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First-Generation Students in Postsecondary Education

A Look at Their College Transcripts

Postsecondary Education Descriptive Analysis Report

Executive Summary

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Executive Summary

Recent research has generated a large body of knowledge about students who are the first members of their families to attend college (referred to as “first-generation students” in this report).¹ The results show that such students are at a distinct disadvantage in gaining access to postsecondary education. Even those who overcome the barriers and do enroll have difficulty remaining enrolled and attaining a degree (Horn and Nuñez 2000; Nuñez and Cuccaro-Alamin 1998; Warburton, Bugarin, and Nuñez 2001).

What has not been well studied, however, are the coursetaking experiences of first-generation students after entering college. What do first-generation students study in college? How well do they do in their coursework? Is their coursework different from that of their peers whose parents went to college? This report explores these questions by using data from the Postsecondary Education Transcript Study (PETS) of the National Education Longitudinal Study of 1988 (NELS:88) to examine the majors and coursetaking patterns of first-generation students and to compare their postsecondary experiences and outcomes with those of students whose parents went to college.² This analysis focuses on a subset of the NELS 1992 12th-graders who had

enrolled in postsecondary education between 1992 and 2000 and who also have complete postsecondary transcripts available; in addition, the analysis also required that parents’ education levels be reported. The findings of this study contribute to earlier research by distinguishing between first-generation students and their counterparts with respect to major fields of study chosen, the types of courses taken, amount of coursework completed, academic performance, and postsecondary outcomes. The major findings are summarized below.³

First-Generation Students in Postsecondary Education: A Brief Portrait

About 28 percent of the NELS 1992 12th-graders were first-generation students (figure A). However, they represented 22 percent of those who entered postsecondary education between 1992 and 2000, indicating that first-generation students were less likely than other students to attend college within 8 years after high school.⁴ Roughly 4 in 10 (43 percent) first-generation students who entered postsecondary education during this period left without a degree by 2000, while 24 percent had graduated with a bachelor’s

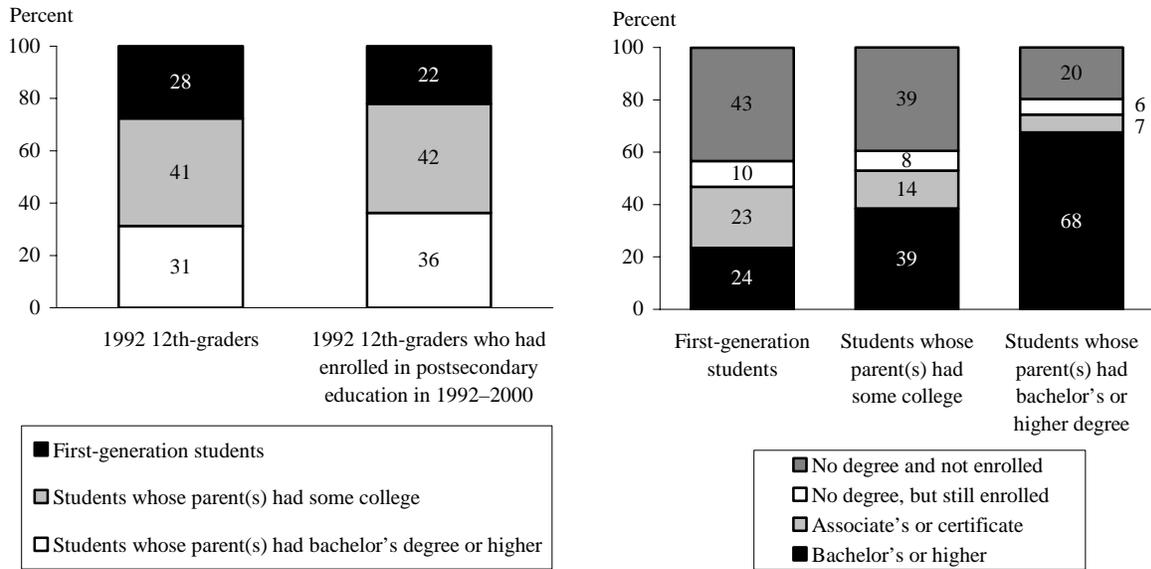
¹ See, for example, Choy (2001).

