice and experience within the educational system. Finally, we include proxy measures for *financial constraints*, which may explain possible effects of family income. We want to note that although we describe each of these factors (strategic planning, educational expectations, and financial constraints) as potentially linked to a single aspect of social background, in our models we test for the ability of each to explain any aspect of social background. In what follows, we give a detailed picture of social inequalities in student transfer behavior and then go on to test the explanatory power of these mechanisms.

Data and Methods

The data for this study come from the last three waves of the National Education Longitudinal Survey (NELS) conducted by the U.S. Department of Education. The survey used a national probability sample of 25,000 eighth-graders first surveyed in 1988, and re-interviewed during four additional follow-ups. The fifth and final wave occurred in 2000, when students were 26 or 27 years old; at that time 12,144 individuals were interviewed, and requests for the

postsecondary transcripts of those 9,602 students who had attended college by 2000 were submitted to the relevant institutions. 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 and completion rates, even for those students who transferred colleges. Still, to reduce problems posed by right-truncation of the data our sample includes only students who began their studies before 1995.

The sample used in this study is drawn from the 2000 wave of NELS, and includes only those students who participated in the 2nd (1992), 3rd (1994) and 4th (2000) follow-ups, attended at least one postsecondary institution, and had a complete transcript record. Furthermore, only those students who began college at a 4-year institution are included, yielding a final sample size of 4,716 students. The sole focus on four-year college starters is based on several substantive reasons. First, starting college at a 4-year institution is the result of a series of selective processes (including applying to a 4-year school, gaining admissions, and enrolling) and thus represents advantage, achievement, and aspirations. Conditioning the sample in this way thus diminishes the amount of unobserved heterogeneity within the group examined. However, we also know that substantial socioeconomic gaps in completion exist within the 4-year population (Author, 2006). Therefore this study is concerned with drawing finer distinctions among the postsecondary trajectories of students who begin at 4-year schools to better understand their stratified outcomes.

The assessment of student transfer relies on NELS postsecondary transcript data because transcript data provides more reliable measures of transfer than the self-reported information

found in the NELS basic restricted-use file.⁶ In a comparison of transcript and self-reported data from the NELS, Adelman found that students tend to underreport the number of postsecondary institutions they attend--for example, in the NELS survey, nearly 10% of postsecondary attendees failed to report at least one institution (Adelman, 2004). In gathering transcript data for the NELS, survey officials first requested transcripts for all of the institutions a student reported attending. They then requested transcripts for schools that appeared on a student's transcripts, but were not reported by the student (i.e. attendance at an additional school was evidenced by transfer credits). In this way, officials ensured a more complete postsecondary history of students than if they had relied on student reports.

Measures

Appendix A1 includes the description and coding of all variables (dependent and independent) used in the analyses. Two central types of student mobility are distinguished: *lateral transfers*, denoting the move from a 4-year college in one year of study to another 4-year college in the following year of study (July to June); and *reverse transfers*, denoting the move from a 4-year college in one year to a 2-year college in the next year. These clear-cut distinctions become somewhat more complicated when considering cases of simultaneous enrollment.⁷ Here, we identify lateral transfer as the movement between "primary" institutions, the latter being identified as the 4-year college at which the student completed the majority of credits in

⁶ For ease of writing, we use the term "transfer" in this paper but want to note that the NELS does not precisely measure formal transfer (involving a transfer of credits) so much as it measures college change. Many students change colleges without bringing along credits, and many enroll in college without completing official transfer paperwork.

⁷ In the student population examined here, simultaneous enrollment – measured as the enrollment in more than one institution within any academic year – is experienced by as many as 28% of all students. Yet many researchers studying transfer do not account for simultaneous enrollment in their measures of transfer (for an exception see Adelman, 2006).

the given academic year. In order to correctly identify genuine reverse transfer in situations of simultaneous enrollment, we impose the restriction that the student must not maintain any enrollment in the 4-year college attended in the preceding academic year. Both our measure of lateral transfer and of reverse transfer record whether such transfer behavior occurred at any point of the college career.

The independent variables of central interest to this analysis are the following social background characteristics. *Parental education* is measured as the highest degree attained by either parent in four categories ranging from "high school or less" to "higher than BA degree." Our measure of *social class* is based on students' reports of their fathers' occupation and captured in a simplified version of the widely used EGP class scheme (see e.g. Erikson et al., 1979; Breen, 2005), distinguishing between the working class, the self-employed, and the service class. *Family income* was reported by parents 1988 and 1992. In order to more accurately capture the economic well-being of the family and reduce measurement error both reports were averaged. Additional *demographic characteristics* of the student include gender and race, whether the origin family was headed by a single mother, and the number of siblings.

To disentangle the effects of the listed ascriptive variables from differential *student achievement*, the following high school measures are included: tested ability (using a standardized test administered to NELS seniors), grade point average, curricular intensity of the courses taken, and whether the student ever changed high schools. Tested ability is included as a measure of aptitude. Grade point average (GPA) assesses both student achievement and student commitment to school. The curricular intensity measure, which captures the degree of difficulty of the courses a student took, is included as a measure of college preparedness. Whether a student changed high schools serves to indicate both the degree of student engagement as well as

the negative achievement results associated with a school change (see Rumberger & Larson, 1998).

Educational expectations of significant others are measured as the expectation of not only a student's father and mother for him to attend college, but also as his friends' expectations. Additionally, the preference for having the child stay home to attend college is included as a measure of parents' willingness to sacrifice college expectations for family norms (Turley, 2006). Finally, whether these expectations by significant others translate into own educational aspirations is indicated by whether the student consistently planned to attain a bachelor's degree in both 1990 and 1992. As measures of *strategic planning*, we include information about whether the student participated in any pre-college programs, whether her parents were involved in her college decision, and the number of colleges to which a student applied to as a high school senior. *Financial constraints* are captured by parents' own perception of whether they have enough money for their 8th grader to attend college and parents' report of whether their child has applied for financial aid in the senior year of high school. Manifested financial constraints on the student side are meant to be captured by an indicator of whether the student delayed college entrance for more than seven months after high school graduation and whether the student had a child before 1992.

A series of measures regarding *early college experience* are also taken into account. The student's first year college grade point average is included as a measure of performance once enrolled. Whether a student completes at least 30 credits in the first year of college represents the first step to timely degree completion. Both the control and selectivity of the first 4-year institution attended are measured, since students at private and highly selective institutions have higher rates of retention and degree completion (Zhang, 2005). As additional characteristics of

the first college attended we include whether it is located in the same state as the student's high school and whether it is the college of his or her first choice.