² Two comparison groups were included in this report: those who had at least one parent with some college education, but neither parent attained a bachelor’s degree; and those who had at least one parent who earned a bachelor’s or advanced degree. The latter group was also frequently referred to as “students whose parents were college graduates” in this report.

³ For each indicator examined in this report, a parallel analysis was conducted for a restricted sample of students who attended a 4-year institution at any time in 1992–2000 and expected to attain a bachelor’s degree. Most findings reported here also held for this subgroup.

⁴ All comparisons made in the report were tested using Student’s *t* statistic. All differences cited were statistically significant at the .05 level.

Figure A. Percentage distribution of generation status in 1992 12th-graders; and of those who had enrolled in postsecondary education between 1992 and 2000, generation status by percentage distribution of postsecondary attainment and enrollment in 2000



NOTE: Except for the first two bar charts, all figures included only students for whom complete postsecondary transcripts were available and for whom parents' education was known. Standard error tables are available at <http://nces.ed.gov/das/library/reports.asp>.
 SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88/2000), "Fourth Follow-up, Postsecondary Education Transcript Study (PETS), 2000."

degree (figure A). The opposite pattern was observed for students whose parents were college graduates: a large majority (68 percent) had completed a bachelor's degree, while 20 percent left without a degree.

As in earlier studies (Ishitani 2003), this report found that first-generation students had some family and background characteristics that are associated with attrition. Compared with their peers whose parents were college graduates, first-generation students were more likely to be Black or Hispanic and to come from low-income families (table 1). They were less prepared academically for college as demonstrated by their lower rates of taking higher-level mathematics courses in high school, their lower senior

achievement test scores, and their lower college entrance examination scores. They were also more likely to delay postsecondary entry, begin at a 2-year institution, and attend part time and discontinuously (table 2). These characteristics, as shown in earlier research, put them at potential risk for not persisting in their postsecondary studies and completing a degree (Nuñez and Cuccaro-Alamin 1998).

Remedial Coursetaking

Reflecting their weaker high school academic preparation, many first-generation students needed remedial assistance after they enrolled in college. A majority of first-generation students (55 percent) took some remedial courses during their

college years, compared with 27 percent of students whose parents held a bachelor's or advanced degree (table 3). In particular, 40 percent of first-generation students took remedial mathematics courses, and 13 percent took remedial reading courses, compared with 16 and 6 percent, respectively, of students whose parents had a bachelor's degree or higher. The higher need for remedial education among first-generation students was apparent in many major fields of study.

Undergraduate Major

Choosing an undergraduate major appeared to pose a greater challenge for first-generation students than for other students. One-in-three first-generation students (33 percent) had not identified a major after entering postsecondary education, compared with 13 percent of students whose parents had a bachelor's or advanced degree (figure B).

Among those with a major, business and social sciences were the two most popular undergraduate fields for all three groups of students: between 7 and 14 percent of students majored in these two fields. Despite this similar pattern, the differences in the choice of majors were evident among the three comparison groups. For example, first-generation students were more likely to choose a major in a vocational or technical field, whereas their counterparts whose parents had a bachelor's or advanced degree were more likely to choose a major in science, mathematics, engineering and architecture, humanities, arts, or social sciences. Many factors are associated with a student's choice of major. Weak academic preparation, for example, may deter first-generation students from choosing certain "high-skill" fields, such as mathematics and science. Perceived low-earning potential may also deter them from entering such

fields as humanities, arts, and social sciences (Montmarquette, Cannings, and Mahseredjian 2002).