Analytic Strategy

After a detailed descriptive analysis of socioeconomic differentials in transfer, we estimate a series of blocked logistic regressions predicting whether a student ever made a transfer of a certain type, namely lateral transfer and reverse transfer. We present the results of these analyses in terms of the increased likelihood of engaging in a form of mobility (given a specific student characteristic and net of others) by presenting odds ratios. We utilize blocked regressions so as to test our hypotheses about the role of high school achievement, educational expectations, strategic planning, financial constraints, and first year college experiences and characteristics in contributing to socioeconomic differences in student mobility.

All analyses are weighted to adjust for oversampling, nonresponse, and survey attrition and adjusted to account for the complex survey design of the dataset, namely stratification and clustering.⁸ The Stata survey commands (*svy*) were used for this purpose. Missing values in the data were multiply imputed using a chained equation algorithm implemented in the Stata *ice* program (Royston, 2004). All analyses are computed on five complete datasets and estimated coefficients and standard errors are averaged following Rubin's rule.

⁸ Based on the sample restrictions discussed earlier, the F4F2P3WT weight (the participation weight for 12th-grade freshmen panel members with complete postsecondary transcript records) was employed. This weight works to preserve representativeness of the sample based on the level of certainty of postsecondary participation and the completeness of the transcript record; incomplete and single-case records that would distort or bias analyses are excluded.

Results

In this sample of traditional-aged students who began their postsecondary education by entering a 4-year college or university, 33% transferred at least once within eight years of high school graduation. Nearly one in five (19.5%) transferred laterally, and 15% transferred in reverse, at least once. Among that latter group, 41% later returned to a 4-year institution (cf. Table 1).

Table 1
Descriptive Statistics

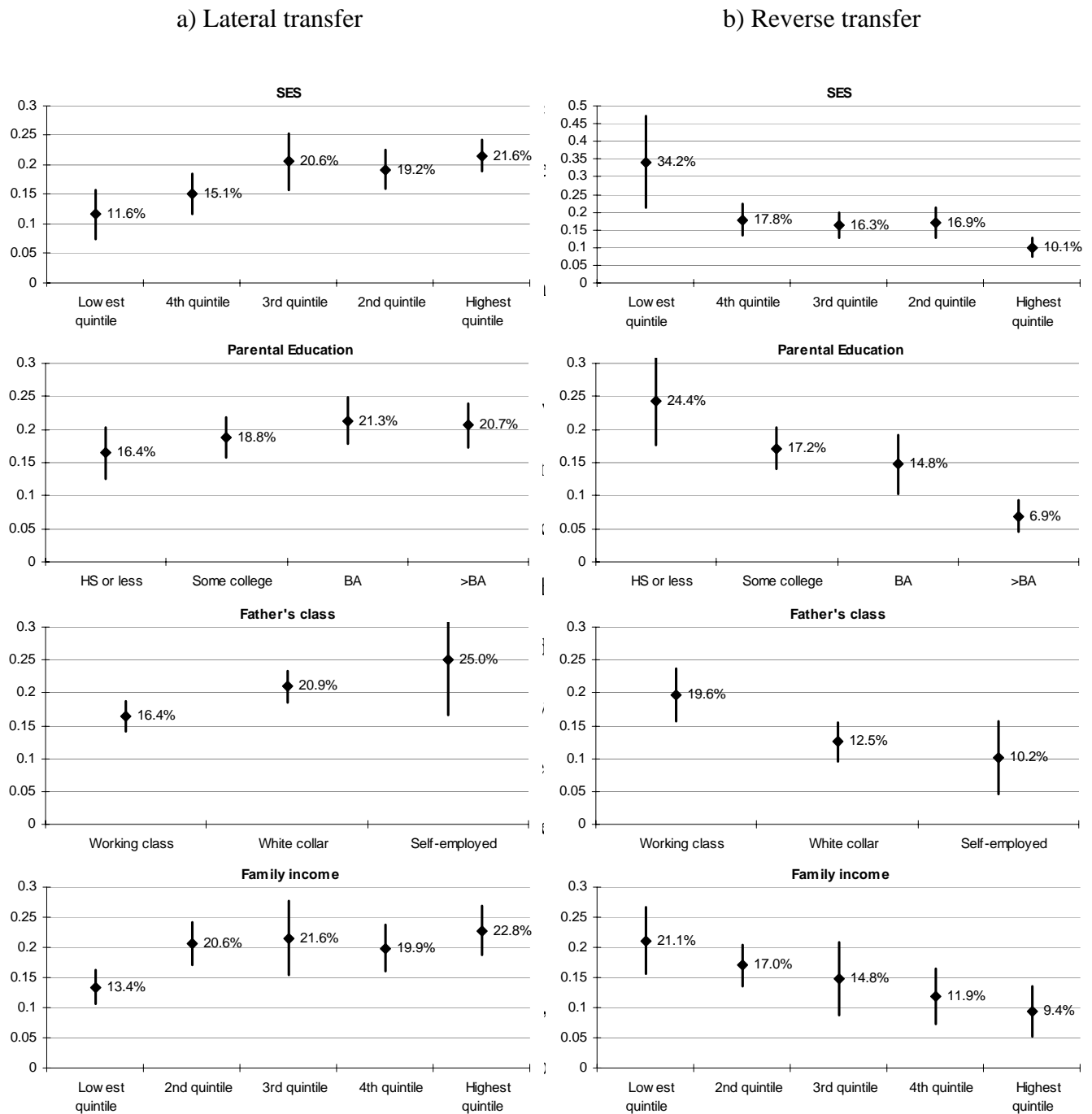
	All (N=4,716)		Reverse transfer (N=599)		Lateral transfer (N=956)	
	Mean	S.E.	Mean	S.E.	Mean	S.E.
Student mobility						
Any transfer	0.327	0.011	1.000	0.000	1.000	0.000
Lateral transfer	0.195	0.008	0.173	0.019	1.000	0.000
Reverse transfer	0.150	0.010	1.000	0.000	0.133	0.015
Upward transfer (cond. on rev. transfer)	0.061	0.006	0.406	0.034	0.133	0.015
Stop-out	0.139	0.009	0.480	0.036	0.224	0.018
Attainment						
BA completion	0.691	0.012	0.216	0.027	0.686	0.021
Social background						
Socioeconomic Index, lowest quintile	0.058	0.007	0.132	0.033	0.035	0.006
Socioeconomic Index, 2nd quintile	0.107	0.007	0.126	0.017	0.082	0.009
Socioeconomic Index, 3rd quintile	0.165	0.009	0.179	0.021	0.174	0.022
Socioeconomic Index, 4th quintile	0.252	0.011	0.283	0.033	0.248	0.020
Socioeconomic Index, highest quintile	0.418	0.015	0.280	0.032	0.461	0.024
Parental educ.: HS or less	0.147	0.009	0.238	0.034	0.124	0.016
Parental educ.: Some college	0.356	0.012	0.406	0.035	0.342	0.025
Parental educ.: BA	0.244	0.011	0.240	0.037	0.267	0.023
Parental educ.: >BA	0.253	0.012	0.116	0.021	0.267	0.021
Social class: Working	0.381	0.015	0.497	0.045	0.320	0.023
Social class: White collar	0.540	0.015	0.450	0.045	0.579	0.025
Social class: Self-employed	0.079	0.009	0.054	0.016	0.101	0.020
Family income (in \$1,000)	96.443	2.130	77.043	4.685	104.965	3.475
Demographics						
Female	0.539	0.012	0.518	0.037	0.527	0.023
Nonwhite	0.170	0.013	0.227	0.034	0.143	0.017
Single mother household	0.114	0.009	0.174	0.038	0.089	0.013
Number of siblings	1.994	0.037	2.101	0.100	2.012	0.080
High school achievement						
NELS Senior test	69.838	0.626	60.115	2.232	69.937	1.111
High school GPA	3.121	0.017	2.814	0.064	3.069	0.030
Acad. Curric. intensity, lowest quintile	0.039	0.006	0.068	0.023	0.031	0.008
Acad. Curric. intensity, 2nd quintile	0.114	0.009	0.209	0.035	0.101	0.014
Acad. Curric. intensity, 3rd quintile	0.152	0.010	0.187	0.036	0.173	0.019
Acad. Curric. intensity, 4th quintile	0.297	0.012	0.273	0.036	0.341	0.024
Acad. Curric. intensity, highest quintile	0.398	0.014	0.263	0.036	0.354	0.027
High school mobility	0.194	0.012	0.288	0.038	0.182	0.022
Strategic planning						
Participation in pre-college programs	0.040	0.006	0.048	0.016	0.034	0.009
Parental involvement in college decision	0.660	0.012	0.587	0.039	0.695	0.020
No. of colleges applied to, none	0.082	0.007	0.141	0.027	0.084	0.013
No. of colleges applied to, 1	0.273	0.011	0.304	0.033	0.214	0.017
No. of colleges applied to, 2-4	0.460	0.012	0.445	0.035	0.521	0.023
No. of colleges applied to, 5 or more	0.185	0.012	0.110	0.027	0.181	0.022
Educational expectations						
College expectation, father	0.772	0.011	0.718	0.036	0.812	0.022
College expectation, mother	0.839	0.010	0.825	0.030	0.867	0.019
College expectation, friends	0.487	0.012	0.395	0.034	0.499	0.024
Proximity to home preference, parents	0.238	0.010	0.348	0.034	0.214	0.022
Consistent BA aspirations	0.761	0.010	0.655	0.036	0.772	0.023
Financial constraints						
Parental ability to pay for college	0.063	0.006	0.079	0.024	0.054	0.010
Applied for financial aid	0.653	0.012	0.665	0.033	0.616	0.024
Delay between HS and college	0.052	0.006	0.111	0.028	0.032	0.006
Parenthood	0.005	0.001	0.007	0.003	0.004	0.003
First year college experience and characteristics						
GPA first year	2.418	0.021	1.848	0.042	2.409	0.039
Completed 30 credits in first year	0.575	0.012	0.320	0.033	0.545	0.024
First year institution selective	0.281	0.014	0.168	0.030	0.218	0.021
First year institution public	0.664	0.012	0.786	0.028	0.661	0.022
First year institution in state of HS	0.723	0.014	0.817	0.027	0.674	0.024
First year institution was first choice	0.612	0.011	0.547	0.036	0.576	0.022

Bachelor's degree completion rates were highest for the group of students who never changed colleges (79%). Among those who transferred, students who moved laterally were much more likely than those who moved in reverse to complete a bachelor's degree (69% as opposed to 22%). This is unsurprising, since most 2-year colleges do not offer bachelor's degrees and BA attainment thus only becomes feasible after an upward transfer back to a 4-year college. The degree completion rate among those who reverse transfer and subsequently move to a 4-year school, is 49%. It is important to note that the window of observation in this study for measuring degree completion is limited, and that changing colleges in some cases is associated with taking time off from college (Author, 2006). In particular, we find that while only 14% of the overall group of students took time off from school, the rate of stopout was nearly 3.5 times greater among reverse transfer students (48%) and to a lesser extent also higher among lateral movers (22%). This suggests that especially students moving to a community college have difficulty maintaining continuity in their enrollment, though it is also possible that the opposite is true – students who take time off from a 4-year college might be more likely to then leave to attend a community college. In either case, the low BA completion rates associated with a reverse transfer indicate that reverse transfer is the form of student mobility most deserving of attention.

The institutional destinations of students who changed colleges varied according to the individual's socioeconomic background. Beginning by using the composite measure of SES we find the choice of a 4-year school as destination (a lateral transfer) somewhat less common among students from the bottom two quintiles, while students in the bottom quintile are much more likely than their more advantaged counterparts to move to a 2-year school (see Figure 1). Specifically, a student from the bottom SES quintile is about half as likely as a student from the

top quintile to transfer laterally but three times more likely to transfer in reverse. The confidence intervals around the mean estimates reveal that these SES differences are significant.

Figure 1
Student Mobility by Social Background
 (Marks show mean percentages, lines show 95% confidence intervals)



We next estimate logistic regressions in order to assess the independent influences of specific aspects of family background, and also to test the theoretical explanations for these differentials offered earlier. In particular, we estimate a series of blocked regressions (first predicting reverse transfer and then predicting lateral transfer) which begin with the inclusion of only parental education, occupation and income (I). In an effort to explain these social background effects, the following models then take into account demographic characteristics (II), high school achievement (III), educational expectations (IV), strategic planning (V), financial constraints (VI), and finally initial college attributes as well as first-year academic performance (VII). The purpose of modeling the regressions in this manner is to examine the extent to which each set of factors mediate the observed socio-economic differences in mobility outcomes, and therefore we place less emphasis on the coefficient size for each indicator but on the degree of mediation of the included social background effects.