Credits Earned

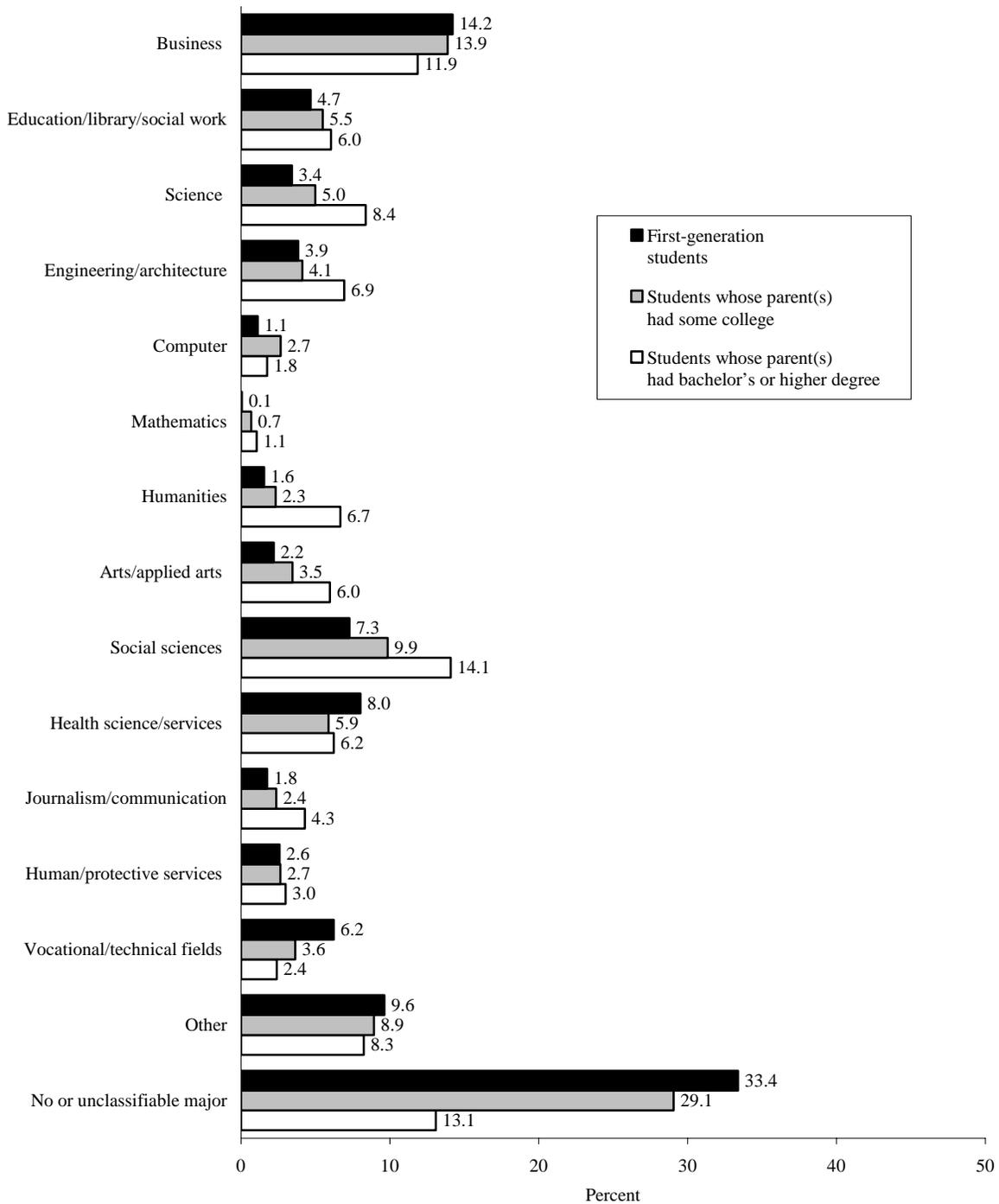
The sign that first-generation students trailed their peers in coursework appeared as early as the first year of college. First-generation students earned an average of 18 credits in their first year, compared with 25 credits earned by students whose parents had a bachelor's degree or higher (figure C). First-year credit accumulation bears an important relationship to long-term postsecondary outcomes. For example, earning fewer credits in the first year may not only prolong the time to degree, but is strongly associated with leaving postsecondary education without earning a degree (table 7).

As they progressed through postsecondary education, first-generation students continued to lag behind their peers in credit accumulation: overall, they earned an average of 66 credits during their entire enrollment, compared with an average of 112 credits earned by students whose parents were college graduates (figure C). The discrepancy in credits earned is due in part to first-generation students' higher rates of late starts, disrupted enrollment, part-time attendance (table 2), and leaving college without a degree (figure A).

Coursetaking in Selected Areas

Reflecting in part their preference for vocational/technical fields over academic ones, first-generation students were less likely than their peers whose parents were college graduates to take courses in various academic areas, including mathematics, science, computer science, social

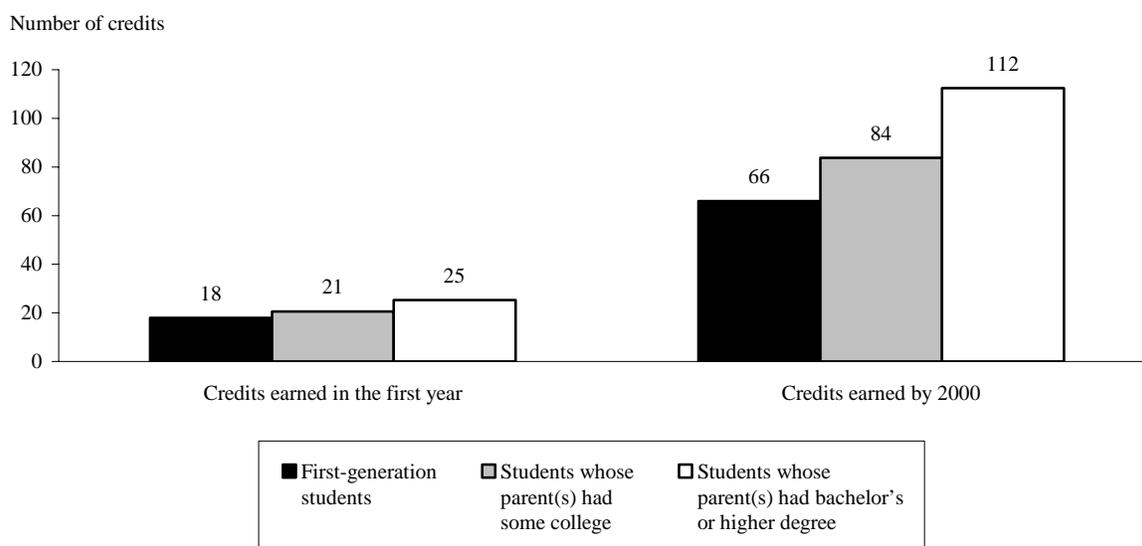
Figure B. Generation status of 1992 12th-graders who had enrolled in postsecondary education between 1992 and 2000, by percentage distribution of undergraduate major



NOTE: Standard error tables are available at <http://nces.ed.gov/das/library/reports.asp>.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88/2000), "Fourth Follow-up, Postsecondary Education Transcript Study (PETS), 2000."

Figure C. Generation status of 1992 12th-graders who had enrolled in postsecondary education between 1992 and 2000, by average number of undergraduate credits earned in the first year and by 2000



NOTE: Standard error tables are available at <http://nces.ed.gov/das/library/reports.asp>.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88/2000), "Fourth Follow-up, Postsecondary Education Transcript Study (PETS), 2000."

studies, humanities, history, and foreign languages (tables 8 to 11). They also tended to earn fewer credits if they took courses in these areas.

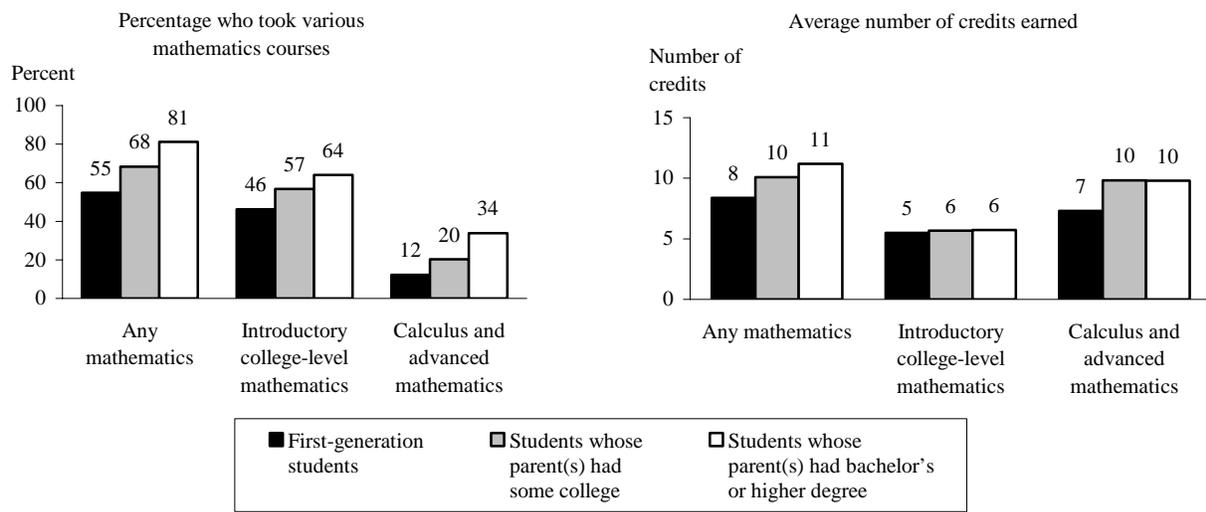
Taking mathematics as an example, 55 percent of first-generation students took at least one mathematics course in college, compared with 81 percent of students whose parents had a bachelor's degree or higher (figure D). Among those who took any mathematics, first-generation students earned an average of 8 credits, compared with 11 credits earned by their counterparts. Moreover, the gap in advanced mathematics coursetaking (in both the likelihood of taking courses and credits earned) remained even among those who majored in mathematics and science (table 8).