Table 2 presents the results for reverse transfer. The relationships indicated in the descriptive statistics are largely borne out in the first model: reverse transfer is significantly less common among students with highly educated parents, wealthier parents, and students from non-working class families (especially self-employed fathers). However, differences based on family income and occupational class position fade away when considering demographic characteristics and students' high school achievement (especially GPA), respectively (models II and III). While high school achievement also explains some of the relationship between parental education and reverse transfer, this social differential in reverse transfer persists.

Table 2
Logistic Regression Predicting Reverse Transfer

	I	II	III	IV	V	VI	VII
Social background							
Parental educ.: Some college	0.72	0.73	0.81	0.81	0.81	0.81	0.94
Parental educ.: BA	0.69	0.71	0.79	0.81	0.79	0.79	1.07
Parental educ.: >BA	0.32***	0.32***	0.38***	0.40**	0.40**	0.40**	0.58
Social class: White collar	0.90	0.88	0.93	0.94	0.94	0.94	0.96
Social class: Self-employed	0.54*	0.53*	0.56	0.57	0.57	0.59	0.59
Family income	0.80*	0.85	0.88	0.90	0.91	0.93	1.01
Demographics							
Female		0.82	0.94	0.96	0.97	0.97	1.14
Nonwhite		1.06	0.82	0.86	0.85	0.86	0.82
Single mother household		1.28	1.20	1.20	1.28	1.28	1.24
Number of siblings		1.03	1.00	1.00	0.99	0.99	0.98
High school achievement							
NELS Senior test			0.99	0.99	1.00	1.00	1.00
High school GPA			0.63**	0.63*	0.63**	0.63*	0.97
Acad. Curric. intensity, 2nd quintile			1.31	1.31	1.26	1.26	1.15
Acad. Curric. intensity, 3rd quintile			0.84	0.87	0.83	0.85	0.69
Acad. Curric. intensity, 4th quintile			0.85	0.89	0.87	0.89	0.78
Acad. Curric. intensity, highest quintile			0.72	0.77	0.77	0.78	0.75
High school mobility			1.60**	1.61**	1.60**	1.58**	1.46
Strategic planning							
Participation in pre-college programs				0.85	0.88	0.87	1.11
Parental involvement in college decision				0.88	0.86	0.87	0.90
No. of colleges applied to, 1				0.88	0.91	0.95	1.10
No. of colleges applied to, 2-4				0.84	0.87	0.89	1.05
No. of colleges applied to, 5 or more				0.66	0.70	0.71	0.91
Educational expectations							
College expectation, father					1.07	1.08	1.02
College expectation, mother					1.32	1.31	1.23
College expectation, friends					0.68**	0.68**	0.69**
Proximity to home preference, parents					1.19	1.20	1.17
Consistent BA aspirations					0.97	0.97	0.87
Financial constraints							
Parental ability to pay for college						0.96	0.93
Applied for financial aid						1.07	1.17
Delay between HS and college						1.24	1.48
Parenthood						0.85	0.79
First year college experience and characteristics							
GPA first year							0.39***
Completed 30 credits in first year							0.58**
First year institution selective							0.82
First year institution public							1.38
First year institution in state of HS							1.20
First year institution was first choice							0.96
<i>Constant</i>	<i>0.76</i>	<i>0.60</i>	<i>2.86</i>	<i>3.12</i>	<i>2.50</i>	<i>2.02</i>	<i>1.85</i>
Fit statistics							
Loglikelihood	-1915.8	-1904.3	-1826.3	-1820.2	-1805.4	-1803.0	-1635.8
BIC	-112	-101	-198	-168	-155	-126	-410

Note: * $p < .1$; ** $p < .05$; *** $p < .01$; fit statistics based on one complete and weighted dataset (fitstat command)

Models IV - VI test the remaining mechanisms hypothesized to underlie associations between social background and student mobility (educational expectations, strategic planning,

and financial constraints). Of these, only one exerts notable effects: having more ambitious friends with greater expectations for earning a college degree decreases the probability of a reverse transfer. However, this association fails to account for any of the lower reverse transfer rates of children from highly educated household. As the next model (VII) which additionally considers first-year college performance illustrates, both first year college GPA and adequate progress in terms of credit accumulation show strong negative associations with the probability of reverse transfer. Of these two factors, it is college GPA which mediates a large part of the parental education effect.⁹ That final model, which also yields a significant improvement in model fit, thus suggests that the students most likely to leave 4-year colleges to attend community colleges are the children of parents with lower levels of education, and that they reverse transfer primarily because of struggles during their initial transition to college (and not because they were less prepared-- academically or financially-- for college).

In Table 3 we turn to the multivariate results for the analysis of lateral transfer. In contrast to reverse transfer, rates of lateral transfer do not significantly differ by parental education, but rather by parental occupational class and family income (model I), again confirming the descriptive results. Those relationships are notably weaker than the relationship between reverse transfer and parental education, but they do persist across all seven models, and do not appear to be attributable to advantages in academic or social preparation for college, nor college performance. Although some of these factors exert independent influences on the probability of lateral transfer (for example, students who do not delay college entry, those who

⁹ This result is based on models in which each variable is entered separately (available from the authors). Also note that in the specification reported here, the parental education effect loses its statistical significance. Stability tests of all regression models (also available from the authors) include an indicator of whether a student ever took time off from college. Due to the issue of reverse causality for this factor (described above), we are cautious about giving this effect much substantive interpretation. However, it has to be noted, that with stop-out included, the statistical significance of the parental education effect is retained – although the virtually same drop in the size of the coefficient occurs. The latter result is the more important point for our conclusions.

attend more selective colleges, and those who go to college out-of-state are all more likely to transfer laterally) the social differentials in lateral transfer remain largely unexplained by the mechanisms we explore. The interpretation that lateral transfers are the result of student preferences (which are at least partly determined by occupational class) appears plausible, although the reasons for this remain hidden. They might relate to behavioral differences, for instance, the children of self-employed parents--parents who are potentially less risk-averse and more market-oriented-- might display similar proclivities by "shopping around" the marketplace of higher education for alternative 4-year colleges (Author, 2006). However, it should also be kept in mind that the realization of these preferences is still partly determined by family income, and moreover that the overall model does a relatively poor job of predicting the preference for lateral transfer. In general, then, the results for lateral transfer leave much space for explanations of its determinants and its relationship to socioeconomic background.