Postsecondary Performance

In line with their greater need for remediation, first-generation students did not perform as well as their peers whose parents were college graduates as early as the first year of college. First-generation students had lower first-year undergraduate grade point averages (GPAs) (2.5 versus 2.8) (figure E). This lower performance persisted throughout their entire undergraduate careers and was evident in many academic areas (e.g., mathematics, science, foreign language, history; table 14).

In addition to having lower GPAs, first-generation students were more likely than other students to withdraw or repeat courses they attempted. In all undergraduate courses attempted

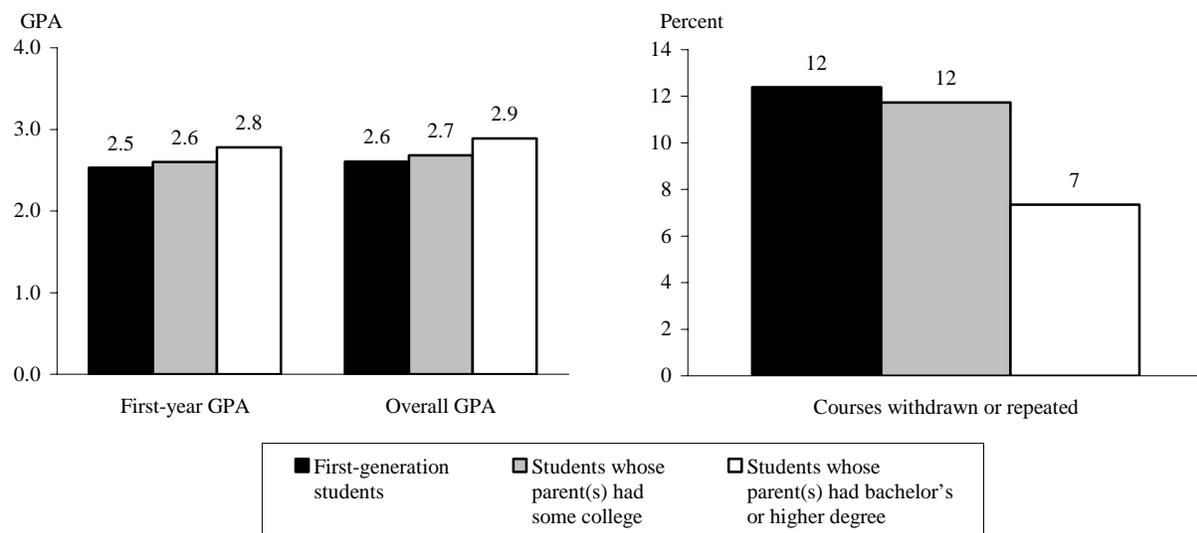
Figure D. Generation status of 1992 12th-graders who earned more than 10 postsecondary credits between 1992 and 2000, by percentage who took various mathematics courses and average number of credits earned by those who took these courses



NOTE: Introductory college-level mathematics includes courses below the level of calculus and above the level of algebra 2. Standard error tables are available at <http://nces.ed.gov/das/library/reports.asp>.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88/2000), "Fourth Follow-up, Postsecondary Education Transcript Study (PETS), 2000."