Table 3
Logistic Regression Predicting Lateral Transfer

	I	II	III	IV	V	VI	VII
Social background							
Parental educ.: Some college	1.03	1.04	1.05	1.04	1.03	1.03	0.99
Parental educ.: BA	1.03	1.03	1.06	1.04	1.02	1.02	0.99
Parental educ.: >BA	0.90	0.90	0.95	0.93	0.91	0.90	0.92
Social class: White collar	1.21	1.22	1.25	1.25	1.24	1.23	1.23
Social class: Self-employed	1.57*	1.55*	1.56*	1.54*	1.53*	1.51	1.55*
Family income	1.29***	1.26**	1.25**	1.25*	1.23*	1.21*	1.23*
Demographics							
Female		0.98	1.02	1.02	1.03	1.02	1.03
Nonwhite		0.94	0.91	0.90	0.89	0.88	0.89
Single mother household		0.91	0.91	0.92	0.92	0.92	0.93
Number of siblings		1.03	1.03	1.03	1.03	1.03	1.04
High school achievement							
NELS Senior test			1.00	1.00	1.00	1.00	1
High school GPA			0.79**	0.80**	0.80**	0.79**	0.85
Acad. Curric. intensity, 2nd quintile			1.20	1.21	1.19	1.16	1.12
Acad. Curric. intensity, 3rd quintile			1.54	1.53	1.48	1.40	1.32
Acad. Curric. intensity, 4th quintile			1.58	1.53	1.47	1.38	1.34
Acad. Curric. intensity, highest quintile			1.15	1.11	1.06	1.00	1.01
High school mobility			0.86	0.87	0.87	0.90	0.89
Strategic planning							
Participation in pre-college programs				0.98	0.98	1.00	1.07
Parental involvement in college decision				1.16	1.15	1.13	1.14
No. of colleges applied to, 1				0.71*	0.70*	0.64**	0.74
No. of colleges applied to, 2-4				1.10	1.07	0.98	1.11
No. of colleges applied to, 5 or more				0.91	0.88	0.82	0.93
Educational expectations							
College expectation, father					1.06	1.05	1.09
College expectation, mother					1.17	1.18	1.15
College expectation, friends					1.01	1.02	1.02
Proximity to home preference, parents					0.94	0.95	0.95
Consistent BA aspirations					1.02	1.00	1.00
Financial constraints							
Parental ability to pay for college						0.94	0.95
Applied for financial aid						0.97	0.98
Delay between HS and college						0.56**	0.52**
Parenthood						0.89	0.86
First year college experience and characteristics							
GPA first year							1.03
Completed 30 credits in first year							0.84
First year institution selective							0.59***
First year institution public							1.15
First year institution in state of HS							0.70**
First year institution was first choice							0.87
<i>Constant</i>	0.07***	0.07***	0.10***	0.10***	0.10***	0.14***	0.11***
Fit statistics							
Loglikelihood	-2308.2	-2306.2	-2293.2	-2281.5	-2278.5	-2274.8	-2249.2
BIC	8	38	71	90	126	152	152

Note: * $p < .1$; ** $p < .05$; *** $p < .01$; fit statistics based on one complete and weighted dataset (fitstat command)

Discussion and Conclusion

This analysis was designed to expand upon prior research on socioeconomic differences in college student mobility, and in particular to identify more precisely which aspects of family background matter most for transfer, and why. By examining parental education, family income, and social class influences separately we developed a more nuanced view of student mobility in this paper. We also tested several potential explanations for differences in the type of transfer four-year college students engage in, including variation in high school academic preparation, strategic planning, educational expectations, financial constraints, and college performance.

Our results indicate that students who transfer 4-year colleges should not be treated as a homogenous faction. The inclination to group them with a label such as “swirling students” should be avoided, since such a term conceals important differences not only in regard to their motivations for changing colleges, but also in terms of differential processes of stratification.¹⁰ Lateral transfer students appear to be a relatively elite set, as their levels of household income and parental occupational status are higher than average. Their motivations for changing colleges may be based on expressions of personal preference, possibly striving to move to a “better” school, but are clearly not connected to inadequate academic preparation in high school or poor performance in college. Furthermore, other research indicates no differences in rates of degree completion among students who begin at a 4-year college and stay there and those who move to another 4-year school, net of other factors (Author, 2007). If lateral transfer is thus the less pressing issue from an educational policy perspective, the failure of our models to fully explain its determinants also appears less problematic.

¹⁰ For examples of uses of the term “swirling” as well as other labels, see Adelman (2004); de los Santos & Wright (1990); and McCormick (2003).

On the other hand, reverse transfer is more common among students whose parents did not receive *more* than a bachelor's degree. While much of the emphasis in higher education is on the differences between students with and without college-educated parents, among the students at 4-year colleges the most important distinction is between students with "BA-plus" parents and those without.¹¹ Students whose parents went on to graduate school are less likely to leave their first college to attend a community college. Our hypotheses for this relationship, derived from stratification theory, were largely unsuccessful-- the levels of academic preparation, informational and financial resources, and educational expectations found among the children of less-educated parents do not explain their tendency to reverse transfer. Instead, the analyses clearly showed that students who are *equally well-prepared* for college but come from less-educated families show a higher propensity for leaving the 4-year college track because they struggle academically in their first year of college. This finding is consistent with other research which identifies significant challenges for first-generation students in particular during their first year of college (Tinto, 2004). It may be explained by the failure of our measures of academic preparation to adequately capture the factors really required for college success-- though we would note that our measures include all of those used by college admissions officers to predict ability to succeed in college (test scores, high school coursework, and grade point average). But it is especially interesting in light of other recent research which has identified greater cognitive *gains* during college among "BA-plus" students (Arum et al., 2008). There appear to be important advantages accruing to the children of parents who

¹¹ To be clear, this finding could well be a reflection of the fact that we analyzed a selective population of children – 4-year college starters – among which social-background distinctions lie on a generally higher level than in the general population.

succeeded in graduate school, including a greater propensity to resolve academic difficulties by staying in the 4-year sector, rather than moving to a community college.