Figure E. Generation status of 1992 12th-graders who earned more than 10 postsecondary credits between 1992 and 2000, by first-year and overall grade point average (GPA) and percentage of courses withdrawn or repeated



NOTE: Standard error tables are available at <http://nces.ed.gov/das/library/reports.asp>.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88/2000), "Fourth Follow-up, Postsecondary Education Transcript Study (PETS), 2000."

by students, the proportion of courses with withdrawal and repeat grades was 12 percent for first-generation students and 7 percent for students whose parents held a bachelor's degree or higher.

Factors Related to Degree Completion and Persistence

First-generation students were less likely than students with college-educated parents to earn a bachelor's degree even after taking into account many related factors, including students' demographic backgrounds, academic preparation, enrollment characteristics, credit production, and performance (table 15). This difference was observed even among students who attended a 4-year institution with the intention of earning a bachelor's degree.

When the analysis included persistence as the outcome, before taking into account related variables, first-generation students were less likely than their peers whose parents attended college to persist in postsecondary education (i.e., they were less likely to earn any postsecondary credential *or* to be still enrolled as of 2000) (table 16). However, unlike the results for bachelor's degree attainment, the difference in persistence disappeared after controlling for related factors. This finding differs from those of earlier studies, which found that first-generation students were less likely than other students to persist (e.g., Nuñez and Cuccaro-Alamin 1998; Warburton, Bugarin, and Nuñez 2001). The reason for the change in results between the earlier studies and the current study may in part be due to the additional postsecondary coursetaking and performance variables introduced in the current analysis. These variables were not available for analysis in the previous studies and therefore, were not controlled for.

Finally, this analysis demonstrated important associations between early credit production and academic performance and students' success in postsecondary education. More credits completed and higher grades earned in the first year, and fewer withdrawn or repeated courses throughout enrollment were strongly associated with postsecondary degree attainment and persistence.

Conclusion

The findings from this report indicate that compared with students whose parents attended college, first-generation students consistently remained at a disadvantage after entering postsecondary education: they completed fewer credits, took fewer academic courses, earned lower grades, needed more remedial assistance, and were more likely to withdraw from or repeat courses they attempted. As a result, the likelihood of attaining a bachelor's degree was lower for first-generation students compared to their peers whose parents attended college. This finding also held after taking into account variables related to degree completion including postsecondary credit production, performance, high school academic preparation, and student background characteristics. Even for students who attended a 4-year institution with the intention of earning a bachelor's degree, first-generation students were less likely to earn a bachelor's degree than were their counterparts whose parents held a bachelor's or higher degree.

However, when the outcome measure was broadened to include persistence (i.e., the likelihood of earning any postsecondary credential or still being enrolled), no difference between first-generation students and their peers whose parents attended college was detected after controlling for related variables.

Foreword

This report uses data from the Postsecondary Education Transcript Study (PETS) of the National Education Longitudinal Study of 1988 (NELS:88) to examine the majors and coursetaking patterns of first-generation students and to compare their experiences with those of students whose parents attended or graduated from college. The analysis presented in this report focused on a subset of the NELS 1992 12th-graders who had enrolled in postsecondary education between 1992 and 2000 and who also have complete postsecondary transcripts available and valid information on their parents' education levels.

The NELS:88 is a national longitudinal study that began in 1988 using a nationally representative sample of 8th-graders across U.S. schools. It tracked this cohort from middle school through secondary and postsecondary education and examined their labor market experiences, and marriage and family formation between 1988 and 2000. The PETS, collected as part of the NELS fourth follow-up survey in 2000, targeted the transcripts from all U.S. postsecondary institutions attended by NELS sample members in the 2000 survey. It supplements the postsecondary education information collected from the 1994 and 2000 follow-ups by including detailed information on the types of degree programs, periods of enrollment, majors or fields of study for instructional programs, specific courses taken, grades and credits attained, and credentials earned.

The estimates presented in this report were produced using the NELS:88/2000 Data Analysis Systems (DAS). The DAS is a computer application that allows users to specify and generate their own tables and produces the design-adjusted standard errors necessary for testing the statistical significance of differences between numbers shown in the tables. It is available for public use on the NCES website at <http://nces.ed.gov/das>. Appendix B of this report contains additional information on the DAS.