This evidence of differentiation in the actions of students when leaving their first college calls for more attention to what happens *after* students initially access college.¹² It does not appear to be the case that mobility *per se* is cause for concern, or ought to be prevented. Indeed, students from advantaged backgrounds appear to transfer colleges independent of financial or academic struggles at their first college in a way that does not reduce their chances for degree completion (since when they move they go to another 4-year school). On the other hand, mobility among the children of less-educated parents more often leads them back to a community college, and this appears to be partly a response to academic difficulties. Therefore, attention needs to be paid to helping students whose parents did not go to graduate school (a sizeable population) to succeed while in college, potentially by introducing a high-quality mandatory advising program that can help students resolve their academic challenges while remaining in the 4-year college sector.

Finally, it is noteworthy that this study identifies rates of reverse transfer among 4-year college students which appear to exceed estimates of traditional transfer among community college entrants. For example, more than one third of socioeconomically disadvantaged students beginning at 4-year colleges reverse transfer to a community college, whereas only approximately 10% of low SES students starting at community colleges ever move to a 4-year school (Dougherty & Kienzl, 2006). To be sure, even the poorest students at 4-year colleges are likely at least somewhat better-off than their community-college peers, which may explain some of those differences. Yet our analysis clearly indicates that entry to a 4-year college is far from a

¹² We are not the first to call for more attention to issues of college student success; see for example Rosenbaum et al. (2006).

Working Paper Series

WP008: *The Context of "Choice" in College Pathways*

Download at: <http://www.wiscapc.wisc.edu/publications/WP008>

guarantee that socioeconomically disadvantaged students will remain at, and complete, their education at that type of school.

References

- Adelman, C. (1999). *Answers in the tool box: Academic intensity, attendance patterns, and bachelor's degree attainment*. Washington, DC: U.S. Department of Education.
- Adelman, C. (2004). "The Story-Lines of Multi-Institutional Attendance." Paper presented at the Annual Forum of the Association for Institutional Research, Boston, MA.
- Adelman, C. (2006). *The toolbox revisited: Paths to degree completion from high school through college*. Washington, DC: U.S. Department of Education.
- Adelman, Clifford, Daniel, B. & Berkovits, I. (2003). *Postsecondary Attainment, Attendance, Curriculum, and Performance: Selected Results From the NELS:88/2000 Postsecondary Education Transcript Study. (NCES 2003-394)*. Washington DC.: U.S. Department of Education, National Center for Education Statistics.
- Alexander, K, Bozick, R. & Entwisle, D. (2007). Warming Up, Cooling Out, or Holding Steady? Persistence and Change in Educational Expectations after High School. Unpublished manuscript. Baltimore, MD: Johns Hopkins University.
- Alon, S. (2001). "Racial, Ethnic, and Socioeconomic Disparities in College Destinations, 1982 and 1992." Working Paper. Princeton University.
- Arum, R., Roska, J., Velez, M., & Pereira, K. (2008). Factors Affecting Cognitive Development of Disadvantaged Students in Higher Education. Department of Applied Psychology, New York University. April.
- Avery, C. & Kane, T. (2004). Student Perceptions of College Opportunities: The Boston COACH Program. In C. Hoxby (Ed) *College Choices: Economics of Where to Go, When to Go, and How to Pay for It*. University of Chicago Press.
- Bach, S. K., Banks, M. T., Kinnick, M. K., Ricks, M. F., Stoering, J. M., & Walleri, R. D. (2000). Student attendance patterns and performance in an urban postsecondary environment. *Research in Higher Education, 41*, 315-330.
- Beattie, I. (2002). Are All 'Adolescent Econometricians' Created Equal? Racial, Class and Gender Differences in College Enrollment. *Sociology of Education, 75*(1): 19-43.
- Belley, P., & Lochner, L. (2007). The changing role of family income and ability in determining educational achievement. *Journal of Human Capital, 1*(1), 37-89.
- Berea College. (2007). *Fact book*. Retrieved April 22, 2008, from www.berea.edu/ira/documents/factbook0708a.pdf

- Bettinger, E. (2004). How financial aid affects persistence. In C. Hoxby (Ed.), *College choices: The economics of where to go, when to go, and how to pay for it*. Chicago: University of Chicago Press.
- Bowen, W. G., Kurzweil, M., & Tobin, E. (2005). *Equity and Excellence in American Higher Education*. Charlottesville: University of Virginia Press.
- Bozick, R. & DeLuca, S. (2005). Better Late Than Never? Delayed Enrollment in the High School to College Transition. *Social Forces*, 84(1): 527-550.
- Breen, R. (2005). Foundations of a neo-Weberian class analysis. pp. 31-50 in *Approaches to Class Analysis*, edited by Erik Olin Wright. Cambridge: Cambridge University Press.
- Breen, R., & Goldthorpe, J. (1997). Explaining Educational Differentials. Towards a Formal Rational Action Theory. *Rationality and Society*, 9:275-305.
- Brint, S. & Karabel, J. (1989). *The diverted dream: Community colleges and the promise of educational opportunity in America, 1900–1985*. New York: Oxford University Press.
- Cabrera, A. F., Burkum, K. R., & La Nasa, S. M. (2005). Pathways to a four-year degree: Determinants of transfer and degree completion. In A. Seidman (Ed.), *College student retention: A formula for success* (pp. 155-214). Westport, CT: ACE/Praeger Series on Higher Education.
- Clotfelter, C. T., Ladd, H. F., & Vigdor, J. (2005). Who teaches whom? Race and the distribution of novice teachers. *Economics of Education Review*, 25, 377-392.
- DesJardins, S. L., Ahlburg, D. A., & McCall, B. P. (2006). An integrated model of application, admission, enrollment, and financial aid. *Journal of Higher Education*, 77(3), 381–429.
- Dougherty, K. J. (1987). The effects of community colleges: Aid or hindrance to socioeconomic attainment? *Sociology of Education*. 60 (May): 86-103.
- Dougherty, K. (1994). *The contradictory college: The conflicting origins, outcomes, and futures of the community college*. Albany: State University of New York Press.
- Dougherty, K. & Kienzl, G. (2006). It's not enough to get through the open door: Inequalities by social background in transfer from community colleges to four-year colleges. *Teachers College Record*. 108(3): 452-487.
- Dynarski, S. (2002). The behavioral and distributional implications of subsidies for college. *American Economic Review*, 92.2: 279-285.
- Dynarski, S., & Scott-Clayton, J. (2006). The cost of complexity in federal student aid: Lessons from optimal tax theory and behavioral economics. *National Tax Journal*, 59(2), 319–356.

- Ellwood, D. & Kane, T. (2000). "Who is Getting a College Education? Family Background and the Growing Gaps in Enrollment" in Sheldon Danziger and Jane Waldfogel (eds.) *Securing the Future*. New York: Russell Sage.
- Erikson, R., Goldthorpe, J., & Portocarero, L. (1979). Intergenerational Class Mobility in Three Western European Societies. *British Journal of Sociology*, 30:415-441.
- Grodsky, E.S. & Jones, M.T. Forthcoming. "Real and imagined barriers to college entry: Perceptions of cost." *Social Science Research*. In Press, Corrected Proof obtained online on July 7, via <http://www.sciencedirect.com/science/journal/0049089X>
- Grusky, David B., & Weeden, K. (2006). Does the Sociological Approach to Studying Social Mobility Have a Future? Pp. 85-108 in *Mobility and Inequality: Frontiers of Research from Sociology and Economics*, edited by Stephen Morgan, Gary Fields, and David B. Grusky. Forthcoming. Stanford: Stanford University Press.
- Guldi, M., Page, M., & Stevens, A. (2007) Family Background and Children's Transitions to Adulthood: Across Cohort Differences 1970s through the 1990s. In *The Price of Independence: The Economics of Early Adulthood*, edited by Sheldon Danziger and Cecilia Rouse. New York: Russell Sage Foundation.
- Hansen, W. L. (1983). Impact of student aid on access. In J. Froomkin (Ed.), *The crisis in higher education*. New York: Academy of Political Science.
- Haveman, R., & Wilson, K. (2007). Access, matriculation, and graduation. In S. D. Conlin & R. Rubenstein (Eds.), *Economic inequality and higher education: Access, persistence, and success*. New York: Russell Sage Foundation.
- Hauser, R. M. and J.R. Warren. (1997). Socioeconomic Indexes of Occupational Status: A Review, Update, and Critique. p. 177-298 in A. Raftery (Ed), *Sociological Methodology*. Cambridge: Blackwell.
- Hearn, J.C. (1984). The relative roles of academic, ascribed, and socioeconomic characteristics in college destinations. *Sociology of Education*, 57 (1), 22-30.
- Hearn, J. (1991). Academic and Nonacademic Influences on the College Destinations of 1980 High School Graduates. *Sociology of Education*, 64, 158-171.
- Ingels, S. J., Curtin, T.R., Kaufman, P., Alt, M.N., and Chen, X. (2002). *Coming of Age in the 1990s: The Eighth-Grade Class of 1988 12 Years Later*. Washington DC: NCES.
- Ishitani, T. T. (2006). Studying attrition and degree completion behavior among first-generation college students in the United States. *Journal of Higher Education*, 77(5), 861-885.

- Jencks, C. (1972). *Inequality: A Reassessment of the Effect of Family and Schooling in America*. Basic Books: NY.
- Kane, T. (1994). College attendance by Blacks since 1970: The role of college cost, family background and the returns to education. *Journal of Political Economy*, 102(5), 878–911.
- Karen, D. (2002). Changes in Access to Higher Education, 1980-2002. *Sociology of Education*.
- Kim, D. & Schneider, B. (2005). Social Capital in Action: Alignment of Parental Support in Adolescents' Transition to Postsecondary Education. *Social Forces*. 84(2)
- Lareau, A., & Weininger, E. (2008). Class, culture, and child-rearing: The transition to college. In A. Lareau & D. Conley (Eds.), *Social class: How does it work?* New York: Russell Sage.
- Lee, V. E., & Frank, K. E. (1990). Students' characteristics that facilitate transfer from two-year to four-year colleges. *Sociology of Education*, 63(3), 178-193.
- Leslie, L. L., & Brinkman, P. T. (1988). *The economic value of higher education*. Old Tappan, NJ: Macmillan.
- Lochner, L., & Monge-Naranjo, A. (2008). *The nature of credit constraints and human capital* (NBER Working Paper 13912). Cambridge, MA: National Bureau of Economic Research.
- Manski, C. F., & Wise, D. A. (1983). *College choice in America*. Cambridge, MA: Harvard University Press.
- McCormick, A. C. (2003). Swirling and Double-Dipping: New Patterns of Student Attendance and Their Implications for Higher Education. In J. King (Ed.), *New Directions for Higher Education*. Vol. 121, pp. 13-24.
- McCormick, A. C., & Carroll, C. D. (1997). Transfer behavior among beginning postsecondary students: 1989-1994 (NCES Report No. NCES97-266). Washington, DC: U.S. Department of Education, National Center for Education Statistics.
- McDonough, P. M. (1997). *Choosing colleges: how social class and schools structure opportunity*. Albany: State University of New York Press.
- McDonough, P. & Calderone, S. (2006). The Meaning of Money: Perceptual Differences Between College Counselors and Low-Income Families About College Costs and Financial Aid. *American Behavioral Scientist*. 49.
- McPherson, M., & Shapiro, M. (1991). *Keeping College Affordable: Government and Educational Opportunity*. Washington, D.C.: Brookings Institution Press.
- Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students: Vol. 2. A third decade of research*. San Francisco: Jossey-Bass.

- Paulsen, M. B., & St. John, E. P. (1997). The financial nexus between college choice and persistence. In R. A. Voorhees (Ed.), *Researching student aid: Creating an action agenda* (pp. 65–82). San Francisco: Jossey-Bass.
- Reynolds, J., Stewart, M. MacDonald, R., & Sisco, L. (2006). Have Adolescents Become Too Ambitious? High School Seniors' Educational and Occupational Plans, 1976 to 2000. *Social Problems* 53: 186-206.
- Rosenbaum, James E., Regina Deil-Amen, and Ann E. Person. (2006). *After Admission: From College Access to College Success*. Russell Sage Foundation.
- Rouse, C.E. (2004). Low-Income Students and College Attendance: An Exploration of Income Expectations. *Social Science Quarterly*. 85(5)
- Royston P. (2004). "Multiple imputation of missing values." *Stata Journal* 4(3): 227-241.
- Rumberger, R. W., & Larson, K. A. (1998). Student mobility and the increased risk of high school dropout. *American Journal of Education*, 107(1), 1-35.
- Sewell, W., Haller, H.O, & Portes, A. (1969). The educational attainment and early occupational attainment process. *American Sociological Review*, 18:39-61.
- Steelman, L.& Powell, B. (1989). Acquiring Capital for College: The Constraints of Family Configuration. *American Sociological Review*. 54: 844-55.
- Stinebrickner, T., & Stinebrickner, R. (2003). Understanding educational outcomes of students from low-income families: Evidence from a liberal arts college with a full tuition subsidy program. *Journal of Human Resources*, 38(3), 591–617.
- Stinebrickner, T., & Stinebrickner, R. (2007). The Effect of Credit Constraints on the College Drop-Out Decision: A Direct Approach Using a New Panel Study" NBER WP No. 13340.
- Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition* (2nd ed.). Chicago: University of Chicago Press. (Originally published 1987.)
- Tinto, V. (2004). *Student Retention and Graduation*. Washington DC: Pell Institute.
- Townsend, B. K., & Dever, J. T. (1999). What do we know about reverse transfer students? In B. Townsend (Ed.), *Understanding the impact of reverse transfer students on community colleges* (pp. 5-14). *New Directions for Community Colleges*, no. 106. San Francisco: Jossey-Bass.
- Turley, R. (2006). When Parents Want Children to Stay Home for College. *Research in Higher Education*. 47(7).

Winter, P. A., & Harris, M. R. (2000). Community college reverse transfer students: A field survey of a nontraditional student group. *Community College Review*, 27(1), 13-28.

Wright, E. (Ed.). (2005). *Approaches to Class Analysis*. Cambridge: Cambridge University Press.

Velez, W. & Javalgi, R. (1987). Two-Year College to Four-Year College: The Likelihood of Transfer. *American Journal of Education*. Nov: 81-94.

Venezia, A. & Kirst, A. (2005). Inequitable Opportunities: How Current Education Systems and Policies Undermine the Chances for Student Persistence and Success in College. *Educational Policy*.

Zhang, L. (2005). *Does Quality Pay? Benefits of Attending a High-Cost, Prestigious College*. New York: Routledge.

Appendix A1: Description of Variables

	Description
Student mobility	
Any transfer	Dichotomous indicator of whether student ever changed (primary) institution in any academic year
Lateral transfer	Dichotomous indicator of whether student ever changed primary institution from a 4-yr college to another 4-year college in any academic year
Reverse transfer	Dichotomous indicator of whether student ever changed from a 4-yr college to a community college in any academic year without maintaining enrollment at the 4-year college
Upward transfer	Dichotomous indicator of whether student ever changed from a community college to a 4-yr college in any academic year
Stop-out	Dichotomous indicator of whether enrollment was ever interrupted for the length of least one academic year
Attainment	
BA completion	Dichotomous indicator of whether a student received a bachelor's degree by 2000 (age 26-27), as evidenced by transcript information
Social background	
Socioeconomic Index	Composite measure of socioeconomic status, derived from parental education, income, and occupation as of 1992; in quintiles (based on the initial distribution among all respondents, reference: lowest quintile)
Parental education	Categorical measure of highest educational degree attained by parents; "high school or less" (reference), "some college", "bachelor's degree", "higher than bachelor's degree"
Social class	Categorical measure of father's occupational status: "working class" (reference), "white collar", "self-employed"
Family income	Continuous measure of family income; information from 1988 and 1992 averaged based on the midpoints of the reported categories (standardized to 2006 dollars); in thousands; logarithmic transformation for regression models
Demographics	
Female	Dichotomous indicator of gender, reference: male
Nonwhite	Dichotomous indicator of race; reference: white or Asian
Single mother household	Dichotomous indicator of whether student resided in a family headed by a single mother in 8th grade
Number of siblings	Continuous measure of number of siblings when in 8th grade
High school achievement	
NELS Senior test	Continuous measure of percentile score on test of general abilities administered to all survey participants in 12th grade
High school GPA	Categorical measure of the student's high school grade point average; in quintiles (quintile values are 2.70, 3.07, 3.37, and 3.69; reference: lowest quintile)
Academic Curriculum intensity	Categorical measure of the rigor of a student's high school curriculum based on a score determined by both the quality of courses taken and the number of "hard" courses taken in multiple subjects (math, Advanced Placement courses, English, foreign language, science, social sciences, and computer sciences). For more on the construction of this variable, see Adelman (1999); reference: lowest quintile
High school mobility	Dichotomous indicator of whether student changed schools between 8th and 12th grade; reference: never changed high schools
Strategic planning	
Participation in pre-college programs	Dichotomous indicator of whether student has ever participated in a pre-college program such as Talent Search or Upward Bound
Parental involvement in college decision	Dichotomous indicator of whether the decision to go to college has mainly been made by or in cooperation with the parents
No. of colleges applied to	Categorical measure of the number of colleges a student applied to in 12th grade; "none" (reference), "one", "2-4", "5 or more"
Educational expectations	
College expectation, father	Dichotomous indicator of whether student's father (reportedly) thought that after high school the most important thing for the student to do was attend college, when asked in 1990 (sophomore year)
College expectation, mother	Dichotomous indicator of whether student's mother (reportedly) thought that after high school the most important thing for the student to do was attend college, when asked in 1990 (sophomore year)
College expectation, friends	Dichotomous indicator of whether student's friends (reportedly) thought that after high school the most important thing for the student to do was attend college, when asked in 1990 (sophomore year)
Proximity to home preference, parents	Dichotomous indicator of whether the college choice was influenced by parents' preference for the student to live at home
Consistent BA aspirations	Dichotomous indicator of whether student expected to complete a bachelor's degree in 1990 and 1992 (before high school graduation)
Financial constraints	
Parental ability to pay for college	Dichotomous indicator of whether parents report that they do not see any way to pay for college for their student in 8th grade
Applied for financial aid	Dichotomous indicator of whether parents report that their child has applied for financial aid
Delay between HS and college	Dichotomous indicator of whether student delayed college entry for at least eight months after high school graduation
Parenthood	Dichotomous indicator of whether student had a child by 1992
First year college experience and characteristics	
GPA first year	Continuous measure of student's grade point average in first year of study
Completed 30 credits in first year	Categorical indicator of whether student completed at least 30 credits in first year of study
First year institution selective	Categorical indicator of whether first college attended is selective or highly selective
First year institution public	Dichotomous indicator of whether the first college attended is public
First year institution in state of HS	Dichotomous indicator of whether the first college attended is located in same state as high school
First year institution was first choice	Dichotomous indicator of whether the first college attended was students first choice

WISCAPE

Wisconsin Center for the Advancement
of Postsecondary Education

University of Wisconsin–Madison
409 Education Building
1000 Bascom Mall
Madison , WI 53706-1398
Phone: (608) 265-6342
E-mail: wiscap-info@education.wisc.edu



THE UNIVERSITY
of
WISCONSIN
MADISON